



0060329

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

1315 W. 4th Avenue • Kennewick, Washington 99336-6018 • (509) 735-7581

September 9, 2003

Mr. Roy Schepens, Manager
Office of River Protection
United States Department of Energy
P.O. Box 450, MSIN: H6-60
Richland, Washington 99352-0550

Mr. Keith Klein, Manager
Richland Operations Office
United States Department of Energy
P.O. Box 550, MSIN: A7-50
Richland, Washington 99352-0550

Mr. James Henschel, Project Director
Bechtel National Inc.
2435 Stevens Center Place, MSIN: H4-02
Richland, Washington 99352-0550

RECEIVED
SEP 15 2003
EDMC

Dear Messrs. Schepens, Klein, and Henschel:

Re: Completion of the September 2003 Modification of the Waste Treatment and Immobilization Plant Dangerous Waste Permit

This letter serves to notify you of the Washington State Department of Ecology's (Ecology) final permit decision to incorporate a number of design packages for the Waste Treatment and Immobilization Plant (WTP) into Part III, Chapter 10, of the Hanford Facility's *Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste* (WA7890008967). A permit decision will be effective 30 days after the service of this Notice of Decision.

The packages included in this modification are:

- o LAW-005, Rev 0 – Low-Activity Waste (LAW), 3 ft. Elevation, Tank System Secondary Containment;
- o LAW-007, Rev 0 – LAW, 3 ft. Elevation, Secondary Containment for Miscellaneous Treatment Units (Submerged Bed Scrubbers and Wet Electrostatic Precipitators);
- o LAW-008, Rev 0 – LAW, 3 ft. Elevation, Containment building for the Locally Shielded Melter (LSM) Gallery/Finishing Line;
- o HLW-001, Rev 0 – High Level Waste (HLW), -21 ft. Elevation, Tank system secondary containment;

Messrs. Schepens, Klein, and Henschel

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- HLW-002, Rev 0 - HLW, -21 ft. Elevation, Tanks in the Melter Off-gas Treatment Process (HOP) system (Vessel 903 only);
- HLW-003, Rev 0 - HLW, -21 ft. Elevation, Containment building for the Drum Transfer Tunnel;
- PTF-002, Rev 1 - Pretreatment Facility (PTF), 0 Ft. Elevation, Tank System Secondary Containment;
- PTF-003, Rev 1 - PTF, 0 ft. Elevation, Containment Buildings for Hot Cell and Maintenance Area;
- PTF-005 - PTF, -19,-45 ft. Elevation, Tanks for Plant Wash and Disposal (PWD) System
- LAW-001, Rev 2 - LAW Building, -21 ft. Elevation, Secondary Containment for Tank System;
- LAW-002 - LAW Building, -21 ft. Elevation, Secondary Containment for Radioactive Liquid Disposal (RLD) Tank System and;
- LAW-003, Rev 1 - LAW Building, -21 ft. Elevation, Ancillary Equipment for RLD Tank System.

Additional modifications included the deletion of Permit Condition III.10.C.14 (Performance Test Demonstrations) and updating of the Permit sump data tables.

The final permit modification package consists of the Statement of Basis, Responsiveness Summary, and the revised WTP unit-specific conditions and appendices on a CD-ROM. The location of the page changes and design information are noted in the Statement of Basis for the modification. Changes to the permit conditions are noted with single-line strike out for text deletions, and double-underline for text additions.

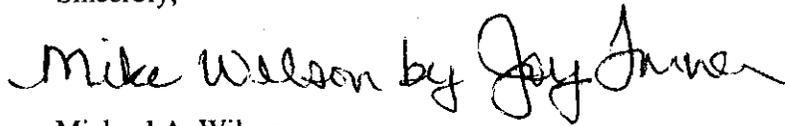
Hard copies of the information in the final WTP permit modification will be available at the Ecology Administrative Record in Kennewick, the Office of River Protection Administrative Record, and the Hanford Public Information Repository in Richland. The WTP permit modification will also be made available on the Ecology web site. Due to security considerations, design drawings will not be available on the internet, but will be available at the Administrative Record locations listed above.

Ecology would like to remind the Permittees that the approvals granted in this modification are for the purpose of allowing construction to proceed on a specific part of the WTP (e.g., specific secondary containment areas, tanks, ancillary equipment). If other portions or equipment were mentioned in the documents approved, our approval does not extend to other portions of the WTP treatment systems. For example, the System Description for the HOP and Process Vessel Vent (PVV) Systems (24590-HLW-3YD-HOP-00001) has been incorporated into the administrative record. Although the document discusses the off-gas treatment system for completeness, our approval does not constitute an approval of the adequacy of the off-gas treatment system. The permit documents also indicate the instrumentation that the Permittees believe is regulated. Ecology does not currently have enough information to make a determination as to the regulatory status of the instrumentation.

Messrs. Schepens, Klein, and Henschel
September 9, 2003
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If there are any questions regarding this letter, please call Ms. Suzanne Dahl at (509) 736-5705.

Sincerely,



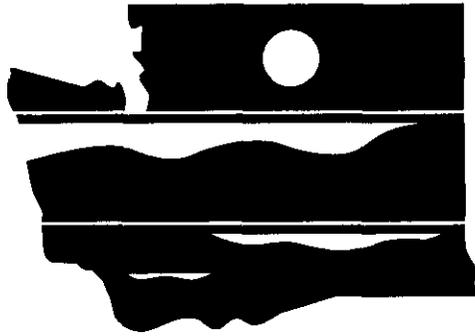
Michael A. Wilson
Program Manager
Nuclear Waste Program

SS:jc

Enclosures

cc: Nick Ceto, EPA
Joel Hebdon, USDOE
Tony McKarns, USDOE
John Eschenberg, USDOE-ORP
Lori Huffman, USDOE-ORP
Bruce Nicoll, USDOE-ORP
Jim Rasmussen, USDOE-ORP
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Bill Clements, BNI
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Todd Martin, HAB
Ken Niles, ODOE
Fred Beraneck, WGI
Phil Peistrup, WGI
Steve Piccolo, WGI
Rick Gay, CTUIR
Pat Sobotta, NPT
Russell Jim, YIN

cc/enc: Cathy Massimino, EPA
Ecology Administrative Record, Kennewick
USDOE Administrative Record, Richland
Hanford Public Information Repository, Richland



WASHINGTON STATE
DEPARTMENT OF
E C O L O G Y

**Responsiveness Summary for the Waste Treatment
and Immobilization Plant Modification of the Hanford
Facility Resource Conservation and Recovery Act
Permit, September 2003**

September 2003
Publication No. 03-05-006

**Responsiveness Summary for the
Waste Treatment and Immobilization Plant
Modification of the Hanford Facility Resource
Conservation and Recovery Act Permit,
September 2003**

Prepared by Steven Skurla

Washington State Department of Ecology
Nuclear Waste Program

September 2003
Publication No. 03-05-006

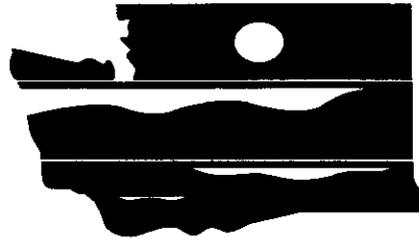
For additional copies of this Responsiveness Summary, contact:

Washington State Department of Ecology
Nuclear Waste Program
1315 West Fourth Avenue
Kennewick, Washington 99336
(509) 735-7581

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For more information, or if you have special accommodation needs, please contact the Nuclear Waste Program at (509) 735-7581.

Department of Ecology Headquarters telecommunications device for the deaf (TDD) number is (360) 407-6006.



WASHINGTON STATE
DEPARTMENT OF
E C O L O G Y

Statement of Basis

**For the Modification of
Waste Treatment and Immobilization Plant-Specific Conditions
in the Dangerous Waste Portion of the
Hanford Resource Conservation and Recovery Act Permit**

September 2003
Publication No. 03-05-002
Revision 1

STATEMENT OF BASIS FOR MODIFICATION OF
THE DANGEROUS WASTE PORTION OF THE
RESOURCE CONSERVATION AND RECOVERY ACT PERMIT
FOR THE TREATMENT, STORAGE, AND DISPOSAL
OF DANGEROUS WASTE, PART III, CHAPTER 10 (WA7890008967),
WASTE TREATMENT AND IMMOBILIZATION PLANT

Publication Number 03-05-002, Revision 1

Permittees

United States Department of Energy
(Owner/Operator)
Office of River Protection/Richland Operations Office
P.O. Box 550
Richland, Washington 99352

Bechtel National, Inc.
(Co-Operator)
2535 Stevens Center Place
Richland, Washington 99352

This Statement of Basis has been developed by the Washington State Department of Ecology (Ecology) in accordance with the requirements of Washington Administrative Code (WAC) 173-303-840(2)(f)(iv). Its purpose is to present information on Ecology's tentative decision to modify Part III, Chapter 10, Waste Treatment and Immobilization Plant (WTP) of the Hanford Facility's Dangerous Waste Portion of the Resource Conservation and Recovery Act (RCRA) Permit for the Treatment, Storage, and Disposal (TSD) of Dangerous Waste, hereafter called "the Permit". This modification includes supporting technical information and engineering drawings for construction on the regulated portions of the WTP Pretreatment Building and Low Activity Waste Building. Pursuant to WAC 173-303-830(3), only the conditions that are subject to this modification are reopened for comment.

Ecology has elected to prepare a Statement of Basis pursuant to WAC 173-303-840(2)(f)(iv) rather than a Fact Sheet. A Statement of Basis was prepared for previous major WTP Permit modifications. This process is being followed for permit modifications initiated by Ecology to incorporate similar design package information and other changes to the WTP Permit conditions. The September 25, 2002, Fact Sheet is available from Ecology upon request (Ecology Publication Number 01-05-006).

This Statement of Basis is divided into four sections, which include:

- 1.0 Hanford Facility Permit Background
- 2.0 The WTP Permitting Process
- 3.0 Procedures for Reaching a Final Decision on the Draft Permit
- 4.0 Proposed Modifications to the Hanford Facility Permit

1.0 Hanford Facility Permit Background

Ecology issued the Permit for the Hanford Facility in 1994. The Permit provides standard and general facility conditions, as well as, unit-specific conditions for the operation, closure, and post-closure of mixed and dangerous waste TSD units at Hanford.

The Permit is normally modified annually to incorporate newly permitted units, reflect Class 1/2/3 Modifications, and include minor changes in grammar, consistency, and presentation. The Washington State Dangerous Waste Regulations in WAC 173-303-830 describe the types of changes or modifications that may be made to a dangerous waste permit issued by Ecology.

Approximately 50 TSD units at Hanford are operating or closing under RCRA interim or final status standards.

Conditions of the Permit are presented in six parts:

- Standard Conditions (Part I)
- General Facility Conditions (Part II)
- Unit-Specific Conditions for Final Status Operations (Part III)
- Corrective Action for Past Practices (Part IV)
- Unit-Specific Conditions for Units Undergoing Closure (Part V)
- Unit-Specific Conditions for Units in Post-Closure (Part VI)

As noted above, the WTP TSD Unit was added to the Unit-Specific Conditions for Final Status Operations (Part III) portion of the Permit on September 25, 2002. The permit modification was effective on October 25, 2002. The WTP Unit is currently being constructed under final status standards.

2.0 The WTP Permitting Process

The permitting of the WTP Unit is using a phased (or stepped) approach. The first phase was completed on September 25, 2002, with issuance of a final permit for beginning construction of the WTP Unit Low Activity Waste (LAW) and High Level Waste (HLW) buildings and a compliance schedule to provide additional detailed information to Ecology. The compliance schedule addresses submittal of information necessary for construction of the rest of the WTP Unit, and eventual operation. The second phase of permitting is implementation of the compliance schedule, which requires design and other information be submitted before regulated portions of the WTP Unit are constructed. The third phase of permitting is implementation of the last portion of the compliance schedule, which requires updating portions of the Dangerous Waste Permit Application that were incorporated into the final Permit. These portions of the Permit are more administrative in nature, and can not be completed before the design is nearly complete (e.g., Contingency Plan, Closure Plan, Training Plan). It is anticipated that at the completion of these three phases, the WTP Unit will be in compliance with all the relevant requirements of WAC 173-303, and after receiving written permission from Ecology, can begin storage or treatment of dangerous and/or mixed waste. For more details on the WTP permitting process, see the September 25, 2002, Fact Sheet (Ecology Publication Number 01-05-006).

The design submittals (second phase described above) have been structured to allow the Permittees to provide design information in roughly the same order as the buildings are constructed. Therefore, the packages start at the lowest level of the building (i.e., below grade levels) and are submitted for regulated areas of each level of the building before construction begins.

The Permit breaks out design packages into three general groups by the type of regulated equipment: (1) secondary containment; (2) primary containment (e.g., tanks, miscellaneous units [i.e., evaporators and melters], containment buildings); and (3) other associated, regulated equipment (e.g., ancillary equipment, equipment associated with miscellaneous units). Using tank systems as an example, secondary containment packages include details of the design of secondary containment that must be in place in regulated areas when the floors and walls are built for that level of the building (e.g., floor slope, sump location). Construction of the floors and walls is usually followed by the installation of tanks and other large equipment. Therefore, a tank package on that level will be included in the Permit before installation (e.g., structural details for those tanks or miscellaneous units showing nozzle locations, unit volumes, tank shell thickness). The last equipment usually installed on a level for a tank system is the ancillary equipment (e.g., piping, pumps, process instrumentation, electrical equipment). Therefore, the ancillary equipment package that provides details for equipment on that level will be included in the Permit before installation (e.g., materials of construction, pipe support details, pump types and their operating limits).

With each WTP Building consisting of multiple levels, the total number of design packages is large. The Permittees estimate about 150 packages will have to be incorporated into the Permit. This could potentially trigger 150 public comment periods. In reality, Ecology intends to group packages, where possible, to reduce the potential number of public comment periods.

The secondary containment, primary containment, and other associated, regulated equipment packages for different levels require repetitive information submittals in each package. Again, using tank systems as an example, the method of installation of secondary containment liners on each level is expected to be the same and most tanks will use the same construction specifications. The Permit allows the Permittees to reference the previously submitted design information. Therefore, some design packages may consist mostly of references to information previously provided.

Ecology is authorized, pursuant to WAC 173-303-830(4)(e), to grant temporary authorizations for the Permittees to start construction on a design package after Ecology approval, but before the draft permit modification process is complete. A Permittee is allowed to request a temporary authorization to implement a modification prior to public notice and comment, pursuant to WAC 173-303-830(4)(e)(ii)(A). To issue a temporary authorization, Ecology must find it meets the criteria as described in WAC 173-303-830(4)(ii)(A) and -830(4)(iii). The term of a temporary authorization is limited to 180 days with the potential for Ecology approval of two terms, with a maximum combined duration of 360 days. The purpose of a temporary authorization is to allow the timely implementation of a permit modification. Construction that takes place under a temporary authorization is at the Permittees' risk because public comment may require the Permittees to modify something that is already built. The submittal schedule developed by the Permittees will allow most design packages to undergo public comment and be incorporated into the Permit prior to construction of those areas.

3.0 Procedures for Reaching a Final Decision on the Draft Permit

This Washington State Hazardous Waste Management Act, Chapter 70.105 Revised Code of Washington (RCW), and regulations promulgated in Chapter 173-303 of the WAC, regulate the management of dangerous waste in Washington. In accordance with WAC 173-303-800, facilities that treat, store, and/or dispose of dangerous waste must obtain a permit for these activities.

A 45-day public comment period for draft permit modifications to Part III, Chapter 10, WTP, of the Permit begins on July 18, 2003, and ends on September 3, 2003. All comments received during the public comment period will be considered and responded to before final decisions are made on the proposed modifications. Regulatory requirements for public notice and involvement (for this permit modification) are described in WAC 173-303-840(3). Comments must be post-marked or received by e-mail no later than September 3, 2003. Comments hand delivered by September 3, 2003, to the address below also will be accepted. Direct all written comments to:

Mr. Steve Skurla
Department of Ecology
1315 W. 4th Avenue
Kennewick, Washington 99336
E-mail address: ssku461@ecy.wa.gov

A public hearing will be held at the Department of Ecology, (address shown above), if requested.

Ecology will consider and respond to all written comments submitted by the deadline, and verbal comments submitted at the public meeting, if held. Ecology will then make a final permit decision, which will become effective 30 days after Ecology provides notice of the decision to the Permittees and all who commented. If Ecology's decision includes substantial changes to the Permit because of public comment, Ecology will initiate a new public comment period.

All commenters and the Permittees shall receive a copy of the Responsiveness Summary and a notification of the final permit decision. Ecology's final permit decision may be appealed within 30 days after notice of the final permit decision has been provided.

Copies of the Permit for the Hanford Facility, including the proposed, draft permit modifications are available for review at the Hanford Public Information Repositories listed below. [For additional information, call the Hanford Cleanup Hotline toll-free at (800) 321-2008].

HANFORD PUBLIC INFORMATION REPOSITORIES

Portland

Portland State University
Branford Price Miller Library
934 SW Harrison and Park
Portland, Oregon 97207
(503) 725-3690
Attn: Michael Bowman/Jocelyn Kramer
E-mail: bowman@lib.pdx.edu

Spokane

Gonzaga University
Foley Center
East 502 Boone
Spokane, Washington 99258-0001
(509) 323-3839
Attn: Connie Scarpelli
E-mail: carter@its.gonzaga.edu

Richland

Public Reading Room
2770 University Drive
Consolidated Information Center, Rm. 101L
Richland, Washington 99352
(509) 372-7443
Attn: Terri Traub
E-mail: reading_room@pnl.gov

Seattle

University of Washington Suzzallo Library
Government Publication Division
Seattle, Washington 98195
(206) 543-4664
Attn: Eleanor Chase
E-mail: echase@u.washington.edu
Public Service: (206) 543-1937

This Statement of Basis and proposed draft permit modification are also available on the World Wide Web at <http://www.ecy.wa.gov/programs/nwp/>.

If special accommodations are needed for public comment, please contact Tim Hill, Department of Ecology, Nuclear Waste Program, at (509) 736-3026 (voice), or (360) 407-6006 (TDD).

4.0 Proposed Permit Modification to Part III, Chapter 10, WTP of the Permit

The proposed Draft Permit Modification to Part III, Chapter 10, WTP of the Permit includes:

- Inclusion of design packages into the Permit:
 - LAW-005 - Tank system secondary containment, 3 foot elevation;
 - LAW-007 - Secondary Containment for MTU, 3 foot elevation;
 - LAW-008 - Containment building for LSM Gallery/Finishing Line, 3 foot elevation;
 - HLW-001 - Tank system secondary containment -21 foot elevation;
 - HLW-002 - Tanks in the HOP system (Vessel 903 only); and
 - HLW-003 - Containment building for the Drum Transfer Tunnel on -21 foot elevation

Additional information is being added to the following packages already incorporated into the Permit:

- PTF-002 - Pretreatment Building secondary containment for tanks and walls on the 0 feet elevation;
- PTF-003 - Pretreatment Building containment building for hot cell and maintenance areas on the 0 foot elevation;
- PTF-005 - Pretreatment Building tanks of the PWD System below the 0 foot elevation
- LAW-001 - Low Activity Waste Building secondary containment for tanks on the -21 foot elevation
- LAW-002 - Low Activity Waste Building tanks of the Radioactive Liquid Disposal (RLD) System on the -21 foot elevation;
- LAW-003 - Low Activity Waste Building ancillary equipment of the RLD System on the -21 foot elevation;
- Deletion of the pilot scale testing condition and modification of sump data tables.

4.1 Supplemental Design Information

The Table 1 lists the design information included in this draft permit modification and where in the Permit the information is proposed to be located. At final issuance of the permit modification, Ecology will specify where each drawing or report resides in the Permit. Paper copies of the page changes to the Permit as a result of this modification will be stored in the Administrative Record. Duplicate sets of drawings will not be issued to the Permittees at issuance of the permit modification in order to minimize the amount of duplicate paperwork, unless drawing changes are made as a result of public comment. The letter issuing the modification to the Permittees will include the current Permit with the modifications on a CD-ROM.

4.2 Other Changes Included in This Modification

As the Permit for the WTP Unit is implemented, Ecology will modify the permit conditions for many reasons including: to clarify text, add new conditions, delete existing conditions, or to correct errors. To communicate the changes in the draft review package, the draft permit modification will include page changes showing all significant draft changes to the Permit. The text to be deleted will be struck-out with a single line and the new text will be double-underlined. Only the text changing in the current modification will have changes highlighted by underlines and strikeouts. At issuance of the next permit modification, clean page changes will be issued to the Permittees and Administrative Record for the previous modification.

In this draft permit modification, a change has been proposed to delete the pilot testing requirements in Permit Condition III.10.C.14 (Performance Test Demonstrations). This condition was added to the Permit at the request of the Permittees. The Permittees were concerned that the amount of organics that would be added to the melter to meet the performance demonstration requirements in Conditions III.10.H and III.10.J could result in damage to the melters, including melter failure. The Permittees proposed to do testing at the operating pilot-scale melters at Duratek Inc. and the Vitreous States Laboratory located in Maryland and Washington D.C., respectively to meet the requirements of Condition III.10.C.14. Testing at these melters after the issuance of the Permit has indicated that, at the concentrations of organic constituents required to fulfill Permit Conditions III.10.H and III.10.J, the organic spikes during performance testing will not harm the melters. As a result, the Permittees have requested to remove Condition III.10.C.14 from the Permit. Ecology has reviewed the documentation justifying the Permittees conclusion and has approved this change as a Class1' modification per WAC173-303-830. Ecology will reconsider this change, if significant public comment is received.

Additional secondary containment sump and floor drain data will be added to Tables III.10.E.J. and III.10.E.L. based on information provided in the design packages.

Table 1 - Design Packages Submitted by Permittees

PACKAGE LAW-005, Rev 0 – LAW, 3 ft. Elevation, Tank System Secondary Containment			
DOCUMENT/ DRAWING NUMBER	TITLE	REPLACES	PERMIT LOCATION
24590-CM-HC4-HXYG-00138-01-10, Rev B	IQRPE Independent Assessment Report	N/A	Appendix 9.11
24590-LAW-P1-P01T-P0002, Rev 2	General Arrangement Plans	N/A	Appendix 9.4
24590-LAW-P1-P01T-P0010, Rev 3	General Arrangement Sections	N/A	Appendix 9.4
24590-WTP-PER-J-02-001, Rev 3	Leak Detection-Sump Level Measurement in Secondary Containment Systems	N/A	Appendix 9.5
PACKAGE LAW-007, Rev 0 – LAW, 3 ft. Elevation, Secondary Containment for MTU (Submerged Bed Scrubbers and Wet Electrostatic Precipitators)			
DOCUMENT/ DRAWING NUMBER	TITLE	REPLACES	PERMIT LOCATION
Package LAW-007, Rev 0 consists of a Table of Contents that lists specific documents submitted with other packages that demonstrates that the Permit requirements for this regulated unit are being met.			
PACKAGE LAW-008, Rev 0 – LAW, 3 ft. Elevation, Containment building for LSM Gallery/Finishing Line			
DOCUMENT/ DRAWING NUMBER	TITLE	REPLACES	PERMIT LOCATION
24590-LAW-P1-P01T-P0008, Rev 2	General Arrangement Sections	N/A	Appendix 9.4
PACKAGE HLW-001, Rev 0 – HLW, -21 ft. Elevation, Tank system secondary containment			
DOCUMENT/ DRAWING NUMBER	TITLE	REPLACES	PERMIT LOCATION
24590-CM-HC4-HXYG-00138-01-08, Rev B	IQRPE Independent Assessment Report	N/A	Appendix 10.11
24590-HLW-P1-P01T-P0001, Rev 4	General Arrangement Plan	24590-HLW-P1-P01T-P0001, Rev. 0	Appendix 10.4
24590-HLW-P1-P01T-P0008, Rev 5	General Arrangement Sections	24590-HLW-P1-P01T-P0008, Rev. 0	Appendix 10.4

24590-HLW-P1-P01T-P0009, Rev 4	General Arrangement Sections	24590-HLW-P1-P01T-P0009, Rev. 0	Appendix 10.4
24590-HLW-P1-P01T-P0010, Rev 4	General Arrangement Sections	24590-HLW-P1-P01T-P0010, Rev. 0	Appendix 10.4
24590-HLW-P1-P01T-P0011, Rev 5	General Arrangement Sections	24590-HLW-P1-P01T-P0011, Rev. 0	Appendix 10.4
24590-HLW-PER-M-02-003, Rev 1	Flooding Volume for HLW Facility	N/A	Appendix 10.8
24590-HLW-PER-M-02-001, Rev 1	HLW Facility Sump Data	N/A	Appendix 10.5

PACKAGE HLW-002, Rev 0 - HLW, -21 ft. Elevation, Tanks in the HOP system (Vessel 903 only)

DOCUMENT/DRAWING NUMBER	TITLE	REPLACES	PERMIT LOCATION
24590-CM-HC4-HXYG-00138-01-12, Rev A	IQRPE Independent Assessment Report	N/A	Appendix 10.11
24590-HLW-M5-V17T-P0003, Rev 0	Process Flow Diagram HOP System	N/A	Appendix 10.1
24590-HLW-M6-HOP-P0004, Rev 1	Piping and Instrumentation Diagrams	N/A	Appendix 10.2
24590-HLW-M6-HOP-P0006, Rev 1	Piping and Instrumentation Diagrams	N/A	Appendix 10.2
24590-HLW-MV-HOP-P0001, Rev 1	Mechanical Drawing	N/A	Appendix 10.6
24590-HLW-MVD-HOP-P0001, Rev 1	Mechanical Systems Data Sheet	N/A	Appendix 10.6
24590-HLW-N1D-HOP-P0009, Rev 2	Vessel 903 Material Selection Data Sheet	N/A	Appendix 10.9
24590-HLW-3YD-HOP-00001, Rev 0	System Description for HOP and PVV Systems	N/A	<u>Administrative Record</u>

PACKAGE HLW-003, Rev 0 - HLW, -21 ft. Elevation, Containment building for the Drum Transfer Tunnel

DOCUMENT/DRAWING NUMBER	TITLE	REPLACES	PERMIT LOCATION
Package LAW-007, Rev 0 consists of a Table of Contents that lists specific documents submitted with other packages that demonstrates that the Permit requirements for this regulated unit are being met.			

Additional Information in Packages Previously Approved

PACKAGE PTF-002, Rev 1 - PTF, 0 Ft. Elevation - Tank System Secondary Containment			
DOCUMENT/DRAWING NUMBER	TITLE	REPLACES	PERMIT LOCATION
24590-CM-HC4-HXYG-00138-02-01A, Rev A	IQRPE Independent Assessment Report	N/A	Appendix 8.11
PACKAGE PTF-003, Rev 1 - PTF, 0 ft. Elevation, Containment Buildings for Hot Cell and Maintenance Area			
DOCUMENT/DRAWING NUMBER	TITLE	REPLACES	PERMIT LOCATION
24590-WTP-PER-HV-02-001, Rev 1	Fugitive Emissions Control Description	N/A	Appendix 8.15
PACKAGE PTF-005 - PTF, -19,-45 ft. Elevation, Tanks for PWD System			
DOCUMENT/DRAWING NUMBER	TITLE	REPLACES	PERMIT LOCATION
24590-WTP-3PS-MV00-TP001, Rev 0	Specifications	N/A	Appendix 8.7
24590-WTP-RPT-PR-02-004, Rev A	Description of Prevention of Toxic Emissions from Tank Systems	N/A	Appendix 8.15
PACKAGE LAW-001, Rev 2 - LAW Building, -21 ft. Elevation, Secondary Containment for Tank System			
DOCUMENT/DRAWING NUMBER	TITLE	REPLACES	PERMIT LOCATION
24590-CM-HC4-HXYG-00138-01-06, Rev A	IQRPE independent Assessment Report	N/A	Appendix 9.11
24590-WTP-PER-J-02-001, Rev 2	Leak Detection-Sump Level Measurement in Secondary Containment Systems	24590-WTP-PER-J-02-001, Rev 1	Appendix 9.5
24590-WTP-RPT-PR-02-002, Rev. C,	Hydrogen Accumulation in Tank Systems	N/A	Administrative Record
24590-WTP-PER-M-02-005, Rev 0	Description of Access for Conducting Integrity Assessment	N/A	Appendix 9.18

PACKAGE LAW-002 - LAW Building, -21 ft. Elevation, Secondary Containment for RLD Tank System

DOCUMENT/DRAWING NUMBER	TITLE	REPLACES	PERMIT LOCATION
24590-LAW-M5-V17T-P0014, Rev 1	Process Flow Diagram	N/A	Appendix 9.1

PACKAGE LAW-003, Rev 1 - LAW Building, -21 ft. Elevation, Ancillary Equipment for RLD Tank System

DOCUMENT/DRAWING NUMBER	TITLE	REPLACES	PERMIT LOCATION
24590-WTP-PER-M-02-002, Rev 0	Ancillary Equipment Material Selection Description	N/A	Appendix 9.9
24590-WTP-PER-J-02-001, Rev 0	System Logic Description	N/A	Appendix 9.13

NOTES:

PTF = Pretreatment Building
 IQRPE = Independent, Qualified, Registered Professional Engineer
 LAW = Low Activity Waste
 HLW = High Level Waste
 PWD = Plant Wash and Disposal System
 RLD = Radioactive Liquid Waste Disposal System
 HOP = HLW Vit Primary Offgas Treatment System
 MTU = Miscellaneous Treatment Units
 LSM = Locally Shielded Melter
 PVV = Process Vessel Vent System

Permit Number: WA7890008967
Class III Modification to Revision 7
Expiration Date: September 27, 2004
Page 1 of 1

*Waste Treatment and Immobilization Plant
Unit Specific Permit Conditions*

Page Changes to Conditions

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1 **CHAPTER 10**

2 **Waste Treatment and Immobilization Plant**

3 The Waste Treatment and Immobilization Plant (WTP) is the unit designed to treat the mixed (radioactive
4 and dangerous) waste stored in underground tanks at the Hanford Site. The waste will be separated into
5 High-level and Low-level waste streams in a Pretreatment Building. The waste streams are mixed with
6 glass forming additives, heated to 950-1250° C in melters, and poured into containers. The waste is
7 immobilized in the glass matrix. The immobilized waste is transported from the WTP Unit for disposal.

8 **III.10.A. COMPLIANCE WITH APPROVED PERMIT AND ATTACHMENT 51**

9 The Permittees shall comply with all requirements set forth in Attachment 51, including the
10 conditions specified in Permit Conditions III.10.B through III.10.K. Enforceable portions of
11 the application have been incorporated in Attachment 51 and are identified as follows. All
12 sections, figures, and tables included in these portions are also enforceable, unless stated
13 otherwise.

14 Where information regarding treatment, management, and disposal of the radioactive source,
15 byproduct material, and/or special nuclear components of mixed waste (as defined by the
16 Atomic Energy Act of 1954, as amended) has been incorporated into this permit, it is not
17 incorporated for the purpose of regulating the radiation hazards of such components under
18 the authority of this permit and chapter 70.105 RCW.

19 **ATTACHMENT 51**

20	Chapter 1.0	Part A, Form 3 Permit Application, Revision 1 (December 6, 2001)
21	Chapter 2.0	Facility Description (Topographic Map)
22	Chapter 3.0	Waste Analysis Plan
23	Chapter 4.0	Process Information
24	Chapter 6.0	Procedures to Prevent Hazards
25	Chapter 7.0	Contingency Plan
26	Chapter 8.0	Personnel Training
27	Chapter 11.0	Closure
28	Chapter 12.0	Reporting and Recordkeeping
29	Appendix 1.0	Compliance Schedule
30	Appendix 2.0	Critical Systems
31	Appendix 3.0	Drawing Category Table
32	Appendix 4.0	Piping Material Index Table
33	Appendix 5.0	Legends for Process Flow Diagrams and Piping and Instrumentation 34 Diagrams (RESERVED)
35	Appendix 6.0	Risk Assessment
36	6.1	Preliminary Risk Assessment Work Plan
37	6.1.1	Previously Submitted Preliminary Risk Assessment Work Plan
38	6.1.2	Documentation of Revisions to Preliminary Risk Assessment Work Plan
39	6.2	Risk Assessment Work Plan (RESERVED)
40	6.3	Pre-Demonstration Test Risk Assessment Report (RESERVED)
41	6.3.1	Basis and Assumptions (RESERVED)
42	6.4	Final Risk Assessment Report (RESERVED)

1	6.4.1	Basis and Assumptions (RESERVED)
2	Appendix 7.0	(RESERVED)
3	Appendix 8.0	Pretreatment Building
4	8.1	Process Flow Diagrams
5	8.2	Piping and Instrumentation Diagrams
6	8.3	System Description Documentation (RESERVED)
7	8.4	General Arrangement Drawings
8	8.5	Civil, Structural, and Architectural Criteria and Typical Design Details
9	8.6	Mechanical Drawings
10	8.7	Specifications
11	8.8	Engineering Calculations
12	8.9	Material Selection Documentation
13	8.10	Critical Systems Equipment/Instrument List (RESERVED)
14	8.11	IQRPE Reports
15	8.12	Installation Plans
16	8.13	Instrument Control Logic and Narrative Description
17	8.14	Descriptions of Instrument Installation and Testing Procedures (RESERVED)
18		
19	8.15	Operating Documents (RESERVED)
20	Appendix 9.0	LAW Building
21	9.1	Process Flow Diagrams
22	9.2	Piping and Instrumentation Diagrams
23	9.3	System Description Documentation (RESERVED)
24	9.4	General Arrangement Drawings
25	9.5	Civil, Structural, and Architectural Criteria and Typical Design Details
26	9.6	Mechanical Drawings
27	9.7	Specifications
28	9.8	Engineering Calculations
29	9.9	Material Selection Documentation
30	9.10	Critical Systems Equipment /Instrument List (RESERVED)
31	9.11	IQRPE Reports
32	9.12	Installation Plans (RESERVED)
33	9.13	Instrument Control Logic, and Narrative Description
34	9.14	Descriptions of Instrument Installation and Testing Procedures (RESERVED)
35		
36	9.15	Demonstration Test Plan (RESERVED)
37	9.16	Demonstration Test Report (RESERVED)
38	9.17	Treatment Effectiveness Report (RESERVED)
39	9.18	Operating Documents
40	Appendix 10.0	HLW Building
41	10.1	Process Flow Diagrams (RESERVED)
42	10.2	Piping and Instrumentation Diagrams (RESERVED)
43	10.3	System Description Documentation (RESERVED)
44	10.4	General Arrangement Drawings
45	10.5	Civil, Structural, and Architectural Criteria and Typical Design Details
46	10.6	Mechanical Drawings (RESERVED)
47	10.7	Specifications
48	10.8	Engineering Calculations (RESERVED)
49	10.9	Material Selection Documentation (RESERVED)
50	10.10	Critical Systems Equipment/Instrument List (RESERVED)

- 1 10.11 IQRPE Reports (RESERVED)
- 2 10.12 Installation Plans (RESERVED)
- 3 10.13 Instrument Control Logic and Narrative Description (RESERVED)
- 4 10.14 Descriptions of Instrument Installation and Testing Procedures
- 5 (RESERVED)
- 6 10.15 Demonstration Test Plan (RESERVED)
- 7 10.16 Demonstration Test Report (RESERVED)
- 8 10.17 Treatment Effectiveness Report (RESERVED)
- 9 10.18 Operating Documents (RESERVED)
- 10 Appendix 11.0 Laboratory Building
- 11 11.1 Process Flow Diagrams (RESERVED)
- 12 11.2 Piping and Instrumentation Diagrams (RESERVED)
- 13 11.3 System Description Documentation (RESERVED)
- 14 11.4 General Arrangement Drawings (RESERVED)
- 15 11.5 Civil, Structural, and Architectural Criteria and Typical Design Details
- 16 (RESERVED)
- 17 11.6 Mechanical Drawings (RESERVED)
- 18 11.7 Specifications (RESERVED)
- 19 11.8 Engineering Calculations (RESERVED)
- 20 11.9 Material Selection Documentation (RESERVED)
- 21 11.10 Critical Systems Equipment/Instrument List (RESERVED)
- 22 11.11 IQRPE Reports (RESERVED)
- 23 11.12 Installation Plans (RESERVED)
- 24 11.13 Instrument Control Logic and Narrative Description (RESERVED)
- 25 11.14 Descriptions of Instrument Installation and Testing Procedures
- 26 (RESERVED)
- 27 11.15 Operating Documents (RESERVED)
- 28 Appendix 12.0 Balance of Facilities
- 29 12.1 Process Flow Diagrams (RESERVED)
- 30 12.2 Piping and Instrumentation Diagrams (RESERVED)
- 31 12.3 System Description Documentation (RESERVED)
- 32 12.4 General Arrangement Drawings (RESERVED)
- 33 12.5 Civil, Structural, and Architectural Criteria and Typical Design Details
- 34 (RESERVED)
- 35 12.6 Mechanical Drawings (RESERVED)
- 36 12.7 Specifications (RESERVED)
- 37 12.8 Engineering Calculations (RESERVED)
- 38 12.9 Material Selection Documentation (RESERVED)
- 39 12.10 Critical Systems Equipment/Instrument List (RESERVED)
- 40 12.11 IQRPE Reports (RESERVED)
- 41 12.12 Installation Plans (RESERVED)
- 42 12.13 Instrument Control Logic and Narrative Description (RESERVED)
- 43 12.14 Descriptions of Instrument Installation and Testing Procedures
- 44 (RESERVED)
- 45 12.15 Operating Documents (RESERVED)

46 **III.10.B STANDARD CONDITIONS AND GENERAL FACILITY CONDITIONS**

47 In addition to the conditions in this chapter, the Permittees must comply with all the
48 applicable portions of the Dangerous Waste Portion and EPA portion of the Resource
49 Conservation and Recovery Act (RCRA) Permit for the Hanford Facility. In the event that a
50 Unit-Specific Condition for the WTP Unit in Conditions III.10.C. through III.10.K. conflicts

1 with a general condition in Conditions I and II of this permit, the Unit-Specific Condition
2 shall apply to the WTP Unit.

3 **III.10.C. UNIT-SPECIFIC CONDITIONS FOR THE WTP UNIT**

4 **III.10.C.1 Facility-Specific Definitions and Acronyms**

5 The following definitions are specific to the WTP Unit:

6 **“ash”** means a measure of the contribution of particulate matter from the melter feeds to the
7 melter off-gas, as determined by representative sampling and analysis of the melter feed
8 using ASTM Method D-482, or an equivalent method.

9 **“batch”** refers to waste staged in one DST designated as mixed waste for transfer to the
10 WTP Unit for treatment.

11 **“continuous monitoring system”** means using a device which continuously samples the
12 regulated parameter specified on Permit Tables III.10.H.F, III.10.I.F, III.10.J.F, and
13 III.10.K.F, with the exception of pressure, without interruption, evaluates the detector
14 response at least once every fifteen (15) seconds and computes and records the average
15 value at least every sixty (60) seconds, except during allowable periods of calibration and
16 except as defined otherwise by the CEMS Performance Specifications in 4B and 8A in
17 Appendix B, 40 CFR Part 60. For the parameter pressure, the term “continuous monitoring
18 system” means using a device that continuously samples the pressure without interruption
19 and evaluates the detector response without averaging at least once each second and records
20 the value at least every sixty (60) seconds. In addition, if the AWFCO is engaged due to a
21 pressure exceedance, the pressure value must be recorded.

22 **“cascade event”** means when additional waste feed cut-off parameter set points deviate
23 outside the limits specified in Permit Tables III.10.H.F, III.10.I.F, III.10.J.F, and III.10.K.F
24 after waste feed is cut-off, but while waste or waste residues are being managed in HLW and
25 LAW.

26 **“dangerous and/or mixed waste management unit”** means dangerous and/or mixed waste
27 management units, areas, systems, and sub-systems as defined in Permit Tables III.10.D.A,
28 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, and
29 III.10.K.A.

30 **“dioxin/furan”** and **“dioxins and furans”** means tetra-, penta-, hexa-, hepta-, and octa-
31 chlorinated dibenzo dioxins and furans.

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

34 **“hourly rolling average”** or **“HRA”** shall mean the arithmetic mean of the sixty (60) most
35 recent one-minute readings recorded by the continuous monitoring system.

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

38 **“mode of operation”** means operation of the LAW Vitrification System or the HLW
39 Vitrification System within set limits for each operating parameter specified in Permit
40 Tables III.10.H.D and F (for LAW) and Permit Tables III.10.I.D and F (for HLW).

41 **“one-minute average”** means the average of detector responses calculated at least every
42 sixty (60) seconds from responses obtained at least every fifteen (15) seconds.

43 **“Permittees”** means the United States Department of Energy (owner/operator) and Bechtel
44 National, Inc. (co-operator).

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

3 **“primary sump”** means any pit or reservoir that meets the WAC 173-303-040 definition of
4 “tank,” and those troughs/trenches connected to it, that serve to collect dangerous/hazardous
5 waste, deliberately introduced (e.g., from decontamination or treatment activities), for
6 transport to TSD facilities.

7 **“rolling average”** means the average of all one-minute averages over the averaging period.

8 **“secondary sump”** means any pit or reservoir that meets the WAC 173-303-040 definition
9 of “tank,” and those troughs/trenches connected to it, that serve to collect
10 dangerous/hazardous waste, not deliberately introduced (e.g., from spills, leaks, or
11 overflows), for transport to TSD facilities.

12 **“standard operating procedure”** or **“SOP”** shall mean a written description of the
13 procedures by which a process, equipment, etc. shall be operated. An SOP may be written
14 by the manufacturer and/or the Permittees.

15 **“successful completion of the demonstration test”** shall mean operations including a
16 minimum of three test runs without significant interruptions (i.e., each test run was
17 completed on the same day initiated and the samples have been preserved and maintained
18 intact, and one in which sampling of exhaust gas was representative of the LAW
19 Vitrification System or HLW Vitrification System Operations, whichever is applicable, and
20 adequate to achieve evaluation of PODCs destruction and removal efficiency (DRE) to
21 99.99%).

22 **“TEQ”** means toxicity equivalence, the international method of relating the toxicity of
23 various dioxin/furan congeners to the toxicity of 2,3,7,8- tetrachlorodibenzo-p-dioxin.

24 **“pre-process”** means prior to introduction into a dangerous or mixed waste management
25 unit at the WTP Unit.

26 **“in-process”** means duration of a waste in a dangerous or mixed waste management unit at
27 the WTP Unit.

28 **“post-process”** means prior to the introduction into a subsequent dangerous or mixed waste
29 management unit at the WTP Unit or prior to shipment from the WTP Unit.

30 **“vendor information”** means documentation prepared by a vendor (e.g., catalog cut sheets)
31 for plant items that are routinely manufactured and stocked by vendors (i.e., items that are
32 considered “off the shelf”) and are not being procured in accordance with Permittee’s
33 engineering drawings and specifications. Documentation such as catalog cut sheets shall be
34 annotated to specify selected items which meet Permittee’s procurement requirements.
35 Documentation associated with “one of a kind”, custom items, and commercial grade items
36 (e.g., bulk pipe, valves) that will be procured in accordance with the Permittees engineering
37 drawings and specifications is not considered vendor information. Changes to the drawings
38 and specifications may require a permit modification.
39

40 The following acronyms are specific to the WTP Unit:

41	AWFCO	Automatic Waste Feed Cut-off
42	CEMS	Continuous Emissions Monitoring System
43	CMS	Continuous Monitoring System
44	DFETP	Dioxin and Furan Emission Test Plan
45	DRE	Destruction and Removal Efficiency

1	Dscf	Dry standard cubic feet
2	ERP	Emergency Response Plan
3	IHLW	Immobilized High-Level Waste (Glass)
4	ILAW	Immobilized Low-Activity Waste (Glass)
5	IQRPE	Independent, qualified, registered, professional engineer
6	HLW	High-level Waste
7	LAW	Low Activity Waste
8	NCR	Nonconformance Report
9	PODC	Principal Organic Dangerous Constituents
10	RDTP	Revised Demonstration Test Plan
11	RPP-WTP	River Protection Project-Waste Treatment Plant
12	TOC	Total Organic Carbon
13	WTP	River Protection Project – Waste Treatment and Immobilization Project (also
14		known as the Waste Treatment Plant and Vitrification Plant)
15	6Mo	Six Percent Molybdenum Alloy
16	304L	ASTM A240 Grade 304L Stainless Steel
17	316L	ASTM A240 Grade 316L Stainless Steel

18 **III.10.C.2. General Waste Management**

19 **III.10.C.2.a.** The Permittees may not commence treatment or storage of dangerous waste or mixed waste
20 in any new or modified portion of the facility until the Permittees have received a Permit
21 modification approval pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f., or
22 III.10.C.2.g., and submitted to Ecology, by certified mail, express mail, or hand delivery, a
23 letter signed by the Permittees and a Registered Professional Engineer stating that the
24 facility has been constructed or modified in compliance with the Permit in accordance with
25 WAC 173-303-810(14)(a); and

26 i. Ecology has inspected the modified or newly constructed facility and finds it is in
27 compliance with the conditions of the Permit, or

28 ii. Ecology has either waived the inspection or has not, within fifteen business days, after
29 receipt of the Permittees' letter, notified the Permittees of an intent to inspect.

30 **III.10.C.2.b.** The Permittees are authorized to accept the dangerous and/or mixed waste specified in
31 Attachment 51, Chapter 1.0 (Part A Form 3) except for those wastes outside the waste
32 acceptance criteria specified in the WAP, Attachment 51, Chapter 3.0 of this Permit as long
33 as the generator has a valid State/EPA identification number.

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

38 **III.10.C.2.d.** Dangerous and/or mixed waste may be transferred from the WTP TSD unit to a permitted
39 TSD only, in accordance with the receiving TSD unit's waste acceptance criteria.

40 **III.10.C.2.e.** Permit modifications pursuant to this Permit for dangerous and/or mixed waste at the request
41 of the Permittees must be done according to the three tiered modification system specified in

1 WAC 173-303-830(4) and Condition I.C.3. The Permit modification request must include
2 page changes to the Permit, attachments, and permit application supporting documentation
3 necessary to incorporate the proposed permit modification.

4 III.10.C.2.f. In addition to other requirements in WAC 173-303-830, within forty-five (45) days of a
5 permit change (i.e., permit modification) being put into effect or approved, the Permittees
6 shall retype the relevant portions of the Permit and attachments, to incorporate the change (if
7 not already reflected in the change pages submitted in the original permit modification
8 request), reprint the documents, and submit them to Ecology. This submittal does not
9 require certification described in WAC 173-303-810(13).

10 III.10.C.2.g. For permit modifications pursuant to Attachment 51, Appendix 1.0 of this Permit, a draft
11 permit will be prepared and issued by Ecology pursuant to WAC 173-303-830(3)(a)(ii) and
12 WAC 173-303-840. A final permit decision will be issued by Ecology pursuant to WAC
13 173-303-840.

14 III.10.C.2.h. RESERVED

15 III.10.C.2.i. The Permittees shall submit a Part A, Form 3 Permit Application revision for Ecology
16 approval as a permit modification pursuant to Permit Conditions III.10.C.2.e. and
17 III.10.C.2.f., or III.10.C.2.g., in accordance with the schedule in Attachment 51, Appendix
18 1.0 of this Permit to incorporate changes to Tables III.10.D.A, III.10.E.A through D,
19 III.10.F.A, III.10.G.A, III.10.H.A, III.10.I.A, III.10.J.A, and III.10.K.A, as modified
20 pursuant to the compliance schedule in Attachment 51, Appendix 1.0 of this Permit.

21 III.10.C.2.j. The Permittees shall submit to Ecology the potential disposal path(s), including the potential
22 authorized TSD facilities, for each waste stream generated at the WTP Unit in accordance
23 with the schedule in Attachment 51, Appendix 1.0 of this Permit for incorporation into the
24 Administrative Record.

25 III.10.C.2.k. The Permittees shall submit to Ecology, traffic information at the WTP Unit pursuant to
26 WAC 173-303-806(4)(a)(x), in accordance with the schedule in Attachment 51, Appendix
27 1.0 of this Permit for incorporation into the Administrative Record.

28 III.10.C.2.l. During operations of the LAW Vitrification System and HLW Vitrification System,
29 pursuant to Permit Sections III.10.H. and J., processing of materials in the LAW and HLW
30 Vitrification Systems that would designate as dangerous waste are fully subject to the
31 requirements of this Permit, excluding the melter feed system as identified in Tables
32 III.10.H.A. and III.10.J.A., respectively. This exclusion does not apply to mixed waste.

33 III.10.C.3. Waste Analysis

34 III.10.C.3.a. The Permittees shall maintain adequate knowledge of any waste to be managed properly by
35 the WTP Unit before acceptance, after receipt, and during treatment and storage of these
36 waste. The Permittees will ensure this knowledge through compliance with the
37 requirements of WAC-173-303-300 and with the provisions of the WAP, Attachment 51,
38 Chapter 3.0 of this Permit [WAC 173-303-806(4)(a)(ii), WAC 173-303-300(1)].

39 III.10.C.3.b. When laboratory analytical methods are required to confirm the Permittees knowledge of the
40 waste, the Permittees must ensure that the sampling and test procedures listed as acceptable
41 by WAC 173-303-110, Appendices II and III to 40 CFR Part 261, the current revision of
42 SW-846, or equivalent methods approved in writing by Ecology are used.

43 III.10.C.3.c. The Permittees are responsible for obtaining accurate information for each waste stream.
44 Inaccurate waste analysis information provided by the generating site (or unit) is not a
45 defense for noncompliance by the Permittees with the waste management requirements and
46 conditions of this Permit, WAC 173-303, and the LDR in 40 CFR Part 268, as incorporated
47 by reference in Chapter 173-303.

1 III.10.C.3.d. Records and results of waste analyses described in Conditions II.D.3 or III.10.C.3.e. shall be
2 maintained as described in Condition II.I.1. of this Permit. The WTP Unit operating record
3 shall include, but not be limited to, information requirements for waste analysis in
4 Conditions I.E.10 and II.I of this Permit.

5 III.10.C.3.e. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
6 shall submit to Ecology for review and approval a revised WAP and QAPP in Attachment
7 51, Chapter 3.0 of this Permit as a permit modification pursuant to Conditions III.10.C.2.e
8 and III.10.C.2.f, and Compliance Schedule in Attachment 51, Appendix 1.0. The revised
9 WAP and QAPP shall include:

- 10 i. All the elements listed in WAC 173-303-300(5), Condition II.D.3 of this Permit (Waste
11 Analysis), and in compliance with Condition II.E. of this Permit (Quality
12 Assurance/Quality Control).
- 13 ii. Requirements that characterization shall be performed on the waste feed prior to
14 transfer to the WTP Unit in conformance with the regulatory data quality objectives
15 supporting the *Tank Waste Remediation System Privatization Project "Regulatory*
16 *DQO" Process* (Wiemers and others, 1998), as amended. Requirements that the
17 following analyses, at a minimum, shall be conducted on each new batch prior to waste
18 transfer to the WTP Unit, in accordance with the methods under WAC 173-303-110:
19 Ammonia, pH, metals, organic acids, mercury, cyanide, volatiles, semi-volatiles,
20 PCBs/pesticides, anions, TOC, and compatibility (ASTM Method D5058-90). For the
21 purposes of this Permit Condition, a "new batch" is one that has been sampled and
22 analyzed in accordance with the *Tank Waste Remediation System Privatization Project*
23 *"Regulatory DQO" Process* (Wiemers and others, 1998), and has received no further
24 additions. Further additions require the Permittees to resample and reanalyze, unless an
25 exception is approved by Ecology on a case-by-case basis. Only mixed waste meeting
26 the definition of "new batch", or granted an exception as discussed above, are
27 authorized for transfer to the WTP Unit. Water additions for the purposes of waste
28 transfer are not considered additions for the purposes of this Permit Condition.
- 29 iii. Identify and include operating parameters to be monitored/controlled and limitations
30 for these parameters for pre-process, in-process, and post-process operations addressing
31 on a unit specific basis treatment effectiveness, as specified in Tables III.10.E.E
32 through H, III.10.G.C, III.10.H.C, III.10.I.C, III.10.J.C, and III.10.K.C, waste
33 compatibility, safe operation, and compatibility with unit materials of construction.
34 Amend the sampling, analysis, and QA/QC procedures to include these parameters and
35 the monitoring frequency.
- 36 iv. Requirements that the Permittees shall, for Type I sumps if liquids are detected, and for
37 Type II sumps, as defined in Attachment 51, Chapter 4.0 of this Permit, if liquid levels
38 are outside normal operating parameters, either collect the liquid and return to the
39 treatment process, or designate the sump contents for proper management and disposal
40 prior to removal.
- 41 v. For ILAW and IHLW containers, a description of procedures used to verify exterior
42 container surfaces are visually free of mixed waste.
- 43 vi. Requirement that wastes generated at the WTP Unit meet the receiving authorized TSD
44 facility waste acceptance criteria prior to a waste stream transfer.
- 45 vii. Requirements and criteria for reevaluation of sampling and analysis frequency for all
46 waste streams.
- 47 viii. Documentation demonstrating methods for obtaining samples of wastes are
48 representative as discussed in WAC 173-303-110(2).

1 III.10.C.4. Recordkeeping

2 III.10.C.4.a. The unit specific portion of the Hanford Facility Operating Record shall include the
3 documentation specified in Attachment 51, Chapter 12.0, General Condition II.I, applicable
4 to the WTP Unit and other documentation specified in Attachment 51. The facility and unit
5 specific record keeping requirements are distinguished in Table 12-1 of the General
6 Information portion, Attachment 33 to the Sitewide Permit, and tied to the associated
7 Sitewide Permit Conditions.

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

9 III.10.C.5.a. The Permittees shall design, construct, and operate the WTP Unit in compliance with
10 Attachment 51, Chapter 6.0, Section 6.1.

11 III.10.C.5.b. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
12 shall update and resubmit for approval Attachment 51, Chapter 6.0, Sections 6.3, 6.4, and
13 6.5 as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, to
14 be consistent with design details and schedule described in Attachment 51, Appendix 1.0.
15 The WTP Unit fire protection systems shall be constructed to the applicable codes listed in
16 Attachment 51, Chapter 6.0, Section 6.3.1.4. Updated Section 6.4.4. shall include
17 descriptions of the essential loads and critical systems supplied with back-up, un-
18 interruptible, and standby power.

19 III.10.C.5.c. The Permittees shall inspect the WTP Unit to prevent malfunctions and deterioration,
20 operator errors, and discharges that may cause or lead to the release of dangerous waste
21 constituents to the environment, or a threat to human health. Inspections must be conducted
22 in accordance with the WTP Unit Inspection Schedule, Attachment 51, Chapter 6.0, Section
23 6.2. Prior to the receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
24 shall update and resubmit to Ecology for review and approval the Inspection Schedule in
25 Attachment 51, Chapter 6.0 of this Permit as a permit modification pursuant to Permit
26 Conditions III.10.C.2.e and III.10.C.2.f, and Compliance Schedule in Attachment 51,
27 Appendix 1.0. The revised schedule shall include, but not be limited to, i. through v. below.
28 In addition, the Permittees shall submit to Ecology for incorporation into the Administrative
29 Record, the basis for developing Inspection Schedule frequencies:

- 30 i. Detailed dangerous and/or mixed waste management unit specific and general inspection
31 schedules and description of procedures (not examples) pursuant to WAC 173-303-
32 395(1)(d), 173-303-630(6), 173-303-640(4)(a)(i) and (6), 173-303-670(7)(b) in
33 accordance with 173-303-680(3), 40 CFR, 264.1101(c)(4). The inspection schedule
34 shall be presented in the form of a table that includes a description of the inspection
35 requirement, inspection frequency, and types of problems to look for during the
36 inspections.
- 37 ii. The proposed locations (scaled drawing with layout) and capabilities of camera(s) (i.e.,
38 zoom angles, field of view, etc.) to be used for remote inspections.
- 39 iii. Schedule and program description for performing integrity assessments as specified in
40 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.,
41 III.10.J.5.e.i., and III.10.K.1.a.v.
- 42 iv. Inspection schedules for leak detection system and control instrumentation to include,
43 but not limited to, valves pressure devices, flow devices, measuring devices, as
44 specified in Permit Conditions III.10.E.9.e.xi, III.10.F.3.c, and III.10.G.10.e.xii, and
45 Permit Conditions III.10.H.5.f.xvi, and III.10.J.5.f.xvi.
- 46 v. Inspection schedule shall include inspections for all dangerous and/or mixed waste
47 management units specified in Permit Sections III.10.D, E, F, G, H, I, J, and K.

- 1 III.10.C.5.d. The Permittees shall equip the WTP Unit with the equipment specified in Attachment 51,
2 Chapter 6.0, as required by WAC 173-303-340(1) and Condition II.B.1 of this Permit.
- 3 III.10.C.5.e. The Permittees shall test and maintain the equipment specified in Attachment 51, Chapter
4 6.0, as necessary, to assure proper operation in the event of emergency as required by
5 Condition II.B.2 of this Permit.
6
- 7 III.10.C.5.f. The Permittees shall maintain access to communications or alarms pursuant to WAC 173-
8 303-340(2), as provided in the *RPP-WTP Emergency Response Plan*, Attachment 51,
9 Chapter 7.0 as required by Condition II.B.3 of this Permit.
- 10 III.10.C.6. Contingency Plan
- 11 III.10.C.6.a. The Permittees shall immediately carry out applicable provisions of the *RPP-WTP*
12 *Emergency Response Plan*, Attachment 51, Chapter 7.0 of this Permit, pursuant to WAC
13 173-303-360(2), whenever there is a release of dangerous and/or mixed waste or dangerous
14 waste constituents, or other emergency circumstance, any of which threatens human health
15 or the environment.
- 16 III.10.C.6.b. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
17 shall update and resubmit the Contingency Plan in compliance with Attachment 51, Chapter
18 7.0, and pursuant to WAC 173-303-350(5), as a permit modification pursuant to Permit
19 Conditions III.10.C.2.e and III.10.C.2.f, to be consistent with design details and schedule
20 described in Attachment 51, Appendix 1.0.
- 21 III.10.C.6.c. After initial receipt of dangerous and/or mixed waste, the Permittees shall review and
22 amend, if necessary, the applicable portions of the Contingency Plan, Attachment 51,
23 Chapter 7.0 of this Permit, and in accordance with the provisions of WAC 173-303-350(5)
24 and WAC 173-303-830(4). The Contingency Plan shall be amended as a permit
25 modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f.
- 26 III.10.C.6.d. RESERVED.
- 27 III.10.C.6.e. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
28 shall comply with the requirements of WAC 173-303-350(3) and -360(1) concerning the
29 emergency coordinator specific to the WTP Unit in compliance with Permit Condition
30 II.A.4.
- 31 III.10.C.7. Training Plan
- 32 III.10.C.7.a. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
33 shall update and resubmit, to Ecology for review and approval, the Training Program
34 description in Attachment 51, Chapter 8.0 of this Permit as a permit modification pursuant to
35 Permit Conditions III.10.C.2.e and III.10.C.2.f, and Compliance Schedule in Attachment 51,
36 Appendix 1.0. The revised Training Program description shall include but not be limited to:
- 37 i. Detailed unit specific and general Training Program descriptions (not typical)
38 consistent with WAC 173-303-806(4)(a)(xii).
- 39 ii. Sufficient detail to document that the training and qualification program for all
40 categories of personnel whose activities may reasonably be expected to directly affect
41 emissions from the LAW and HLW Systems, except control room operators, is
42 appropriately consistent with 40 CFR 63.1206(c)(6)(ii), and for control room operators,
43 is appropriately consistent with 40 CFR 63.1206(c)(6)(i) and 63.1206(c)(6)(iii) through
44 63.1206(c)(6)(vi) [WAC 173-303-680(2)].
- 45 III.10.C.7.b. The Permittees shall ensure that the LAW and HLW Systems are operated and maintained,
46 at all times, by persons who are trained and qualified to perform these and any other duties

1 that may reasonably be expected to directly affect emissions from the LAW and HLW
2 Systems [WAC 173-303-680(2)].

3 III.10.C.7.c. The Permittees shall conduct personnel training in accordance with the approved description
4 of the WTP Unit Training Plan, Attachment 51, Chapter 8.0 of this Permit, pursuant to
5 WAC 173-303-330. The Permittees shall maintain documents in accordance with Condition
6 II.C.1. of this Permit and WAC 173-303-330(2) and (3).

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

8 III.10.C.7.e. The Permittees shall submit, under separate cover, the actual detailed WTP Unit Dangerous
9 Waste Training Plan in accordance with the Compliance Schedule in Attachment 51,
10 Appendix 1.0. The WTP Unit Dangerous Waste Training Plan will be reviewed for
11 compliance with the outline of the training program in Attachment 51, Chapter 8.0 and
12 requirements of WAC 173-303-330. The Training Plan will be incorporated into the
13 Administrative Record.

14 III.10.C.8. Closure

15 III.10.C.8.a. The Permittees must conduct closure of the WTP Unit according to the Closure Plan in
16 Attachment 51, Chapter 11.0, and Conditions II.J. (Facility Closure), II.K. (Soil/Ground
17 Water Closure Performance Standards), and III.10.C.8. of this Permit. The closure plan
18 shall be modified according to provisions of WAC 173-303-610(3)(b)(ii).

19 III.10.C.8.b. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
20 shall update and resubmit the Closure Plan, Attachment 51, Chapter 11.0 of this Permit, for
21 approval as a permit modification pursuant to Permit Condition III.10.C.2.g., to be
22 consistent with design details and schedule described in Attachment 51, Appendix 1.0. The
23 updated Closure Plan must be consistent with the closure performance standards specified in
24 Permit Condition II.K, WAC 173-340 and, in addition for Containment Buildings, consistent
25 with 40 CFR 264.1102(b) as referenced by WAC 173-303-695.

26 III.10.C.8.c. The Permittees shall submit, for Ecology review and approval, an update to the Closure
27 Plan, Attachment 51, Chapter 11.0 within one hundred eighty (180) days prior to
28 commencing partial closure, as a permit modification pursuant to Permit Conditions
29 III.10.C.2.e and III.10.C.2.f.

30 III.10.C.8.d. One hundred eighty (180) days prior to commencing closure, the Permittees must submit to
31 Ecology, for review and approval, a Sampling and Analysis Plan and a revised Closure Plan
32 as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f.

33 III.10.C.8.e. At least forty-five (45) days before initiating closure, the Permittees must provide
34 Notification of Closure pursuant to WAC 173-303-610(3)(c).

35 III.10.C.8.f. Ecology may require additional sampling and/or investigation after the Permittees
36 implement the approved Sampling and Analysis Plan if Ecology determines that the
37 sampling and analyses have not adequately demonstrated whether clean closure has been
38 achieved. Such a requirement will be implemented pursuant to WAC 173-303-830(3).
39 Additional sampling and analysis may be required for the following reasons:

- 40 i. Specialized sample collection or analytical techniques are required to ensure adequate
41 quantitation limits for chemical constituents; or
- 42 ii. Results indicate the need to analyze for additional constituents at certain locations; or
- 43 iii. Results indicate additional soil or groundwater sampling is required in certain
44 locations; or

- 1 iv. Other reasons indicate the Sampling and Analysis Plan has not adequately
2 demonstrated whether clean closure has been achieved.

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

4 **III.10.C.8.h.** Documentation supporting the independent registered professional engineer's certification of
5 closure must be submitted to Ecology with the closure certification required by WAC 173-
6 303-610(6). In addition to the items in Attachment 51, Chapter 11.0, the documentation
7 must include the following and other information Ecology may request. The Permittees are
8 required to furnish documentation supporting the independent registered professional
9 engineer's certification to Ecology upon request, until Ecology has notified the Permittees in
10 writing that Ecology agrees with and has accepted the Permittees' closure certification:

- 11 i. Sampling procedures that were followed;
12 ii. soil and concrete locations that were sampled;
13 iii. Sample labeling and handling procedures that were followed, including chain of
14 custody procedures;
15 iv. Description of procedures that were followed to decontaminate concrete or metal to
16 meet the clean closure standards as set by Ecology, on a case by case basis, in
17 accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii) and
18 in a manner that minimizes or eliminates post-closure escape of dangerous waste
19 constituents, or to achieve a "clean debris surface" as specified in 40 CFR 268.45,
20 Table 1, concrete surfaces, as incorporated by reference in WAC 173-303-140. [WAC
21 173-303-610(2)(b)(ii)].
22 v. Laboratory and field data, including supporting QA/QC summary;
23 vi. Report that summarizes closure activities;
24 vii. Copy of all field notes taken by the independent registered professional engineer; and
25 viii. Copy of all contamination survey results.

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

27 **II.10.C.9.a.** The WTP Unit critical systems, as defined in the Hanford Site-wide Permit definition
28 section, are identified in Attachment 51, Appendix 2.0.

29 **III.10.C.9.b.** As the design proceeds, Ecology reserves the right to modify this Permit for reasons
30 described in the WAC 173-303-830(3) to add additional systems to the Critical Systems in
31 Attachment 51, Appendix 2.0.

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

37 **III.10.C.9.d.** The Permittees shall submit a nonconformance report (NCR) to the Ecology representative,
38 as applicable, within five (5) calendar days of the Permittees becoming aware of
39 incorporation of minor nonconformance from the approved designs, plans, and
40 specifications into the construction of critical systems, as defined in the Hanford Site-wide
41 Permit definition section. Such minor nonconformance shall be defined, for the purposes of
42 this Permit Condition, as nonconformance that is necessary to accommodate proper
43 construction and the substitution of the use of equivalent or superior materials or equipment
44 that do not substantially alter the Permit conditions or reduce the capacity of the facility to
45 protect human health or the environment. Such minor nonconformance shall not be

1 considered a modification of this Permit. If Ecology determines that the nonconformance is
2 not minor, it will notify the Permittees in writing that a permit modification is required for
3 the deviation and notify the Permittees in writing whether prior approval is required from
4 Ecology before work proceeds which affect the nonconforming item.

5 III.10.C.9.e. The Permittees shall formally document, with a nonconformance report (NCR),
6 incorporation of minor nonconformance from the approved designs, plans, and
7 specifications into the construction of non-critical systems subject to this Permit. Such
8 minor nonconformance shall not be considered a modification of this Permit. All
9 nonconformance reports shall be maintained in the WTP Unit Operating Record and shall be
10 made available to Ecology upon request or during the course of an inspection. If Ecology
11 determines that the nonconformance is not minor, it will notify the Permittees in writing that
12 a permit modification is required for the deviation and whether prior approval is required
13 from Ecology before work proceeds which affects the nonconforming item.

14 III.10.C.9.f. For each Critical System identified in Attachment 51, Appendix 2.0 or meets the definition
15 of Critical System as defined in this Permit, the Permittees shall submit to Ecology for
16 review and approval, following the schedule in Attachment 51, Appendix 1.0 of this Permit,
17 the information identified in Permit Conditions III.10.D.10., III.10.E.9., III.10.F.7.,
18 III.10.G.10., III.10.H.5., and III.10.J.5. Information Ecology determines to incorporate into
19 the Permit will follow the Permit Condition III.10.C.2.g. process, unless stated otherwise
20 within the specific permit condition. Information Ecology determines necessary to support
21 design basis will be incorporated into the Administrative Record.

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

28 III.10.C.9.h. The Permittees shall formally document changes to approved designs, plans, and
29 specifications with design change documentation [e.g., Design Change Authorization
30 (DCA), Design Change Notice (DCN), Field Change Request (FCR), Field Change Notice
31 (FCN)]. All design change documentation shall be maintained in the WTP Unit unit-
32 specific Operating Record and shall be made available to Ecology upon request or during the
33 course of an inspection. For any design change documentation affecting any critical
34 systems, the Permittees shall provide copies to Ecology within five (5) working days.
35 Identification of critical systems shall be included by the Permittees in each WTP Unit unit-
36 specific dangerous waste permit application, closure plan, or permit modification, as
37 appropriate.

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

41 III.10.C.10 Equivalent Materials

42 III.10.C.10.a. If certain equipment, materials, and administrative information (such as names, phone
43 numbers, addresses) are specified in this Permit, the Permittees may use equivalent or
44 superior substitutes. Use of such equivalent or superior items within the limits (e.g.,
45 ranges, tolerances, and alternatives) already clearly specified in sufficient detail in
46 Attachment 51 of this Permit, are not considered a modification of this Permit. However,
47 the Permittees must place documentation of the substitution, accompanied by a narrative
48 explanation and the date the substitution became effective in the operating record within
49 seven (7) days of putting the substitution into effect, and submit documentation of the

1 substitution to Ecology. Upon review of the documentation of the substitution, if deemed
2 necessary, Ecology may require the Permittees to submit a permit modification in
3 accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f.

4 Note: The format of tables and forms contained in Attachment 51 of this Permit are not
5 subject to the requirements of this Permit, and may be revised at the Permittees' discretion.

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

12 III.10.C.11. Risk Assessment

13 III.10.C.11.a. The Permittees shall submit, in accordance with Attachment 51, Appendix 1.0 of this
14 Permit to Ecology for approval, the "Previously Submitted Risk Assessment Workplan,"
15 Attachment 51, Appendix 6.1.1. of this Permit, revised in consultation with Ecology to
16 address the revisions (NOD/responses) documented in Attachment 51, Appendix 6.1.2 and
17 updated to address the following, as a permit modification pursuant to Permit Conditions
18 III.10.C.2.e. and III.10.C.2.f. The updated previously submitted Risk Assessment Work
19 Plan shall be added to Attachment 51 as Appendix 6.2 (Risk Assessment Work Plan).

- 20 i. EPA guidance for performance of Human Health and Ecological Risk Assessments for
21 Hazardous Waste Combustion Facilities current at the time of the submittal;
- 22 ii. Toxicity data current at the time of the submittal;
- 23 iii. Compounds newly identified or updated emissions data from current waste
24 characterization and emission testing;
- 25 iv. Air modeling updated to include stack gas parameters based on most current emissions
26 testing and WTP Unit design;
- 27 v. Physical/transport properties of constituents current at the time of the submittal;
- 28 vi. Process Description based on most current WTP Unit design;
- 29 vii. Emissions data and all supporting calculations based on most current WTP Unit; and
30 viii. Update of receptor locations based on land use or land use zoning changes, if any.

31 III.10.C.11.b. The Permittees shall submit for Ecology approval, prior to initial receipt of dangerous
32 and/or mixed waste in the WTP Unit, a Pre-Demonstration Test Risk Assessment Report as
33 Attachment 51, Appendix 6.3 addressing direct and indirect human health and ecological
34 risks performed pursuant to Ecology approved work plan under Permit Condition
35 III.10.C.11.a. This report shall also include submittal of projected stack emissions data in
36 Tables III.10.G.D., III.10.H.E., and III.10.J.E. of this Permit and Attachment 51, Appendix
37 6.3.1 (Basis and Assumptions), completed and updated which details the basis and
38 assumptions for these emissions, including but not limited to, projected operating
39 conditions, feed-rates, and treatment effectiveness, consistent with information provided
40 and approved pursuant to Permit Conditions III.10.G.6., III.10.G.10., III.10.H.5., and
41 III.10.J.5. as a permit modification pursuant to Permit Conditions III.10.C.2.e. and
42 III.10.C.2.f.

43 III.10.C.11.c. Within ninety (90) days of Ecology approval of the Demonstration Report(s) submitted
44 pursuant to Permit Condition III.10.H.3.d.i, the Permittees shall submit a Final Risk
45 Assessment Report as Attachment 51, Appendix 6.4, incorporating the emission test results

1 from the Demonstration Report(s). The Final Risk Assessment Report shall be prepared in
2 accordance with the Risk Assessment Work Plan, as approved by Ecology pursuant to
3 Permit Condition III.10.C.11.a, except the following updates are hereby incorporated. The
4 Permittees shall also submit with this Final Risk Assessment Report, Tables III.10.G.D. and
5 III.10.I.E. of this Permit and Attachment 51, Appendix 6.4.1 (Basis and Assumptions)
6 updated to incorporate the emissions data from this Final Risk Assessment Report(s), as a
7 permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f.

- 8 i. Toxicity data current at the time of the submittal;
- 9 ii. Compounds newly identified or updated emissions data from current waste
10 characterization and emission testing;
- 11 iii. Air modeling updated to include stack gas parameters based on most current emissions
12 testing;
- 13 iv. Physical/transport properties of constituents current at the time of the submittal;
- 14 v. Update of receptor locations based on land use or land use zoning changes, if any;
- 15 vi. Process description based on current WTP Unit design;
- 16 vii. Emissions data and all supporting calculations based on current WTP Unit; and
17 viii. Data from final risk assessment report pursuant to Permit Condition III.10.C.11.d, if
18 available first, or simultaneously.

19 III.10.C.11.d. Within ninety (90) days of Ecology approval of the Demonstration Report(s) submitted
20 pursuant to Permit Condition III.10.J.3.d.i, the Permittees shall submit a Final Risk
21 Assessment Report as Attachment 51, Appendix 6.4, incorporating the emission test results
22 from the Demonstration Report(s). The Final Risk Assessment Report shall be prepared in
23 accordance with the Risk Assessment Work Plan, as approved by Ecology pursuant to
24 Permit Condition III.10.C.11.a, except the following updates are hereby incorporated. The
25 Permittees shall also submit with this Final Risk Assessment Report, Tables III.10.G.D. and
26 III.10.K.E. of this Permit and Attachment 51, Appendix 6.4.1 (Basis and Assumptions)
27 updated to incorporate the emissions data from this Final Risk Assessment Report, as a
28 permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f.

- 29 i. Toxicity data current at the time of the submittal;
- 30 ii. Compounds newly identified or updated emissions data from current waste
31 characterization and emission testing;
- 32 iii. Air modeling updated to include stack gas parameters based on most current emissions
33 testing;
- 34 iv. Physical/transport properties of constituents current at the time of the submittal;
- 35 v. Update of receptor locations based on land use or land use zoning changes, if any;
- 36 vi. Process description based on current WTP Unit design;
- 37 vii. Emissions data and all supporting calculations based on current WTP Unit; and
38 viii. Data from final risk assessment report pursuant to Permit Condition III.10.C.11.c, if
39 available first, or simultaneously.

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

42 III.10.C.12 Air Emissions

- 1 III.10.C.12.a Prior to installing or using any equipment subject to the requirements of WAC 173-303-
2 690, the Permittees shall obtain a Permit Modification following the Permit Condition
3 III.10.C.2.g. process to incorporate WAC 173-303-690 standards into the permit
4 application and this Permit prior to generation/receipt of dangerous and/or mixed waste in
5 the WTP Unit.
- 6 III.10.C.12.b Prior to installing or using any equipment subject to the requirements of WAC 173-303-
7 691, the Permittees shall obtain a Permit Modification following the Permit Condition
8 III.10.C.2.g. process to incorporate WAC 173-303-691 standards into the permit
9 application and this Permit prior to generation/receipt of dangerous and/or mixed waste in
10 the WTP Unit.
- 11 III.10.C.12.c The Permittees shall comply with the organic air emission standards as set forth in WAC
12 173-303-692. The Permittees shall obtain a permit modification following the Permit
13 Condition III.10.C.2.g. process to incorporate WAC 173-303-692 standards into the permit
14 application and this Permit prior to generation/receipt of dangerous waste in the WTP Unit.

15 III.10.C.13 Remote Data Access

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

23 ~~III.10.C.14. Performance Test Demonstrations~~

24 ~~The performance test program will demonstrate that the melter and melter off-gas systems~~
25 ~~are capable of 99.99% Destruction Removal Efficiency (DRE) for organics pursuant to~~
26 ~~Permit Conditions III.10.H.1.b.i. and III.10.J.1.b.i. The test program will include analyses~~
27 ~~and a demonstration with a pilot scale melter using high concentrations (above rated design~~
28 ~~limits) of organic spikes in order to obtain detectable output concentrations upon which to~~
29 ~~determine DRE. The pilot scale performance test plan will be submitted by the Permittees to~~
30 ~~Ecology by January 31, 2004. Ecology approval of the of the pilot scale melter test plan is~~
31 ~~expected by March 31, 2004. Demonstration of compliance with the 99.99% DRE listed in~~
32 ~~Permit Conditions III.10.H.1.b.i. and III.10.J.1.b.i. in the pilot scale melter shall be~~
33 ~~conducted in accordance with the approved pilot scale melter test plan and completed by~~
34 ~~November 15, 2004. If the test compromises the ability of the melter to continue operations~~
35 ~~due to high organic spikes, as defined by the approved pilot scale test performance test plan,~~
36 ~~then no further full-scale, high organic demonstration testing on the WTP Unit melters shall~~
37 ~~be required. The testing of the installed, operational WTP Unit melters and off-gas systems~~
38 ~~will use pilot scale pilot melter test data and revised WTP Unit test parameters for the full~~
39 ~~scale demonstration test.~~

40 ~~The pilot scale performance test plan will include the following information:~~

- 41 ~~i. Discussion on how the pilot scale melter reasonably simulates operations in the LAW~~
42 ~~and HLW Vitrification Systems;~~
- 43 ~~ii. Identification of high organic spikes test levels, spiking methods, and types of~~
44 ~~chemicals to be used for spiking;~~
- 45 ~~iii. Definition of expected waste feed organic content (concentration and types), plus sugar~~
46 ~~content, plus organic spike content (concentration and types);~~

- 1 ~~iv. Identification of proposed test conditions, including consideration of testing combined~~
2 ~~organics and metals, as well as separate metal and organic testing; and~~
3 ~~v. Identification of the criteria for test success or failure and a discussion of how the~~
4 ~~results will be interpreted.~~

5 ~~Results from the Test Report will be incorporated into the full scale demonstration test.~~

6 III.10.D. CONTAINERS

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

8 III.10.D.1.a. The Permittees may store, in containers, all dangerous and/or mixed waste listed in the Part
9 A, Forms Attachment 51, Chapter 1.0 of this Permit, in accordance with the WAP,
10 Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Conditions
11 III.10.C.3. and III.10.C.2. Total containerized dangerous and/or mixed waste storage at the
12 Facility shall not exceed 2,780,000 gallons (372,520 cubic feet) pursuant to requirements in
13 Permit Condition III.10.D.1.b.

14 III.10.D.1.b. The Permittees may place and store dangerous and mixed waste only in approved container
15 storage areas and containment systems listed in Permit Tables III.10.D.A, III.10.D.B, and
16 III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10.), in accordance
17 with Permit Section III.10.D, and in accordance with Attachment 51, Chapters 1.0 and 4.0,
18 and Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 9.18, 10.4, 10.5, 10.7, 10.8, 10.9,
19 10.18, 12.4, 12.5, 12.7, 12.8, 12.9, and 12.15 of this Permit, as approved pursuant to Permit
20 Conditions III.10.D.10.b. through d. The Permittees shall limit the total volume of waste to
21 quantities specified for the individual container storage areas listed in Permit Table
22 III.10.D.A.

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

30 III.10.D.1.d. The Permittees shall maintain documentation in the operating record for each container
31 storage area and containment system listed in Permit Tables III.10.D.A, III.10.D.B, and
32 III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10.), in accordance
33 with WAC 173-303-380.

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

36 III.10.D.1.f. If the containers of ILAW and/or IHLW are determined to no longer be dangerous and/or
37 mixed waste as described in WAC 173-303-070, the ILAW and/or IHLW containers will no
38 longer be subject to the conditions of this Permit.

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

40 III.10.D.2.a. The Permittees shall construct container storage areas identified in Permit Table III.10.D.A
41 (as approved/modified pursuant to Permit Condition III.10.D.10.), as specified in all
42 applicable drawings and specifications in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9,
43 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9 of this Permit, as approved
44 pursuant to Permit Condition III.10.D.10.b.

45 III.10.D.2.b. The Permittees shall construct all permanent containment systems identified in Permit Table
46 III.10.D.B (as approved/modified pursuant to Permit Condition III.10.D.10.), as specified in

1 all applicable drawings and specifications in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8,
2 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, as approved
3 pursuant to Permit Condition III.10.D.10.b.

4 III.10.D.2.c. All container storage areas and containment systems identified in Permit Tables III.10.D.A,
5 III.10.D.B, and III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10.),
6 must be constructed, or operated to protect containers from contact with accumulated liquids
7 (e.g., leaks, spills, precipitation, fire water, liquids from damaged or broken pipes) [WAC
8 173-303-630(7)(a)(i) and WAC 173-303-630(7)(c)(ii)].

9 III.10.D.2.d. Modifications to approved design, plans, and specifications in Attachment 51 of this Permit
10 for the Container Storage Areas and containment systems shall be allowed only in
11 accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g, III.10.C.9.d, e., and
12 h.

13 III.10.D.3. Container Storage Area and Permanent Containment System Installation

14 III.10.D.3.a. RESERVED.

15 III.10.D.3.b. The Permittees shall obtain and place in the WTP Unit operating record, within thirty (30)
16 days of completion of each container storage area and containment system identified in
17 Permit Tables III.10.D.A, and III.10.D.B (as approved/modified pursuant to Permit
18 Condition III.10.D.10.), written statements by a qualified, installation inspector or a
19 qualified registered, professional engineer, attesting that these areas were installed in
20 compliance with WAC 173-303-630(7)(a), (b), and (c) [WAC 173-303-630(7), WAC 173-
21 303-340].

22 III.10.D.4 Container Management Practices

23 III.10.D.4.a. No dangerous and/or mixed waste shall be managed in the container storage areas unless the
24 operating conditions specified under Permit Condition III.10.D.4. are complied with.

25 III.10.D.4.b. The Permittees shall manage all containerized dangerous and mixed waste for container
26 storage areas and containment systems identified in Permit Tables III.10.D.A, III.10.D.B,
27 and III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10.), in
28 accordance with procedures described in Attachment 51, Chapter 4.0, Appendices 9.18,
29 10.18, and 12.15 of this Permit, as approved pursuant to Permit Condition III.10.D.10.c, and
30 the following conditions:

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

35 ii. The physical arrangement (i.e., spacing) of dangerous and mixed waste containers shall
36 be as specified in WAC 173-303-630(5)(c), except for the immobilized LAW and
37 HLW waste containers, which must be as described in Attachment 51, Chapter 4.0,
38 Section 4.2.1.2.1. of this Permit, as updated pursuant to Permit Condition
39 III.10.D.10.c.i.

40 iii. All container storage areas and containment systems must be operated to protect
41 containers from contact with accumulated liquids resulting from leaks, spills, or
42 precipitation [WAC 173-303-630(7)(a)(i) and (c)(ii)].

43 iv. At all times, the Permittees shall place and store ignitable and/or reactive dangerous
44 and/or mixed waste in accordance with the procedures described in Attachment 51,
45 Appendix 9.18, 10.18, and 12.15, as approved pursuant to Permit Condition
46 III.10.D.10.c.xi.

- 1 v. At all times, the Permittees shall place and store incompatible dangerous and/or mixed
2 waste in accordance with the procedures described in Attachment 51, Appendix 9.18,
3 10.18, and 12.15, as approved pursuant to Permit Condition III.10.D.10.c.xii.
- 4 vi. At all times, storage containers holding dangerous and/or mixed waste that contain free
5 liquids and/or exhibit either the characteristic of ignitability or reactivity as described in
6 WAC 173-303-090(5) or (7), must be provided with a containment system in
7 accordance with WAC 173-303-630(7)(a)(i) through (iii) [WAC 173-303-630(7)(c)].
- 8 vii. At all times, containers holding dangerous and/or mixed waste in container storage
9 areas must be closed, except when it is necessary to add or remove waste [WAC 173-
10 303-630(5)(a)].
- 11 viii. At all times, containers holding dangerous and/or mixed waste must not be opened,
12 handled, or stored in a manner which may rupture the container or cause it to leak
13 [WAC 173-303-630(5)(b)].
- 14 ix. A storage container holding a dangerous and/or mixed waste that is incompatible with
15 any waste or other materials stored nearby in other containers, piles, open tanks, or
16 surface impoundments must be separated from the other waste or materials or protected
17 from them by means of a dike, berm, wall, or other device (as approved by Ecology)
18 [WAC 173-303-630(9)(c)].
- 19 x. If a container holding dangerous and/or mixed waste is not in good condition (e.g.,
20 exhibits severe rusting, apparent structural defects, or any other condition that could
21 lead to container rupture or leakage) or is leaking, the Permittees shall manage the
22 container in accordance with procedures described in Attachment 51, Appendices 9.18,
23 10.18, and 12.15 of this Permit, as approved pursuant to Permit Condition
24 III.10.D.10.c.viii. [WAC 173-303-630(2)].
- 25 xi. The Permittees shall maintain an adequate inventory of containers and/or over-pack
26 containers at the WTP Unit for use pursuant to Permit Condition III.10.D.4.b.x.
- 27 xii. The Permittees shall ensure that all containers used for dangerous and/or mixed waste
28 management, are made of or lined with materials which will not react with and are
29 otherwise compatible with the waste to be stored [WAC 173-303-630(4)].
- 30 xiii. Except for lab packs assembled in compliance with WAC 173-303-161 requirements,
31 the Permittees shall not place incompatible wastes, or incompatible wastes and
32 materials, in the same container, unless WAC 173-303-395(1)(b) is complied with
33 [WAC 173-303-630(9)(a)].
- 34 xiv. The Permittees shall not place dangerous and/or mixed waste in an unwashed container
35 that previously held an incompatible waste or material [WAC 173-303-630(9)(b)].

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

37 III.10.D.5.a. Pursuant to WAC 173-303-630(3), the Permittees shall ensure that all dangerous and/or
38 mixed waste containers (except as otherwise specified in Attachment 51, Chapter 4.0,
39 Section 4.2.1.3., as updated pursuant to Permit Condition III.10.D.10.c.i., for containers of
40 ILAW and IHLW) are labeled in a manner that adequately identifies the major risk(s)
41 associated with the contents. For purposes of container labeling, major risk(s) could include
42 but are not limited to the following:

- 43 i. PERSISTENT (if a WP01 or WP02 waste code);
44 ii. TOXIC (if a WT01, WT02, or D waste code other than D001, D002, or D003);
45 iii. FLAMMABLE (if a D001 and other waste codes);

- 1 iv. CORROSIVE (if a D002 and other waste codes);
- 2 v. REACTIVE (if a D003 and other waste codes).
- 3 III.10.D.5.b. For all dangerous and mixed waste containers (except as otherwise specified in Attachment
- 4 51, Chapter 4.0, Section 4.2.1.3., as updated pursuant to Permit Condition III.10.D.10.c.i.,
- 5 for containers of ILAW and IHLW), the Permittees shall ensure that:
- 6 i. Labels are not obscured or otherwise unreadable;
- 7 ii. Waste containers are oriented so as to allow inspection of the labels identified in Permit
- 8 Conditions III.10.D.5.a and III.10.D.5.b, the container tracking number, and, to the
- 9 extent possible, any labels which the generator placed upon the container; and
- 10 iii. Empty dangerous and mixed waste containers, as defined by WAC 173-303-160(2),
- 11 must have their dangerous and/or mixed waste labels destroyed or otherwise removed
- 12 immediately upon being rendered empty.
- 13 III.10.D.5.c. The Permittees shall post entrances and access points to all ILAW and IHLW container
- 14 storage areas, and any other areas where containers of ILAW and IHLW are handled, with
- 15 signs that, in addition to meeting the requirements of WAC 173-303-310(2)(a), clearly
- 16 identify the major risk(s) associated with the containers of ILAW and IHLW.
- 17 III.10.D.6. Containment Systems
- 18 III.10.D.6.a. Containerized dangerous and mixed waste, and other materials that are incompatible, shall
- 19 not be staged, segregated, or stored within the same containment system as identified in
- 20 Permit Tables III.10.D.B. and III.10.D.C., as approved/modified pursuant to Permit
- 21 Condition III.10.D.10. (e.g., metal pan, concrete berm, portable containment system) [WAC
- 22 173-303-630(9)(c)].
- 23 III.10.D.6.b. The integrity of containment systems identified in Permit Tables III.10.D.B. and III.10.D.C.
- 24 (as approved/modified pursuant to Permit Condition III.10.D.10.) must be maintained in
- 25 accordance with WAC 173-303-630(7)(a)(i). Cracks, gaps, loss of integrity, deterioration,
- 26 corrosion, or erosion of containment pads, joints in containment pads, berms, curbs,
- 27 trenches, sumps, and coatings must be repaired in accordance with Attachment 51, Chapter
- 28 6.0 of this Permit, as approved/modified pursuant to Permit Conditions III.10.D.10.c.vii.,
- 29 III.10.C.5.b., and III.10.C.5.c. [WAC 173-303-320, WAC 173-303-630(7)(a)(i)].
- 30 III.10.D.6.c. An impermeable coating, as specified in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9,
- 31 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9 shall be maintained for all
- 32 concrete containment systems identified in Permit Table III.10.D.B (as approved/modified
- 33 pursuant to Permit Condition III.10.D.10.) and shall meet the following performance
- 34 standards [WAC 173-303-630(7)(a)]:
- 35 i. The coating must seal the containment system surface such that no cracks, seams, or
- 36 other pathways through which liquid could migrate are present;
- 37 ii. The coating must be of adequate thickness and strength to withstand the normal
- 38 operation of equipment and personnel within the given area such that degradation or
- 39 physical damage to the coating or lining can be identified and remedied before waste
- 40 could migrate from the containment system; and
- 41 iii. The coating must be compatible with the waste managed in the containment system.
- 42 III.10.D.6.d. The Permittees must inspect all containment systems specified in Permit Tables III.10.D.B
- 43 and III.10.D.C in accordance with the inspection schedules and requirements in Attachment
- 44 51, Chapter 6.0, as approved/modified pursuant to Permit Conditions III.10.D.10.c.vii. and
- 45 III.10.C.5.c, and take the following actions if liquid is detected in these containment

1 systems:

- 2 i. Remove the liquid from the containment system in accordance with procedures
3 described in Attachments 51, Chapter 6.0, (as modified pursuant to Permit Conditions
4 III.10.C.5.b. and III.10.C.5.c.), Permit Condition III.10.C.6.a., and Attachment 51,
5 Chapter 7.0 (as modified pursuant to Permit Condition III.10.C.6.b.). The liquid
6 removed from containment systems shall be managed as dangerous and/or mixed
7 waste, except for liquids from the Non-Radioactive Dangerous Waste Container
8 Storage Area which shall be managed as dangerous waste, unless the Permittees
9 demonstrate, to Ecology's satisfaction, that the liquid is not a dangerous waste.
- 10 ii. Determine the source of the liquid.
- 11 iii. If the source of the liquid is determined to be a leak in a container, the Permittees must
12 follow the procedures specified in Permit Condition III.10.D.4.b.x.
- 13 iv. The Permittees must take action to ensure the incident that caused liquid to enter the
14 containment system will not reoccur.
- 15 v. The Permittees shall document in the WTP Unit operating record actions/procedures
16 taken to comply with i. through iv. above in accordance with WAC 173-303-630(6).
- 17 vi. The Permittees shall notify and report releases to the environment to Ecology in
18 accordance with Permit Condition III.10.C.6.a.

19 III.10.D.7 Inspections

20 III.10.D.7.a. The Permittees shall inspect the container storage areas and containment systems in
21 accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as
22 modified pursuant to Permit Condition III.10.C.5.c.

23 III.10.D.7.b. The inspection data for the container storage areas and containment systems shall be
24 recorded, and the records shall be placed in the WTP Unit operating record in accordance
25 with Permit Condition III.10.C.4.

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

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

31 III.10.D.9. Closure

32 The Permittees shall close the container storage areas and containment systems in
33 accordance with Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit
34 Condition III.10.C.8.

35 III.10.D.10. Compliance Schedules

36 III.10.D.10.a. All information identified for submittal to Ecology in III.10.D.10.b. through III.10.D.10.d.
37 of this compliance schedule must be signed in accordance with requirements in WAC 173-
38 303-810(12).

39 III.10.D.10.b. The Permittees shall submit to Ecology, consistent with the schedule described in
40 Attachment 51, Appendix 1.0, for review and approval, prior to construction of container
41 storage area and permanent containment systems as identified in Permit Tables III.10.D.A
42 and III.10.D.B respectively, engineering information as specified below, for incorporation
43 into Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4,
44 12.5, 12.7, 12.8, and 12.9 of this Permit. In order to incorporate engineering information

1 specified below into Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7,
2 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
3 followed. At a minimum, container storage area and permanent containment system
4 drawings and specifications will show the following pursuant to WAC 173-303-806(4)(b)
5 and WAC 173-303-630:

- 6 i. Design drawings (General Arrangement Drawings - in plan and cross sections) and
7 specifications including references to specific building codes (e.g., UBC, ASCE) for
8 each container storage areas' foundation and permanent containment systems. These
9 items should show basic design parameters and dimensions, and location of the
10 container storage areas and permanent containment systems; how permanent
11 containment system design promotes positive drainage control (such as a locked
12 drainage valve) to prevent release of contaminated liquids and so that uncontaminated
13 liquids can be drained promptly for convenience of operation; capacity of the
14 permanent containment system relative to the volume of the largest container to be
15 stored; for permanent containment systems, how the base underlying the containers is
16 sloped (i.e., floor slopes to sumps) or the containment system is otherwise designed
17 and operated to drain and remove liquids resulting from leaks, spills, or other liquids,
18 or how containers are kept from contact with standing liquids in the permanent
19 containment system (i.e., elevated or are otherwise protected); for container storage
20 areas without permanent containment systems, a description of how the storage area is
21 designed or operated to drain and remove liquids or how containers are kept from
22 contact with standing liquids;
- 23 ii. Permanent containment systems materials selection documentation (including, but not
24 limited to, materials of construction, coatings and liner materials for concrete portions
25 of containment systems);
- 26 iii. Sketches, drawings, or data demonstrating compliance with WAC 173-303-630(8)
27 (location of buffer zone and containers holding ignitable or reactive waste) and WAC
28 173-303-630(9)(c) (location of incompatible waste), where applicable;
- 29 iv. Submit Permit Table III.10.D.B. completed to provide for all permanent containment
30 systems, the information as specified in each column heading, consistent with
31 information to be provided in i. through iii. above.

32 III.10.D.10.c. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
33 shall update and submit to Ecology, consistent with the schedule described in Attachment
34 51, Appendix 1.0, for review and approval, the following, as specified below, for
35 incorporation into Attachment 51, Chapter 4.0, and Appendices 9.18, 10.18, and 12.15 of
36 this Permit, except Permit Condition III.10.D.10.c.vii., which will be incorporated into
37 Attachment 51, Chapter 6.0 of this Permit. In order to incorporate the following
38 information (specified below) into Attachment 51, Appendix 9.18, 10.18, and 12.15, Permit
39 Condition III.10.C.2.g. will be followed. All information provided under this permit
40 condition must be consistent with information provided pursuant to Permit Conditions
41 III.10.D.10.b., III.10.D.10.c., and III.10.D.10.d. as approved by Ecology, and will include
42 at a minimum, the following information as required pursuant to WAC 173-303-630 and
43 WAC 173-303-340:

- 44 i. Attachment 51, Chapter 4.0, Narrative Descriptions, updated;
- 45 ii. Descriptions of procedures for addition and removal of waste from containers;
- 46 iii. Descriptions of procedures for opening and closing of containers, including any
47 inspections performed prior to opening;

- 1 iv. Descriptions of procedures for handling and transport of containers within the WTP
2 Unit;
- 3 v. Description of the tracking system used to track containers throughout the WTP Unit
4 pursuant to WAC 173-303-380. The tracking system, at a minimum, will do the
5 following:
- 6 A. Track the location of containers within the WTP Unit;
- 7 B. Track which containers have been shipped off-facility and/or off-site, and to
8 where they have been shipped;
- 9 C. For containers intended for transport off-site, include information in accordance
10 with the requirements specified in WAC 173-303-190(3)(b);
- 11 D. Record the date container is placed in the container storage area;
- 12 E. Record the nature of the waste in any given container, including dangerous waste
13 designation codes, any associated land disposal restriction treatment requirements,
14 and the major risk(s) associated with the waste (as described in Permit Conditions
15 III.10.D.5.a. and III.10.D.5.c.).
- 16 vi. Descriptions of procedures for container spacing, stacking, and labeling pursuant to
17 WAC 173-303-630(3), WAC 173-303-630(5)(c), WAC 173-303-340(3), WAC 173-
18 303-630(6);
- 19 vii. Descriptions of procedures for investigating container storage areas and investigating
20 and repairing containment systems [WAC 173-303-320, WAC 173-303-630(6)];
- 21 viii. Descriptions of procedures for responding to damaged (e.g., severe rusting, apparent
22 structural defects) or leaking containers [WAC 173-303-630(2)];
- 23 ix. Descriptions of operational procedures demonstrating how accumulated liquids can be
24 analyzed and removed from permanent and portable containment systems to prevent
25 overflow [WAC 173-303-806(4)(b)(i)(E)];
- 26 x. For portable containment systems, vendor information, design drawings, or sketches
27 showing the following information. These items shall include as a minimum basic
28 design parameters, dimensions, and materials of construction; how the design
29 promotes positive drainage control (such as a locked drainage valve) to prevent release
30 of contaminated liquids and so that uncontaminated liquids can be drained promptly
31 for convenience of operation; how the base underlying the containers is sloped (i.e.,
32 floor slopes to sumps) or the containment system is otherwise designed and operated
33 to drain and remove liquids resulting from leaks, spills, or other liquids, or how
34 containers are kept from contact with standing liquids in the containment system (i.e.,
35 elevated or are otherwise protected); and capacity of the containment system relative
36 to the volume of the largest container to be stored;
- 37 xi. Where ignitable and reactive waste are stored or otherwise managed in containers, a
38 description of the procedures used to ensure compliance with WAC 173-303-630(8)(a)
39 and (b);
- 40 xii. Where incompatible waste are stored or otherwise managed in containers, a
41 description of the procedures used to ensure compliance with WAC 173-303-630(9)(a)
42 and (b), and 173-303-395(1)(b) and (c);
- 43 xiii. Submit Permit Table III.10.D.C completed to provide for all portable containment
44 systems, the information as specified in each column heading, consistent with
45 information to be provided in i. through xii. above;

1 xiv. Test procedures and results or other documentation or information to show that the
2 waste do not contain free liquids, as applicable.

3 **III.10.D.10.d.** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
4 shall submit to Ecology, consistent with the schedule described in Attachment 51,
5 Appendix 1.0, for review and approval, completed Permit Tables III.10.D.A, III.10.D.B,
6 and III.10.D.C, for incorporation into Attachment 51, Chapter 4.0, and Appendices 9.18,
7 10.18, and 12.15 of this Permit. In order to incorporate the information into Attachment
8 51, Chapter 4.0, and Appendices 9.18, 10.18, and 12.15 of this Permit, Permit Condition
9 III.10.C.2.g. process will be followed.
10

Table III.10.D.A – Container Storage Areas Description

Dangerous and Mixed Waste Container Storage Areas	Maximum Capacity Gallons (Solids) (ft ³) ^d	Maximum Capacity (Liquid) ^e
LAW Vitrification Plant		
ILAW Buffer Container Storage Area ^a	89,099 gal. (11,939 ft ³)	RESERVED
ILAW Container Storage Area ^a	889,448 gal. (119,186 ft ³)	RESERVED
LAW Container Storage Area	80,549 gal. (10,794 ft ³)	RESERVED
HLW Vitrification Plant		
IHLW Canister Storage Area ^a	245,504 gal. (32,898 ft ³)	RESERVED
HLW Container Storage Area No. 1	266,654 gal. (35,732 ft ³)	RESERVED
HLW Container Storage Area No. 2	71,999 gal. (9,648 ft ³)	RESERVED
HLW Container Storage Area No. 3	43,392 gal. (5,815 ft ³)	RESERVED
Other Areas		
Central Waste Storage Facility	617,137 gal. (82,696 ft ³)	RESERVED
Non-Radioactive Dangerous Waste Container Storage Area ^b	48,214 gal. (6,461 ft ³)	RESERVED
HLW Melter Out-Of-Service Storage Area	202,498 gal. (27,135 ft ³)	RESERVED
LAW Melter Out-Of-Service Storage Area	216,962 gal. (29,073 ft ³)	RESERVED
Containment Building Container Storage	RESERVED	RESERVED

3 ^a Capacity is for immobilized glass waste storage.

4 ^b Capacity is for dangerous and/or mixed waste storage.

5 ^c All material within the containment systems will be considered waste for the purposes of calculating free volume,
 6 where free volume is the amount of space available in containment systems (i.e., free volume = total capacity of
 7 containment systems [which includes total capacity of portable containment systems] minus volume occupied by
 8 equipment and containers within containment systems).

9 ^d Gallons converted to cubic feet using a conversion factor of 1 gallon (liquid) x 0.134 = 1ft³ (rounded to the nearest
 10 whole number).

11 ^e Location and capacities of containers stored within portable containment systems specified on Table III.10.D.C are
 12 limited to the dangerous and mixed waste container storage areas and capacities specified above.

13

14

Table III.10.D.B – Container Storage Area Permanent Containment Systems

Container Storage Areas	Permanent Containment System Description – Drawing #s	Permanent Containment System Sump/Floor Drain ID#	Permanent Containment System Dimensions (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).
Central Waste Storage Facility	RESERVED	RESERVED	RESERVED	RESERVED

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 (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

^aLocation 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.

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, Attachment 51, Chapter 1.0 of this Permit and in accordance with the Waste Analysis Plan, Attachment 51, Chapter 3.0 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 shall not exceed 4,735,000 gallons pursuant to requirements in Permit Condition III.10.E.1.

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, and O, 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 Attachment 51, Chapters 1.0 and 4.0, and Attachment 51, Appendices 8.1 through 8.15, 9.1 through 9.14, 9.18, 10.1 through 10.14, 10.18, and 11.1 through 11.15 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.b through e. The Permittees shall 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, and O.

III.10.E.1.c. The Permittees shall 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, and O as approved/modified pursuant to Permit Condition III.10.E.9., in which ignitable, reactive, or incompatible waste are managed shall meet the requirements specified in WAC 173-303-640(9) and (10).

1 III.10.E.1.d. The Permittees shall ensure all certifications required by specialists (e.g., independent,
2 qualified, registered professional engineer; independent corrosion expert; independent,
3 qualified installation inspector; etc.) use the following statement or equivalent pursuant to
4 Permit Condition III.10.C.10 of this Permit:

5 "I, (Insert Name) have (choose one or more of the following: overseen, supervised,
6 reviewed, and/or certified) a portion of the design or installation of a new tank system or
7 component located at (address), and owned/operated by (name(s)). My duties were: (e.g.,
8 installation inspector, testing for tightness, etc.), for the following tank system components
9 (e.g., the tank, venting piping, etc.), as required by the Dangerous Waste Regulations,
10 namely, WAC 173-303-640(3) (applicable paragraphs (i.e., (a) through (g)).

11 "I certify under penalty of law that I have personally examined and am familiar with the
12 information submitted in this document and all attachments and that, based on my inquiry of
13 those individuals immediately responsible for obtaining the information, I believe that the
14 information is true, accurate, and complete. I am aware that there are significant penalties
15 for submitting false information, including the possibility of fine and imprisonment."

16 III.10.E.1.e. In all future permit submittals, the Permittees shall include tank names with the tank
17 designation (e.g., Process Condensate Vessels located in the RLD System are designated
18 V45028A and V45028B, respectively).

19 III.10.E.2 Tank System Design and Construction

20 III.10.E.2.a. The Permittees shall construct the tank systems identified in Permit Tables III.10.E.A
21 through D, I, K, M, and O, as approved/modified pursuant to Permit Condition III.10.E.9., as
22 specified in Attachment 51, Appendices 8.1 through 8.14, 9.1 through 9.14, 10.1 through
23 10.14, and 11.1 through 11.14 of this Permit, as approved pursuant to Permit Conditions
24 III.10.E.9.b., III.10.E.9.c., and III.10.E.9.d.

25 III.10.E.2.b. The Permittees shall construct all secondary containment systems identified in Permit Tables
26 III.10.E.A through D, and I through P, as approved/modified pursuant to Permit Condition
27 III.10.E.9., as specified in Attachment 51, Appendices 8.2, 8.4 through 8.15, 9.2, 9.4 through
28 9.14, 9.18, 10.2, 10.4 through 10.14, 10.18 and 11.2, 11.4 through 11.15, 11.15 of this
29 Permit, as approved pursuant to Permit Conditions III.10.E.9.b., III.10.E.9.c., and
30 III.10.E.9.d.

31 III.10.E.2.c. Modifications to approved design, plans, and specifications in Attachment 51 of this Permit
32 for the WTP Unit Tank Systems shall be allowed only in accordance with Permit Conditions
33 III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d, e., and h.

34 III.10.E.3 Tank System Installation and Certification

35 III.10.E.3.a. The Permittees must ensure that proper handling procedures are adhered to in order to
36 prevent damage to the system during installation. Prior to covering, enclosing, or placing a
37 new tank system or component in use, an independent, qualified, installation inspector or an
38 independent, qualified, registered professional engineer, either of whom is trained and
39 experienced in the proper installation of tank systems or components, must inspect the
40 system for the presence of any of the following items:

- 41 i. Weld breaks;
- 42 ii. Punctures;
- 43 iii. Scrapes of protective coatings;
- 44 iv. Cracks;

1 v. Corrosion;

2 vi. Other structural damage or inadequate construction/installation.

3 All discrepancies must be remedied before the tank system is covered, enclosed, or placed in
4 use [WAC 173-303-640(3)(c)].

5 III.10.E.3.b. For tank systems or components that are placed underground and that are back-filled, the
6 Permittees must provide a backfill material that is a non-corrosive, porous, homogeneous
7 substance. The backfill must be installed so that it is placed completely around the tank and
8 compacted to ensure that the tank and piping are fully and uniformly supported [WAC 173-
9 303-640(3)(d)].

10 III.10.E.3.c. The Permittees must test for tightness all new tanks and ancillary equipment prior to these
11 components being covered, enclosed, or placed into use. If a tank system is found not to be
12 tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the
13 tank system being covered, enclosed, or placed in use [WAC 173-303-640(3)(e)].

14 III.10.E.3.d. The Permittees must ensure ancillary equipment is supported and protected against physical
15 damage and excessive stress due to settlement, vibration, expansion, or contraction [WAC
16 173-303-640(3)(f)].

17 III.10.E.3.e. The Permittees must provide the type and degree of corrosion protection recommended by
18 an independent corrosion expert, based on the information provided in Attachment 51,
19 Appendices 8.9, 8.11, 9.9, 9.11, 10.9, 10.11, 11.9, and 11.11 of this Permit, as approved
20 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.,
21 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
22 corrosion protection if the Ecology believes other corrosion protection is necessary to ensure
23 the integrity of the tank system during use of the tank system. The installation of a corrosion
24 protection system that is field fabricated must be supervised by an independent corrosion
25 expert to ensure proper installation [WAC 173-303-640(3)(g)].

26 III.10.E.3.f. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
27 shall obtain, and keep on file in the WTP Unit operating record, written statements by those
28 persons required to certify the design of the tank system and supervise the installation of the
29 tank system in accordance with the requirements of WAC 173-303-640(3)(b), (c), (d), (e),
30 (f), and (g), attesting that each tank system and corresponding containment system listed in
31 Permit Tables III.10.E.A through D and III.10.E.I through P, as approved/modified pursuant
32 to Permit Condition III.10.E.9., were properly designed and installed, and that repairs,
33 pursuant to WAC 173-303-640(3)(c) and (e) were performed [WAC 173-303-640(3)(a)
34 WAC 173-303-640(3)(h)].

35 III.10.E.3.g. The independent tank system installation inspection and subsequent written statements shall
36 be certified pursuant to Permit Condition III.10.E.1.d., comply with all requirements of
37 WAC 173-303-640(3)(h) and shall consider, but not be limited to, the following tank system
38 installation documentation:

39 i. Field installation report with date of installation;

40 ii. Approved welding procedures;

41 iii. Welder qualifications and certification;

42 iv. Hydro-test reports, as applicable, in accordance with the American Society of
43 Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 1,
44 American Petroleum Institute (API) Standard 620, or Standard 650 as applicable;

45 v. Tester credentials;

- 1 vi. Field inspector credentials;
- 2 vii. Field inspector reports;
- 3 viii. Field waiver reports; and
- 4 ix. Non-compliance reports and corrective action (including field waiver reports) and
- 5 repair reports.
- 6 **III.10.E.4 Integrity Assessments**
- 7 **III.10.E.4.a.** The Permittees shall ensure periodic integrity assessments are conducted on the WTP Unit
- 8 Tank Systems listed in Permit Tables III.10.E.A through D, I, K, M, and O, as
- 9 approved/modified pursuant to Permit Condition III.10.E.9., over the term of this Permit as
- 10 specified in WAC 173-303-640(3)(b), following the description of the integrity assessment
- 11 program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to
- 12 Permit Conditions III.10.E.9.e.i. and III.10.C.5.c. Results of the integrity assessments shall
- 13 be included in the WTP Unit operating record until ten (10) years after post-closure, or
- 14 corrective action is complete and certified, whichever is later.
- 15 **III.10.E.4.b.** The Permittees shall address problems detected during the tank integrity assessments
- 16 specified in Permit Condition III.10.E.4.a. following the integrity assessment program in
- 17 Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions
- 18 III.10.E.9.e.i. and III.10.C.5.c.
- 19 **III.10.E.4.c.** The Permittees must immediately and safely remove from service any Tank System or
- 20 secondary containment system which through an integrity assessment is found to be “unfit
- 21 for use” as defined in WAC 173-303-040, following Permit Conditions III.10.E.5.i.i through
- 22 iv., vi., and vii. The affected tank system or secondary containment system must be either
- 23 repaired or closed in accordance with Permit Condition III.10.E.5.i.v. [WAC 173-303-
- 24 640(7)(e) and (f), WAC 173-303-640(8)].
- 25 **III.10.E.5 Tank Management Practices**
- 26 **III.10.E.5.a.** No dangerous and/or mixed waste shall be managed in the WTP Unit Tank System unless
- 27 the operating conditions, specified under Permit Condition III.10.E.5 are complied with.
- 28 **III.10.E.5.b.** The Permittees shall install and test all process and leak detection system
- 29 monitoring/instrumentation, as specified in Permit Tables III.10.E.E through H, as
- 30 approved/modified pursuant to Permit Condition III.10.E.9., in accordance with Attachment
- 31 51, Appendices 8.1, 8.2, 8.14, 9.1, 9.2, 9.14, 10.1, 10.2, 10.14, 11.1, 11.2, and 11.14 of this
- 32 Permit, as approved pursuant to Permit Conditions III.10.E.9.e.ix. and III.10.E.9.d.x.
- 33 **III.10.E.5.c.** The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or other
- 34 materials in the WTP Unit Tank System if these substances could cause the tank system to
- 35 rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a)].
- 36 **III.10.E.5.d.** The Permittees shall operate the WTP Unit Tank System to prevent spills and overflows
- 37 using the description of controls and practices as required under WAC 173-303-640(5)(b)
- 38 described in Permit Condition III.10.C.5, and Attachment 51, Appendices 8.15, 9.18, 10.18,
- 39 and 11.15 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.iv. [WAC
- 40 173-303-640(5)(b), WAC 173-303-806(4)(c)(ix)].
- 41 **III.10.E.5.e.** For routinely non-accessible WTP Unit Tank Systems, as specified in Attachment 51,
- 42 Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.E.9.e.vi., the
- 43 Permittees shall mark all routinely non-accessible tank system access points with labels or
- 44 signs to identify the waste contained in the tanks. The label, or sign, must be legible at a
- 45 distance of at least fifty (50) feet and must bear a legend that identifies the waste in a manner

1 which adequately warns employees, emergency response personnel, and the public of the
2 major risk(s) associated with the waste being stored or treated in the tank system(s). For the
3 purposes of this Permit condition, "routinely non-accessible" means personnel are unable to
4 enter these areas while waste is being managed in them [WAC 173-303-640(5)(d)].

5 III.10.E.5.f. For all tank systems not addressed in Permit Condition III.10.E.5.e., the Permittees shall
6 mark all these tank systems holding dangerous and/or mixed waste with labels or signs to
7 identify the waste contained in the tank. The labels, or sign, must be legible at a distance of
8 at least fifty (50) feet, and must bear a legend that identifies the waste in a manner which
9 adequately warns employees, emergency response personnel, and the public of the major
10 risk(s) associated with the waste being stored or treated in the tank system(s) [WAC 173-
11 303-640(5)(d)].

12 III.10.E.5.g. The Permittees shall ensure that the secondary containment systems for the WTP Unit Tank
13 Systems listed in Permit Tables III.10.E.A through D, I, K, M, and O, as approved/modified
14 pursuant to Permit Condition III.10.E.9., are free of cracks or gaps to prevent any migration
15 of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, ground
16 water, or surface water at any time that waste is in the tank system. Any indication that a
17 crack or gap may exist in the containment systems shall be investigated and repaired in
18 accordance with Attachment 51, Appendices 8.15, 9.18, 10.18, and 11.15 of this Permit, as
19 approved pursuant to Permit Condition III.10.E.9.e.v [WAC 173-303-320, WAC 173-303-
20 640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), WAC 173-303-640(6), and WAC 173-303-
21 806(4)(c)(vii)].

22 III.10.E.5.h. An impermeable coating, as specified in Attachment 51, Appendices 8.4, 8.5, 8.7, 8.9, 8.11,
23 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,
24 11.11, and 11.12 of this Permit, as approved pursuant to Permit Condition III.10.E.9.b.v.,
25 shall be maintained for all concrete containment systems and concrete portions of
26 containment systems for each WTP Unit Tank System listed in Permit Tables III.10.E.A
27 through D and I through P, as approved/modified pursuant to Permit Condition III.10.E.9.
28 Concrete containment systems that do not have a liner and have construction joints, must
29 meet the requirements of WAC 173-303-640(4)(e)(ii)(C) and -806(4)(c)(vii). The coating
30 shall prevent migration of any dangerous and/or mixed waste into the concrete. All coatings
31 shall meet the following performance standards:

- 32 i. The coating must seal the containment surface such that no cracks, seams, or other
33 avenues through which liquid could migrate are present;
- 34 ii. The coating must be of adequate thickness and strength to withstand the normal
35 operation of equipment and personnel within the given area such that degradation or
36 physical damage to the coating or lining can be identified and remedied before
37 dangerous and/or mixed waste could migrate from the system; and
- 38 iii. The coating must be compatible with the dangerous and/or mixed waste, treatment
39 reagents, or other materials managed in the containment system [WAC 173-303-
40 640(4)(e)(ii)(D), WAC 173-303-806(4)(c)(vii)].

41 III.10.E.5.i. The Permittees shall inspect all secondary containment systems for WTP Unit Tank Systems
42 listed in Permit Tables III.10.E.A through D and I through P, as approved/modified pursuant
43 to Permit Condition III.10.E.9., in accordance with the Inspection Schedule specified in
44 Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions
45 III.10.E.9.e.v. and III.10.C.5., and take the following actions if a leak or spill of dangerous
46 and/or mixed waste is detected in these containment systems [WAC 173-303-320, WAC
47 173-303-640(5)(c), WAC 173-303-640(6), WAC 173-303-806(4)(a)(v)]:

- 1 i. Immediately and safely stop the flow of dangerous and/or mixed waste into the tank
2 system or secondary containment system, in accordance with procedures based on all
3 applicable safety analysis documentation;
- 4 ii. Determine the source of the dangerous and/or mixed waste;
- 5 iii. Remove the waste from the secondary containment area pursuant to WAC 173-303-
6 640(7)(b). The waste removed from containment areas of WTP Unit Tank Systems
7 shall be managed as dangerous and/or mixed waste;
- 8 iv. If the cause of the release was a spill that has not damaged the integrity of the tank
9 system, the Permittees may return the tank system to service pursuant to WAC 173-
10 303-640(7)(e)(ii). In such a case, the Permittees shall take action to ensure the incident
11 that caused liquid to enter the containment systems of these tank systems will not
12 reoccur [WAC 173-303-320(3);
- 13 v. If the source of the dangerous waste and/or mixed waste is determined to be a leak
14 from a primary WTP Unit Tank System, or the system is unfit for use as determined
15 through an integrity assessment or other inspection, the Permittees must comply with
16 the requirements of WAC 173-303-640(7) and take the following actions [WAC 173-
17 303-640(5)(c)]:
 - 18 A. Close the tank system according to procedures in WAC 173-303-640(7)(e)(i), and
19 Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit
20 Condition III.10.C.8; or
 - 21 B. Repair and re-certify (in accordance with WAC 173-303-810(13)(a) as modified
22 pursuant to Permit Condition III.10.E.1.d.) the tank system in accordance with
23 Attachment 51, Appendices 8.15, 9.18, 10.18, and 11.15 of this Permit, as
24 approved pursuant to Permit Condition III.10.E.9.e.v. before the tank system is
25 placed back into service [WAC 173-303-640(7)(e) and (f), and WAC 173-303-
26 806(4)(c)(vii)];
- 27 vi. The Permittees shall document in the operating record actions/procedures taken to
28 comply with i. through v. above in accordance with WAC 173-303-640(6)(d);
- 29 vii. The Permittees shall notify and report releases to the environment to Ecology in
30 accordance with WAC 173-303-640(7)(d).
- 31 III.10.E.5.j. If liquids (e.g., dangerous and/or mixed waste leaks and spills, precipitation, fire water
32 liquids from damaged or broken pipes) can not be removed from the secondary containment
33 system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four
34 (24) hours of discovery. The notification shall provide the information in A, B, and C listed
35 below. The Permittees shall provide Ecology with a written demonstration within seven (7)
36 business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv), WAC 173-303-
37 640(7)(b)(ii), WAC 173-303-806(4)(c)(vii)]:
 - 38 A. Reasons for delayed removal;
 - 39 B. Measures implemented to ensure continued protection of human health and the
40 environment;
 - 41 C. Current actions being taken to remove liquids from secondary containment.
- 42 III.10.E.5.k. The Permittees shall operate the WTP Unit Tank System in accordance with Attachment 51,
43 Chapter 4.0 as updated pursuant to Permit Condition III.10.E.9.e.vi. and Appendices 8.15,
44 9.18, 10.18, and 11.15 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.,
45 and the following:

- 1 i. The Permittees shall operate the WTP Unit Tank System in order to maintain the
2 systems and process parameters listed in Permit Tables III.10.E.E through H, as
3 approved/modified pursuant to Permit Condition III.10.E.9., within the operating trips
4 and operating ranges specified in Permit Tables III.10.E.E through H, and consistent
5 with assumptions and basis which are reflected in Attachment 51, Appendix, 6.3.1. as
6 approved pursuant to Permit Condition III.10.C.11.b. [WAC 173-303-815(2)(b)(ii) and
7 WAC 173-303-640(5)(b)]. For the purposes of this permit condition, Attachment 51,
8 Appendix 6.3.1 shall be superceded by Appendix 6.4.1 upon its approval pursuant to
9 either Permit Conditions III.10.C.11.c. or III.10.C.11.d.;
- 10 ii. The Permittees shall calibrate/function test the instruments listed on Permit Tables
11 III.10.E.E through H in accordance with Attachment 51, Appendices 8.15, 9.18, 10.18,
12 and 11.15 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.xi.
- 13 III.10.E.5.l. Tank systems that have the potential for formation and accumulation of hydrogen gases
14 must be operated to maintain hydrogen levels below the lower explosive limit [WAC 173-
15 303-815(2)(b)(ii)].
- 16 III.10.E.5.m. For each tank system holding dangerous waste which are acutely or chronically toxic by
17 inhalation, operate the system to prevent escape of vapors, fumes or other emissions into the
18 air [WAC 173-303-640(5)(e), WAC 173-303-806(4)(c)(xii)].
- 19 III.10.E.6 Inspections [WAC 173-303-640(6)]
- 20 III.10.E.6.a. The Permittees shall inspect the WTP Unit Tank Systems in accordance with the Inspection
21 Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified pursuant to Permit
22 Condition III.10.C.5.c.
- 23 III.10.E.6.b. The inspection data for the WTP Unit Tank Systems shall be recorded, and the records shall
24 be placed in the WTP Unit operating record, in accordance with Permit Condition III.10.C.4.
- 25 III.10.E.7 Recordkeeping (WAC 173-303-380)
- 26 For the WTP Unit Tank Systems, the Permittees shall record and maintain in the WTP Unit
27 operating record, all monitoring, calibration, recording, maintenance, test data, and
28 inspection data compiled under the conditions of this Permit, in accordance with Permit
29 Conditions III.10.C.4. and III.10.C.5.
- 30 III.10.E.8 Closure
- 31 The Permittees shall close the WTP Unit Tank Systems in accordance with Attachment 51,
32 Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.
- 33 III.10.E.9 Compliance Schedule
- 34 III.10.E.9.a. All information identified for submittal to Ecology in b. through e. of this compliance
35 schedule must be signed and certified in accordance with requirements in WAC 173-303-
36 810(12), as modified in accordance with Permit Condition III.10.E.1.d. [WAC 173-303-
37 806(4)].
- 38 III.10.E.9.b. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to
39 construction of each secondary containment and leak detection system for the WTP Unit
40 Tank System (per level, per WTP Unit building and outside the WTP Unit buildings) as
41 identified in Permit Tables III.10.E.A through D, J, L, N, and P, engineering information as
42 specified below, for incorporation into Attachment 51, Appendices 8.4, 8.5, 8.7, 8.8, 8.9,
43 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,
44 11.7, 11.8, 11.9, and 11.11 of this Permit. At a minimum, engineering information specified
45 below will show the following as required pursuant to WAC 173-303-640 (the information

1 specified below will include dimensioned engineering drawings and information on sumps
2 and floor drains):

- 3 i. IQRPE Reports (specific to foundation, secondary containment, and leak detection
4 system) shall include review of design drawings, calculations, and other information on
5 which the certification report is based and shall include as applicable, but not limited to,
6 review of such information described below. Information (drawings, specifications,
7 etc.) already included in Attachment 51, Appendices 8.0 through 11.0 of this Permit,
8 may be included in the report by reference and should include drawing and document
9 numbers. IQRPE Reports shall be consistent with the information separately provided
10 in ii. through ix. below. The IQRPE Report(s) (specific to foundation, secondary
11 containment and leak detection system) for the LAW and HLW buildings (-21 foot
12 elevation only) shall be submitted with the first IQRPE Report for tanks, identified in
13 Permit Condition III.10.E.9.c.i. [WAC 173-303-640(3)(a), WAC 173-303-
14 806(4)(c)(i)];
- 15 ii. Design drawings (General Arrangement Drawings in plan and cross sections) and
16 specifications for the foundation, secondary containment, including, liner installation
17 details, and leak detection methodology [Note: leak detection systems for areas where
18 daily, direct, or remote visual inspection is not feasible, shall be continuous in
19 accordance with WAC 173-303-640(4)(e)(iii)(C)]. These items should show the
20 dimensions, volume calculations, and location of the secondary containment system,
21 and should include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC
22 173-303-640(4)(b) through (f), WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];
- 23 iii. The Permittees shall provide the design criteria (references to codes and standards, load
24 definitions, and load combinations, materials of construction, and analysis/design
25 methodology) and typical design details for the support of the secondary containment
26 system. This information shall demonstrate the foundation will be capable of providing
27 support to the secondary containment system, resistance to pressure gradients above
28 and below the system, and capable of preventing failure due to settlement,
29 compression, or uplift [WAC 173-303-640(4)(c)(ii), WAC 173-303-806(4)(c)(vii)];
- 30 iv. A description of materials and equipment used to provide corrosion protection for
31 external metal components in contact with soil, including factors affecting the potential
32 for corrosion as required under WAC 173-303-640(3)(a)(iii)(B) [WAC 173-303-
33 806(4)(c)(v)];
- 34 v. Secondary containment/foundation and leak detection system materials selection
35 documentation (including, but not limited to, concrete coatings and water stops, and
36 liner materials as applicable) [WAC 173-303-806(4)(c)(i)];
- 37 vi. Detailed description of how the secondary containment for each tank system will be
38 installed in compliance with WAC 173-303-640(3)(c) [WAC 173-303-806(4)(c)(vi)];
- 39 vii. Submit Permit Tables III.10.E.J, L, N, and P, completed to provide for all secondary
40 containment sumps and floor drains, the information as specified in each column
41 heading, consistent with information to be provided in i. through vi. above;
- 42 viii. Documentation that secondary containment and leak detection systems will not
43 accumulate hydrogen gas levels above the lower explosive limit for incorporation into
44 the Administrative Record [WAC 173-303-340].
- 45 ix. A detailed description of how tank system design provides access for conducting future
46 tank integrity assessments [WAC 173-303-640(3)(b), WAC 173-303-806(4)(c)(vi)];

1 III.10.E.9.c. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to
2 installation of each tank as identified in Permit Tables III.10.E.A through D, and I, K, M,
3 and O engineering information as specified below, for incorporation into Attachment 51,
4 Appendices 8.1 through 8.9, 8.11 through 8.14, 9.1 through 9.9, 9.11 through 9.14, 10.1
5 through 10.9, 10.11 through 10.14, 11.1 through 11.9, and 11.11 through 11.14 of this
6 Permit. Tanks shall include primary sumps. At a minimum, engineering information
7 specified below will show the following as required pursuant to WAC 173-303-640 (the
8 information specified below will include dimensioned engineering drawings):

- 9 i. IQRPE Reports (specific to tanks) shall include review of design drawings,
10 calculations, and other information on which the certification report is based and shall
11 include as applicable, but not limited to, review of such information described below.
12 Information (drawings, specifications, etc.) already included in Attachment 51,
13 Appendices 8.0 through 11.0 of this Permit, may be included in the report by reference
14 and should include drawing and document numbers. The IQRPE Reports shall be
15 consistent with the information separately provided in ii. through xiv. below and the
16 IQRPE Report specified in Permit Condition III.10.E.9.b.i. [WAC 173-303-640(3)(a),
17 WAC 173-303-806(4)(c)(i)];
- 18 ii. Design drawings (General Arrangement Drawings in plan and cross sections, Process
19 Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control
20 systems], Mechanical Drawings) and specifications, and other information, specific to
21 tanks (to show location and physical attributes of each tank) [WAC 173-303-640(3)(a),
22 WAC 173-303-806(4)(c)(i) through (iv)];
- 23 iii. The Permittees shall provide the design criteria (references to codes and standards, load
24 definitions, and load combinations, materials of construction, and analysis/design
25 methodology) and typical design details for the support of the tank(s). Structural
26 support calculations specific to off-specification, non-standard, and field fabricated
27 tanks shall be submitted for incorporation into the Administrative Record [WAC 173-
28 303-640(3)(a), WAC 173-303-806(4)(c)(i)];
- 29 iv. A description of materials and equipment used to provide corrosion protection for
30 external metal components in contact with water, including factors affecting the
31 potential for corrosion as required under WAC 173-303-640(3)(a)(iii)(B) [WAC 173-
32 303-806(4)(c)(v)];
- 33 v. Tank materials selection documentation (e.g., physical and chemical tolerances) [WAC
34 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];
- 35 vi. Tank vendor information (including, but not limited to required performance
36 warranties, as available), consistent with information submitted under ii. above, shall
37 be submitted for incorporation into the Administrative Record [WAC 173-303-640, and
38 WAC 173-303-806(4)(c)];
- 39 vii. System Descriptions (process) related to tanks shall be submitted for incorporation into
40 the Administrative Record;
- 41 viii. Mass balance for each projected operating condition, including assumptions and
42 formulas used to complete the mass balance, so that they can be independently verified,
43 and shall be submitted for incorporation into the Administrative Record;
- 44 ix. A detailed description of how the tanks will be installed in compliance with WAC 173-
45 303-640(3)(c), (d), and (e) [WAC 173-303-806(4)(c)(vi)];

- x. Submit Permit Tables III.10.E.I, K, M, and O, 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 i. through ix.;
- 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];
- xii. Documentation that tanks are designed to prevent escape of vapors and emissions of acutely or chronically toxic (upon inhalation) EHW limit 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 shall 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, and I through P, not addressed in Permit Condition III.10.E.9.c., engineering information as specified below, for incorporation into Attachment 51, 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, and 11.11 through 11.14 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):

- i. IQRPE Reports (specific to ancillary equipment) shall include a review of design drawings, calculations, and other information as applicable, on which the certification report is based. The reports shall include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 8.0 through 11.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall be consistent with the information provided separately in 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)];
- 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. The Permittees shall 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)];
- 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)];
- 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)];
- vi. Vendor information, consistent with information submitted under ii. above, shall be submitted for incorporation into the Administrative Record [WAC 173-303-640, and WAC 173-303-806(4)(c)];

- 1 vii. Tank, ancillary equipment, and leak detection system instrument control logic narrative
2 description (e.g., software functional specifications, descriptions of fail-safe conditions,
3 etc.);
- 4 viii. System Descriptions (process) related to ancillary equipment and system descriptions
5 related to leak detection systems, (including instrument control logic and narrative
6 descriptions), for incorporation into the Administrative Record;
- 7 ix. A detailed description of how the ancillary equipment will be installed and tested
8 [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), and WAC
9 173-303-806(4)(c)(vi)];
- 10 x. For process monitoring, control, and leak detection system instrumentation for the
11 WTP Unit Tank System as identified in Permit Tables III.10.E.E through H, a detailed
12 description of how the process monitoring, control, and leak detection system
13 instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e),
14 WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi)];
- 15 xi. Mass balance for projected normal operating condition used in developing the process
16 and instrumentation diagrams, including assumptions and formulas used to complete
17 the mass balance, so that they can be independently verified, for incorporation into the
18 Administrative Record;
- 19 xii. Documentation that ancillary equipment is designed to prevent the accumulation of
20 hydrogen gas levels above the lower explosive limit for incorporation into the
21 Administrative Record [WAC 173-303-340].
- 22 xiii. Leak detection system documentation (e.g. vendor information, etc.) consistent with
23 information submitted under Permit Condition III.10.E.9.c.ii. and Permit Conditions
24 III.10.E.9.d.ii., vii., viii. and x. above, shall be submitted for incorporation into the
25 Administrative Record.

26
27 III.10.E.9.e. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
28 shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., the following as
29 specified below for incorporation into Attachment 51, Appendices 8.15, 9.18, 10.18, 11.15
30 of this Permit, except Permit Condition III.10.E.9.e.v., which will be incorporated into
31 Attachment 51, Chapter 6.0 of this Permit. All information provided under this permit
32 condition must be consistent with information provided pursuant to Permit Conditions
33 III.10.E.9.b., c., d., and e., III.10.C.3.e., and III.10.C.11.b., as approved by Ecology.

- 34 i. Integrity assessment program and schedule for all WTP Unit tanks shall address the
35 conducting of periodic integrity assessments on all WTP Unit tanks over the life of the
36 tank, in accordance with III.10.E.9.b.ix. and WAC 173-303-640(3)(b), and descriptions
37 of procedures for addressing problems detected during integrity assessments. The
38 schedule must be based on past integrity assessments, age of the tank system, materials
39 of construction, characteristics of the waste, and any other relevant factors [WAC 173-
40 303-640(3)(b), WAC 173-303-806(4)(c)(vi)];
- 41 ii. Detailed plans and descriptions, demonstrating the leak detection system is operated so
42 that it will detect the failure of either the primary or secondary containment structure or
43 the presence of any release of dangerous and/or mixed waste, or accumulated liquid in
44 the secondary containment system within twenty-four (24) hours. Detection of a leak
45 of at least 0.1 gallons per hour within twenty-four (24) hours is defined as being able to

1 detect a leak within twenty-four (24) hours. Any exceptions to this criteria must be
2 approved by Ecology [WAC 173-303-640(4)(c)(iii), WAC 173-303-806(4)(c)(vii)];

- 3 iii. Detailed operational plans and descriptions, demonstrating that spilled or leaked waste
4 and accumulated liquids can be removed from the secondary containment system
5 within twenty-four (24) hours [WAC 173-303-806(4)(c)(vii)];
- 6 iv. Descriptions of operational procedures demonstrating appropriate controls and
7 practices are in place to prevent spills and overflows from tanks or containment
8 systems in compliance with WAC 173-303-640(5)(b)(i) through (iii) [WAC 173-303-
9 640(5)(b), WAC 173-303-806(4)(c)(ix)];
- 10 v. Description of procedures for investigation and repair of tank systems [WAC 173-303-
11 320, WAC 173-303-640(6), WAC 173-303-640(7)(e) and (f), WAC 173-303-
12 806(4)(a)(v), WAC 173-303-806(4)(c)(vii)];
- 13 vi. Updated Chapter 4.0, Narrative Descriptions, Tables and Figures as identified in Permit
14 Tables III.10.E.A through D (as modified pursuant to Permit Condition
15 III.10.E.9.e.xii.) and updated to identify routinely non-accessible tank systems;
- 16 vii. Description of procedures for management of ignitable and reactive, and incompatible
17 dangerous and/or mixed waste in accordance with WAC 173-303-640(9) and (10)
18 [WAC 173-303-806(4)(c)(x)].
- 19 viii. A description of the tracking system used to track dangerous and/or mixed waste
20 throughout the WTP Unit Tank System, pursuant to WAC 173-303-380.
- 21 ix. Permit Tables III.10.E.E through H shall be completed for WTP Unit Tank System
22 process and leak detection system monitors and instruments (to include but not limited
23 to: instruments and monitors measuring and/or controlling flow, pressure, temperature,
24 density, pH, level, humidity, and emission) to provide the information as specified in
25 each column heading. Process and leak detection system monitors and instruments for
26 critical systems as specified in Attachment 51, Appendix 2.0 and as updated pursuant
27 to Permit Condition III.10.C.9.b. and for operating parameters as required to comply
28 with Permit Condition III.10.C.3.e.iii. shall be addressed. Process monitors and
29 instruments for non-waste management operations (e.g., utilities, raw chemical storage,
30 non-contact cooling waters, etc.) are excluded from this permit condition.
- 31 x. Supporting documentation for operating trips and expected operating range as specified
32 in Permit Tables III.10.E.E through H as approved pursuant to Permit Condition
33 III.10.E.9.e.ix.
- 34 xi. Documentation of process and leak detection instruments and monitors (as listed in
35 Permit Tables III.10.E.E through H) for the WTP Unit Tank Systems to include but not
36 be limited to the following:
- 37 A. Procurement specifications;
- 38 B. Location used;
- 39 C. Range, precision, and accuracy;
- 40 D. Detailed descriptions of Calibration/functionality test procedures (e.g., method
41 number [ASTM]) or provide a copy of manufacturer's recommended calibration
42 procedures;
- 43 E. Calibration/functionality test, inspection, and routine maintenance schedules and
44 checklists, including justification for calibration, inspection and maintenance

1 frequencies, criteria for identifying instruments found to be significantly out of
2 calibration, and corrective action to be taken for instruments found to be
3 significantly out of calibration (e.g., increasing frequency of calibration,
4 instrument replacement, etc.);

5 F. Equipment instrument control logic narrative description (e.g., software functional
6 specifications, descriptions of fail safe conditions, etc.), as identified in Permit
7 Tables III.10.E.E through H not addressed in Permit Condition III.10.E.9.d.

8 xii. Permit Tables III.10.E.A through D amended as follows:

9 A. Under column 1, update and complete list of dangerous and/or mixed waste tank
10 systems, including plant items that comprise each system (listed by item number);

11 B. Under column 2, update and complete system designations;

12 C. Under column 3, replace the 'reserved' with the Attachment 51, Appendices 8.0,
13 9.0, 10.0, and 11.0, subsections specific to tank systems as listed in column 1;

14 D. Under column 4, update and complete list of narrative description tables and
15 figures;

16 E. Under column 5, update and complete maximum capacity, for each tank.

17 xiii. Permit Tables III.10.E.I, K, M, and O amended as follows:

18 A. Under column 1, replace the 'reserved' with the updated and complete list of
19 sump numbers and room location;

20 B. Under column 2, replace the 'reserved' with the updated and complete maximum
21 sump capacities in gallons;

22 C. Under column 3, replace the 'reserved' with the updated and complete sump
23 dimensions and materials of construction;

24 D. Under column 4, replace the 'reserved' with the updated and complete list of
25 engineering descriptions (drawing numbers, specifications, etc.);

26

27

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 Vessels V11020A-D (Waste Feed Receipt Process System)	FRP	RESERVED	Section 4.1.2.1; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-5, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V11020A = 388,000 V11020B = 388,000 V11020C = 388,000 V11020D = 388,000
Evaporator Feed Vessels V11001A-B, Evaporator Process Condensate Pot V11005, (Waste Feed Evaporation Process System)	FEP	RESERVED	Section 4.1.2.2; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-6, 4A-61, 4A-62, 4A-63, 4A-78, 4A-79, 4A-80 of Attachment 51, Chapter 4.0 of this Permit.	V11001A = 59,070 V11001B = 90,070 V11005 = 1,190
LAW Permeate Hold Vessels V12015A-C, Evaporator Concentrate Buffer Vessels V12010A-B, Ultrafiltration Feed Vessels V12011A-B, Ultrafilters G12002A-B, G12003A-B, and G12004A-B (Ultrafiltration Process System)	UFP	RESERVED	Section 4.1.2.3; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-7, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V12015A = 28,390 V12015B = 28,390 V12015C = 28,390 V12010A = 62,340 V12010B = 62,340 V12011A = 26,840 V12011B = 26,840 G12002A = 140 G12002B = 140 G12003A = 140 G12003B = 140 G12004A = 140 G12004B = 140
HLW Feed Blending Vessel V12007, Sr/TRU Lag Storage Vessels V12001A & C, Lag Storage Vessels V12001D & E	HLP	RESERVED	Section 4.1.2.4; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-8, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0	V12007 = 18,070 V12001A = 96,900 V12001C = 96,900

Dangerous and/or mixed waste Tank Systems Name	System Designation	Engineering Description (Drawing Nos., Specifications Nos., etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
(HLW Lag Storage and Feed Blending Process system)			of this Permit.	V12001D = 96,900 V12001E = 96,900
Cesium Ion Exchange Columns C13001-4, LAW Feed Vessel V13001, Caustic Rinse Collection Vessel V13008, Cs IX Gas Separation Vessels (ID RESERVED), Cesium Reagent Tank (ID RESERVED) (Cesium Ion Exchange Process System)	CXP	RESERVED	Section 4.1.2.5; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-9, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	C13001 = 680 C13002 = 680 C13003 = 680 C13004 = 680 V13001 = 61,200 V13008 = 2,400 Cs IX Gas Separation Vessels = RESERVED Cesium Reagent Tank = RESERVED
Eluate Contingency Storage Vessel V13073, Recovered Nitric Acid Vessel V13028, Cesium Concentrate Lute Pot V13030, (Cesium Nitric Acid Recovery Process System)	CNP	RESERVED	Section 4.1.2.6; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-10, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V13073 = 11,060 V13028 = 5,410 V13030 = 70
Technetium Ion Exchange Buffer Vessel V43001, Cs Treated LAW Collection Vessel (ID RESERVED), Technetium Ion Exchange Columns C43006-9, Caustic Rinse Collection Vessel V43056, Treated LAW Buffer Vessels V43110A-C, Tc Reagent Vessels (ID's RESERVED) (Technetium Ion Exchange Process System)	TXP	RESERVED	Section 4.1.2.8; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-12, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V43001 = 18,100 Cs Treated LAW Collection Vessel (ID RESERVED) C43006 = 680 C43007 = 680 C43008 = 680 C43009 = 680 V43056 = 3,300 V43110A = 33,050 V43110B = 33,050 V43110C = 33,170

Dangerous and/or mixed waste Tank Systems Name	System Designation	Engineering Description (Drawing Nos., Specifications Nos., etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
				Tc Reagent Vessels (ID's RESERVED)
Recovered Technetium Eluant Vessel V43071, Technetium Concentrate Lute Pot V43072 (Technetium Eluant Recovery Process System)	TEP	RESERVED	Section 4.1.2.9; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-13, 4A-61, 4A-78 of Attachment 51, Chapter 4.0 of this Permit.	V43071 = 7,900 V43072 = 70
Process Condensate Hold Vessel V41013, Plant Wash Vessels V45009A-B, LAW SBS Purge Receipt Vessels (ID RESERVED) (Treated LAW Evaporation Process System (TLP)), LAW Buffer Storage Vessel V41001 (Treated LAW Concentrate Storage Process System (TCP))	TLP TCP	RESERVED	Section 4.1.2.11 & 4.2.2.12; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-16, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V41013 = 450 V45009A = 88,920 V45009B = 88,920 LAW SBS Purge Receipt Vessels (ID RESERVED) V41001 = 117,000
Spent Resin Collection Vessels V43135A-B, Resin Flush Collection Vessel V43136, Spent Resin Dewatering Moisture Separation Vessel (ID RESERVED) (Spent Resin and Dewatering Process System)	RDP	RESERVED	Section 4.1.2.13; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-15, 4A-61, 4A-78 of Attachment 51, Chapter 4.0 of this Permit.	V43135A = 8,720 V43135B = 8,720 V43136 = 11,220 Spent Resin Dewatering Moisture Separation Vessel= RESERVED
Process Condensate Vessels V45028A-B (Pretreatment Plant Radioactive Liquid Waste Disposal System)	RLD	RESERVED	Section 4.1.2.16; Table 4-3; and Figures 4A-1, 4A-2, 4A-18, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V45028A = 321,720 V45028B = 321,720
Ultimate Overflow Vessel V15009B, HLW Effluent Transfer Vessel V12002, Primary Acidic/Alkaline Effluent Vessel V45013, Secondary Acidic/Alkaline Effluent Vessel V45018, Alkaline Effluent Vessels V15013 & V15018,	PWD	RESERVED	Section 4.1.2.15; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-17, 4A-60, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V15009B = 23,000 V12002 = 23,000 V45013 = 49,850 V45018 = 49,850 V15013 = 93,180

Dangerous and/or mixed waste Tank Systems Name	System Designation	Engineering Description (Drawing Nos., Specifications Nos., etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
Plant Wash Vessel V15009A, C3 Floor Drains Tank V15319 (Pretreatment Plant Wash and Disposal System)				V15009A = 73,860 V15319 = 450 V15018 = 93,180
Vessel Vent Header Collection Vessel V15052, Condensate Collection Vessel V15038, HEME Drain Collection Vessels V15326-7 (Pretreatment Vessel Vent Process System)	PVP	RESERVED	Section 4.1.2.17; Table 4-3; and Figures 4A-1, 4A-2, 4A-19, 4A-61, and 4A-78 of Attachment 51, Chapter 4.0 of this Permit.	V15052 = 900 V15038 = 1,230 V15327 = 2,760 V15326 = 820

Table III.10.E.B – Law Vitrification Plant Tank Systems Description

Mixed Waste Tank Systems Name	Unit Designation	Unit Description	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
Melter 1 Concentrate Receipt Vessel V21001, Melter 2 Concentrate Receipt Vessel V21002, Melter 3 Concentrate Receipt Vessel V21003 (LAW Concentrate Receipt Process System)	LCP	RESERVED	Section 4.1.3.1; Table 4-4 and 4-11; and Figures 4A-1, 4A-3, 4A-20, of Attachment 51, Chapter 4.0 of this Permit.	V21001 = 14,392 V21002 = 14,392 V21003 = 14,392
Melter 1 Feed Preparation Vessel V21101, Melter 1 Feed Vessel V21102, Melter 2 Feed Preparation Vessel V21201, Melter 2 Feed Vessel V21202, Melter 3 Feed Preparation Vessel V21301, Melter 3 Feed Vessel V21302 (LAW Melter Feed Process System)	LFP	RESERVED	Section 4.1.3.1; Table 4-4 and 4-11; and Figures 4A-1, 4A-3, 4A-20, 4A-67, and 4A-83 of Attachment 51, Chapter 4.0 of this Permit.	V21101 = 6,221 V21102 = 6,221 V21201 = 6,221 V21202 = 6,221 V21301 = 6,221 V21302 = 6,221
LAW Caustic Scrubber Blowdown Vessel V22001 (LAW Secondary Off-gas/Vessel Vent Process System)	LVP	RESERVED	Section 4.1.3.3; Table 4-4 and 4-11; and Figures 4A-1, 4A-3, 4A-23 of Attachment 51, Chapter 4.0 of this Permit.	V22001 = 12,191
Melter 1 SBS Condensate Vessel V22101, Melter 2 SBS Condensate Vessel V22201, Melter 3 SBS Condensate Vessel V22301 (LAW Primary Off-gas Process System)	LOP	RESERVED	Section 4.1.3.3; Table 4-4 and 4-11; and Figures 4A-1, 4A-3, 4A-22, 4A-67, and 4A-83 of Attachment 51, Chapter 4.0 of this Permit.	V22101 = 6,833 V22201 = 6,833 V22301 = 6,833
Plant Wash Vessel V25001, LAW C3/C5 Effluent Collection Vessel V25002, SBS Condensate Collection Vessel V25003 (LAW Vitrification Plant Radioactive Liquid Waste Disposal System)	RLD	RESERVED	Section 4.1.3.4; Table 4-4 and 4-11; and Figures 4A-1, 4A-2, 4A-25, 4A-66, 4A-67, 4A-82, and 4A-83 of Attachment 51, Chapter 4.0 of this Permit.	V25001 = 25,130 V25002 = 7,218 V25003 = 24,704

Table III.10.E.C – HLW Vitrification Plant Tank Systems Description

Mixed Waste Tank Systems Name	Unit Designation	Unit Description	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
Concentrate Receipt Vessel V31001 , Concentrate Receipt Vessel2 V31002 (HLW Cave Receipt Process System)	HCP	RESERVED	Section 4.1.4.1; Table 4-5 and 4-11; and Figures 4A-1, 4A-4, 4A-26, 4A-71, 4A-72, 4A-73, 4A-86, and 4A-87 of Attachment 51, Chapter 4.0 of this Permit.	V31001 = 17,900 V31002 = 17,900
Feed Preparation Vessel V31101 , HLW Melter Feed Vessel V31102 (HLW Melter Feed Process System)	HFP	RESERVED	Section 4.1.4.1; Table 4-5 and 4-11; and Figures 4A-1, 4A-4, 4A-26, 4A-72, 4A-73, 4A-86, and 4A-87, of Attachment 51, Chapter 4.0 of this Permit.	V31101 = 8,800 V31102 = 8,800
SBS Condensate Collection Vessel V32101 (Melter Off-gas Treatment Process System-Primary System)	HOP	RESERVED	Section 4.1.4.3; Table 4-5 and 4-11; and Figures 4A-1, 4A-4, 4A-28, 4A-71, and 4A-86 of Attachment 51, Chapter 4.0 of this Permit.	V32101 = 10,000
Canister Bogie Decontamination Vessel V33004, Waste Neutralization Vessel V33002 , Canister Decontamination Vessel V33001 (HLW Canister Decontamination Handling System)	HDH	RESERVED	Section 4.1.4.5; Table 4-5 and 4-11; and Figures 4A-1, 4A-4, 4A-30, 4A-71, 4A-72, 4A-86, 4A-87 of Attachment 51, Chapter 4.0 of this Permit.	V33004 = 2,500 V33002 = 5,300 V33001 = 580
Acidic Waste Vessel V35002 , Plant Wash and Drains Vessel V35003, Decontamination Effluent Collection Vessel V35009, Off-gas Drains Collection Vessel V35038 (HLW Vitrification Plant Radioactive Liquid Waste Disposal System)	RLD	RESERVED	Section 4.1.4.4; Table 4-5 and 4-11; and Figures 4A-1, 4A-4, 4A-31, 4A-71, 4A-72, 4A-73, 4A-86, 4A-87 of Attachment 51, Chapter 4.0 of this Permit.	V35002 = 16,700 V35003 = 13,200 V35009 = 7,300 V35038 = 7,280

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Table III.10.E.D – Analytical Laboratory Tank Systems Description

Mixed Waste Tank Systems Name	Unit Designation	Unit Description	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
Lab Liquid Effluent Collection Vessel V60001a, Lab Liquid Effluent Collection Vessel V60001b (Analytical Laboratory Tank System)	LAB	RESERVED	Section 4.1.5; Table 4-6 and 4-11; and Figures 4A-1, 4A-2, and 4A-113 of Attachment 51, Chapter 4.0 of this Permit.	V60001a = 12,063 V60001b = 12,063

Table III.10.E.E – Pretreatment Plant Tank System Process and Leak Detection System Instruments and Parameters

Tank System Locator and Name (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 P-B005 (Pit-19) ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00040 P-B002 (Pit-45) ^a	Not Applicable	Bubbler Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00001 P-0108B ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00001A P-0108C ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00002 P-0108A ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00002A P-0108 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00003	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED

P-0106 ^a									
PWD-SUMP-00004 P-0104 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00005 P-0102A ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00006 P-0102 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00007 P-0109 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00008 P-0111 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00009 P-0112 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00010 P-0113 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00011 P-0114 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00012 P-0117 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00013 P-117A ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00026 P-0123 (Hot Cell) ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00028	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED

P-0123 (Hot Cell) ^a									
PWD-SUMP-00029 P-0123 (Hot Cell) ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00031 P-0119 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00032 P-0123A (Maintenance Cave) ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00033 P-0123A (Maintenance Cave) ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00034 P-0121A ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00035 P-0122A ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00036 P-0118 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

^aP&ID information is located on Permit Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems Including Sumps and Floor Drains.

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Table III.10.E.F – LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters

Tank System Locator and Name (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
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RLD-SUMP-00028 L-B001B ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
RLD-SUMP-00029 L-0123 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
RLD-SUMP-00030 L-0123 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
RLD-SUMP-00031 L-0124 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
RLD-SUMP-00032 L-0124 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
RLD-SUMP-00033 L-0125 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
RLD-SUMP-00034 L-0125 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
RLD-SUMP-00035 L-0126 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
RLD-SUMP-00036 L-0126 ^a	Not Applicable	Radar Leak Detector	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

1 ^aP&ID information is located on Permit Table III.10.E L - LAW Vitrification Plant Tank Systems Secondary Containment Systems Including Sumps and Floor
 2 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 Locator and Name (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
<u>HCP-SUMP-00001^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>RLD-SUMP-00001^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>HOP-SUMP-00003^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>HDH-SUMP-00001^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>HDH-SUMP-00002^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>HDH-SUMP-00003^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>RWH-SUMP-00001^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>RWH-SUMP-00005^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>RWH-SUMP-00006^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>HPH-SUMP-00001^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>HPH-SUMP-00005^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>HMH-SUMP-00002^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>HFP-SUMP-00002^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>HSH-SUMP-00003^a</u>	<u>Not Applicable</u>	<u>Radar Leak Detector</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>	<u>RESERVED</u>

1 ^aSump locator and name (including P&ID designator) is located on Permit Table III.10.E.N - HLW Vitrification Plant Tank Systems Secondary Containment
 2 Systems Including Sumps and Floor Drains.
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Table III.10.E.H – Laboratory Tank System Process and Leak Detection System Instruments and Parameters

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Tank System Locator and Name (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
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

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Table III.10.E.I – Pretreatment Plant Tank Systems Primary^a Containment Sump Systems

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Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)
RESERVED	RESERVED	RESERVED	RESERVED

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^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.

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Table III.10.E J – Pretreatment Plant Tank Systems 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 (inches) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)
PWD-SUMP-00071 P-B005 (Pit-19)	112.2	Dry Sump ^a	24"x30"x36" Coating Type (RESERVED)	24590-PTF-M6-PWD-P00041
PWD-SUMP-00040 P-B002 (Pit-45)	233.7	Wet Sump/ 140.3	60"x30"x30" 6Mo	24590-PTF-M6-PWD-P00012
PWD-SUMP-00001 P-0108B	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00008
PWD-SUMP-00001A P-0108C	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00010
PWD-SUMP-00002 P-0108A	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00008
PWD-SUMP-00002A P-0108	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00010
PWD-SUMP-00003 P-0106	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00008
PWD-SUMP-00004 P-0104	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00008
PWD-SUMP-00005 P-0102A	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00008
PWD-SUMP-00006 P-0102	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00008
PWD-SUMP-00007 P-0109	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00009
PWD-SUMP-00008 P-0111	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00009
PWD-SUMP-00009 P-0112	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00009
PWD-SUMP-00010 P-0113	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00009
PWD-SUMP-00011 P-0114	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00009

PWD-SUMP-00012 P-0117	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00009
PWD-SUMP-00013 P-0117A	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00014
PWD-SUMP-00026 P-0123 (Hot Cell)	73.5	Dry Sump ^a	30" Dia. By ~28" deep 316L	24590-PTF-M6-PWD-P00010
PWD-SUMP-00028 P-0123 (Hot Cell)	73.5	Dry Sump ^a	30" Dia. By ~28" deep 316L	24590-PTF-M6-PWD-P00014
PWD-SUMP-00029 P-0123 (Hot Cell)	73.5	Dry Sump ^a	30" Dia. By ~28" deep 316L	24590-PTF-M6-PWD-P00014
PWD-SUMP-00031 P-0119	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00010
PWD-SUMP-00032 P-0123A (Maintenance Cave)	73.5	Dry Sump ^a	30" Dia. By ~28" deep 316L	24590-PTF-M6-PWD-P00010
PWD-SUMP-00033 P-0123A (Maintenance Cave)	73.5	Dry Sump ^a	30" Dia. By ~28" deep 316L	24590-PTF-M6-PWD-P00010
PWD-SUMP-00034 P-0121A	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00012
PWD-SUMP-00035 P-0122A	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00012
PWD-SUMP-00036 P-0118	73.5	Dry Sump ^a	30" Dia. By ~28" deep 304L	24590-PTF-M6-PWD-P00012
PWD-ZF-03000-S11B-06 P-0123 (Hot Cell, El. 0')	939	N/A	6" Dia. 316L	24590-PTF-M6-PWD-P0011
PWD-ZF-03001-S11B-06 P-0123 (Hot Cell, El. 0')	939	N/A	6" Dia. 316L	24590-PTF-M6-PWD-P0011
PJV-ZF-00027-S11B-02 P-0101 (PJV-BULGE- 00001 Drain, El. 0')	60	N/A	2" Dia. 316L	24590-PTF-M6-PJV-P0002
PWD-ZF-00004-S11B-02 P-0105 (PVP-BULGE- 00001 Drain, El. 0')	60	N/A	2" Dia. 316L	24590-PTF-M6-PVP-P0003
PWD-ZF-00005-S11B-02 P-0101A (PVP-BULGE-	60	N/A	2" Dia. 316L	24590-PTF-M6-PVP-P0003

00002 Drain, El. 0')				
RDP-ZF-00016-S11B-02 P-0110A (RDP-BULGE- 00010 Drain, El. 0')	60	N/A	2" Dia. 316L	24590-PTF-M6-RDP-P0001
TCP-PH-00032-S11B-02 P-0116 (TCP-BULGE- 00004 Drain, El. 0')	60	N/A	2" Dia. 316L	24590-PTF-M6-TCP-P0001
TEP-ZF-02066-S11B- 011/2 P-0110A (TEP-BULGE- 00006 Drain, El. 0')	40	N/A	1-1/2" Dia. 316L	24590-PTF-M6-TEP-P0001
TXP-ZF-00022-S11M- 011/2 P-0110B (TXP-BULGE- 00001 Drain, El. 0')	40	N/A	1-1/2" Dia. 316L	24590-PTF-M6-TXP-P0001
TXP-ZF-00021-S11M- 011/2 P-0110C (TXP-BULGE- 00002 Drain, El. 0')	40	N/A	1-1/2" Dia. 316L	24590-PTF-M6-TXP-P0001
TXP-ZF-00042-S11M- 011/2 P-0110C (TXP-BULGE- 00004 Drain, El. 0')	40	N/A	1-1/2" Dia. 316L	24590-PTF-M6-TXP-P0001
TXP-ZF-00019-S11M- 011/2 P-0110C (TXP-BULGE- 00005 Drain, El. 0')	40	N/A	1-1/2" Dia. 316L	24590-PTF-M6-TXP-P0004
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

^aThis sump is routinely accessible for inspections and maintenance.

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 (feet) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)
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RESERVED	RESERVED	RESERVED	RESERVED
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1 ^aPrimary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in
 2 WAC-173-303-640.
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Table III.10.E.L - LAW Vitrification Plant Tank Systems 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 (inches) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)
RLD-SUMP-00028 L-B001B	59	Dry Sump ^a	24" Dia. By 30" deep 304L or higher grade	24590-LAW-M6-RLD-P0002
RLD-SUMP-00029 L-0123	46	Dry Sump ^a	30" Dia. By 15" deep 304L or higher grade	24590-LAW-M6-RLD-P0003
RLD-SUMP-00030 L-0123	46	Dry Sump ^a	30" Dia. By 15" deep 304L or higher grade	24590-LAW-M6-RLD-P0003
RLD-SUMP-00031 L-0124	46	Dry Sump ^a	30" Dia. By 15" deep 304L or higher grade	24590-LAW-M6-RLD-P0003
RLD-SUMP-00032 L-0124	46	Dry Sump ^a	30" Dia. By 15" deep 304L or higher grade	24590-LAW-M6-RLD-P0003
RLD-SUMP-00033 L-0125	46	Dry Sump ^a	30" Dia. By 15" deep 304L or higher grade	24590-LAW-M6-RLD-P0003
RLD-SUMP-00034 L-0125	46	Dry Sump ^a	30" Dia. By 15" deep 304L or higher grade	24590-LAW-M6-RLD-P0003
RLD-SUMP-00035 L-0126	46	Dry Sump ^a	30" Dia. By 15" deep 304L or higher grade	24590-LAW-M6-RLD-P0003
RLD-SUMP-00036 L-0126	46	Dry Sump ^a	30" Dia. By 15" deep 304L or higher grade	24590-LAW-M6-RLD-P0003

Drain Line ID# - RESERVED L-B001B (RLD-BULGE- 00001 Drain, El. -21')	60	N/A	2" Dia. 316L	24590-LAW-M6-RLD-P0002
Drain Line ID# - RESERVED L-B001B (Double-Walled Piping Outer Containment Drain, El. -21')	30	N/A	1" Dia. 316L	24590-LAW-M6-RLD-P0002
Drain Line ID# - RESERVED L-0123 [Primary Offgas (LOP) Melter 1 Valve Bulge Drain, El. +3']	60	N/A	2" Dia. 6 Mo	24590-LAW-M6-LOP-P0001
Drain Line ID# - RESERVED L-0123 (Concentrate Feed Receipt LCP-VSL-00001 Valve Bulge Drains, El. +3')	60	N/A	2" Dia. 316L	24590-LAW-M6-LCP-P0001
Drain Line ID# - RESERVED L-0123 (Melter 1 Feed Prep/Feed Vessel Valve Bulge Drain, El. +3')	60	N/A	2" Dia. 316L	24590-LAW-M6-LFP-P0001
Drain Line ID# - RESERVED L-0124 [Primary Offgas (LOP) Melter 2 Valve Bulge Drain, El. +3']	60	N/A	2" Dia. 6 Mo	24590-LAW-M6-LOP-P0002
Drain Line ID# - RESERVED L-0124 (Concentrate Receipt Vessel LCP-VSL- 00002 Valve Bulge Drain, El. +3')	60	N/A	2" Dia. 316L	24590-LAW-M6-LCP-P0002

Drain Line ID# - RESERVED L-0124 (Melter 2 Feed Prep/Feed Vessel Valve Bulge Drain, El. +3')	60	N/A	2" Dia. 316L	24590-LAW-M6-LFP-P0003
Drain Line ID# - RESERVED L-0125 [Primary Offgas (LOP) Melter 3 Valve Bulge Drain, El. +3']	60	N/A	2" Dia. 6 Mo	24590-LAW-M6-LOP-P0003
Drain Line ID# - RESERVED L-0125 (Melter 3 Feed Prep/Feed Vessel Valve Bulge Drain, El. +3')	60	N/A	2" Dia. 316L	24590-LAW-M6-LFP-P0005
Drain Line ID# - RESERVED L-0125 (Concentrate Receipt Vessel LCP-VSL- 00003 Valve Bulge Drain, El. +3')	60	N/A	2" Dia. 316L	24590-LAW-M6-LCP-P0002
Drain Line ID# - RESERVED L-0126 (Plant Wash Vessel/SBS Condensate Collection Vessel Valve Bulge Drain, El. +3')	60	N/A	2" Dia. 6 Mo	24590-LAW-M6-RLD-P0001
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

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 (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.

Table III.10.E N - HLW Vitrification Plant Tank Systems 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 (gallons)	Sump Type/Nominal Operating Volume (gallons)	Sump or Drain Line Dimensions (inches) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)
<u>HCP-SUMP-00001</u> <u>H-B014 (Wet Process Cell, El. -21')</u>	<u>70</u>	<u>Wet Sump / 60</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0015</u>
<u>RLD-SUMP-00001</u> <u>H-B014 (Wet Process Cell, El. -21')</u>	<u>70</u>	<u>Wet Sump / 60</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0015</u>
<u>HOP-SUMP-00003</u> <u>H-B021 (SBS Drain Collection Cell No. 1, El. -21')</u>	<u>70</u>	<u>Dry Sump^a</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0015</u>
<u>HDH-SUMP-00001</u> <u>H-B039B (Canister Rinse Tunnel, El. -16.5')</u>	<u>70</u>	<u>Dry Sump^a</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0016</u>
<u>HDH-SUMP-00002</u> <u>H-B039A (Bogie Decon/Maint. Tunnel-Canister Rinse, El. -16')</u>	<u>70</u>	<u>Dry Sump^a</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0004</u>
<u>HDH-SUMP-00003</u> <u>H-B035 (Canister Decon Cave, El. -16')</u>	<u>70</u>	<u>Dry Sump^a</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0015</u>
<u>RWH-SUMP-00001</u> <u>H-B015 (Drum Transfer</u>	<u>70</u>	<u>Dry Sump^a</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0017</u>

<u>Tunnel, El. -9.5'</u>				
<u>RWH-SUMP-00005</u> <u>H-B015 (Drum Transfer</u> <u>Tunnel, El. -9.5')</u>	<u>70</u>	<u>Dry Sump^a</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0017</u>
<u>RWH-SUMP-00006</u> <u>H-B015 (Drum Transfer</u> <u>Tunnel, El. -9.5')</u>	<u>70</u>	<u>Dry Sump^a</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0017</u>
<u>HPH-SUMP-00001</u> <u>H-0136 (Canister Handling</u> <u>Cave, El. -3')</u>	<u>70</u>	<u>Dry Sump^a</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0016</u>
<u>HPH-SUMP-00005</u> <u>H-0136 (Canister Handling</u> <u>Cave, El. -3')</u>	<u>70</u>	<u>Dry Sump^a</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0004</u>
<u>HMH-SUMP-00002</u> <u>H-0116B (Melter Cave No.</u> <u>1-C3/C5 Airlock, El. 0')</u>	<u>70</u>	<u>Dry Sump^a</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0003</u>
<u>HFP-SUMP-00002</u> <u>H-0117 (Melter Cave No. 1,</u> <u>El. 5')</u>	<u>70</u>	<u>Wet Sump / 60</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0008</u>
<u>HOP-SUMP-00004</u> <u>H-0117 (Melter Cave No. 1,</u> <u>El. 3')</u>	<u>70</u>	<u>Dry Sump^a</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0017</u>
<u>HSH-SUMP-00003</u> <u>H-0117 (Melter Cave No. 1,</u> <u>El. 3')</u>	<u>70</u>	<u>Dry Sump^a</u>	<u>30" Dia. x 18" Deep</u> <u>6Mo</u>	<u>24590-HLW-M6-RLD-P0008</u>
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

^aThis sump is routinely accessible for inspections and maintenance.

Table III.10.E O – Laboratory Tank Systems Primary^a Containment Sump Systems

Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (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.

Table III.10.E P – Laboratory Tank Systems Secondary Containment Systems Including Sumps and Floor Drains

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Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Type/Nominal Operating Volume (gallons)	Sump Dimensions (inches) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

1 **III.10.F. CONTAINMENT BUILDING UNITS**

2 **III.10.F.1. Containment Building Units and Storage Limits**

3 **III.10.F.1.a. Approved Waste and Storage Limits**

- 4 i. The Permittees may store and treat, in containment building units listed in Permit Table
5 III.10.F.A., as modified by Permit Condition III.10.F.7.d.iv., all dangerous and mixed
6 waste listed in the Part A Forms, Attachment 51, Chapter 1.0 of this Permit, except for
7 those wastes outside the waste acceptance criteria specified in the WAP, Attachment
8 51, Chapter 3.0, as approved pursuant to Permit Condition III.10.C.3. Total dangerous
9 and mixed waste storage at the containment building units shall not exceed the sum of
10 the capacities in column 7 of Permit Table III.10.F.A., as modified pursuant to Permit
11 Condition III.10.F.7.d.iv.
- 12 ii. The Permittees may place and store dangerous and mixed waste only in the
13 containment building units listed in Permit Table III.10.F.A., as modified pursuant to
14 Permit Condition III.10.F.7.d.iv., in accordance with Permit Condition III.10.F., and in
15 accordance with Attachment 51, Chapters 1.0 and 4.0, and Attachment 51, Appendices
16 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,
17 10.4 through 10.10, 10.13, and 10.18 of this Permit, as approved pursuant to Permit
18 Conditions III.10.F.7.c. and III.10.F.7.d. The Permittees shall limit the volume of
19 dangerous and mixed waste to quantities specified for the individual areas listed in
20 column 7 of Permit Table III.10.F.A., as modified pursuant to Permit Condition
21 III.10.F.7.d.iv.

22 **III.10.F.1.b.** The Permittees shall manage any ignitable, reactive, or incompatible waste in these units in
23 accordance with WAC 173-303-395(1). Any containment building units specified in Permit
24 Table III.10.F.A. in which ignitable, reactive, or incompatible waste are managed shall meet
25 the requirements specified in WAC 173-303-640(9) and (10), in accordance with WAC 173-
26 303-680(2).

27 **III.10.F.1.c.** The Permittees must maintain documentation in the operating record of the description and
28 quantity of dangerous waste in each containment building unit listed in Permit Table
29 III.10.F.A., as modified pursuant to Permit Condition III.10.F.7.d.iv., in accordance with
30 WAC 173-303-380.

31 **III.10.F.1.d.** The Permittees shall ensure all certifications required by specialists (e.g., qualified,
32 registered, professional engineer, etc.) use the following statement or equivalent pursuant to
33 Permit Condition III.10.C.10., of this Permit:

34 "I, (Insert Name) have (choose one or more of the following: overseen, supervised,
35 reviewed, and/or certified) a portion of the design or installation of a new containment
36 building unit or component located at (address), and owned/operated by (name(s)). My
37 duties were: (e.g., design engineer, etc.), for the following containment building unit
38 components (e.g., the venting piping, etc.), as required by the Resource Conservation and
39 Recovery Act (RCRA) regulation(s), namely, 40 CFR 264.1101(c)(2) in accordance with
40 WAC 173-303-695).

41 "I certify under penalty of law that I have personally examined and am familiar with the
42 information submitted in this document and all attachments and that, based on my inquiry of
43 those individuals immediately responsible for obtaining the information, I believe that the
44 information is true, accurate, and complete. I am aware that there are significant penalties
45 for submitting false information, including the possibility of fine and imprisonment."

- 1 III.10.F.2. Containment Building Unit Design and Construction
- 2 III.10.F.2.a. The Permittees shall design and construct the containment building units identified in Permit
3 Table III.10.F.A., as modified pursuant to Permit Condition III.10.F.7.d.iv., as specified in
4 Attachment 51, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10,
5 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18 of this Permit, as approved in
6 accordance with Permit Condition III.10.F.7.a. of this Permit and WAC 173-303-695.
- 7 III.10.F.2.b. The Permittees shall design and construct all applicable containment building units'
8 secondary containment systems for each unit listed in Permit Table III.10.F.A., as specified
9 in Attachment 51, Appendices 8.4 through 8.9, 8.15, 9.4 through 9.9, 9.18, 10.4 through
10 10.9, and 10.18 of this Permit, as approved in accordance with Permit Condition III.10.F.7.a.
11 of this Permit and WAC 173-303-695.
- 12 III.10.F.2.c. Modifications to approved design plans and specifications, in Attachment 51, Appendices
13 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
14 through 10.10, 10.13, and 10.18 for the containment building units shall be allowed only in
15 accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g.,
16 III.10.C.9.d, and III.10.C.9.e.
- 17 III.10.F.3. Containment Building Unit Management Practices
- 18 III.10.F.3.a. The Permittees shall manage all dangerous and mixed waste in containment building units in
19 accordance with procedures described in Attachment 51, Appendices 8.15, 9.18, 10.18 and
20 Chapter 4.0 of this Permit, as approved pursuant to Permit Condition III.10.F.7.d.iv. of this
21 Permit.
- 22 III.10.F.3.b. The Permittees shall follow the description of operating procedures described in Attachment
23 51, Appendices 8.15, 9.18, 10.18 and Chapter 4, as approved pursuant to Permit Condition
24 III.10.F.7.d.iv. and Permit Condition III.10.F.3., and as specified below:
- 25 i. Maintain the primary barrier to be free of significant cracks, gaps, corrosion, or other
26 deterioration that could cause dangerous and mixed waste to be released from the
27 primary barrier;
- 28 ii. Maintain the level of stored/treated dangerous and mixed waste within the containment
29 building unit walls so that the height of the wall is not exceeded;
- 30 iii. Take measures to prevent the tracking of dangerous and mixed waste out of the unit by
31 personnel or by equipment used in handling the waste. An area must be designated to
32 decontaminate equipment and any rinsate must be collected and properly managed;
- 33 iv. Maintain the containment building unit at all times to prevent the spread of airborne
34 dangerous and/or mixed waste contamination into less contaminated or uncontaminated
35 areas. All air pollution control devices for exhaust from containment building unit
36 must be properly maintained and operational when storing or treating dangerous and
37 mixed waste in the containment building units;
- 38 v. Collect and remove liquids and waste to minimize hydraulic head on the containment
39 system at the earliest practicable time.
- 40 III.10.F.3.c. The Permittees shall inspect the containment building units per requirements in the
41 Attachment 51, Chapter 6.0 as approved pursuant to Permit Condition III.10.C.5., 40 CFR
42 264.1101(c)(4), in accordance with WAC 173-303-695 and WAC 173-303-320 and record in
43 the Facility's operating record, at least once every seven (7) days, data gathered from
44 monitoring equipment and leak detection equipment as well as the containment building unit

1 and area immediately surrounding the containment building unit to detect signs of releases
2 of dangerous and mixed waste.

3 **III.10.F.3.d.** Throughout the active life of the containment building unit, if the Permittees detects a
4 condition that could lead to or has caused a release of dangerous and/or mixed waste, the
5 Permittees must repair the condition promptly, in accordance with the following procedures:

- 6 i. Upon detection of a condition that has lead to the release of dangerous and/or mixed
7 waste (e.g., upon detection of leakage from the primary barrier)-the Permittees must:
- 8 A. Enter a record of the discovery in the facility operating record;
 - 9 B. Immediately remove the portion of the containment building unit affected by the
10 condition from service;
 - 11 C. Determine what steps must be taken to repair the containment building unit,
12 remove any leakage from the secondary collection system, and establish a
13 schedule for accomplishing the cleanup and repairs; and
 - 14 D. Within seven (7) days after the discovery of the condition, notify Ecology of the
15 condition, and within fourteen (14) working days, provide a written notice to
16 Ecology with a description of the steps taken to repair the containment building
17 unit, and the schedule for accomplishing the work.
- 18 ii. Ecology will review the information submitted, make a determination regarding
19 whether the containment building unit must be removed from service completely or
20 partially until repairs and cleanup are complete, and notify the Permittees of the
21 determination and underlying rationale in writing.
- 22 iii. Upon completing all repairs and cleanup the Permittees must notify Ecology in writing
23 and provide verification, signed by a qualified, registered, professional engineer, that
24 repairs have been completed according to the written notice submitted in accordance
25 with Permit Condition III.10.F.3.d.i.D.

26 **III.10.F.4** Inspections [WAC 173-303-640(6)]

27 **III.10.F.4.a.** The Permittees shall inspect the containment building units in accordance with the
28 Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified pursuant to
29 Permit Condition III.10.C.5.c.

30 **III.10.E.4.b.** The inspection data for the containment building units shall be recorded, and the records
31 shall be placed in the WTP Unit operating record, in accordance with Permit Condition
32 III.10.C.4.

33 **III.10.F.5** Recordkeeping (WAC 173-303-380)

34 For the containment building units, the Permittees shall record and maintain in the WTP
35 Unit operating record, all monitoring, calibration, recording, maintenance, test data, and
36 inspection data compiled under the conditions of this Permit, in accordance with Permit
37 Condition III.10.C.4. and III.10.C.5.

38 **III.10.F.6.** Closure

39 The Permittees shall close the containment building units in accordance with Attachment 51,
40 Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

1 III.10.F.7. Compliance Schedule

2 III.10.F.7.a. All information identified for submittal to Ecology in b. through e. of this compliance
3 schedule must be signed in accordance with requirements in WAC 173-303-810(12), as
4 modified in accordance with Permit Condition III.10.F.1.d. [WAC 173-303-806(4)].

5 III.10.F.7.b. Prior to initial receipt of dangerous and/or mixed waste, the Permittees shall submit to
6 Ecology a certification by a qualified, registered, professional engineer that the containment
7 building units design meets the requirements of Permit Conditions II.10.F.1. and III.10.F.2.
8 in accordance with Permit Condition III.10.F.7.a. The certification will also be stored in the
9 WTP Unit operating record. For containment buildings units in Permit Table III.10.F.A., as
10 modified pursuant to Permit Condition III.10.F.7.d.iv., identified as allowed to manage free
11 liquids, the certification shall include an additional demonstration that the containment
12 building meets the requirements specified in 40 CFR 264.1101(b), in accordance with WAC
13 173-303-695.

14 III.10.F.7.c. The Permittees shall submit to Ecology pursuant to Permit Condition III.10.C.9.f., prior to
15 construction of the containment building unit containment system, and as appropriate, leak
16 detection system for each containment building unit (per level, per WTP Unit building) as
17 identified in Permit Condition III.10.F.1., Permit Tables III.10.F.A., engineering information
18 as specified below, for incorporation, as appropriate, into Attachment 51, Appendices 8.1,
19 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
20 through 10.10, 10.13, and 10.18 of this Permit. At a minimum, engineering information
21 specified below will show the following as required in accordance with WAC 173-303-695
22 (the information specified below will include dimensioned engineering drawings showing
23 floors, walls, and ceilings/roof of the containment building units and other information on
24 floor drains and sumps):

- 25 i. Design drawings (General Arrangement Drawings in plan and cross sections) and
26 specifications for the foundation, containment, including liner/coating installation
27 details and leak detection methodology, as appropriate [40 CFR 264.1101(a)(1) and
28 (b), in accordance with WAC 173-303-695].
- 29 ii. The Permittees shall provide the design criteria (references to codes and standards,
30 load definitions and load combinations, materials of construction, and analysis/design
31 methodology) and typical design details for the support of the containment system.
32 This information shall demonstrate the foundation will be capable of providing
33 support to the secondary containment system, resistance to pressure gradients above
34 and below the system, and capable of preventing failure due to settlement,
35 compression, or uplift [40 CFR 264.1101(a)(2) in accordance with WAC 173-303-
36 695, in accordance with WAC 173-303-695].
- 37 iii. The Permittees shall provide documentation addressing how coatings will withstand
38 the movement of personnel, waste, and equipment during the operating life of the
39 containment building per 40 CFR 264.1101(a)(2), (a)(4), and (b) in accordance with
40 WAC 173-303-695.
- 41 iv. Containment/foundation and, as appropriate, for leak detection systems, materials
42 selection documentation (including, but not limited to, concrete coatings and water
43 stops, and liner materials as applicable [e.g. physical and chemical tolerances]) [40
44 CFR 264.1101(a)(4) and (b) in accordance with WAC 173-303-695].
- 45 v. A detailed description of how the containment/foundation and, as appropriate, leak
46 detection systems, will be installed.

- 1 vi. Submit Permit Tables III.10.F.B and III.10.F.C, completed to provide for all
2 secondary containment sumps and floor drains, the information as specified in each
3 column heading, consistent with the information to be provided in i. through viii.
- 4 vii. A detailed description of how fugitive emissions will be controlled such that any
5 openings (e.g., doors, windows, vents, cracks, etc.) exhibit no visible emissions [40
6 CFR 264.1101(c)(1)(iv) in accordance with WAC 173-303-695].
- 7 viii. Prior to installation, the Permittees shall submit coating vendor information specific to
8 containment buildings for incorporation into the Administrative Record [40 CFR
9 264.1101(a)(4) and (b) in accordance with WAC 173-303-695].
- 10 ix. Prior to installation, leak detection system documentation (e.g. vendor information,
11 etc.) consistent with information submitted under i. above, shall be submitted for
12 incorporation into the Administrative Record;
- 13 x. Prior to installation, the Permittees shall submit leak detection system instrumentation
14 control logic narrative description (e.g., software functional specifications,
15 descriptions of fail-safe conditions, etc.);
- 16 xi. Prior to installation, system descriptions related to leak detection systems (including
17 instrument control logic and narrative descriptions) shall be submitted for
18 incorporation into the Administrative Record;
- 19 xii. For leak detection system instrumentation for containment buildings as identified in
20 Permit Tables III.10.F.D., a detailed description of how the leak detection system
21 instrumentation will be installed and tested [40 CFR 264.1101(b)(3) in accordance
22 with WAC 173-303-695] shall be submitted prior to installation.
- 23 III.10.F.7.d Prior to initial receipt of dangerous and mixed waste, in the WTP Unit, the Permittees shall
24 submit the following, as specified below, for incorporation into Attachment 51. The
25 information specified below into Attachment 51, and incorporated pursuant to Permit
26 Condition III.10.C.2.g. shall be followed:
- 27 i. Registered Professional Engineer certification documentation consistent with the
28 information provided in III.10.F.7.b. and III.10.F.7.c. for incorporation in the
29 Administrative Record. The certification must be maintained in the WTP Unit
30 Operating Record [40 CFR 264.1101(c)(2)];
- 31 ii. Updated Chapter 4.0, Section 4.2.1., and the figures for containment building units
32 identified in Permit Table III.10.F.A. (as modified pursuant to Permit Condition
33 III.10.F.7.d.iv., consistent with Attachment 51, Appendices 8.1, 8.2, 8.4 through 8.10,
34 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,
35 and 10.18, as approved pursuant Permit Conditions III.10.F.7.a. through d.);
- 36 iii. Description of operating procedures demonstrating compliance with 40 CFR
37 264.1101(c) and (d) in accordance with WAC 173-303-695;
- 38 iv. Permit Table III.10.F.A., amended as follows:
- 39 A. Under column 1, update and complete list of dangerous and mixed waste
40 containment building units including room location and number.
- 41 B. Under column 2, update unit dimensions.
- 42 C. Under column 3, replace the 'Reserved' with the Attachment 51, Appendices 8.0,
43 9.0, and 10.0, subsections specific to containment building units as listed in
44 column 1.

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- 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 capacity 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.
- v. Permit Table III.10.F.D. shall 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 Attachment 51, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b. shall 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.

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Table III.10.F.A. – Containment Building Unit Description

Mixed Waste Containment Building Units^a & Systems	Dimensions (LxWxH) (in feet)	Unit Description	Narrative Description and Figures	Container Storage Areas^b	Tank Systems^c	Containment Building Capacity (cu ft)	Manage Free Liquids
Pretreatment Hot Cell Containment Building	414x54x46	RESERVED	Section 4.3.4 Fig. 4A-78	RESERVED	RESERVED	RESERVED	Yes
Pretreatment Maintenance Containment Building	(98x56x18) + (54x5x18) + (54x78x18) + (18x98x18)	RESERVED	Section 4.3.4 Fig. 4A-78	RESERVED	RESERVED	RESERVED	Yes
Pretreatment Air Filtration Containment Building	234x54x19	RESERVED	Section 4.3.4 Fig. 4A-80, -81	RESERVED	RESERVED	RESERVED	No
LAW LSM Gallery Containment Building	151x62x25	RESERVED	Section 4.3.4 Fig. 4A-83	RESERVED	RESERVED	RESERVED	Yes
ILAW Container Finishing Containment Building	98x31x25	RESERVED	Section 4.3.4 Fig. 4A-83	RESERVED	RESERVED	RESERVED	No
Law Vitrification Plant C3 Workshop Containment Building	35x40x20	RESERVED	Section 4.3.4 Fig. 4A-85	RESERVED	RESERVED	RESERVED	Yes
HLW Melters 1 and 2 Containment Buildings	35x107x49	RESERVED	Section 4.3.4 Fig. 4A-87	RESERVED	RESERVED	RESERVED	No
IHLW Container Weld Containment Building	140x18x48	RESERVED	Section 4.3.4 Fig. 4A-88	RESERVED	RESERVED	RESERVED	No
IHLW Container Decontamination Building	10x80x58	RESERVED	Section 4.3.4 Fig. 4A-88	RESERVED	RESERVED	RESERVED	No
HLW Vitrification Plant C3 Workshop Containment Building	30x27x19 + 33x15x19	RESERVED	Section 4.3.4 Fig.4A-89	RESERVED	RESERVED	RESERVED	No
HLW Air Filtration Containment Building	104x38x19	RESERVED	Section 4.3.4 Fig. 4A-88	RESERVED	RESERVED	RESERVED	No
HLW Drum Transfer Containment Building	220x10x10	RESERVED	Section 4.3.4 Fig. 4A-86	RESERVED	RESERVED	RESERVED	Yes

3 ^a Containment Building Units include associated process systems and equipment
 4 ^b Requirements pertaining to the containers in the Containment Building Units are specified in Section III.10.D. of this Permit.
 5 ^c Requirements pertaining to the tanks in the Containment Building Units are specified in Section III.10.E. of this Permit.
 6

1 **III.10.G PRETREATMENT PLANT MISCELLANEOUS UNIT SYSTEMS**

2 For purposes of Permit Section III.10.G., where reference is made to WAC 173-303-640, the
3 following substitutions apply: substitute the terms "Pretreatment Plant Miscellaneous Unit
4 System(s)" for "tank system(s)," "miscellaneous unit(s)" for "tank(s)," "equipment" for
5 "ancillary equipment," and "miscellaneous unit(s) or equipment of a Pretreatment Plant
6 Miscellaneous Unit System" for "component(s)" in accordance with WAC 173-303-680.

7 **III.10.G.1 Approved Waste and Storage Limits**

8 **III.10.G.1.a.** The Permittees may process, in the Pretreatment Plant Miscellaneous Unit Systems listed in
9 Permit Table III.10.G.A, as approved/modified pursuant to Permit Condition III.10.G.10, all
10 dangerous and mixed waste listed in the Part A Forms, Attachment 51, Chapter 1.0 of this
11 Permit, and in accordance with in the WAP, Attachment 51, Chapter 3.0 of this Permit, as
12 approved pursuant to Permit Condition III.10.C.3. Total Pretreatment Plant Miscellaneous
13 Unit dangerous and mixed waste storage at the Facility shall not exceed the limits specified
14 in Permit Table III.10.G.A.

15 **III.10.G.1.b.** The Permittees may process dangerous and mixed waste only in approved Pretreatment
16 Plant Miscellaneous Unit Systems listed in Permit Table III.10.G.A in accordance with
17 Permit Section III.10.G and in accordance with Attachment 51, Chapters 1.0 and 4.0 of this
18 Permit, and Attachment 51, Appendices 8.1 through 8.15 of this Permit, as approved
19 pursuant to Permit Conditions III.10.G.10.b. through e. The Permittees shall limit the total
20 volume of wastes to quantities specified for the individual miscellaneous units listed in
21 Permit Table III.10.G.A.

22 **III.10.G.1.c.** The Permittees shall manage ignitable and reactive, and incompatible waste in accordance
23 with WAC 173-303-395(1). Any Pretreatment Plant Miscellaneous Unit System specified in
24 Permit Tables III.10.G.A and III.10.G.B in which ignitable, reactive or incompatible waste
25 are managed shall meet the requirements specified in WAC 173-303-640(9) and (10), in
26 accordance to WAC 173-303-680.

27 **III.10.G.1.d.** The Permittees shall ensure all certifications required by specialists (e.g., independent,
28 qualified, registered professional engineer; independent corrosion expert; independent,
29 qualified installation inspector; etc.) use the following statement or equivalent pursuant to
30 Permit Condition III.10.C.10:

31 "I, (Insert Name) have (choose one or more of the following: overseen, supervised,
32 reviewed, and/or certified) a portion of the design or installation of a new miscellaneous unit
33 system or component located at (address), and owned/operated by (name(s)). My duties
34 were: (e.g., installation inspector, testing for tightness, etc.), for the following miscellaneous
35 unit system components (e.g., the venting piping, etc.), as required by the Dangerous Waste
36 Regulations, namely, WAC 173-303-640(3) (applicable paragraphs (i.e., (a) through (g)) in
37 accordance with WAC 173-303-680).

38 "I certify under penalty of law that I have personally examined and am familiar with the
39 information submitted in this document and all attachments and that, based on my inquiry of
40 those individuals immediately responsible for obtaining the information, I believe that the
41 information is true, accurate, and complete. I am aware that there are significant penalties
42 for submitting false information, including the possibility of fine and imprisonment."

43 **III.10.G.1.e.** In all future narrative permit submittals, the Permittees shall include miscellaneous unit
44 system names with the unit designation (e.g., Waste Feed Evaporator Separator Vessels are
45 designated V11002A and V11002B, respectively).

- 1 III.10.G.2 Miscellaneous Unit Systems Design and Construction [WAC 173-303-640, in accordance
2 with WAC 173-303-680(2) and WAC 173-303-340].
- 3 III.10.G.2.a. The Permittees shall construct the Pretreatment Plant Miscellaneous Unit Systems identified
4 in Permit Table III.10.G.A, as specified in Attachment 51, Appendices 8.1 through 8.14 of
5 this Permit, as approved pursuant to Permit Conditions III.10.G.10.b., III.10.G.10.c., and
6 III.10.G.10.d.
- 7 III.10.G.2.b. The Permittees shall construct secondary containment systems for the Pretreatment Plant
8 Miscellaneous Unit Systems identified in Permit Tables III.10.G.A and III.10.G.B, as
9 specified in Attachment 51, Appendices 8.2, 8.4 through 8.14 of this Permit, as approved
10 pursuant to Permit Conditions III.10.G.10.b., III.10.G.10.c., and III.10.G.10.d.
- 11 III.10.G.2.c. Modifications to approved design, plans, and specifications in Attachment 51 of this Permit
12 for the Pretreatment Plant Miscellaneous Unit Systems shall be allowed only in accordance
13 with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d., e., and h.
- 14 III.10.G.3 Miscellaneous Unit System Installation and Certification [WAC 173-303-640, in accordance
15 with WAC 173-303-680(2) and (3), and WAC 173-303-340].
- 16 III.10.G.3.a. The Permittees must ensure that proper handling procedures are adhered to in order to
17 prevent damage to Pretreatment Plant Miscellaneous Unit Systems during installation. Prior
18 to covering, enclosing, or placing a new Pretreatment Plant Miscellaneous Unit System(s) or
19 component(s) in use, an independent, qualified, installation inspector or an independent,
20 qualified, registered professional engineer, either of whom is trained and experienced in the
21 proper installation of similar systems or components, must inspect the system for the
22 presence of any of the following items:
- 23 i. Weld breaks;
 - 24 ii. Punctures;
 - 25 iii. Scrapes of protective coatings;
 - 26 iv. Cracks;
 - 27 v. Corrosion;
 - 28 vi. Other structural damage or inadequate construction/installation;
 - 29 vii. All discrepancies must be remedied before the Pretreatment Plant Miscellaneous Unit
30 Systems are covered, enclosed, or placed in use [WAC 173-303-640(3)(c) in
31 accordance with WAC 173-303-680(2) and (3)].
- 32 III.10.G.3.b. For Pretreatment Plant Miscellaneous Unit Systems or components that are placed
33 underground and that are back-filled, the Permittees must provide a backfill material that is a
34 non-corrosive, porous, homogeneous substance. The backfill must be installed so that it is
35 placed completely around the miscellaneous unit and compacted to ensure that the
36 miscellaneous unit and piping are fully and uniformly supported [WAC 173-303-640(3)(d),
37 in accordance with WAC 173-303-680(2) and (3)].
- 38 III.10.G.3.c. The Permittees must test for tightness all new Pretreatment Plant miscellaneous units and
39 equipment, prior to being covered, enclosed, or placed into use. If the Pretreatment Plant
40 Miscellaneous Unit Systems are found not to be tight, all repairs necessary to remedy the
41 leak(s) in the system must be performed prior to the Pretreatment Plant Miscellaneous Units
42 Systems being covered, enclosed, or placed in use [WAC 173-303-640(3)(e), in accordance
43 with WAC 173-303-680(2) and (3)].

- 1 III.10.G.3.d. The Permittees must ensure Pretreatment Plant Miscellaneous Unit Systems equipment is
2 supported and protected against physical damage and excessive stress due to settlement,
3 vibration, expansion, or contraction [WAC 173-303-640(3)(f), in accordance with WAC
4 173-303-680(2) and (3)].
- 5 III.10.G.3.e. The Permittees must provide the type and degree of corrosion protection recommended by
6 an independent corrosion expert, based on the information provided in Attachment 51,
7 Appendices 8.9 and 8.11 as approved pursuant to Permit Conditions III.10.G.10.b.i.,
8 III.10.G.10.b.i.v., III.10.G.10.b.v., III.10.G.10.c.i., III.10.G.10.c.i.v., III.10.G.10.c.v., and
9 III.10.G.10.d.i., III.10.G.10.d.iv. III.10.G.10.d.v., or other corrosion protection if Ecology
10 believes other corrosion protection is necessary to ensure the integrity of the Pretreatment
11 Plant Miscellaneous Unit Systems during use of the Pretreatment Plant Miscellaneous Unit
12 Systems. The installation of a corrosion protection system that is field fabricated must be
13 supervised by an independent corrosion expert to ensure proper installation [WAC 173-303-
14 640(3)(g), in accordance with WAC 173-303-680(2) and (3)].
- 15 III.10.G.3.f. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
16 shall obtain, and keep on file in the WTP Unit operating record, written statements by those
17 persons required to certify the design of the Pretreatment Plant Miscellaneous Unit Systems
18 and supervise the installation of the Pretreatment Plant Miscellaneous Unit Systems, as
19 specified in WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC
20 173-303-680, attesting that each Pretreatment Plant Miscellaneous Unit System and
21 corresponding containment system listed in Permit Tables III.10.G.A and III.10.G.B, as
22 approved/modified pursuant to Permit Condition III.10.G.10., were properly designed and
23 installed, and that repairs, in accordance with WAC 173-303-640(3)(c) and (e), were
24 performed [WAC 173-303-640(3)(a), WAC 173-303-640(3)(h), in accordance with WAC
25 173-303-680(3)].
- 26 III.10.G.3.g. The independent Pretreatment Plant Miscellaneous Unit System installation inspection and
27 subsequent written statements shall be certified in accordance with WAC 173-303-
28 810(13)(a) as modified pursuant to Permit Condition III.10.G.1.d., comply with all
29 requirements of WAC 173-303-640(3)(h), in accordance with WAC 173-303-680, and shall
30 consider, but not be limited to, the following miscellaneous unit system installation
31 documentation:
- 32 i. Field installation report with date of installation;
 - 33 ii. Approved welding procedures;
 - 34 iii. Welder qualifications and certification;
 - 35 iv. Hydro-test reports, as applicable, in accordance with the American Society of
36 Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 1,
37 American Petroleum Institute (API) Standard 620, or Standard 650 as applicable;
 - 38 v. Tester credentials;
 - 39 vi. Field inspector credentials;
 - 40 vii. Field inspector reports;
 - 41 viii. Field waiver reports; and
 - 42 ix. Non-compliance reports and corrective action (including field waiver reports) and
43 repair reports.
- 44 III.10.G.4 Integrity Assessments [WAC 173-303-340 and WAC 173-303-640, in accordance with
45 WAC 173-303-680(2) and (3)].

- 1 III.10.G.4.a. The Permittees shall ensure periodic integrity assessments are conducted on the Pretreatment
2 Plant Miscellaneous Unit Systems listed in Permit Table III.10.G.A, as approved/modified
3 pursuant to Permit Condition III.10.G.10., over the term of this Permit in accordance with
4 WAC173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the
5 description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0
6 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.e.i. and III.10.C.5.c.
7 Results of the integrity assessments shall be included in the WTP Unit operating record until
8 ten (10) years after post-closure, or corrective action is complete and certified, whichever is
9 later.
- 10 III.10.G.4.b. The Permittees shall address problems detected during Pretreatment Plant Miscellaneous
11 Unit Systems integrity assessments specified in Permit Condition III.10.G.4.a. following the
12 integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as approved
13 pursuant to Permit Conditions III.10.G.10.e.i. and III.10.C.5.c.
- 14 III.10.G.4.c. The Permittees must immediately and safely remove from service any Pretreatment Plant
15 Miscellaneous Unit System or secondary containment system which through an integrity
16 assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit
17 Condition III.10.G.5.j.i. through iv., and vi. The affected Pretreatment Plant Miscellaneous
18 Unit or secondary containment system must be either repaired or closed in accordance with
19 Permit Condition III.10.G.5.j.v. [WAC 173-303-640(7)(e) and (f) and WAC 173-303-
20 640(8), in accordance with WAC 173-303-680(3)].
- 21 III.10.G.5 Miscellaneous Unit Management Practices
- 22 III.10.G.5.a. No dangerous and/or mixed waste shall be managed in the Pretreatment Plant Miscellaneous
23 Unit Systems unless the operating conditions, specified under Permit Condition III.10.G.5,
24 are complied with.
- 25 III.10.G.5.b. The Permittees shall install and test all process and leak detection system
26 monitoring/instrumentation, as specified in Permit Table III.10.G.C, as approved/modified
27 pursuant to Permit Condition III.10.G.10, in accordance with Attachment 51, Appendices
28 8.1, 8.2, and 8.14 of this Permit, as approved pursuant to Permit Condition III.10.G.10.d.x.
- 29 III.10.G.5.c. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or other
30 materials in the Pretreatment Plant Miscellaneous Unit Systems if these substances could
31 cause the systems to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in
32 accordance with WAC 173-303-680(2)].
- 33 III.10.G.5.d. The Permittees shall operate the Pretreatment Plant Miscellaneous Unit Systems to prevent
34 spills and overflows using the description of controls and practices, as required under WAC
35 173-303-640(5)(b), described in Permit Condition III.10.C.5, and Attachment 51, Appendix
36 8.15 of this Permit, as approved pursuant to Permit Condition III.10.G.10.e.iv. [WAC 173-
37 303-640(5)(b), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-
38 806(4)(c)(ix)].
- 39 III.10.G.5.e. For routinely non-accessible Pretreatment Plant Miscellaneous Unit Systems, as specified in
40 Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition
41 III.10.G.10.e.vi., the Permittees shall mark all routinely non-accessible Pretreatment Plant
42 Miscellaneous Unit System access points with labels or signs to identify the waste contained
43 in the units. The label, or sign, must be legible at a distance of at least fifty (50) feet and
44 must bear a legend which identifies the waste in a manner which adequately warns
45 employees, emergency response personnel, and the public of the major risk(s) associated
46 with the waste being stored or treated in the miscellaneous unit system(s). For the purposes
47 of this Permit condition, "routinely non-accessible" means personnel are unable to enter

1 these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance
2 with WAC 173-303-680(2)].

3 III.10.G.5.f. For all Pretreatment Plant Miscellaneous Unit Systems not addressed in Permit Condition
4 III.10.G.5.e, the Permittees shall mark all these miscellaneous unit systems holding
5 dangerous and/or mixed waste with labels or signs to identify the waste contained in the
6 unit. The labels, or sign, must be legible at a distance of at least fifty (50) feet, and must
7 bear a legend which identifies the waste in a manner which adequately warns employees,
8 emergency response personnel, and the public of the major risk(s) associated with the waste
9 being stored or treated in the miscellaneous unit system(s) [WAC 173-303-640(5)(d), in
10 accordance with WAC 173-303-680(2)].

11 III.10.G.5.g. The Permittees shall ensure that the secondary containment systems for Pretreatment Plant
12 Miscellaneous Unit Systems listed in Permit Tables III.10.G.A and III.10.G.B, as
13 approved/modified pursuant to Permit Condition III.10.G.10, are free of cracks or gaps to
14 prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the
15 system to the soil, ground water, or surface water at any time waste is in the Pretreatment
16 Plant Miscellaneous Units System. Any indication that a crack or gap may exist in the
17 containment systems shall be investigated and repaired in accordance with Attachment 51,
18 Appendix 8.15 of this Permit, as approved pursuant to Permit Condition III.10.G.10.e.v.
19 [WAC 173-303-640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), and WAC 173-303-640(6) in
20 accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC
21 173-303-320].

22 III.10.G.5.i. An impermeable coating, as specified in Attachment 51, Appendices 8.4, 8.5, 8.7, 8.9, 8.11,
23 and 8.12 of this Permit, as approved pursuant to Permit Condition III.10.G.10.b.v. of this
24 Permit, shall be maintained for all concrete containment systems and concrete portions of
25 containment systems for each Pretreatment Plant Miscellaneous Unit System listed in Permit
26 Tables III.10.G.A and III.10.G.B, as approved/modified pursuant to Permit Condition
27 III.10.G.10 [concrete containment systems that do not have a liner pursuant to WAC-173-
28 303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints,
29 shall meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC
30 173-303-680(2)]. The coating shall prevent migration of any dangerous and mixed waste
31 into the concrete. All coatings shall meet the following performance standards:

- 32 i. The coating must seal the containment surface such that no cracks, seams, or other
33 avenues through which liquid could migrate are present;
- 34 ii. The coating must be of adequate thickness and strength to withstand the normal
35 operation of equipment and personnel within the given area such that degradation or
36 physical damage to the coating or lining can be identified and remedied before
37 dangerous and mixed waste could migrate from the system; and
- 38 iii. The coating must be compatible with the dangerous and mixed waste, treatment
39 reagents, or other materials managed in the containment system [WAC 173-303-
40 640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-
41 806(4)(i)(i)(A)].

42 III.10.G.5.j. The Permittees shall inspect all secondary containment systems for the Pretreatment Plant
43 Miscellaneous Unit Systems listed in Permit Tables III.10.G.A and III.10.G.B., as
44 approved/modified pursuant to Permit Condition III.10.G.10., in accordance with the
45 Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as approved
46 pursuant to Permit Conditions III.10.G.10.e.i. and III.10.C.5.c., and take the following
47 actions if a leak or spill of dangerous and/or mixed waste is detected in these containment

1 systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in accordance with WAC
2 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)]:

- 3 i. Immediately and safely stop the flow of dangerous and/or mixed waste into the
4 miscellaneous unit system or secondary containment system;
- 5 ii. Determine the source of the dangerous and/or mixed waste;
- 6 iii. Remove the waste from the containment area in accordance with WAC 173-303-680(2)
7 and (3), as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed waste
8 removed from containment areas of miscellaneous unit systems shall be, as a minimum,
9 managed as dangerous and/or mixed waste;
- 10 iv. If the cause of the release was a spill that has not damaged the integrity of the
11 miscellaneous unit system, the Permittees may return the miscellaneous unit system to
12 service in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-
13 303-640(7)(e)(ii). In such a case, the Permittees shall take action to ensure the incident
14 that caused liquid to enter the containment system will not reoccur [WAC 173-303-
15 320(3)];
- 16 v. If the source of the dangerous and/or mixed waste is determined to be a leak from a the
17 primary Pretreatment Plant Miscellaneous Unit System into the secondary containment
18 system, or the system is unfit for use as determined through an integrity assessment or
19 other inspection, the Permittees must comply with the requirements of WAC 173-303-
20 640(7), and take the following actions:
- 21 A. Close the miscellaneous unit following procedures in WAC 173-303-640(7)(e)(i)
22 and in accordance with WAC 173-303-680, and Attachment 51, Chapter 11.0 of
23 this Permit, as approved pursuant to Permit Condition III.10.C.8; or
- 24 B. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified
25 pursuant to Permit Condition III.10.G.1.d.) the Pretreatment Plant Miscellaneous
26 Unit System in accordance with Attachment 51, Appendix 8.15 of this Permit, as
27 approved pursuant to Permit Condition III.10.G.10.e.v. before the Pretreatment
28 Plant Miscellaneous Unit System is placed back into service [WAC 173-303-
29 640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-
30 680].
- 31 vi. The Permittees shall document, in the operating record, actions/procedures taken to
32 comply with i. through v. above, as specified in WAC 173-303-640(6)(d) and in
33 accordance with WAC 173-303-680(2) and (3).
- 34 vii. In accordance with WAC 173-303-680(2) and (3), the Permittees shall notify and
35 report releases to the environment to Ecology as specified in WAC 173-303-640(7)(d).

36 III.10.G.5.k. If liquids (e.g., Dangerous and/or mixed waste leaks and spills, precipitation, fire water,
37 liquids from damaged or broken pipes) cannot be removed from the secondary containment
38 system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four
39 (24) hours of discovery. The notification shall provide the information in A., B., and C.
40 listed below. The Permittees shall provide Ecology with a written demonstration, within
41 seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC
42 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-
43 806(4)(i)(i)(B)]:

- 44 A. Reasons for delayed removal;

1 B. Measures implemented to ensure continued protection of human health and the
2 environment; and

3 C. Current actions being taken to remove liquids from secondary containment.

4 III.10.G.5.1. The Permittees shall operate the Pretreatment Plant Miscellaneous Unit Systems in
5 accordance with Attachment 51, Chapter 4.0 as updated pursuant to Permit Condition
6 III.10.G.10.e.vi. and Appendix 8.15 of this Permit, as approved pursuant to Permit Condition
7 III.10.G.10.e., and the following:

8 i. The Permittees shall operate the Pretreatment Plant Miscellaneous Unit Systems in
9 order to maintain the systems and process parameters listed in Permit Table III.10.G.C.
10 as approved/modified pursuant to Permit Condition III. 10.G.10., within the operating
11 trips and operating ranges specified in Permit Table III.10.G.C., and consistent with
12 assumptions and basis which are reflected in Attachment 51, Appendix 6.3.1, as
13 approved pursuant to Permit Condition III.10.C.11.b. [WAC 173-303-815(2)(b)(ii) and
14 WAC 173-303-680(2) and (3)]. For the purposes of this Permit Condition, Attachment
15 51, Appendix 6.3.1. shall be superceded by Appendix 6.4.1. upon its approval pursuant
16 to either Permit Conditions III.10.C.11.c. or III.10.C.11.d.

17 ii. The Permittees shall calibrate/function test the instruments listed in Permit Table
18 III.10.G.C., in accordance with Attachment 51, Appendix 8.15, as approved pursuant to
19 Permit Condition III.10.G.10.e.xii.

20 III.10.G.5.m. For any portion of the Pretreatment Plant Miscellaneous Unit Systems which have the
21 potential for formation and accumulation of hydrogen gases, the Permittees shall operate the
22 portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-
23 815(2)(b)(ii)].

24 III.10.G.5.n. For each miscellaneous unit holding dangerous waste which are acutely or chronically toxic
25 by inhalation, the Permittees shall operate the system to prevent escape of vapors, fumes, or
26 other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in
27 accordance with WAC 173-303-680].

28 III.10.G.6 Air Emissions

29 III.10.G.6.a. Treatment effectiveness, feed-rates, and operating rates for dangerous and mixed waste
30 systems and sub-systems contained in the Pretreatment Plant (as specified in Permit Tables
31 III.10.E.A, III.10.F.A, and III.10.G.A, as approved/modified pursuant to Permit Conditions
32 III.10.E.9., III.10.F.5., III.10.G.10., respectively) shall be as specified in Permit Sections
33 III.10.E, III.10.F, and III.10.G, and consistent with the assumptions and basis reflected in
34 Attachment 51, Appendix 6.3.1 of this Permit, as approved pursuant to Permit Condition
35 III.10.C.11.b. For the purposes of this permit condition, Attachment 51, Appendix 6.3.1
36 shall be superceded by Appendix 6.4.1, upon its approval, pursuant to either Permit
37 Condition III.10.C.11.c. or III.10.C.11.d. [WAC 173-303-680(2) and (3), and WAC 173-
38 303-815(2)(b)(ii)].

39 III.10.G.6.b. Compliance with Permit Condition III.10.G.6.a. of this Permit shall be regarded as operating
40 within the emission limits specified in Permit Table III.10.G.D., as approved pursuant to
41 Permit Conditions III.10.C.11.b., III.10.C.11.c., or III.10.C.11.d. of this Permit.

42 III.10.G.6.c. All air pollution control devices and capture systems in the Pretreatment Plant
43 Miscellaneous Unit Systems shall be maintained and operated at all times in a manner so as
44 to minimize the emissions of air contaminants and to minimize process upsets. Procedures
45 for ensuring that the above equipment is properly operated and maintained so as to minimize
46 the emission of air contaminants and process upsets shall be established.

1 III.10.G.6.d. The Permittees shall ensure that for all dangerous and/or mixed waste areas, systems, and
2 units contained in the Pretreatment Plant (as specified in Permit Tables III.10.E.A,
3 III.10.F.A, and III.10.G.A, as approved pursuant to Permit Conditions III.10.E.9.e.xii.,
4 III.10.F.7.d.iv., and III.10.G.10.e.ix., respectively), the Pretreatment Vessel Vent Process
5 System specified in Permit Table III.10.G.A.i shall be in operation prior to waste being
6 introduced into these dangerous and/or mixed waste areas, systems, and units contained in
7 the Pretreatment Building. At any time the Pretreatment Vessel Vent Process System ceases
8 to operate or produces insufficient vacuum to recover emissions from the areas, systems, or
9 units, the Permittees shall not commence new treatment activities within the dangerous and
10 mixed waste areas, systems, or units contained in the Pretreatment Building, and take
11 measures to minimize evolution of emissions from on-going treatment, and shall not receive
12 new dangerous and/or mixed waste shipments into the Pretreatment Building. The
13 Permittees shall not re-commence new treatment activities until the Pretreatment Vessel
14 Vent Process System is operational and producing sufficient vacuum to recover emissions.

15 III.10.G.7 Inspections [WAC 173-303-680(3)]

16 III.10.G.7.a. The Permittees shall inspect the Pretreatment Plant Miscellaneous Unit Systems in
17 accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as
18 modified in accordance with Permit Condition III.10.C.5.c.

19 III.10.G.7.b. The inspection data for Pretreatment Plant Miscellaneous Unit Systems shall be recorded,
20 and the records shall be placed in the WTP Unit operating record for the Pretreatment Plant
21 Miscellaneous Unit Systems, in accordance with Permit Condition III.10.C.4.

22 III.10.G.8 Recordkeeping

23 The Permittees shall record and maintain in the WTP Unit operating record for the
24 Pretreatment Plant Miscellaneous Unit Systems, all monitoring, calibration, maintenance,
25 test data, and inspection data compiled under the conditions of this Permit, in accordance
26 with Permit Conditions III.10.C.4 and III.10.C.5.

27 III.10.G.9 Closure

28 The Permittees shall close the Pretreatment Plant Miscellaneous Unit Systems in accordance
29 with Attachment 51, Chapter 11.0, as approved pursuant to Permit Condition III.10.C.8.

30 III.10.G.10 Compliance Schedule

31 III.10.G.10.a. All information identified for submittal to Ecology in a. through e. of this compliance
32 schedule must be signed and certified in accordance with requirements in WAC 173-303-
33 810(12), as modified in accordance with Permit Condition III.10.G.1.d. [WAC 173-303-
34 806(4)].

35 III.10.G.10.b. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to
36 construction of each secondary containment and leak detection system for the Pretreatment
37 Plant Miscellaneous Unit Systems (per level) as identified in Permit Tables III.10.G.A and
38 III.10.G.B, engineering information as specified below, for incorporation into Attachment
39 51, Appendices 8.2, 8.4, 8.5, 8.7, 8.8, 8.9, 8.11, and 8.12 of this Permit. At a minimum,
40 engineering information specified below will show the following as described in WAC
41 173-303-640, in accordance with WAC 173-303-680 (the information specified below will
42 include dimensioned engineering drawings and information on sumps and floor drains):

- 43 i. IQRPE Reports (specific to foundation, secondary containment, and leak detection
44 system) shall include review of design drawings, calculations, and other information
45 on which the certification report is based and shall include as applicable, but not
46 limited to, review of such information described below. Information (drawings,

1 specifications, etc.) already included in Attachment 51, Appendix 8.0 of this Permit
2 may be included in the report by reference and should include drawing and document
3 numbers. IQRPE Reports shall be consistent with the information separately provided
4 in ii. through ix. below [WAC 173-303-640(3)(a), in accordance with WAC 173-303-
5 680 and WAC 173-303-806(4)(i)(i)];

- 6 ii. Design drawings (General Arrangement Drawings, in plan and cross sections) and
7 specifications for the foundation, secondary containment, including, liner installation
8 details, and leak detection methodology [Note: leak detection systems for areas where
9 daily, direct, or remote visual inspection is not feasible, shall be continuous in
10 accordance with WAC 173-303-640(4)(e)(iii)(C)]. These items should show the
11 dimensions, volume calculations, and location of the secondary containment system,
12 and should include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC
13 173-303-640(4)(b) through (f) and WAC 173-303-640(3)(a), in accordance with WAC
14 173-303-680 and WAC 173-303-806(4)(i)(i)];
- 15 iii. The Permittees shall provide the design criteria (references to codes and standards,
16 load definitions, and load combinations, materials of construction, and analysis/design
17 methodology) and typical design details for the support of the secondary containment
18 system. This information shall demonstrate the foundation will be capable of
19 providing support to the secondary containment system, resistance to pressure
20 gradients above and below the system, and capable of preventing failure due to
21 settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), in accordance with
22 WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];
- 23 iv. A description of materials and equipment used to provide corrosion protection for
24 external metal components in contact with soil, including factors affecting the
25 potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC
26 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];
- 27 v. Secondary containment/foundation and leak detection systems materials selection
28 documentation (including, but not limited to, concrete coatings and water stops, and
29 liner materials), as applicable [WAC 173-303-806(4)(i)(i)(A) through (B)];
- 30 vi. Detailed description of how the secondary containment for each miscellaneous unit
31 system will be installed in compliance with WAC 173-303-640(3)(c), in accordance
32 with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B);
- 33 vii. Submit Permit Table III.10.G.B. completed to provide for all secondary containment
34 sumps and floor drains, the information as specified in each column heading,
35 consistent with information to be provided in i. through vi. above;
- 36 viii. Documentation that secondary containment and leak detection systems will not
37 accumulate hydrogen gas levels above the lower explosive limit for incorporation into
38 the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and
39 WAC 173-303-806(4)(i)(v)];
- 40 ix. A detailed description of how miscellaneous unit design provides access for
41 conducting future miscellaneous unit integrity assessments [WAC 173-303-640(3)(b)
42 and WAC 173-303-806(4)(i)(i)(B)].

43 III.10.G.10.c. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to
44 installation of each Pretreatment Plant Miscellaneous Unit System as identified in Permit
45 Tables III.10.G.A and III.10.G.B, engineering information as specified below, for
46 incorporation into Attachment 51, Appendix 8.1 through 8.14 of this Permit. At a
47 minimum, engineering information specified below will show the following as required

1 pursuant to WAC 173-303-640 and in accordance with WAC 173-303-680 (the information
2 specified below will include dimensioned engineering drawings):

- 3 i. IQRPE Reports (specific to miscellaneous unit) shall include review of design
4 drawings, calculations, and other information on which the certification report is based
5 and shall include as applicable, but not limited to, review of such information
6 described below. Information (drawings, specifications, etc.) already included in
7 Attachment 51, Appendix 8.0 of this Permit may be included in the report by reference
8 and should include drawing and document numbers. The IQRPE Reports shall be
9 consistent with the information separately provided in ii. through xi. below and the
10 IQRPE Report specified in Permit Condition III.10.G.10.b.i. [WAC 173-303-
11 640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];
- 12 ii. Design drawings (General Arrangement Drawings in plan and cross sections, Process
13 Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control
14 systems], and Mechanical Drawings) and specifications, and other information
15 specific to miscellaneous units (to show location and physical attributes of each
16 miscellaneous unit), [WAC 173-303-640(3)(a), in accordance with WAC 173-303-
17 680(2) and WAC 173-303-806(4)(i)(i)];
- 18 iii. Miscellaneous unit design criteria (references to codes and standards, load definitions,
19 and load combinations, materials of construction, and analysis/design methodology)
20 and typical design details for the support of the miscellaneous unit(s). Structural
21 support calculations specific to off-specification, non-standard, and field fabricated
22 miscellaneous units shall be submitted for incorporation into the Administrative
23 Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and
24 WAC 173-303-806(4)(i)(i)(B)];
- 25 iv. A description of materials and equipment used to provide corrosion protection for
26 external metal components in contact with water, including factors affecting the
27 potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC
28 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];
- 29 v. Miscellaneous unit materials selection documentation (e.g., physical and chemical
30 tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and
31 WAC 173-303-806(4)(i)(i)(A)];
- 32 vi. Miscellaneous unit vendor information (including, but not limited to, required
33 performance warranties, as available), consistent with information submitted under ii.
34 above, shall be submitted for incorporation into the Administrative Record [WAC
35 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-
36 806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];
- 37 vii. System Description (process) related to miscellaneous units shall be submitted for
38 incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-
39 806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)].
- 40 viii. Mass and energy balance for normal projected operating conditions used in
41 developing the Piping and Instrumentation Diagrams and the Process Flow Diagrams,
42 including assumptions and formulas used to complete the mass and energy balance, so
43 that they can be independently verified for incorporation into the Administrative
44 Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-
45 806(4)(i)(v)];

- 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);
- 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)];
- 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.G.10.d. The Permittees shall 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 Attachment 51, Appendices 8.1 through 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):

- i. IQRPE Reports (specific to equipment) shall include a review of design drawings, calculations, and other information as applicable, on which the certification report is based. The reports shall include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 8.0 of this Permit may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall 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)];
- 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. The Permittees shall 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)];
- 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)];
- 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)];
- vi. Vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, for equipment shall

1 be submitted for incorporation into the Administrative Record [WAC 173-303-
2 640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(A)
3 through (B), and WAC 173-303-806(4)(i)(iv)];

4 vii. Miscellaneous unit, equipment, and leak detection system instrument control logic
5 narrative description (e.g., software functional specifications, descriptions of fail-safe
6 conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(B), and WAC
7 173-303-806(4)(i)(v)].

8 viii. System Descriptions (process) related to equipment and system descriptions related to
9 leak detection systems, (including instrument control logic and narrative descriptions),
10 for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-
11 806(4)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

12 ix. A detailed description of how the equipment will be installed and tested [WAC 173-
13 303-640(3)(c) through (e) and WAC 173-303-640(4)(b) and (c), in accordance with
14 WAC 173-303-680 and WAC 173-303-806(4)(i)(B)];

15 x. For process monitoring, control, and leak detection system instrumentation for the
16 WTP Unit Miscellaneous Unit Systems as identified in Permit Table III.10.G.C, a
17 detailed description of how the process monitoring, control, and leak detection system
18 instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e),
19 WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-303-
20 806(4)(i)(B)];

21 xi. Mass and energy balance for projected normal operating conditions, used in
22 developing the Piping and Instrumentation Diagrams and Process Flow Diagrams,
23 including assumptions and formulas used to complete the mass and energy balance, so
24 that they can be independently verified, for incorporation into the Administrative
25 Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(B), and WAC 173-303-
26 806(4)(i)(v)];

27 xii. Documentation that miscellaneous units are designed to prevent the accumulation of
28 hydrogen gas levels above the lower explosive limit for incorporation into the
29 Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(A), and WAC
30 173-303-806(4)(i)(v)].

31 xiii. Leak detection system documentation (e.g. vendor information, etc.) consistent with
32 information submitted under Permit Condition III.10.G.10.c.ii. and Permit Conditions
33 III.10.G.10.d.ii., vii., viii., and x. above, shall be submitted for incorporation into the
34 Administrative Record.

35 III.10.G.10.e. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
36 shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., the following as
37 specified below for incorporation into Attachment 51, Appendix 8.15, except Permit
38 Condition III.10.G.10.e.i., which will be incorporated into Attachment 51, Chapter 6.0, of
39 this Permit. All information provided under this permit condition must be consistent with
40 information provided pursuant to Permit Conditions III.10.G.10.b., c., d., and e.,
41 III.10.C.3.e., and III.10.C.11.b., as approved by Ecology.

42 i. Integrity assessment program and schedule for the Pretreatment Plant Miscellaneous
43 Unit Systems shall address the conducting of periodic integrity assessments on the
44 Pretreatment Plant Miscellaneous Unit Systems over the life of the systems, as
45 specified in Permit Condition III.10.G.10.b.ix. and WAC 173-303-640(3)(b), in
46 accordance with WAC 173-303-680, and descriptions of procedures for addressing
47 problems detected during integrity assessments. The schedule must be based on past

1 integrity assessments, age of the system, materials of construction, characteristics of
2 the waste, and any other relevant factors [WAC 173-303-640(3)(b), in accordance
3 with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

4 ii. Detailed plans and descriptions, demonstrating the leak detection system is operated
5 so that it will detect the failure of either the primary or secondary containment
6 structure or the presence of any release of dangerous and/or mixed waste or
7 accumulated liquid in the secondary containment system within twenty-four (24)
8 hours WAC 173-303-640(4)(c)(iii). Detection of a leak of at least 0.1 gallons per hour
9 within twenty-four (24) hours is defined as being able to detect a leak within twenty-
10 four (24) hours. Any exceptions to this criteria must be approved by Ecology in
11 accordance with WAC 173-303-680, WAC 173-303-640(4)(c)(iii), and WAC 173-
12 303-806(4)(i)(i)(B)];

13 iii. Detailed operational plans and descriptions, demonstrating that spilled or leaked waste
14 and accumulated liquids can be removed from the secondary containment system
15 within twenty-four (24) hours [WAC 173-303-806(4)(i)(i)(B)];

16 iv. Descriptions of operational procedures demonstrating appropriate controls and
17 practices are in place to prevent spills and overflows from the Pretreatment Plant
18 Miscellaneous Unit Systems, or containment systems, in compliance with WAC 173-
19 303-640(5)(b)(i) through (iii), in accordance with WAC 173-303-680 [WAC 173-303-
20 806(4)(i)(i)(B)];

21 v. Description of procedures for investigation and repair of the Pretreatment Plant
22 Miscellaneous Unit Systems [WAC 173-303-640(6) and WAC 173-303-640(7)(e) and
23 (f), in accordance with WAC 173-303-680, WAC 173-303-320, WAC 173-303-
24 806(4)(a)(v), and WAC 173-303-806(4)(i)(i)(B)];

25 vi. Updated Chapter 4.0, Narrative Descriptions, Tables and Figures as identified in
26 Permit Tables III.10.G.A and III.10.G.B., as modified pursuant to Permit Condition
27 III.10.G.10.e.ix., and updated to identify routinely non-accessible Pretreatment Plant
28 Miscellaneous Unit Systems [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A)
29 through (B)];

30 vii. Descriptions of procedures for management of ignitable and reactive, and
31 incompatible dangerous and/or mixed waste, in accordance with WAC 173-303-
32 640(9) and (10), in accordance with WAC 173-303-680 and WAC 173-303-
33 806(4)(i)(i)(B).

34 viii. A description of the tracking system used to track dangerous and/or mixed waste
35 generated throughout the Pretreatment Plant Miscellaneous Unit Systems, pursuant to
36 WAC 173-303-380.

37 ix. Permit Table III.10.G.A, amended as follows [WAC 173-303-680 and WAC 173-303-
38 806(4)(i)(i)(A) through (B)]:

39 A. Under column 1, update and complete list of dangerous and mixed waste
40 Pretreatment Plant Miscellaneous Unit Systems, including plant items which
41 comprise each system (listed by item number).

42 B. Under column 2, update and complete system designations.

43 C. Under column 3, replace the 'Reserved' with the Attachment 51, Appendix 8.0
44 subsections specific to miscellaneous unit systems as listed in column 1.

45 D. Under column 4, update and complete list of narrative description tables and

- 1 figures.
- 2 E. Under column 5, update and complete maximum capacity for each miscellaneous
3 unit, as applicable.
- 4 F. Permit Table III.10.G.A.i., amended as follows:
- 5 1. Under column 1, update and complete list of plant items that comprise the
6 Pretreatment Plant Vessel Vent System (listed by item number).
- 7 2. Under column 2, update and complete designations.
- 8 3. Under column 3, replace the 'Reserved' with the Attachment 51, Appendix
9 8.0, subsections (e.g., 9.1, 9.2, etc.) specific to systems as listed in column 1.
- 10 4. Under column 4, update and complete list of narrative description tables and
11 figures.
- 12 x. Permit Table III.10.G.C. shall be completed for Pretreatment Plant Miscellaneous Unit
13 System process and leak detection system monitors and instruments (to include, but
14 not be limited to: instruments and monitors measuring and/or controlling flow,
15 pressure, temperature, density, pH, level, humidity, and emissions) to provide the
16 information as specified in each column heading. Process and leak detection system
17 monitors and instruments for critical systems as specified in Attachment 51, Appendix
18 2.0 and as updated pursuant to Permit Condition III.10.C.9.b. and for operating
19 parameters as required to comply with Permit Condition III.10.C.3.e.iii. shall be
20 addressed. Process monitors and instruments for non-waste management operations
21 (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded
22 from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(A)
23 through (B), and WAC 173-303-806(4)(i)(v)];
- 24 xi. Supporting documentation for operating trips and expected operating range as
25 specified in Permit Table III.10.G.C., as approved pursuant to Permit Condition
26 III.10.G.10.e.x. [WAC 173-303-680, WAC 173-303-806(4)(i)(B), WAC 173-303-
27 806(4)(i)(iv), and WAC 173-303-806(4)(i)(v)];
- 28 xii. Documentation of process and leak detection instruments and monitors (as listed in
29 Permit Table III.10.G.C.) for the Pretreatment Plant Miscellaneous Unit Systems to
30 include, but not be limited to, the following [WAC 173-303-680, WAC 173-303-
31 806(4)(i)(B), and WAC 173-303-806(4)(i)(v)]:
- 32 A. Procurement Specifications
- 33 B. Location used
- 34 C. Range, precision, and accuracy
- 35 D. Detailed descriptions of calibration/functionality test procedures (e.g., method
36 number [ASTM]) or provide a copy of manufacturer's recommended calibration
37 procedures.
- 38 E. Calibration/functionality test, inspection, and routine maintenance schedules and
39 checklists, including justification for calibration, inspection and maintenance
40 frequencies, criteria for identifying instruments found to be significantly out of
41 calibration, and corrective action to be taken for instruments found to be
42 significantly out of calibration (e.g., increasing frequency of calibration,
43 instrument replacement, etc.)

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F. Equipment instrument control logic narrative description (e.g., software functional specifications, 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.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 (Comprised of the following miscellaneous units and equipment: Evaporator Feed Vessels V11001A-B ^b , Waste Feed Evaporator Separator Vessels V11002A-B, Evaporator Process Condensate Pot V11005 ^b , Reboilers, Primary Condensers, Intercondensers, After condensers, Demisters, and Pumps and associated equipment)	FEP	RESERVED	Section 4.1.2.2.; Figure 4A-1, 4A-2, and 4A-6 of Attachment 51, Chapter 4 of this Permit.	V11002A = 21,240 V11002B = 21,240
Cesium Nitric Acid Recovery Process System (Comprised of the following miscellaneous units and equipment: Cs Evaporator (ID RESERVED), Cs Concentrate Reboiler, Eluant Contingency Storage Vessel V13073 ^b , Recovered Nitric Acid Vessel V13028 ^b , Cesium Concentrate Lute Pot V13030 ^b , Cs Rectifier Column, Rectifier Overhead Primary Condenser, After (Secondary) condenser, and Ejectors and associated equipment)	CNP	RESERVED	Section 4.1.2.6.; Figure 4A-1, 4A-2, and 4A-10 of Attachment 51, Chapter 4 of this Permit	Cs Evaporator = RESERVED
Technetium Eluant Recovery Process System (Comprised of the following miscellaneous units and equipment: Technetium Eluant Recovery Evaporator V43069, Tc Concentrate Reboiler, Recovered Tc Eluant Vessel V43071 ^b , Tc Concentrate Lute Pot V43072 ^b , Tc Rectifier Column, Rectifier Overhead Condenser, Aftercondenser, Vacuum Ejectors and associated equipment)	TEP	RESERVED	Section 4.1.2.9.; Figure 4A-1, 4A-2, and 4A-13 of Attachment 51, Chapter 4 of this Permit	V43069 = 4,300
Treated LAW Evaporation Process System (Comprised of the following miscellaneous units and equipment: LAW Evaporator Separator Vessel V41011, Process Condensate Hold Vessel V41013 ^b , Plant Wash Vessels A-B V45009A-B ^b , Reboiler, Primary Condenser, Intercondenser, Aftercondenser, Demister, Pumps and associated equipment)	TLP	RESERVED	Section 4.1.2.11; Figure 4A-1, 4A-2, and 4A-16 of Attachment 51, Chapter 4 of this Permit	V41011 = 21,240

^a The Pretreatment Vessel Vent Process System 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 System. Any reference in this Permit to Permit Table III.10.G.A is also a reference to Permit Table III.10.G.A.i.

^b Requirements pertaining to the tanks in the Pretreatment Plant Miscellaneous Unit Systems are specified in Section III.10.E. of this Permit.

Table III.10.G.A.i. – Pretreatment Plant Miscellaneous Unit Systems’ Pretreatment Vessel Vent Process System

Description	Designation	Description Drawings	Narrative Description, Tables & Figures
Pretreatment Vessel Vent Process System (Comprised of the following: Vessel Vent Header Collection Vessel V15052 ^b , Condensate Collection Vessel V15038 ^b , Caustic scrubber, High Efficiency Mist Eliminators (HEME), HEME Drain Collection Vessels V15326-7 ^b , Electric Heaters, Primary & Secondary High Efficiency Particulate Air Filters (HEPA), Heat Exchanger, Thermal Catalytic Oxidizer, Aftercooler, Carbon Bed Adsorbers, Vessel Vent Adsorber Outlet Filter, Vessel Vent Adsorber Outlet Air Filter, Pumps, Fans, Vessel Vent Heaters, Pumps, PVP Stack and associated equipment)	PVP/PVV	RESERVED	Section 4.1.2.17; Figure 4A-1, 4A-2, and 4A-19 of Attachment 51, Chapter 4 of this Permit

^a The Pretreatment Vessel Vent Process System 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 System. Any reference in this Permit to Permit Table III.10.G.A is also a reference to Permit Table III.10.G.A.i.

^b Requirements pertaining to the tanks in the Pretreatment Plant Miscellaneous Unit Systems are specified in Section III.10.E. of this Permit.

**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].

- i. The Permittees shall 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 Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, 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.
- ii. The Permittees shall construct all containment systems for the LAW Vitrification System as specified in Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, 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. The Permittees shall 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

1 required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3)
2 (applicable paragraphs (i.e., (a) through (g)) in accordance with WAC 173-303-680).

3 "I certify under penalty of law that I have personally examined and am familiar with
4 the information submitted in this document and all attachments and that, based on my
5 inquiry of those individuals immediately responsible for obtaining the information, I
6 believe that the information is true, accurate, and complete. I am aware that there are
7 significant penalties for submitting false information, including the possibility of fine
8 and imprisonment."

9 iv. The Permittees must ensure that proper handling procedures are adhered to in order to
10 prevent damage to the LAW Vitrification System during installation. Prior to
11 covering, enclosing, or placing the new LAW Vitrification System or component in
12 use, an independent, qualified, installation inspector or an independent, qualified,
13 registered professional engineer, either of whom is trained and experienced in the
14 proper installation of similar systems or components, must inspect the system for the
15 presence of any of the following items:

- 16 A. Weld breaks;
- 17 B. Punctures;
- 18 C. Scrapes of protective coatings;
- 19 D. Cracks;
- 20 E. Corrosion;
- 21 F. Other structural damage or inadequate construction/installation.

22 All discrepancies must be remedied before the LAW Vitrification System is covered,
23 enclosed, or placed in use [WAC 173-303-640(3)(c), in accordance with WAC 173-
24 303-680(2) and (3)].

25 v. For the LAW Vitrification System or components that are placed underground and
26 that are back-filled, the Permittees must provide a backfill material that is a non-
27 corrosive, porous, homogeneous substance. The backfill must be installed so that it is
28 placed completely around the LAW Vitrification System and compacted to ensure that
29 the LAW Vitrification System is fully and uniformly supported [WAC 173-303-
30 640(3)(d), in accordance with WAC 173-303-680(2) and (3)].

31 vi. The Permittees must test for tightness the LAW Vitrification System or components,
32 prior to being covered, enclosed, or placed into use. If the LAW Vitrification System
33 or components are found not to be tight, all repairs necessary to remedy the leak(s) in
34 the system must be performed prior to the LAW Vitrification System being covered,
35 enclosed, or placed in use [WAC 173-303-640(3)(e), in accordance with WAC 173-
36 303-680(2) and (3)].

37 vii. The Permittees must ensure the LAW Vitrification System equipment is supported and
38 protected against physical damage and excessive stress due to settlement, vibration,
39 expansion, or contraction [WAC 173-303-640(3)(f), in accordance with WAC 173-
40 303-680(2) and (3)].

- 1 viii. The Permittees must provide the type and degree of corrosion protection
2 recommended by an independent corrosion expert, based on the information provided
3 in Attachment 51, Appendices 9.9 and 9.11 of this Permit, as approved pursuant to
4 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.,
5 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
6 other corrosion protection if Ecology believes other corrosion protection is necessary
7 to ensure the integrity of the LAW Vitrification System during use of the LAW
8 Vitrification System. The installation of a corrosion protection system that is field
9 fabricated must be supervised by an independent corrosion expert to ensure proper
10 installation [WAC 173-303-640(3)(g), in accordance with WAC 173-303-680(2) and
11 (3)].
- 12 ix. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the
13 Permittees shall obtain and keep on file in the WTP Unit operating record, written
14 statements by those persons required to certify the design of the LAW Vitrification
15 System and supervise the installation of the LAW Vitrification System, as specified in
16 WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC 173-303-
17 680, attesting that the LAW Vitrification System and corresponding containment
18 system listed in Permit Tables III.10.H.A and III.10.H.B, as approved/modified
19 pursuant to Permit Condition III.10.H.5., were properly designed and installed, and
20 that repairs, in accordance with WAC 173-303-640(3)(c) and (e) were performed
21 [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(h), in accordance with WAC
22 173-303-680(3)].
- 23 x. The independent LAW Vitrification System installation inspection and subsequent
24 written statements shall be certified in accordance with WAC 173-303-810(13)(a), as
25 modified pursuant to Permit Condition III.10.H.1.a.iii., comply with all requirements
26 of WAC 173-303-640(3)(h) in accordance with WAC 173-303-680, and shall
27 consider, but not be limited to, the following LAW Vitrification System installation
28 documentation:
- 29 A. Field installation report with date of installation;
- 30 B. Approved welding procedures;
- 31 C. Welder qualification and certifications;
- 32 D. Hydro-test reports, as applicable, in accordance with the American Society of
33 Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division
34 1; American Petroleum Institute (API) Standard 620, or Standard 650, as
35 applicable;
- 36 E. Tester credentials;
- 37 F. Field inspector credentials;
- 38 G. Field inspector reports;
- 39 H. Field waiver reports; and

I. Non-compliance reports and corrective action (including field waiver reports) and repair reports.

- xi. The Permittees shall 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 Attachment 51, Chapter 6.0 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 shall 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.
- xii. The Permittees shall 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 Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c.
- 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., shall be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.H.F.
- xiv. The Permittees shall 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 Attachment 51, 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.
- xv. No dangerous and/or mixed waste shall be treated in the LAW Vitrification System unless the operating conditions, specified under Permit Condition III.10.H.1.c. are complied with.
- xvi. The Permittees shall 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).
- xvii. The Permittees shall 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 Attachment 51, 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)].

- 1 xviii. For routinely non-accessible LAW Vitrification System sub-systems, as specified in
2 Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition
3 III.10.H.5.e.vi., the Permittees shall mark all routinely non-accessible LAW
4 Vitrification System sub-systems access points with labels, or signs, to identify the
5 waste contained in each LAW Vitrification System sub-system. The label, or sign,
6 must be legible at a distance of at least fifty (50) feet, and must bear a legend which
7 identifies the waste in a manner which adequately warns employees, emergency
8 response personnel, and the public of the major risk(s) associated with the waste being
9 stored or treated in the LAW Vitrification System sub-systems. For the purposes of
10 this permit condition, "routinely non-accessible" means personnel are unable to enter
11 these areas while waste is being managed in them [WAC 173-303-640(5)(d), in
12 accordance with WAC 173-303-680(2)].
- 13 xix. For all LAW Vitrification System sub-systems not addressed in Permit Condition
14 III.10.H.1.a.xviii., the Permittees shall mark all these LAW Vitrification System sub-
15 systems holding dangerous and/or mixed waste with labels, or signs, to identify the
16 waste contained in the LAW Vitrification System sub-systems. The labels, or signs,
17 must be legible at a distance of at least fifty (50) feet, and must bear a legend which
18 identifies the waste in a manner which adequately warns employees, emergency
19 response personnel, and the public of the major risk(s) associated with the waste being
20 stored or treated in the LAW Vitrification System sub-systems [WAC 173-303-
21 640(5)(d), in accordance with WAC 173-303-680(2)].
- 22 xx. The Permittees shall ensure that the secondary containment systems for the LAW
23 Vitrification System sub-systems listed in Permit Tables III.10.H.A. and III.10.H.B, as
24 approved/modified pursuant to Permit Condition III.10.H.5, are free of cracks or gaps
25 to prevent any migration of dangerous and/or mixed waste or accumulated liquid out
26 of the system to the soil, groundwater, or surface water at any time during use of the
27 LAW Vitrification System sub-systems. Any indication that a crack or gap may exist
28 in the containment systems shall be investigated and repaired in accordance with
29 Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit
30 Condition III.10.H.5.e.v. [WAC 173-303-640(4)(b)(i), WAC 173-303-
31 640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2)
32 and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].
- 33 xxi. The Permittees must immediately, and safely, remove from service any LAW
34 Vitrification System or secondary containment system which through an integrity
35 assessment is found to be "unfit for use" as defined in WAC 173-303-040, following
36 Permit Conditions III.10.H.1.a.xxiii.A. through D., and F. The affected LAW
37 Vitrification System or secondary containment system must be either repaired or
38 closed in accordance with Permit Condition III.10.H.1.a.xxiii.E. [WAC 173-303-
39 640(7)(e) and (f), WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].
- 40 xxii. An impermeable coating, as specified in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.9,
41 9.11, and 9.12 of this Permit, as approved pursuant to Permit Condition III.10.H.5.b.v.
42 shall be maintained for all concrete containment systems and concrete portions of
43 containment systems for each LAW Vitrification System sub-systems listed in Permit

1 Tables III.10.H.A and III.10.H.B, as approved/modified pursuant to Permit Condition
2 III.10.H.5 (concrete containment systems that do not have a liner, pursuant to WAC
3 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have
4 construction joints, shall meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in
5 accordance with WAC 173-303-680(2). The coating shall prevent migration of any
6 dangerous and mixed waste into the concrete. All coatings shall meet the following
7 performance standards:

- 8 A. The coating must seal the containment surface such that no cracks, seams, or
9 other avenues through which liquid could migrate are present;
- 10 B. The coating must be of adequate thickness and strength to withstand the normal
11 operation of equipment and personnel within the given area such that degradation
12 or physical damage to the coating or lining can be identified and remedied before
13 dangerous and mixed waste could migrate from the system; and
- 14 C. The coating must be compatible with the dangerous and mixed waste, treatment
15 reagents, or other materials managed in the containment system [WAC 173-303-
16 640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC
17 173-303-806(4)(i)(A)].

18 xxiii. The Permittees shall inspect all secondary containment systems for the LAW
19 Vitrification System sub-systems listed in Permit Tables III.10.H.A and III.10.H.B, as
20 approved/modified pursuant to Permit Condition III.10.H.5., in accordance with the
21 Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as
22 approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c., and take the
23 following actions if a leak or spill of dangerous and/or mixed waste is detected in
24 these containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in
25 accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-
26 303-806(4)(i)(B)]:

- 27 A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the
28 LAW Vitrification System sub-systems or secondary containment system.
- 29 B. Determine the source of the dangerous and/or mixed waste.
- 30 C. Remove the dangerous and/or mixed waste from the containment area in
31 accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-
32 640(7)(b). The dangerous and/or mixed waste removed from containment areas
33 of the LAW Vitrification System sub-systems shall be, as a minimum, managed
34 as mixed waste.
- 35 D. If the cause of the release was a spill that has not damaged the integrity of the
36 LAW Vitrification System sub-system, the Permittees may return the LAW
37 Vitrification System sub-system to service in accordance with WAC 173-303-
38 680(2) and (3) as specified in WAC 173-303-640(7)(e)(ii). In such case, the
39 Permittees shall take action to insure the incident that caused the dangerous
40 and/or mixed waste to enter the containment system will not reoccur [WAC 173-
41 303-320(3)].

- 1 E. If the source of the dangerous and/or mixed waste is determined to be a leak from
2 the primary LAW Vitrification System into the secondary containment system, or
3 the system is unfit for use as determined through an integrity assessment or other
4 inspection, the Permittees shall comply with the requirements of WAC 173-303-
5 640(7) and take the following actions:
- 6 1. Close the LAW Vitrification System sub-system following procedures in
7 WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and
8 Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit
9 Condition III.10.C.8., or
- 10 2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as
11 modified pursuant to Permit Condition III.10.H.1.a.iii.) the LAW
12 Vitrification System, in accordance with Attachment 51, Appendix 9.18 of
13 this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v., before
14 the LAW Vitrification System is placed back into service [WAC 173-303-
15 640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-
16 303-680].
- 17 F. The Permittees shall document in the operating record actions/procedures taken
18 to comply with A. through E. above as specified in WAC 173-303-640(6)(d), in
19 accordance with WAC 173-303-680(2) and (3).
- 20 G. In accordance with WAC 173-303-680(2) and WAC 173-303-680 (3), the
21 Permittees shall notify and report releases to the environment to Ecology as
22 specified in WAC 173-303-640(7)(d).
- 23 xxiv. If liquids (e.g., dangerous and/or mixed waste leaks and spills, precipitation, fire
24 water, liquids from damaged or broken pipes) cannot be removed from the secondary
25 containment system within twenty-four (24) hours, Ecology will be verbally notified
26 within twenty-four (24) hours of discovery. The notification shall provide the
27 information in A, B, and C, listed below. The Permittees shall provide Ecology with a
28 written demonstration within seven (7) business days, identifying at a minimum
29 [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with
30 WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:
- 31 A. Reasons for delayed removal;
- 32 B. Measures implemented to ensure continued protection of human health and the
33 environment;
- 34 C. Current actions being taken to remove liquids from secondary containment.
- 35 xxv. All air pollution control devices and capture systems in the LAW Vitrification System
36 shall be maintained and operated at all times in a manner so as to minimize the
37 emissions of air contaminants and to minimize process upsets. Procedures for
38 ensuring that the air pollution control devices and capture systems in the LAW
39 Vitrification System are properly operated and maintained so as to minimize the
40 emission of air contaminants and process upsets shall be established.

- 1 xxvi. In all future narrative permit submittals, the Permittees shall include LAW
2 Vitrification sub-system names with the sub-system designation.
- 3 xxvii. Modifications to approved design, plans, and specifications in Attachment 51 of this
4 Permit for the LAW Vitrification System shall be allowed only in accordance with
5 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
6 III.10.C.9.h.
- 7 xxviii. For any portion of the LAW Vitrification System which has the potential for
8 formation and accumulation of hydrogen gases, the Permittees shall operate the
9 portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-
10 815(2)(b)(ii)].
- 11 xxix. For each LAW Vitrification System sub-system holding dangerous waste which are
12 acutely or chronically toxic by inhalation, the Permittees shall operate the system to
13 prevent escape of vapors, fumes or other emissions into the air [WAC 173-303-
14 806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680].

15 III.10.H.1.b. Performance Standards

- 16 i. The LAW Vitrification System must achieve a destruction and removal efficiency
17 (DRE) of 99.99% for the principal organic dangerous constituents (PODCs) listed below
18 [40 CFR §63.1203(c)(1), 40CFR 63.1203(c)(2), in accordance with WAC 173-303-
19 680(2)]:

20 RESERVED

21 DRE in this permit condition shall be calculated in accordance with the formula
22 given below:

23
$$DRE = [1 - (W_{out}/W_{in})] \times 100\%$$

24 Where:

25 W_{in} = mass feed-rate of one principal organic dangerous constituent (PODC) in a
26 waste feedstream; and

27 W_{out} = mass emission rate of the same PODC present in exhaust emissions prior to
28 release to the atmosphere.

- 29 ii. Particulate matter emissions from the LAW Vitrification System shall not exceed 34
30 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-
31 303-680(2)].
- 32 iii. Hydrochloric acid and chlorine gas emissions from the LAW Vitrification System shall
33 not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC 173-
34 303-680(2)].
- 35 iv. Dioxin and Furan TEQ emissions from the LAW Vitrification System shall not exceed
36 0.2 nanograms (ng)/dscm [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-
37 680(2)].

- 1 v. Mercury emissions from the LAW Vitrification System shall not exceed 45 µg/dscm [40
2 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)].
- 3 vi. Lead and cadmium emissions from the LAW Vitrification System shall not exceed 120
4 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-
5 680(2)].
- 6 vii. Arsenic, beryllium, and chromium emissions from the LAW Vitrification System shall
7 not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC
8 173-303-680(2)].
- 9 viii. Carbon monoxide (CO) emission from the LAW Vitrification System shall not exceed
10 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and
11 recorded by the continuous monitoring system), dry basis [40 CFR §63.1203(b)(5)(i), in
12 accordance with WAC 173-303-680(2)].
- 13 ix. Hydrocarbon emission from the LAW Vitrification System shall not exceed 10 parts per
14 million (ppm) by volume, over an hourly rolling average (as measured and recorded by
15 the continuous monitoring system during demonstration testing required by this Permit),
16 dry basis, and reported as propane [40 CFR §63.1203(b)(5)(ii), in accordance with
17 WAC 173-303-680(2)].
- 18 x. If the emissions from the LAW Vitrification System exceed the emission rates listed in
19 Permit Table III.10.H.E, as approved pursuant to Permit Condition III.10.C.11.b., the
20 Permittees shall notify Ecology in accordance with Permit Condition III.10.H.3.d.vii.
21 [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].
- 22 The emission limits specified in Permit Conditions III.10.H.1.b.i. through III.10.H.1.b.x.
23 above, shall be met for the LAW Vitrification System by limiting feed-rates as specified
24 in Permit Tables III.10.H.D. and III.10.H.F., as approved/modified pursuant to Permit
25 Condition III.10.H.5., compliance with operating conditions specified in Permit
26 Condition III.10.H.1.c. (except as specified in Permit Condition III.10.H.1.b.xii.), and
27 compliance with Permit Condition III.10.H.1.b.xi.
- 28 xi. Treatment effectiveness, feed-rates and operating rates for dangerous and mixed waste
29 management units contained in the LAW Building, but not included in Permit Table
30 III.10.H.A, as approved/modified pursuant to Permit Condition III.10.H.5., shall be as
31 specified in Permit Sections III.10.D, III.10.E, III.10.F and consistent with assumptions
32 and basis which are reflected in Attachment 51, Appendix 6.3.1 of this Permit, as
33 approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit
34 condition, Attachment 51, Appendix 6.3.1 shall be superceded by Appendix 6.4.1 upon
35 its approval pursuant to either Permit Conditions III.10.C.11.c. or III.10.C.11.d. [WAC
36 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].
- 37 xii. Compliance with the operating conditions specified in Permit Condition III.10.H.1.c.,
38 shall be regarded as compliance with the required performance standards identified in
39 Permit Conditions III.10.H.1.b.i. through x. However, if it is determined that during the
40 effective period of this Permit that compliance with the operating conditions in Permit
41 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-303-670(6), in accordance with WAC 173-303-680(2)and (3)].

The Permittees shall operate the LAW Vitrification System in accordance with Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi., Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e., and Attachment 51, 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:

- i. The Permittees shall 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.
- ii. The Permittees shall 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. The Permittees shall 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.
- iv. The Permittees shall 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 shall mean if any portion of the LAW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.
- 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 shall immediately, manually cut-off the dangerous and mixed waste feed to the LAW Vitrification System. The Permittees shall not restart the dangerous and/or mixed waste feed until the problem causing the malfunction has been identified and corrected.
- vi. The Permittees shall 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.

- 1 vii. If greater than thirty (30) dangerous and mixed waste feed cut-off, combined, to the
2 LAW Vitrification System occur due to deviations from Permit Table III.10.H.F, as
3 approved/modified pursuant to Permit Condition III.10.H.5., within a sixty (60) day
4 period, the Permittees shall submit a written report to Ecology within five (5) calendar
5 days of the thirty-first exceedance including the information specified below. These
6 dangerous and mixed waste feed cut-offs to the LAW Vitrification System, whether
7 automatically or manually activated, are counted if the specified set points are deviated
8 from while dangerous waste, mixed waste, and waste residues continue to be processed
9 in the LAW Vitrification System. A cascade event is counted at a frequency of one (1)
10 towards the first waste feed cut-off parameter, specified on Permit Table III.10.H.F,
11 from which the set-point is deviated:
- 12 A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.H.F;
13 B. The magnitude, dates, and duration of the deviations;
14 C. Results of the investigation of the cause of the deviations; and
15 D. Corrective measures taken to minimize future occurrences of the deviations.
- 16 viii. If any portion of the LAW Vitrification System is bypassed while treating dangerous
17 and/or mixed waste it shall be regarded as non-compliance with the operating conditions
18 specified in Permit Condition III.10.H.1.c. and the performance standards specified in
19 Permit Condition III.10.H.1.b. After such a bypass event, the Permittees shall perform
20 the following actions:
- 21 A. Investigate the cause of the bypass event;
22 B. Take appropriate corrective measures to minimize future bypasses;
23 C. Record the investigation findings and corrective measures in the operating record;
24 and
25 D. Submit a written report to Ecology within five (5) days of the bypass event
26 documenting the result of the investigation and corrective measures.
- 27 ix. The Permittees shall control fugitive emissions from the LAW Vitrification System by
28 maintaining the melters under negative pressure.
- 29 x. Compliance with the operating conditions specified in Permit Condition III.10.H.1.c.
30 shall be regarded as compliance with the required performance standards identified in
31 Permit Condition III.10.H.1.b. However, evidence that compliance with these operating
32 conditions is insufficient to ensure compliance with the performance standards, shall
33 justify modification, revocation, or re-issuance of this Permit, in accordance with Permit
34 Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g.

35 III.10.H.1.d. Inspection Requirements [WAC 173-303-680(3)]

- 36 i. The Permittees shall inspect the LAW Vitrification System in accordance with the
37 Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified in
38 accordance with Permit Condition III.10.C.5.c.

- 1 ii. The inspection data for LAW Vitrification System shall be recorded, and the records
2 shall be placed in the WTP Unit operating record for the LAW Vitrification System, in
3 accordance with Permit Condition III.10.C.4.
- 4 iii. The Permittees shall comply with the inspection requirements specified in Attachment
5 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition
6 III.10.H.5.f., and as modified by Permit Conditions III.10.H.1.b.xii., III.10.H.2.,
7 III.10.H.3., and III.10.H.4.
- 8 III.10.H.1.e. Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC -173-303-
9 670(7) and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]
- 10 i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling
11 and analysis of the dangerous and mixed waste and exhaust emissions to verify that the
12 operating requirements established in the Permit achieve the performance standards
13 delineated in this Permit.
- 14 ii. The Permittees shall comply with the monitoring requirements specified in Attachment
15 51, Appendices 9.2, 9.3, 9.7, 9.13, 9.15 and 9.18 of this Permit, as approved pursuant to
16 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
17 by Permit Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., and III.10.H.4.
- 18 iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and
19 hydrocarbon continuous emission monitors (CEM) specified in this Permit in
20 accordance with Performance Specification 4B and 8A of 40 CFR Part 60, Appendix B,
21 in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51
22 Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f.,
23 and as modified by Permit Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., and
24 III.10.H.4.
- 25 iv. The Permittees shall operate, calibrate, and maintain the instruments specified on Permit
26 Tables III.10.H.C, and F, as approved/modified pursuant to Permit Condition
27 III.10.H.5., in accordance with Attachment 51, Appendix 9.15 of this Permit, as
28 approved pursuant to Permit Condition III.10.H.5.f., and as modified by Permit
29 Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., and III.10.H.4.
- 30 III.10.H.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]
- 31 i. The Permittees shall record and maintain in the WTP Unit operating record for the LAW
32 Vitrification System, all monitoring, calibration, maintenance, test data, and inspection
33 data compiled under the conditions of this Permit, in accordance with Permit Conditions
34 III.10.C.4. and III.10.C.5., as modified by Permit Conditions III.10.H.1.b.xii.,
35 III.10.H.2., III.10.H.3., and III.10.H.4.
- 36 ii. The Permittees shall record in the WTP Unit operating record the date, time, and
37 duration of all automatic waste feed cutoffs and/or lockouts, including the triggering
38 parameters, reason for the deviation, and recurrence of the incident. The Permittees
39 shall also record all incidents of AWFCO system function failures, including the
40 corrective measures taken to correct the condition that caused the failure.

- 1 iii. The Permittees shall submit to Ecology a report semi-annually the first calendar year,
2 and annually thereafter each calendar year within ninety (90) days following the end of
3 the year. The report will include the following information:
- 4 A. Total dangerous and mixed waste feed processing time for the LAW Vitrification
5 System;
- 6 B. Date/Time of all LAW Vitrification System startups and shutdowns;
- 7 C. Date/Time/Duration/Cause/Corrective Action taken for all LAW Vitrification
8 System shutdowns caused by malfunction of either process or control equipment;
9 and
- 10 D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous
11 and/or mixed waste feed cut-off due to deviations from Permit Table III.10.H.F, as
12 approved/modified pursuant to Permit Condition III.10.H.5.
- 13 iv. The Permittees shall submit an annual report to Ecology each calendar year within
14 ninety (90) days following the end of the year of all quarterly CEM Calibration Error
15 and Annual CEM Performance Specification Tests conducted in accordance with Permit
16 Condition III.10.H.1.e.iii.

17 III.10.H.1.g. Closure

18 The Permittees shall close the LAW Vitrification System in accordance with Attachment 51,
19 Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

20 III.10.H.2. Shakedown Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC -173-303-670(7),
21 and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].

22 III.10.H.2.a. The shakedown period for the LAW Vitrification System shall be conducted in accordance
23 with Permit Condition III.10.H.1., Attachment 51, Appendix 9.15 of this Permit, as approved
24 pursuant to Permit Condition III.10.H.5.f., and as modified in accordance with Permit
25 Conditions III.10.H.1.b.xii., III.10.H.2., and III.10.H.3.

26 III.10.H.2.b. Duration of the Shakedown Period

- 27 i. The shakedown period for the LAW Vitrification System shall begin with the initial
28 introduction of dangerous waste in the LAW Vitrification System following
29 construction and shall end with the start of the demonstration test.
- 30 ii. The shakedown period shall not exceed the following limits, as defined by hours of
31 operation of the LAW Vitrification System with dangerous waste. The Permittees may
32 petition Ecology for one extension of each shakedown phase for seven hundred and
33 twenty (720) additional operating hours in accordance with Permit modification
34 procedures specified in Permit Conditions III.10.C.2.e. and III.10.C.2.f.
- 35 Shakedown Phase 1: 720 hours
- 36 Shakedown Phase 2: 720 hours
- 37 iii. Shakedown Phase 2 shall not be commenced until documentation has been submitted to
38 Ecology verifying that the LAW Vitrification System has operated at a minimum of

1 75% of the shakedown Phase 1 feed-rate limit for two (2) separate eight (8) consecutive
2 hour periods with no AWFCOs.

3 **III.10.H.2.c. Allowable Waste Feed During the Shakedown Period**

- 4 i. The Permittees may feed the dangerous waste specified for the LAW Vitrification
5 System on the Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for
6 those wastes outside the waste acceptance criteria specified in the WAP, Attachment 1,
7 Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., except
8 Permit Conditions III.10.H.2.c.ii. through v. also apply.
- 9 ii. The Permittees shall not feed the following wastes to the LAW Vitrification System
10 during Shakedown Phase 1:
- 11 A. Acutely toxic dangerous waste listed in WAC 173-303-081(a)(2)(a)(i).
12 B. Mixed waste
- 13 iii. The Permittees shall not feed the following waste to the LAW Vitrification System
14 during Shakedown Phase 2:
- 15 A. Mixed waste
- 16 iv. The feed-rates to the LAW Vitrification System shall not exceed the limits in Permit
17 Tables III.10.H.D and III.10.H.F, as approved/modified pursuant to Permit Condition
18 III.10.H.5.
- 19 v. The Permittees shall conduct sufficient analysis of the dangerous waste treated in the
20 LAW Vitrification System to verify that the waste feed is within the physical and
21 chemical composition limits specified in this Permit.

22 **III.10.H.3. Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-
23 670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].**

24 **III.10.H.3.a. Demonstration Test Period**

- 25 i. The Permittees shall operate, monitor, and maintain the LAW Vitrification System as
26 specified in Permit Condition III.10.H.1., and Attachment 51, Appendix 9.15 of this
27 Permit, as approved pursuant to Permit Condition III.10.H.5.f., except as modified in
28 accordance with Permit Conditions III.10.H.1.b.xii., and III.10.H.3.
- 29 ii. Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition
30 III.10.H.5.f., shall be resubmitted to Ecology for approval by the Permittees as a permit
31 modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f. at least one
32 hundred and eighty (180) days prior to the start date of the demonstration test. The
33 revised Demonstration Test Plan shall include applicable EPA promulgated test methods
34 and procedures in effect at the time of the re-submittal and projected commencement
35 and completion dates for the Demonstration Test.
- 36 iii. The Permittees shall not commence the demonstration test period until documentation
37 has been submitted to Ecology verifying that the LAW Vitrification System has
38 operated at a minimum of 90% of the demonstration test period feed-rate limit for a
39 minimum of an eight (8) consecutive hours period on two (2) consecutive days.

1 III.10.H.3.b. Performance Standards

2 The Permittees shall demonstrate compliance with the performance standards specified in
3 Permit Condition III.10.H.1.b. during the Demonstration Test Period.

4 III.10.H.3.c. Allowable Waste Feed During the Demonstration Test Period

- 5 i. The Permittees may feed the dangerous waste specified for the LAW Vitrification
6 System in Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for those
7 waste outside the waste acceptance criteria specified in the WAP, Attachment 51,
8 Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., except
9 Permit Conditions III.10.H.3.c.ii. through iv. also apply.
- 10 ii. The Permittees shall not feed mixed waste to the LAW Vitrification System.
- 11 iii. The dangerous waste feed-rates to the LAW Vitrification System shall not exceed the
12 limits in Permit Tables III.10.H.D and F, as approved/modified pursuant to Permit
13 Condition III.10.H.5.
- 14 iv. The Permittees shall conduct sufficient analysis of the dangerous waste treated in the
15 LAW Vitrification System to verify that the dangerous waste is within the physical and
16 chemical composition limits specified in this Permit.

17 III.10.H.3.d. Demonstration Data Submissions and Certifications

- 18 i. The Permittees shall submit a summary of data collected as required by the
19 Demonstration Test Plan to Ecology upon completion of the Demonstration Test. The
20 Permittees shall submit to Ecology a complete demonstration test report within one-
21 hundred twenty (120) calendar days of completion of the Demonstration Test including
22 all data collected during the Demonstration Test and updated Permit Tables III.10.I.D,
23 III.10.I.E and III.10.I.F.
- 24 ii. The Permittees must submit to Ecology a certification that the Demonstration Test has
25 been carried out in accordance with the approved Demonstration Test Plan and approved
26 modifications within thirty (30) days of the completion of the Demonstration Test
27 [WAC 173-303-807(8)].
- 28 iii. After successful completion of the Demonstration Test, the Permittees shall be
29 authorized to commence feed of dangerous waste and mixed waste to the LAW
30 Vitrification System – up to one melter at maximum feed-rates for the post-
31 demonstration test period indicated in Permit Tables III.10.H.D and F, as
32 approved/modified pursuant to Permit Condition III.10.H.5., in compliance with the
33 operating requirements specified in Permit Condition III.10.H.1.c.
- 34 iv. After successful completion of the Demonstration Test, Permittees submittal of the
35 following to Ecology, and the Permittees' receipt of Ecology approval of the following,
36 in writing, the Permittees shall be authorized to commence dangerous waste and mixed
37 waste to the LAW Vitrification System – up to two melters at maximum feed-rates for
38 the post-demonstration test period indicated in Permit Tables III.10.H.D and F, as
39 approved/modified pursuant to Permit Condition III.10.H.5., in compliance with the
40 operating requirements specified in Permit Condition III.10.H.1.c.:

- 1 A. Calculations and analytical data showing compliance with the performance
2 standard specified in Permit Condition III.10.H.1.b.i.
- 3 v. After successful completion of the Demonstration Test, Permittees submittal of the
4 following to Ecology and the Permittees receipt of approval of the following in writing,
5 the Permittees shall be authorized to feed dangerous waste and mixed waste to the LAW
6 Vitrification System pursuant to Permit Section III.10.I.
- 7 A. A complete Demonstration Test Report for the LAW Vitrification System and
8 updated Permit Tables III.10.I.D, III.10.I.E, and III.10.I.F, as approved/modified
9 pursuant to Permit Conditions III.10.H.5 and III.10.C.11.c or III.10.C.11.d. The
10 test report shall be certified in accordance with WAC 173-303-807(8), in
11 accordance with WAC 173-303-680(2) and (3).
- 12 B. A Final Risk Assessment Report completed pursuant to Permit Conditions
13 III.10.C.11.c. or III.10.C.11.d.
- 14 vi. If any calculations or testing results show that one or more of the performance standards
15 listed in Permit Condition III.10.H.1.b., with the exception of Permit Condition
16 III.10.H.1.b.x., for the LAW Vitrification System were not met during the
17 Demonstration Test, the Permittees shall perform the following actions:
- 18 A. Immediately stop dangerous and mixed waste feed to the LAW Vitrification
19 System under the mode of operation that resulted in not meeting the performance
20 standard(s).
- 21 B. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting
22 the performance standard(s) as specified in Permit Condition I.E.21.
- 23 C. Investigate the cause of the failure and submit a report of the investigation findings
24 to Ecology within fifteen (15) days of discovery of not meeting the performance
25 standard(s).
- 26 D. Submit to Ecology within fifteen (15) days of discovery of not meeting the
27 performance standard(s), documentation supporting a mode of operation where all
28 performance standards listed in Permit Condition III.10.H.1.b., with the exception
29 of Permit Condition III.10.H.1.b.x., for the LAW Vitrification System were met
30 during the demonstration test, if any such mode was demonstrated.
- 31 E. Based on the information provided to Ecology by the Permittees pursuant to Permit
32 Conditions III.10.H.3.d.vi.A through D above, and any additional information,
33 Ecology may submit in writing, direction to the Permittees to stop dangerous
34 and/or mixed waste feed to the LAW Vitrification System and/or amend the mode
35 of operation the Permittees are allowed to continue operations prior to Ecology
36 approval of a compliance schedule and/or revised Demonstration Test Plan
37 pursuant to Permit Conditions III.10.H.3.d.vi.F and G.
- 38 F. If the performance standard listed in Permit Condition III.10.H.1.b.i. was not met
39 during the Demonstration Test, the Permittees shall submit within one hundred and
40 twenty (120) days of discovery of not meeting the performance standard, a revised
41 Demonstration Test Plan (if appropriate), and a compliance schedule for Ecology

1 approval to address this deficiency. If a revised Demonstration Test Plan is
2 submitted, it shall be accompanied by a request for approval to retest as a permit
3 modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f. The
4 revised Demonstration Test Plan (if submitted) must include substantive changes to
5 prevent failure from reoccurring.

6 G. If any of the performance standards listed in Permit Condition III.10.H.1.b., with
7 the exception of Permit Conditions III.10.H.1.b.i. or III.10.H.1.b.x., were not met
8 during the Demonstration Test the Permittees shall submit to Ecology within one
9 hundred twenty (120) days of discovery of not meeting the performance
10 standard(s), a revised Demonstration Test Plan requesting approval to retest as a
11 permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f.
12 The revised Demonstration Test Plan must include substantive changes to prevent
13 failure from reoccurring.

14 vii. If any calculations or testing results show that any emission rate for any constituent
15 listed in Permit Table III.10.H.E, as approved pursuant to Permit Condition
16 III.10.C.11.b., is exceeded for LAW Vitrification System during the Demonstration
17 Test, the Permittees shall perform the following actions:

18 A. Verbally notify Ecology within twenty-four (24) hours of the discovery of
19 exceeding the emission rate(s) as specified in Permit Condition I.E.21.

20 B. Submit to Ecology additional risk information to indicate that the increased
21 emissions impact is offset by decreased emission impact from one or more
22 constituents expected to be emitted at the same time, and/or investigate the cause
23 and impact of the exceedance of the emission rate(s) and submit a report of the
24 investigation findings to Ecology within fifteen (15) days of the discovery of
25 exceeding the emission rate(s); and

26 C. Based on the notification and any additional information, Ecology may submit, in
27 writing, direction to the Permittees to stop dangerous and/or mixed waste feed to
28 the LAW Vitrification System and/or to submit a revised Demonstration Test Plan
29 as a permit modification pursuant to Permit Conditions III.10.C.2.e. and
30 III.10.C.2.f., or III.10.C.2.g. The revised Demonstration Test Plan must include
31 substantive changes to prevent failure from reoccurring.

32 III.10.H.4. Post Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), and WAC
33 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]

34 III.10.H.4.a. The Permittees shall operate, monitor, and maintain the LAW Vitrification System as
35 specified in Permit Condition III.10.H.1. and Attachment 51, Appendix 9.15 of this Permit, as
36 approved pursuant to Permit Condition III.10.H.5., except as modified in accordance with
37 Permit Conditions III.10.H.1.b.xii., III.10.H.3., and III.10.H.4.

38 III.10.H.4.b. Allowable Waste Feed During the Post-Demonstration Test Period

39 i. The Permittees may feed the dangerous and/or mixed waste specified for the LAW
40 Vitrification System on the Part A Forms (Attachment 51, Chapter 1.0 of this Permit),
41 except for those wastes outside the waste acceptance criteria specified in the WAP,

1 Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition
2 III.10.C.3., and except Permit Conditions III.10.H.4.b.ii. and III.10.H.4.b.iii. also apply.

3 ii. The dangerous waste and mixed waste feed-rates to the LAW Vitrification System shall
4 not exceed the limits in Permit Tables III.10.H.D and F, as approved/modified pursuant
5 to Permit Condition III.10.H.5., or in Permit Condition III.10.H.3

6 iii. The Permittees shall conduct sufficient analysis of the dangerous waste and mixed waste
7 treated in LAW Vitrification System to verify that the waste feed is within the physical
8 and chemical composition limits specified in this Permit.

9 III.10.H.5. Compliance Schedules

10 III.10.H.5.a. All information identified for submittal to Ecology in a. through f. of this compliance
11 schedule must be signed and certified in accordance with requirements in WAC 173-303-
12 810(12), as modified in accordance with Permit Condition III.10.H.1.a.iii. [WAC 173-303-
13 806(4)].

14 III.10.H.5.b. The Permittees shall submit to Ecology, pursuant to Permit Condition III. 10.C.9.f., prior to
15 construction of each secondary containment and leak detection system for the LAW
16 Vitrification System (per level) as identified in Permit Tables III.10.H.A and III.10.H.B,
17 engineering information as specified below, for incorporation into Attachment 51,
18 Appendices 9.2 , 9.4, 9.5, 9.7, 9.8, 9.9, 9.11, and 9.12 of this Permit. At a minimum,
19 engineering information specified below will show the following as described in WAC 173-
20 303-640, in accordance with WAC 173-303-680 (the information specified below will
21 include dimensioned engineering drawings and information on sumps and floor drains):

22 i. IQRPE Reports (specific to foundation, secondary containment, and leak detection
23 system) shall include review of design drawings, calculations, and other information on
24 which the certification report is based and shall include as applicable, but not limited to,
25 review of such information described below. Information (drawings, specifications,
26 etc.) already included in Attachment 51, Appendix 9.0 of this Permit, may be included
27 in the report by reference and should include drawing and document numbers. IQRPE
28 Reports shall be consistent with the information separately provided in ii. through ix.
29 below [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-
30 303-806(4)(i)(i)];

31 ii. Design drawings (General Arrangement Drawings, in plan and cross sections) and
32 specifications for the foundation, secondary containment including liner installation
33 details, and leak detection methodology. These items should show the dimensions,
34 volume calculations, and location of the secondary containment system, and should
35 include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-
36 640(4)(b) through (f) and WAC 173-303-640(3)(a), in accordance with WAC 173-303-
37 680 and WAC 173-303-806(4)(i)(i)];

38 iii. The Permittees shall provide the design criteria (references to codes and standards, load
39 definitions, and load combinations, materials of construction, and analysis/design
40 methodology) and typical design details for the support of the secondary containment
41 system. This information shall demonstrate the foundation will be capable of providing

1 support to the secondary containment system, resistance to pressure gradients above and
2 below the system, and capable of preventing failure due to settlement, compression, or
3 uplift [WAC 173-303-640(4)(c)(ii), in accordance with WAC 173-303-680(2) and WAC
4 173-303-806(4)(i)(i)(B)];

- 5 iv. A description of materials and equipment used to provide corrosion protection for
6 external metal components in contact with soil, including factors affecting the potential
7 for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680
8 and WAC 173-303-806(4)(i)(i)(A) through (B)];
- 9 v. Secondary containment/foundation, and leak detection system, materials selection
10 documentation (including, but not limited to, concrete coatings and water stops, and
11 liner materials) as applicable [WAC 173-303-806(4)(i)(i)(A) through (B)];
- 12 vi. Detailed description of how the secondary containment for the LAW Vitrification
13 System will be installed in compliance with WAC 173-303-640(3)(c), in accordance
14 with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B);
- 15 vii. Submit Permit Tables III.10.H.B and III.10.I.B completed to provide for all secondary
16 containment sumps and floor drains the information as specified in each column heading
17 consistent with information to be provided in i. through vi., above;
- 18 viii. Documentation that secondary containment and leak detection systems will not
19 accumulate hydrogen gas levels above the lower explosive limit for incorporation into
20 the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and
21 WAC 173-303-806(4)(i)(v)];
- 22 ix. A detailed description of how LAW Vitrification System design provides access for
23 conducting future LAW Vitrification System integrity assessments [WAC 173-303-
24 640(3)(b) and WAC 173-303-806(4)(i)(i)(B)].

25 III.10.H.5.c. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to
26 installation of each sub-system as identified in Permit Table III.10.H.A, engineering
27 information as specified below, for incorporation into Attachment 51, Appendices 9.1
28 through 9.14, and 9.17 of this Permit. At a minimum, engineering information specified
29 below will show the following, as required pursuant to WAC 173-303-640, in accordance
30 with WAC 173-303-680 (the information specified below will include dimensioned
31 engineering drawings):

- 32 i. IQRPE Reports (specific to sub-system) shall include review of design drawings,
33 calculations, and other information on which the certification report is based and shall
34 include as applicable, but not limited to, review of such information described below.
35 Information (drawings, specifications, etc.) already included in Attachment 51,
36 Appendix 9.0 of this Permit, may be included in the report by reference and should
37 include drawing and document numbers. The IQRPE Reports shall be consistent with
38 the information separately provided in ii. through xii. below, and the IQRPE Report
39 specified in Permit Condition III.10.H.5.b. [WAC 173-303-640(3)(a), in accordance
40 with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

- 1 ii. Design drawings [General Arrangement Drawings in plan and cross section, Process
2 Flow Diagrams, Piping and Instrumentation Diagrams (including pressure control
3 systems), Mechanical Drawings, and specifications, and other information specific to
4 subsystems (to show location and physical attributes of each subsystem)] [WAC 173-
5 303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-
6 806(4)(i)(i)];
- 7 iii. Sub-system design criteria (references to codes and standards, load definitions, and load
8 combinations, materials of construction, and analysis/design methodology) and typical
9 design details to support the subsystems. Structural support calculations specific to off-
10 specification, non-standard and field fabricated subsystems shall be submitted for
11 incorporation into the Administrative Record. Documentation shall include but not
12 limited to, supporting specifications, test data, treatment effectiveness report, etc.
13 supporting projected operational capability (e.g., WESP projected removal efficiency for
14 individual metals, halogens, particulates, etc.) and compliance with performance
15 standards specified in Permit Condition III.10.H.1.b [WAC 173-303-640(3)(a), in
16 accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];
- 17 iv. A description of materials and equipment used to provide corrosion protection for
18 external metal components in contact with water, including factors affecting the
19 potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-
20 303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];
- 21 v. Sub-system materials selection documentation (e.g., physical and chemical tolerances)
22 [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-
23 303-806(4)(i)(i)(A)];
- 24 vi. Sub-system vendor information (including, but not limited to, required performance
25 warranties, as available), consistent with information submitted under ii. above, shall be
26 submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in
27 accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and
28 WAC 173-303-806(4)(i)(v)];
- 29 vii. System descriptions (process) related to sub-system units shall be submitted for
30 incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-
31 806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];
- 32 viii. Mass and energy balance for normal projected operating conditions used in developing
33 the Piping and Instrumentation Diagrams and Process Flow Diagrams, including
34 assumptions and formulas used to complete the mass and energy balance, so that they
35 can be independently verified for incorporation into the Administrative Record [WAC
36 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];
- 37 ix. Detailed description of all potential LAW Vitrification System bypass events including:
- 38 A. A report which includes an analysis of credible potential bypass events and
39 recommendations for prevention/minimization of the potential, impact, and
40 frequency of the bypass event to include at a minimum:
- 41 1. Operating procedures

- 1 2. Maintenance procedures
- 2 3. Redundant equipment
- 3 4. Redundant instrumentation
- 4 5. Alternate equipment
- 5 6. Alternate materials of construction
- 6 x. A detailed description of how the sub-systems will be installed in compliance with
- 7 WAC 173-303-640(3)(c), (d), and (e), in accordance with WAC 173-303-680 and WAC
- 8 173-303-806(4)(i)(i)(B);
- 9 xi. Sub-system design to prevent escape of vapors and emissions of acutely or chronically
- 10 toxic (upon inhalation) EHW, for incorporation into the Administrative Record [WAC
- 11 173-303-640(5)(e), in accordance with WAC 173-303-680(2) and WAC 173-303-
- 12 806(4)(i)(i)(B)];
- 13 xii. Documentation that sub-systems are designed to prevent the accumulation of hydrogen
- 14 gases levels above the lower explosive limit for incorporation into the Administrative
- 15 Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-
- 16 806(4)(i)(v)].

17 **III.10.H.5.d.** The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to
18 installation of equipment for each sub-system as identified in Permit Tables III.10.H.A and
19 III.10.H.B, not addressed in Permit Conditions III.10.H.5.b. or III.10.H.5.c., engineering
20 information as specified below, for incorporation into Attachment 51, Appendices 9.1
21 through 9.14 of this Permit. At a minimum, engineering information specified below will
22 show the following as required pursuant to WAC 173-303-640, in accordance with WAC
23 173-303-680 (the information specified below will include dimensioned engineering
24 drawings):

- 25 i. IQRPE Reports (specific to sub-system equipment) shall include a review of design
- 26 drawings, calculations, and other information as applicable on which the certification
- 27 report is based. The reports shall include, but not be limited to, review of such
- 28 information described below. Information (drawings, specifications, etc.) already
- 29 included in Attachment 51, Appendix 9.0 of this Permit, may be included in the report
- 30 by reference and should include drawing and document numbers. The IQRPE Reports
- 31 shall be consistent with the information provided separately in ii. through xiii. below
- 32 and the IQRPE Reports specified in Permit Conditions III.10.H.5.b. and III.10.H.5.c.
- 33 [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-
- 34 303-806(4)(i)(i)(A) through (B)];
- 35 ii. Design drawings [Process Flow Diagrams, Piping and Instrumentation Diagrams
- 36 (including pressure control systems), specifications and other information specific to
- 37 equipment (these drawings should include all equipment such as pipes, valves, fittings,
- 38 pumps, instruments, etc.)] [WAC 173-303-640(3)(a), in accordance with WAC 173-
- 39 303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

- 1 iii. Sub-system equipment design criteria (references to codes and standards, load
2 definitions, and load combinations, materials of construction, and analysis/design
3 methodology) and typical design details for the support of the sub-system equipment
4 [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(f), in accordance with WAC 173-
5 303-680 and WAC 173-303-806(4)(i)(i)(B)];
- 6 iv. A description of materials and equipment used to provide corrosion protection for
7 external metal components in contact with soil and water, including factors affecting the
8 potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-
9 303-680(2) and WAC 173-303-806(4)(i)(i)(A)];
- 10 v. Materials selection documentation for equipment for each sub-system (e.g., physical and
11 chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-
12 680(2) and WAC 173-303-806(4)(i)(i)(A)];
- 13 vi. Vendor information (including, but not limited to, required performance warranties, as
14 available), consistent with information submitted under ii. above, for sub-system
15 equipment shall be submitted for incorporation into the Administrative Record. [WAC
16 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-
17 806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(iv)];
- 18 vii. Sub-system, sub-system equipment, and leak detection system instrument control logic
19 narrative description (e.g., software functional specifications, descriptions of fail-safe
20 conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-
21 303-806(4)(i)(v)].
- 22 viii. System description (process) related to sub-system equipment, and system descriptions
23 related to leak detection systems, (including instrument control logic and narrative
24 descriptions), for incorporation into the Administrative Record [WAC 173-303-680,
25 WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];
- 26 ix. A detailed description of how the sub-system equipment will be installed and tested
27 [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), in accordance
28 with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];
- 29 x. For process monitoring, control, and leak detection system instrumentation for the LAW
30 Vitrification System as identified in Permit Tables III.10.H.C. and III.10.H. F., a
31 detailed description of how the process monitoring, control, and leak detection system
32 instrumentation, will be installed and tested [WAC 173-303-640(3)(c) through (e),
33 WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-303-
34 806(4)(i)(i)(B)];
- 35 xi. Mass and energy balance for projected normal operating conditions used in developing
36 the Piping and Instrumentation Diagrams and Process Flow Diagrams, including
37 assumptions and formulas used to complete the mass and energy balance, so that they
38 can be independently verified, for incorporation into the Administrative Record [WAC
39 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];
- 40 xii. Documentation that sub-systems equipment are designed to prevent the accumulation of
41 hydrogen gas levels above the lower explosive limit for incorporation into the

1 Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC
2 173-303-806(4)(i)(v)];

3 xiii. Leak detection system documentation (e.g. vendor information, etc.) consistent with
4 information submitted under Permit Condition III.10.H.5.c.ii. and Permit Conditions
5 III.10.H.5.d.ii., vii., viii., and x. above, shall be submitted for incorporation into the
6 Administrative Record.

7 III.10.H.5.e. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall
8 submit to Ecology, pursuant to Permit Condition III.10.C.9.f., the following as specified
9 below for incorporation into Attachment 51, Appendix 9.18 of this Permit, except Permit
10 Condition III.10.H.5.e.i., which will be incorporated into Attachment 51, Chapter 6.0 of this
11 Permit. All information provided under this permit condition must be consistent with
12 information provided pursuant to Permit Conditions III.10.H.5.b., c., d., e., and f.,
13 III.10.C.3.e. and III.10.C.11.b., as approved by Ecology:

- 14 i. Integrity assessment program and schedule for the LAW Vitrification System shall
15 address the conducting of periodic integrity assessments on the LAW Vitrification
16 System over the life of the system, as specified in Permit Condition III.10.H.5.b.ix. and
17 WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and descriptions of
18 procedures for addressing problems detected during integrity assessments. The schedule
19 must be based on past integrity assessments, age of the system, materials of
20 construction, characteristics of the waste, and any other relevant factors [WAC 173-303-
21 640(3)(b), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)].
- 22 ii. Detailed plans and descriptions, demonstrating the leak detection system is operated so
23 that it will detect the failure of either the primary or secondary containment structure or
24 the presence of any release of dangerous and/or mixed waste or accumulated liquid in
25 the secondary containment system within twenty-four (24) hours [WAC 173-303-
26 640(4)(c)(iii)]. Detection of a leak of at least 0.1 gallons per hour within twenty-four
27 (24) hours is defined as being able to detect a leak within twenty-four (24) hours. Any
28 exceptions to this criteria must be approved by Ecology in accordance with WAC 173-
29 303-680, WAC 173-303-640(4)(c)(iii), and WAC 173-303-806(4)(i)(i)(b).
- 30 iii. Detailed operational plans and descriptions, demonstrating that spilled or leaked waste
31 and accumulated liquids can be removed from the secondary containment system within
32 twenty-four (24) hours [WAC 173-303-806(4)(i)(i)(B)].
- 33 iv. Descriptions of operational procedures demonstrating appropriate controls and practices
34 are in place to prevent spills and overflows from the LAW Vitrification System or
35 containment systems in compliance with WAC 173-303-640(5)(b)(i) through (iii), in
36 accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);
- 37 v. Description of procedures for investigation and repair of the LAW Vitrification System
38 [WAC 173-303-640(6) and WAC 173-303-640(7)(e) and (f), in accordance with WAC
39 173-303-680, WAC 173-303-320, WAC 173-303-806(4)(a)(v), and WAC 173-303-
40 806(4)(a)(ii)(B)].

- 1 vi. Updated Chapter 4.0, Narrative Description, Tables and Figures as identified in Permit
2 Tables III.10.H.A and III.10.H.B, as modified pursuant to Permit Condition
3 III.10.H.5.e.x. and updated to identify routinely non-accessible LAW Vitrification sub-
4 systems.
- 5 vii. Description of procedures for management of ignitable and reactive, and incompatible
6 dangerous and/or mixed waste as specified in WAC 173-303-640(9) and (10), in
7 accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B).
- 8 viii. A description of the tracking system used to track dangerous and/or mixed waste
9 generated throughout the LAW Vitrification system, pursuant to WAC 173-303-380.
- 10 ix. Permit Tables III.10.H.C and III.10.I.C shall be completed for LAW Vitrification
11 System process and leak detection system monitors and instruments (to include, but not
12 be limited to: instruments and monitors measuring and/or controlling flow, pressure,
13 temperature, density, pH, level, humidity, and emissions) to provide the information as
14 specified in each column heading. Process and leak detection system monitors and
15 instruments for critical systems as specified in Attachment 51, Appendix 2.0 and as
16 updated pursuant to Permit Condition III.10.C.9.b., and for operating parameters as
17 required to comply with Permit Condition III.10.C.3.e.iii. shall be addressed. Process
18 monitors and instruments for non-waste management operations (e.g., utilities, raw
19 chemical storage, non-contact cooling waters, etc.) are excluded from this permit
20 condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC
21 173-303-806(4)(i)(v)];
- 22 x. Permit Tables III.10.H.A and III.10.I.A amended as follows [WAC 173-303-680 and
23 WAC 173-303-806(4)(i)(i)(A) through (B)]:
- 24 A. Under column 1, update and complete list of dangerous and mixed waste LAW
25 Vitrification System sub-systems, including plant items that comprise each system
26 (listed by item number).
- 27 B. Under column 2, update and complete system designations.
- 28 C. Under column 3, replace the 'Reserved' with Attachment 51, Appendix 9.0
29 subsections (e.g., 9.1, 9.2, etc.) designated in Permit Conditions III.10.H.5.b., c.,
30 and d. specific to LAW Vitrification System sub-system as listed in column 1.
- 31 D. Under column 4, update and complete list of narrative description, tables, and
32 figures.
- 33 III.10.H.5.f. One hundred and eighty (180) days prior to initial receipt of dangerous and/or mixed waste in
34 the WTP Unit, the Permittees shall submit for review and receive approval for incorporation
35 into Attachment 51, Appendix 9.15 of this Permit, a Demonstration Test Plan for the LAW
36 Vitrification System to demonstrate that the LAW Vitrification Systems meets the
37 performance standards specified in Permit Condition III.10.H.1.b. In order to incorporate the
38 Demonstration Test Plan for the LAW Vitrification System into Attachment 51, Appendix
39 9.15, Permit Condition III.10.C.2.g. process will be followed. The Demonstration Test Plan
40 shall include, but not be limited to, the following information. The Demonstration Test Plan
41 shall also be consistent with the information provided pursuant to Permit Conditions

1 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
2 consistent with the schedule described in Attachment 51, Appendix 1.0 of this Permit. The
3 documentation required pursuant to Permit Condition III.10.H.5.f.x., in addition to being
4 incorporated into Attachment 51, Appendix 9.15, shall be incorporated by reference in
5 Attachment 51, Chapter 6.0 of this Permit.

6 *Notes: (1) The following should be consulted to prepare this Demonstration Test Plan:*
7 *"Guidance on Setting Permit Conditions and Reporting Trial Burn Results Volume II of the*
8 *Hazardous Waste Incineration Guidance Series," (EPA/625/6-89/019) and Risk Burn*
9 *Guidance For Hazardous Waste Combustion Facilities," (EPA-R-01-001, July 2001), WAC*
10 *173-303-807(2), WAC 173-303-670(5), WAC-173-303-670(6), 40 CFR §63.1207(f)(2), 40*
11 *CFR §63.1209, and Appendix to 40 CFR Part 63 EEE.*

12 *(2) Cross-referencing to the information provided pursuant to permit Conditions III.H.5.b.,*
13 *c., d., e., and III.10.C.3.e.v., as approved by Ecology, that are redundant to elements of the*
14 *Demonstration Test Plan for the LAW Vitrification System is acceptable.*

- 15 i. Analysis of each feed-stream to be fed during the demonstration test, including
16 dangerous waste, glass formers and reductants, process streams (e.g., volumes of air
17 leakage including; control air, process air, steam, sparge bubbler air, air in-leakage from
18 melter cave, and gases from LAW Vitrification Vessel Ventilation System, process
19 water, etc.) that includes:
- 20 A. Levels of ash, metals, total chlorine (organic and inorganic), other halogens and
21 radionuclide surrogates;
- 22 B. Description of the physical form of the feed-streams;
- 23 C. An identification and quantification of organics that are present in the feed-stream,
24 including constituents proposed for DRE demonstration;
- 25 A comparison of the proposed demonstration test feed streams to the mixed waste
26 feed envelopes to be processed in the melters must be provided that documents that
27 the proposed demonstration test feed streams will serve as worst case surrogates for
28 organic destruction, formation of products of incomplete oxidation, and metals,
29 total chlorine (organic and inorganic), other halogens, particulate formation, and
30 radionuclides.
- 31 ii. Specification of trial principal organic dangerous constituents (PODCs) for which
32 destruction and removal efficiencies are proposed to be calculated during the
33 demonstration test and for inclusion in Permit Conditions III.10.H.1.b.i. and
34 III.10.I.1.b.i. These trial PODCs shall be specified based on destructibility,
35 concentration or mass in the waste and the dangerous waste constituents or constituents
36 in WAC 173-303-9905;
- 37 iii. A description of the blending procedures, prior to introducing the feed-streams into the
38 melter, including analysis of the materials prior to blending, and blending ratios;
- 39 iv. A description of how the surrogate feeds are to be introduced for the demonstration.
40 This description should clearly identify the differences and justify how any of

1 differences would impact the surrogate feed introduction as representative of how mixed
2 waste feeds will be introduced;

3 v. A detailed engineering description of the LAW Vitrification System, including:

4 A. Manufacturer's name and model number for each sub-system;

5 B. Design capacity of each sub-system including documentation (engineering
6 calculations, manufacturer/vendor specifications, operating data, etc.) supporting
7 projected operational efficiencies (e.g., WESP projected removal efficiency for
8 individual metals, halogens, particulates, etc.) and compliance with performance
9 standards specified in Permit Condition III.10.H.1.b.;

10 C. Detailed scaled engineering drawings, including Process Flow Diagrams, Piping
11 and Instrumentation Diagrams, Vessel Drawings (plan, and elevation with cross
12 sections) and General Arrangement Drawings;

13 D. Process Engineering Descriptions;

14 E. Mass and energy balance for each projected operating condition and each
15 demonstration test condition, including assumptions and formulas used to complete
16 the mass and energy balance, so that they can be independently verified for
17 incorporation into the Administrative Record;

18 F. Engineering Specifications/data sheets (materials of construction, physical and
19 chemical tolerances of equipment, and fan curves);

20 G. Detailed Description of Automatic Waste Feed Cutoff System addressing critical
21 operating parameters for all performance standards specified in Permit Condition
22 III.10.H.1.b.;

23 H. Documentation to support compliance with performance standards specified in
24 Permit Condition III.10.H.1.b., including engineering calculations, test data, and
25 manufacturer/vendor's warranties, etc.;

26 I. Detailed description of the design, operation, and maintenance practices for air
27 pollution control system;

28 J. Detailed description of the design, operation, and maintenance practices of any
29 stack gas monitoring and pollution control monitoring system;

30 K. Documentation based on current WTP Unit design either confirming the
31 Permittees' demonstration that it is not technically appropriate to correct standards
32 listed in Permit Conditions III.H.1.b.ii. through III.H.1.b.ix. to seven (7) percent
33 oxygen., or a request, pursuant to Permit Conditions III.10.C.9.e. and III.10.C.9.f.,
34 to update Permit Conditions III.H.1.b.ii. through III.H.1.b.ix., III.I.b.ii. through
35 III.I.b.ix., III.I.1.e.iii., and III.H.1.e.iii., Permit Tables III.10.H.C, III.10.H.F,
36 III.10.I.C., III.10.I.F. and Attachment 51, Appendix 9.0 to reflect the addition of an
37 oxygen monitor and the correction of the standards to seven percent (7%) oxygen.

38 vi. Detailed description of sampling and monitoring procedures including sampling and
39 monitoring locations in the system, the equipment to be used, sampling and monitoring

1 frequency, and planned analytical procedures for sample analysis including, but not
2 limited to:

- 3 A. A short summary narrative description of each stack sample method should be
4 included within the main body of the demonstration test plan, which references an
5 appendix to the plan that would include for each sampling train: (1) detailed sample
6 method procedures, (2) sampling train configuration schematic, (3) sampling
7 recovery flow sheet, (4) detailed analytical method procedures, and (5) sampling
8 preparation and analysis flow sheet. The detailed procedures should clearly flag
9 where the method has provided decision points (e.g., choices of equipment
10 materials of construction, choices of clean-up procedures or whether additional
11 clean-up procedures will be incorporated, whether pretest surveys or laboratory
12 validation work will be performed, enhancements to train to accommodate high
13 moisture content in stack gas, etc.) and what is being proposed along with the basis
14 for the decision.
- 15 B. A short summary narrative description of the feed and residue sampling methods
16 should be included within the main body of the demonstration test plan, which
17 references an appendix that would include for each sample type: (1) detailed
18 sample method procedures, (2) sampling recovery/compositing procedures, and (3)
19 detailed analytical method procedures. The detailed procedures should clearly flag
20 where the method has provided decision points (e.g., choices of equipment
21 materials of construction, choices of clean-up procedures or whether additional
22 clean-up procedures will be incorporated, whether pretest surveys or laboratory
23 validation work will be performed, etc.) and what is being proposed along with the
24 basis for the decision
- 25 vii. A detailed test schedule for each condition for which the demonstration test is planned,
26 including projected date(s), duration, quantity of dangerous waste to be fed, and other
27 relevant factors;
- 28 viii. A detailed test protocol including, for each test condition, the ranges of feed-rate for
29 each feed system, and all other relevant parameters that may affect the ability of the
30 LAW Vitrification System to meet performance standards specified in Permit Condition
31 III.10.H.1.b.;
- 32 ix. A detailed description of planned operating conditions for each demonstration test
33 condition, including operating conditions for shakedown, demonstration test, post-
34 demonstration test and normal operations. This information shall also include submittal
35 of Permit Tables III.10.H.D, III.10.H.F, III.10.I.D, and III.10.I.F completed with the
36 information as specified in each column heading for each LAW Vitrification System
37 waste feed cutoff parameter and submittal of supporting documentation for Permit
38 Tables III.10.H.D, III.10.H.F, III.10.I.D, and III.10.I.F set-point values;
- 39 x. The test conditions proposed must demonstrate meeting the performance standards
40 specified in Permit Condition III.10.H.1.b. with the simultaneous operation of all three
41 (3) melters at capacity and input from the LAW Vitrification Vessel Ventilation System
42 at capacity to simulate maximum loading to the LAW Vitrification System off-gas

1 treatment system and to establish the corresponding operating parameter ranges. To the
2 extent that operation of one (1) melter or two (2) melters can not be sustained within the
3 operating parameter range established at this maximum load, additional demonstration
4 test conditions must be included in the plan and performed to establish operating
5 parameter ranges for each proposed operating mode while demonstrating meeting the
6 performance standards specified in Permit Condition III.10.H.1.b.;

- 7 xi. Detailed description of procedures for start-up and shutdown of waste feed and
8 controlling emissions in the event of an equipment malfunction, including off-normal
9 and emergency shutdown procedures;
- 10 xii. A calculation of waste residence time;
- 11 xiii. Any request to extrapolate metal feed-rate limits from Demonstration Test levels must
12 include:
- 13 A. A description of the extrapolation methodology and rationale for how the approach
14 ensures compliance with the performance standards as specified in Permit
15 Condition III.10.H.1.b.
- 16 B. Documentation of the historical range of normal metal feed-rates for each
17 feedstream.
- 18 C. Documentation that the level of spiking recommended during the demonstration
19 test will mask sampling and analysis imprecision and inaccuracy to the extent that
20 extrapolation of feed-rates and emission rates from the Demonstration Test data
21 will be as accurate and precise as if full spiking were used.
- 22 xiv. Documentation of the expected levels of constituents in LAW Vitrification System input
23 streams including, but not limited to, waste feed, glass former and reactants, control air,
24 process air, steam, sparge bubbler air, air in-Leakage from melter cave, gases from
25 LAW Vitrification Vessel Ventilation System, and process water.
- 26 xv. Documentation justifying the duration of the conditioning required to ensure the LAW
27 Vitrification System had achieved steady-state operations under Demonstration Test
28 operating conditions.
- 29 xvi. Documentation of LAW Vitrification System process and leak detection system
30 instruments and monitors as listed on Permit Tables III.10.H.C, III.10.H.F, III.10.I.C,
31 and III.10.I.F to include:
- 32 A. Procurement specifications;
- 33 B. Location used;
- 34 C. Range, precision, and accuracy;
- 35 D. Detailed descriptions of calibration/functionality test procedures (either method
36 number ASTM) or provide a copy of manufacturer's recommended calibration
37 procedures;
- 38 E. Calibration/functionality test, inspection, and routine maintenance schedules and
39 checklists, including justification for calibration, inspection and maintenance

1 frequencies, criteria for identifying instruments found to be significantly out of
2 calibration, and corrective action to be taken for instruments found to be
3 significantly out of calibration (e.g., increasing frequency of calibration, instrument
4 replacement, etc.);

5 F. Equipment instrument control logic narrative description (e.g., software functional
6 specifications, descriptions of fail safe conditions, etc.) [WAC 173-303-680(2),
7 WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)].

8 xvii. Outline of demonstration test report.
9

Table III.10.H.A - LAW Vitrification System Description

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables and Figures
Melter Feed ^a Systems-Melter 1,2, & 3	LFP LCP	RESERVED	Section 4.2.3.1; Tables 4-4 and 4-11, and Figures 4A-1, 4A-3, and 4A-20 of Attachment 51, Chapter 4 of this Permit
LAW Melters 1,2, & 3	LMP	RESERVED	Section 4.2.3.2; Tables 4-4, and Figure 4A-21 of Attachment 51, Chapter 4 of this Permit
LAW Glass Product Systems-Melter 1,2, & 3	LMP	RESERVED	Section 4.2.3.2 of Attachment 51, Chapter 4 of this Permit
Primary & Secondary Film Coolers-Melter 1, 2, & 3	LOP	RESERVED	Section 4.2.3.3 and Figure 4A-21 of Attachment 51, Chapter 4 of this Permit
Submerged Bed Scrubbers/Condensate Vessels ^a -Melter 1, 2, & 3	LOP	RESERVED	Section 4.2.3.3; Tables 4-4 and 4-11, and Figure 4A-22 of Attachment 51, Chapter 4 of this Permit
Wet electrostatic Precipitators-Melter 1, 2, & 3	LOP	RESERVED	Section 4.2.3.3 and Figure 4A-22 of Attachment 51, Chapter 4 of this Permit
High Efficiency Particulate Air Filters	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Thermal Catalytical Oxidation Unit	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Selective Catalytical Reduction Units	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Caustic Scrubber/Blowdown Vessel ^a	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit

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Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables and Figures
Electric Heaters	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Heat Exchangers	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Pumps	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Exhaust Fans	LVP	RESERVED	Section 4.2.3.3 of Attachment 51, Chapter 4 of this Permit
Mist Eliminators	LVP	RESERVED	Section 4.2.3.3 of Attachment 51, Chapter 4 of this Permit
LAW Stack	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit

1 ^a Requirements pertaining to the tanks in LAW Vitrification System Melter Feed System, Submerged Bed Scrubbers/Condensate Vessels, and Caustic
 2 Scrubber/Blowdown Vessel are specified in Permit Section III.10.E.

1 **Table III.10.H.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 (feet) & Materials of Construction	Engineering Description (Drawing Nos., Specification Nos., etc.)
RESERVED	RESERVED	RESERVED	RESERVED

2
 3 **Table III.10.H.C - LAW 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

4

Table III.10.H.D - Maximum Feed-rates to LAW Vitrification System (RESERVED)

Description of Waste	Shakedown 1 and Post Demonstration Test	Shakedown 2 and Demonstration Test
Dangerous and Mixed Waste Feed-rate		
Total Chlorine/Chloride Feed-rate		
Total Metal Feed-rates		
Total Ash Feed-rate		

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1 **Table III.10.H.E - LAW Vitrification System Estimated Emission Rates (RESERVED)**

Chemicals	CAS Number	Emission Rates (grams /second)

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3 **TABLE III.10.H.F - LAW Vitrification System Waste Feed Cutoff Parameters*¹ (RESERVED)**

Sub-system Designation	Instrument Tag Number	Parameter Description	Setpoints During Shakedown 1 and Post Demonstration Test	Setpoints During Shakedown 2 and Demonstration Test

4

* A continuous monitoring system shall be used as defined in Permit Section III.10.C.1.

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¹ Maximum Feed-rate shall be set based on not exceeding any of the constituent (e.g., ash, metals, and chlorine/chloride) feed limits specified on Table III.10.H.D. of this Permit

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7 **III.10.I LAW Vitrification System – Long Term Miscellaneous Thermal Treatment Unit**

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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.

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13 **III.10.I.1 Requirements For LAW Vitrification System Beginning Normal Operation**

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Prior to commencing normal operations provided in Permit Section III.10.I, all requirements in Permit Section III.10.H shall 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, shall 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., shall 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

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1 Permit Condition III.10.H.5, shall have been completed, submitted and approved pursuant to
2 Permit Condition III.10.C.11.c. or d.

3 III.10.I.1.a. Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-
4 680(2) and (3) and WAC 173-303-340].

5 i. The Permittees shall maintain the design and construction of the LAW Vitrification
6 System as specified in Permit Condition III.10.I.1., Attachment 51, Chapter 4.0 of this
7 Permit, and Attachment 51, Appendices 9.1 through 9.17 of this Permit, as approved
8 pursuant to Permit Conditions III.10.H.5.a. through d. and III.10.H.5.f.

9 ii. The Permittees shall maintain the design and construction of all containment systems
10 for the LAW Vitrification System, as specified in Attachment 51, Chapter 4.0 of this
11 Permit, and Attachment 51, Appendices 9.2 and 9.4 through 9.14 of this Permit, as
12 approved pursuant to Permit Conditions III.10.H.5.a. through d.

13 iii. Modifications to approved design, plans, and specifications in Attachment 51 of this
14 Permit for the LAW Vitrification System shall be allowed only in accordance with
15 Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d., e., and h.

16 iv. The Permittees shall ensure all certifications required by specialists (e.g., independent,
17 qualified, registered professional engineer; registered professional engineer;
18 independent corrosion expert; independent, qualified installation inspector; installation
19 inspector; etc.) use the following statement or equivalent pursuant to Permit Condition
20 III.10.C.10:

21 "I, (Insert Name) have (choose one or more of the following: overseen, supervised,
22 reviewed, and/or certified) a portion of the design or installation of a new LAW
23 Vitrification system or component located at (address), and owned/operated by
24 (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for
25 the following LAW Vitrification System components (e.g., the venting piping, etc.), as
26 required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3)
27 (applicable paragraphs [i.e., (a) through (g)], in accordance with WAC 173-303-680.

28 "I certify under penalty of law that I have personally examined and am familiar with
29 the information submitted in this document and all attachments and that, based on my
30 inquiry of those individuals immediately responsible for obtaining the information, I
31 believe that the information is true, accurate, and complete. I am aware that there are
32 significant penalties for submitting false information, including the possibility of fine
33 and imprisonment."

34 v. The Permittees shall ensure periodic integrity assessments are conducted on the LAW
35 Vitrification System listed in Permit Table III.10.I.A, as approved/modified pursuant to
36 Permit Condition III.10.H.5, over the term of this Permit in accordance with WAC 173-
37 303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description
38 of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this
39 Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c.
40 Results of the integrity assessments shall be included in the WTP Unit operating record

1 until ten (10) years after post closure, or corrective action is complete and certified,
2 whichever is later.

- 3 vi. The Permittees shall address problems detected during the LAW Vitrification System
4 integrity assessments specified in Permit Condition III.10.I.1.a.v. following the
5 description of the integrity assessment program in Attachment 51, Chapter 6.0 of this
6 Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c.
- 7 vii. All process monitors/instruments as specified in Permit Table III.10.I.F, as
8 approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., shall
9 be equipped with operational alarms to warn of deviation, or imminent deviation from
10 the limits specified in Permit Table III.10.I.F.
- 11 viii. The Permittees shall install and test all process and leak detection system
12 monitors/instruments, as specified in Permit Tables III.10.I.C and III.10.I.F, as
13 approved/modified pursuant to Permit Condition III.10.H.5 and III.10.H.3.d.v., in
14 accordance with Attachment 51, Appendices 9.1, 9.2, and 9.14 of this Permit, as
15 approved pursuant to Permit Conditions III.10.H.5.d.x. and III.10.H.5.f..xvi.
- 16 ix. No dangerous and/or mixed waste shall be treated in the LAW Vitrification System
17 unless the operating conditions, specified under Permit Condition III.10.I.1.c. are
18 complied with.
- 19 x. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or
20 other materials in the LAW Vitrification System if these substances could cause the
21 sub-system, sub-system equipment, or the containment system to rupture, leak, corrode,
22 or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)].
23 This condition is not applicable to corrosion of LAW Vitrification System sub-system
24 or sub-system equipment that are expected to be replaced as part of normal operations
25 (e.g., melters).
- 26 xi. The Permittees shall operate the LAW Vitrification System to prevent spills and
27 overflows using description of controls and practices as required under WAC 173-303-
28 640(5)(b), described in Permit Condition III.10.C.5 and Attachment 51, Appendix 9.18
29 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e. [WAC 173-303-
30 640(5)(b), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-
31 806(4)(c)(ix)].
- 32 xii. For routinely non-accessible LAW Vitrification System sub-systems, as specified in
33 Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition
34 III.10.H.5.e.vi., the Permittees shall mark all routinely non-accessible LAW
35 Vitrification System sub-systems access points with labels or signs to identify the waste
36 contained in each LAW Vitrification System sub-system. The label, or sign, must be
37 legible at a distance of at least fifty (50) feet and must bear a legend which identifies
38 the waste in a manner which adequately warns employees, emergency response
39 personnel, and the public of the major risk(s) associated with the waste being stored or
40 treated in the LAW Vitrification System sub-systems. For the purposes of this permit
41 condition, "routinely non-accessible" means personnel are unable to enter these areas

1 while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with
2 WAC 173-303-680(2)].

- 3 xiii. For the LAW Vitrification System sub-systems not addressed in Permit Condition
4 III.10.I.1.a.xii., the Permittees shall mark these LAW Vitrification System sub-systems
5 holding dangerous and/or mixed waste with labels or signs to identify the waste
6 contained in the LAW Vitrification System sub-systems. The labels, or signs, must be
7 legible at a distance of at least fifty (50) feet and must bear a legend which identifies
8 the waste in a manner which adequately warns employees, emergency response
9 personnel, and the public of the major risk(s) associated with the waste being stored or
10 treated in the LAW Vitrification System sub-systems [WAC 173-303-640(5)(d), in
11 accordance with WAC 173-303-680(2)].
- 12 xiv. The Permittees shall ensure that the secondary containment systems for the LAW
13 Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as
14 approved/modified pursuant to Permit Condition III.10.H.5, are free of cracks or gaps
15 to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of
16 the system to the soil, groundwater, or surface water at any time during use of the LAW
17 Vitrification System sub-systems. Any indication that a crack or gap may exist in the
18 containment systems shall be investigated and repaired in accordance with Attachment
19 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition
20 III.10.H.5.e.v. [WAC 173-303-640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), and WAC
21 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-
22 806(4)(i)(i)(B), and WAC 173-303-320].
- 23 xv. The Permittees must immediately, and safely, remove from service any LAW
24 Vitrification System or secondary containment system which through an integrity
25 assessment is found to be "unfit for use" as defined in WAC 173-303-040, following
26 Permit Condition III.10.I.1.a.xvii. A through D, and F. The affected LAW Vitrification
27 System or secondary containment system must be either repaired or closed in
28 accordance with Permit Condition III.10.I.1.a.xvii.E [WAC 173-303-640(7)(e) and (f)
29 and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].
- 30 xvi. An impermeable coating, as specified in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.9,
31 9.11, and 9.12 of this Permit, as approved pursuant to Permit Condition III.10.H.5.b.v.,
32 shall be maintained for all concrete containment systems and concrete portions of
33 containment systems for the LAW Vitrification System sub-systems listed in Permit
34 Tables III.10.I.A and III.10.I.B, as approved/modified pursuant to Permit Condition
35 III.10.H.5 (concrete containment systems that do not have a liner, pursuant to WAC
36 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction
37 joints, shall meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance
38 with WAC 173-303-680(2). The coating shall prevent migration of any dangerous
39 and/or mixed waste into the concrete. All coatings shall meet the following
40 performance standards:
- 41 A. The coating must seal the containment surface such that no cracks, seams, or other
42 avenues through which liquid could migrate are present;

- 1 B. The coating must be of adequate thickness and strength to withstand the normal
2 operation of equipment and personnel within the given area such that degradation
3 or physical damage to the coating or lining can be identified and remedied before
4 dangerous and mixed waste could migrate from the system; and
- 5 C. The coating must be compatible with the dangerous and/or mixed waste, treatment
6 reagents, or other materials managed in the containment system [WAC 173-303-
7 640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3) and WAC 173-
8 303-806(4)(i)(i)(A)].
- 9 xvii. The Permittees shall inspect all secondary containment systems for the LAW
10 Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as
11 approved/modified pursuant to Permit Condition III.10.H.5, in accordance with the
12 Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as
13 approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c., and take the
14 following actions if a leak or spill of dangerous and/or mixed waste is detected in these
15 containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in
16 accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-
17 303-806(4)(i)(i)(B)].
- 18 A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the
19 LAW Vitrification System sub-systems or secondary containment system.
- 20 B. Determine the source of the dangerous and/or mixed waste.
- 21 C. Remove the waste from the containment area in accordance with WAC 173-303-
22 680(2) and (3) as specified in WAC 173-303-640(7)(b). The waste removed from
23 containment areas of the LAW Vitrification System sub-systems shall be, as a
24 minimum, managed as dangerous and/or mixed waste.
- 25 D. If the cause of the release was a spill that has not damaged the integrity of the
26 LAW Vitrification System sub-system, the Permittees may return the LAW
27 Vitrification System sub-system to service in accordance with WAC 173-303-
28 680(2) and (3) as specified in WAC 173-303-640(7)(e)(ii). In such case, the
29 Permittees shall take action to ensure the incident that caused the dangerous
30 and/or mixed waste to enter the containment system will not reoccur.
- 31 E. If the source of the dangerous and/or mixed waste is determined to be a leak from
32 the primary LAW Vitrification System into the secondary containment system, or
33 the system is unfit for use as determined through an integrity assessment or other
34 inspection, the Permittees shall comply with the requirements of WAC 173-303-
35 640(7) and take the following actions:
- 36 1. Close the LAW Vitrification System sub-system following procedures in
37 WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and
38 Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit
39 Condition III.10.C.8; or
- 40 2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as
41 modified pursuant to Permit Condition III.10.I.1.a.iii.) the LAW Vitrification

1 System in accordance with Attachment 51, Appendix 9.18 of this Permit, as
2 approved pursuant to Permit Condition III.10.H.5.e.v., before the LAW
3 Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii)
4 and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

5 F. The Permittees shall document in the WTP Unit operating record
6 actions/procedures taken to comply with A through E above, as specified in WAC
7 173-303-640(6)(d), in accordance with WAC 173-303-680(2) and (3).

8 G. In accordance with WAC 173-303-680(2) and (3), the Permittees shall notify and
9 report releases to the environment to Ecology, as specified in WAC 173-303-
10 640(7)(d).

11 xviii. If liquids (e.g., dangerous and/or mixed waste, leaks and spills, precipitation, fire
12 water, liquids from damaged or broken pipes) cannot be removed from the secondary
13 containment system within twenty-four (24) hours, Ecology will be verbally notified
14 within twenty-four (24) hours of discovery. The notification shall provide the
15 information in A, B, and C, listed below. The Permittees shall provide Ecology with a
16 written demonstration within seven (7) business days, identifying at a minimum [WAC
17 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-
18 303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

19 A. Reasons for delayed removal;

20 B. Measures implemented to ensure continued protection of human health and the
21 environment;

22 C. Current actions being taken to remove liquids from secondary containment.

23 xix. All air pollution control devices and capture systems in the LAW Vitrification System
24 shall be maintained and operated at all times in a manner so as to minimize the
25 emissions of air contaminants and to minimize process upsets. Procedures for ensuring
26 that the air pollution control devices and capture systems in the LAW Vitrification
27 System are properly operated and maintained so as to minimize the emission of air
28 contaminants and process upsets shall be established.

29 xx. In all future narrative permit submittals, the Permittees shall include LAW Vitrification
30 sub-system names with the sub-system designation.

31 xxi. For any portion of the LAW Vitrification System that has the potential for formation
32 and accumulation of hydrogen gases, the Permittees shall operate the portion to
33 maintain hydrogen levels below the lower explosive limit [WAC 173-303-
34 815(2)(b)(ii)].

35 xxii. For each LAW Vitrification System sub-system holding dangerous and/or mixed
36 waste that are acutely or chronically toxic by inhalation, the Permittees shall operate
37 the system to prevent escape of vapors, fumes, or other emissions into the air [WAC
38 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-
39 303-680].

40 III.10.I.1.b. Performance Standards

- 1 i. The LAW Vitrification System must achieve a destruction and removal efficiency
2 (DRE) of 99.99% for the principal organic dangerous constituents (PODCs) listed
3 below [40 CFR §63.1203(c)(1) and 40CFR §63.1203(c)(2), in accordance with WAC
4 173-303-680(2)];

5 RESERVED

6 DRE in this permit condition shall be calculated in accordance with the formula
7 given below:

8
$$DRE = [1 - (W_{out}/W_{in})] \times 100\%$$

9 Where:

10 W_{in} = mass feedrate of one principal organic dangerous constituent (PODC) in a
11 waste feedstream; and

12 W_{out} = mass emission rate of the same PODC present in exhaust emissions prior to
13 release to the atmosphere.

- 14 ii. Particulate matter emissions from the LAW Vitrification System shall not exceed 34
15 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-
16 303-680(2)];
- 17 iii. Hydrochloric acid and chlorine gas emissions from the LAW Vitrification System shall
18 not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC
19 173-303-680(2)];
- 20 iv. Dioxin and Furan TEQ emissions from the LAW Vitrification System shall not exceed
21 0.2 nanograms (ng)/dscm, [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-
22 680(2)];
- 23 v. Mercury emissions from the LAW Vitrification System shall not exceed 45 µg/dscm
24 [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)];
- 25 vi. Lead and cadmium emissions from the LAW Vitrification System shall not exceed 120
26 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-
27 680(2)];
- 28 vii. Arsenic, beryllium, and chromium emissions from the LAW Vitrification System shall
29 not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC
30 173-303-680(2)];
- 31 viii. Carbon monoxide (CO) emission from the LAW Vitrification System shall not exceed
32 100 parts per million (ppm) by volume, over an hourly rolling average (as measured
33 and recorded by the continuous monitoring system), dry basis [40 CFR
34 §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2) and (3)];
- 35 ix. Hydrocarbon emission from the LAW Vitrification System shall not exceed 10 parts
36 per million (ppm) by volume, over an hourly rolling average (as measured and recorded
37 by the continuous monitoring system during demonstration testing required by this
38 Permit), dry basis and reported as propane [40 CFR §63.1203(b)(5)(ii), in accordance
39 with WAC 173-303-680(2) and (3)];

- 1 x. If the emissions from the LAW Vitrification System exceed the emission rates listed in
2 Permit Table III.10.I.E, as approved pursuant to Permit Condition III.10.C.11.c. or d.,
3 the Permittees shall perform the following actions [WAC 173-303-680(2) and (3), and
4 WAC 173-303-815(2)(b)(ii)]:
- 5 A. Verbally notify Ecology within twenty-four (24) hours of the discovery of
6 exceeding the emission rate(s) as specified in Permit Condition I.E.21.
- 7 B. Submit to Ecology additional risk information to indicate that the increased
8 emissions impact is offset by decreased emission impact from one or more
9 constituents expected to be emitted at the same time, and/or investigate the cause
10 and impact of the exceedance of the emission rate(s) and submit a report of the
11 investigation findings to Ecology within fifteen (15) days of the discovery of
12 exceeding the emission rate(s); and
- 13 C. Based on the notification and any additional information, Ecology may submit, in
14 writing, direction to the Permittees to stop dangerous and/or mixed waste feed to
15 the LAW Vitrification System and/or to submit a revised Demonstration Test Plan
16 as a permit modification pursuant to Permit Conditions III.10.C.2.e. through g.
17 The revised Demonstration Test Plan must include substantive changes to prevent
18 failure from reoccurring.

19 The emission limits specified in Permit Conditions III.10.I.1.b.i. through x. above, shall
20 be met for the LAW Vitrification System by limiting feed rates as specified in Permit
21 Tables III.10.I.D and III.10.I.F, as approved/modified pursuant to Permit Conditions
22 III.10.H.5. and III.10.H.3.d.v., compliance with operating conditions specified in
23 Permit Condition III.10.I.1.c. (except as specified in Permit Condition III.10.I.1.b.xii.),
24 and compliance with Permit Condition III.10.I.1.b.xi.;

- 25 xi. Treatment effectiveness, feed-rates and operating rates for dangerous and/or mixed
26 waste management units contained in the LAW Building, but not included in Permit
27 Table III.10.I.A, as approved/modified pursuant to Permit Condition III.10.H.5, shall
28 be as specified in Permit Sections III.10.D through F and consistent with assumptions
29 and basis which are reflected in Attachment 51, Appendix 6.3.1 of this Permit, as
30 approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit
31 condition, Attachment 51, Appendix 6.3.1 shall be superceded by Appendix 6.4.1 upon
32 its approval pursuant to either Permit Condition III.10.C.11.c or III.10.C.11.d. [WAC
33 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)];
- 34 xii. Compliance with the operating conditions specified in Permit Condition III.10.I.1.c.,
35 shall be regarded as compliance with the required performance standards identified in
36 Permit Conditions III.10.I.1.b.i. through x. However, if it is determined that during the
37 effective period of this Permit that compliance with the operating conditions in Permit
38 Condition III.10.I.1.c. is not sufficient to ensure compliance with the performance
39 standards specified in Permit Conditions III.10.I.1.b.i. through x., the Permit may be
40 modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e. and f., or
41 III.10.C.2.g.

42 III.10.I.1.c. Operating Conditions [WAC-303-670(6), in accordance with WAC 173-303-680(2)and (3)]

1 The Permittees shall operate the LAW Vitrification System in accordance with Attachment
2 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi. and
3 Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition
4 III.10.H.5.e., and Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to
5 Permit Condition III.10.H.5.f., except as modified pursuant to Permit Conditions III.10.H.3,
6 III.10.I.1.b.x., III.10.I.1.b.xii., III.10.I.1.h., and in accordance with and the following:

- 7 i. The Permittees shall operate the LAW Vitrification System in order to maintain the
8 systems and process parameters listed in Permit Tables III.10.I.C and III.10.I.F, as
9 approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., within
10 the set-points specified in Permit Table III.10.I.F.
- 11 ii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.I.F,
12 as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., to
13 automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to LAW
14 Vitrification System when the monitored operating conditions deviate from the set-
15 points specified in Permit Table III.10.I.F.
- 16 iii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.I.F,
17 as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., to
18 automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to LAW
19 Vitrification System when all instruments specified in Permit Table III.10.H.F for
20 measuring the monitored parameters fails or exceeds its span value.
- 21 iv. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.I.F,
22 as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., to
23 automatically cut-off and/or lock out the dangerous waste and/or mixed waste feed to
24 the LAW Vitrification System when any portion of the LAW Vitrification System is
25 bypassed. The terms "bypassed" and "bypass event," as used in Permit Sections
26 III.10.H and III.10.I, shall mean if any portion of the LAW Vitrification System is
27 bypassed so that gases are not treated as during the Demonstration Test.
- 28 v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.I.F,
29 as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., the
30 Permittees shall immediately, manually cut-off the dangerous and/or mixed waste feed
31 to the LAW Vitrification System. The Permittees shall not restart the dangerous and/or
32 mixed waste feed until the problem causing the malfunction has been identified and
33 corrected.
- 34 vi. The Permittees shall manually cut-off the dangerous and/or mixed waste feed to the
35 LAW Vitrification System when the operating conditions deviate from the limits
36 specified in Permit Condition III.10.I.1.c.i., unless the deviation automatically activates
37 the waste feed cut-off sequence specified in Permit Conditions III.10.I.1.c.ii., iii.,
38 and/or iv.
- 39 vii. If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the
40 LAW Vitrification System occur due to deviations from Permit Table III.10.I.F, as
41 approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., within
42 a sixty (60) day period, the Permittees shall submit a written report to Ecology within

1 five (5) calendar days of the thirty-first exceedance, including the information specified
2 below. These dangerous and/or mixed waste feed cut-offs to the LAW Vitrification
3 System, whether automatically or manually activated, are counted if the specified set-
4 points are deviated from while dangerous and/or mixed waste and waste residues
5 continue to be processed in the LAW Vitrification System. A cascade event is counted
6 at a frequency of one (1) towards the first waste feed cut-off parameter, specified in
7 Permit Table III.10.I.F, from which the set-point is deviated:

- 8 A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.I.F;
9 B. The magnitude, dates, and duration of the deviations;
10 C. Results of the investigation of the cause of the deviations; and
11 D. Corrective measures taken to minimize future occurrences of the deviations.

12 viii. If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the
13 LAW Vitrification System occur due to deviations from Permit Table III.10.I.F, as
14 approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., within
15 a thirty (30) day period, the Permittees shall submit the written report required to be
16 submitted pursuant to Permit Condition III.10.I.1.c.vii. to Ecology on the first business
17 day following the thirty-first exceedance. These dangerous and/or mixed waste feed
18 cut-offs to the LAW Vitrification System, whether automatically or manually activated,
19 are counted if the specified set-points are deviated from while dangerous and/or mixed
20 waste and waste residues continue to be processed in the LAW Vitrification System. A
21 cascade event is counted at a frequency of one (1) towards the first waste feed cut-off
22 parameter, specified on Permit Table III.10.I.F, from which the set-point is deviated:

23 In accordance with WAC 173-303-680(2) and (3), the Permittees may not resume
24 dangerous and/or mixed waste feed to the LAW Vitrification System until this written
25 report has been submitted, and

- 26 A. Ecology has authorized the Permittees, in writing, to resume dangerous and/or
27 mixed waste feed, or
28 B. Ecology has not, within seven (7) days, notified the Permittees in writing of the
29 following:
30 1. The Permittees written report does not document that the corrective measures
31 taken will minimize future exceedances; and
32 2. The Permittees must take further corrective measures and document that
33 these further corrective measures will minimize future exceedances.

34 ix. If any portion of the LAW Vitrification System is bypassed while treating dangerous
35 and/or mixed waste, it shall be regarded as non-compliance with the operating
36 conditions specified in Permit Condition III.10.I.1.c. and the performance standards
37 specified in Permit Condition III.10.I.1.b. After such a bypass event, the Permittees
38 shall perform the following actions:

- 39 A. Investigate the cause of the bypass event;

- 1 B. Take appropriate corrective measures to minimize future bypasses;
- 2 C. Record the investigation findings and corrective measures in the WTP Unit
- 3 operating record; and
- 4 D. Submit a written report to Ecology within five (5) days of the bypass event
- 5 documenting the result of the investigation and corrective measures.
- 6 x. The Permittees shall control fugitive emissions from the LAW Vitrification System by
- 7 maintaining the melters under negative pressure.
- 8 xi. Compliance with the operating conditions specified in Permit Condition III.10.I.1.c.
- 9 shall be regarded as compliance with the required performance standards identified in
- 10 Permit Condition III.10.I.1.b. However, evidence that compliance with these operating
- 11 conditions is insufficient to ensure compliance with the performance standards, shall
- 12 justify modification, revocation, or re-issuance of this Permit, in accordance with
- 13 Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g.
- 14 III.10.I.1.d. Inspection Requirements [WAC 173-303-680(3)]
- 15 i. The Permittees shall inspect the LAW Vitrification System in accordance with the
- 16 Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified in
- 17 accordance with Permit Condition III.10.C.5.c.
- 18 ii. The inspection data for LAW Vitrification System shall be recorded, and the records
- 19 shall be placed in the WTP Unit operating record for LAW Vitrification System, in
- 20 accordance with Permit Condition III.10.C.4.
- 21 iii. The Permittees shall comply with the inspection requirements specified in Attachment
- 22 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition
- 23 III.10.H.5.f. and as modified by Permit Conditions III.10.H.3, III.10.I.1.b.x.,
- 24 III.10.I.1.b.xii., and III.10.I.1.h.
- 25 III.10.I.1.e. Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-
- 26 670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]
- 27 i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling
- 28 and analysis of the dangerous and/or mixed waste and exhaust emissions to verify that
- 29 the operating requirements established in the Permit achieve the performance standards
- 30 delineated in this Permit.
- 31 ii. The Permittees shall comply with the monitoring requirements specified in the
- 32 Attachment 51, Appendices 9.2, 9.3, 9.7, 9.13, 9.15 and 9.18 of this Permit, as
- 33 approved pursuant to Permit Condition III.10.H.5, and as modified by Permit
- 34 Conditions III.10.H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.
- 35 iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and
- 36 hydrocarbon continuous emission monitors (CEM) specified in this Permit in
- 37 accordance with Performance Specifications 4B and 8A of 40 CFR Part 60, Appendix
- 38 B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51
- 39 Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f.,

- 1 and as modified by Permit Conditions III.10. H.3, III.10.I.1.h., III.10.I.1.b.x., and
2 III.10.I.1.b.xii.
- 3 iv. The Permittees shall operate, calibrate, and maintain the instruments specified in
4 Permit Tables III.10.I.C and F, as approved/modified pursuant to Permit Conditions
5 III.10.H.5 and III.10.H.3.d.v., in accordance with Attachment 51, Appendix 9.15 of this
6 Permit, as approved pursuant to Permit Condition III.10.H.5.f., and as modified by
7 Permit Conditions III.10.H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.
- 8 III.10.I.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]
- 9 i. The Permittees shall record and maintain in the WTP Unit operating record for the
10 LAW Vitrification System, all monitoring, calibration, maintenance, test data, and
11 inspection data compiled under the conditions of this Permit, in accordance with Permit
12 Conditions III.10.C.4 and 5, as modified by Permit Conditions III.10.H.3, III.10.I.1.h.,
13 III.10.I.1.b.x., and III.10.I.1.b.xii.
- 14 ii. The Permittees shall record in the WTP Unit operating record the date, time, and
15 duration of all automatic waste feed cutoffs and/or lockouts, including the triggering
16 parameters, reason for the deviation, and recurrence of the incident. The Permittees
17 shall also record all incidents of AWFCO system function failures, including the
18 corrective measures taken to correct the condition that caused the failure.
- 19 iii. The Permittees shall submit to Ecology an annual report each calendar year within
20 ninety (90) days following the end of the year. The report will include the following
21 information:
- 22 A. Total dangerous and/or mixed waste feed processing time for the LAW
23 Vitrification System;
- 24 B. Date/Time of all LAW Vitrification System startups and shutdowns;
- 25 C. Date/Time/Duration/Cause/Corrective Action taken for all LAW Vitrification
26 System shutdowns caused by malfunction of either process or control equipment;
27 and
- 28 D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous
29 and/or mixed waste feed cut-off due to deviations from Permit Table III.10.I.F, as
30 approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v.
- 31 iv. The Permittees shall submit an annual report to Ecology each calendar year within
32 ninety (90) days following the end of the year of all quarterly CEM Calibration Error
33 and Annual CEM Performance Specification Tests conducted, in accordance with
34 Permit Condition III.10.I.1.e.iii.
- 35 III.10.I.1.g. Closure
- 36 The Permittees shall close the LAW Vitrification System in accordance with Attachment 51,
37 Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.
- 38 III.10.I.1.h. Periodic Emission Re-testing Requirements [WAC 173-303-670(5), WAC 173-303-670(7),
39 and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]

1 i. Dioxin and Furan Emission Testing

2 A. Within eighteen (18) months of commencing operation pursuant to Permit Section
3 III.10.I, the Permittees shall submit to Ecology for approval, a Dioxin and Furan
4 Emission Test Plan (DFETP) for the performance of emission testing of the LAW
5 Vitrification System gases for dioxin and furans during "Normal Operating
6 Conditions" as a permit modification in accordance with Permit Conditions
7 III.10.C.2.e. and III.10.C.2.f. The DFETP shall include all elements applicable to
8 dioxin and furan emission testing included in the "Previously Approved
9 Demonstration Test Plan," applicable EPA promulgated test methods and
10 procedures in effect at the time of the submittal, and projected commencement and
11 completion dates for dioxin and furan emission test. "Normal Operating
12 Conditions" shall be defined for the purposes of this permit condition as follows:

- 13 1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and
14 automatic waste feed cut-off parameters specified in Permit Table III.10.I.F
15 (as approved/modified pursuant to Permit Conditions III.10.H.5 and
16 III.10.H.3.d.v.), that were established to maintain compliance with Permit
17 Condition III.10.I.1.b.iv. as specified in Attachment 51, Appendix 9.15 of
18 this Permit (as approved pursuant to Permit Condition III.10.H.3.d., and in
19 accordance with III.10.I.1.b.xii. and III.10.I.1.c.xi.), are held within the range
20 of the average value over the previous twelve (12) months and the set-point
21 value specified in Permit Table III.10.I.F. The average value is defined as
22 the sum of the rolling average values recorded over the previous twelve (12)
23 months divided by the number of rolling averages recorded during that time.
24 The average value shall not include calibration data, malfunction data, and
25 data obtained when not processing dangerous and/or mixed waste; and
- 26 2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of
27 the average value over the previous twelve (12) months and the set-point
28 value specified on Permit Table III.10.I.D (as approved/modified pursuant to
29 Permit Conditions III.10.H.5 and III.10.H.3.d.v.). Feed-rate of organics as
30 measured by TOC are held within the range of the average value over the
31 previous twelve (12) months. The average value is defined as the sum of the
32 rolling average values recorded over the previous twelve (12) months divided
33 by the number of rolling averages recorded during that time. The average
34 value shall not include data obtained when not processing dangerous and/or
35 mixed waste.

36 For purposes of this permit condition, the "Previously Approved Demonstration
37 Test Plan" is defined to include the Demonstration Test Plan approved pursuant to
38 Permit Condition III.10.H.5.f.

39 B. Within sixty (60) days of Ecology's approval of the DFETP, or within thirty-one
40 (31) months of commencing operation pursuant to Permit Section III.10.I,
41 whichever is later, the Permittees shall implement the DFETP approved pursuant
42 to Permit Condition III.10.I.1.h.i.A.

- 1 C. The Permittees shall resubmit the DFETP, approved pursuant to Permit Condition
2 III.10.I.1.h.i.A, revised to include applicable EPA promulgated test methods and
3 procedures in effect at the time of the submittal, and projected commencement and
4 completion dates for dioxin and furan emission test as a permit modification in
5 accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f. at twenty-four
6 (24) months from the implementation date of the testing required pursuant to
7 Permit Condition III.10.I.1.h.i.A and at reoccurring eighteen (18) month intervals
8 from the implementation date of the previously approved DFETP. The Permittees
9 shall implement these newly approved revised DFETPs, every thirty-one (31)
10 months from the previous approved DFETP implementation date or within sixty
11 (60) days of the newly Ecology approved revised DFETP, whichever is later, for
12 the duration of this Permit.
- 13 D. The Permittees shall submit a summary of operating data collected pursuant to the
14 DFETPs in accordance with Permit Conditions III.10.I.1.h.i.A and C to Ecology
15 upon completion of the tests. The Permittees shall submit to Ecology the
16 complete test report within ninety (90) calendar days of completion of the testing.
17 The test reports shall be certified as specified in WAC 173-303-807(8), in
18 accordance with WAC 173-303-680(2) and (3).
- 19 E. If any calculations or testing results collected pursuant to the DFETPs in
20 accordance with Permit Conditions III.10.I.1.h.i.A and C. show that one or more
21 of the performance standards listed in Permit Condition III.10.I.1.b., with the
22 exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System
23 were not met during the emission test, the Permittees shall perform the following
24 actions:
- 25 1. Immediately stop dangerous and/or mixed waste feed to the LAW
26 Vitrification System under the mode of operation that resulted in not meeting
27 the performance standard(s);
 - 28 2. Verbally notify Ecology within twenty-four (24) hours of discovery of not
29 meeting the performance standard(s), as specified in Permit Condition
30 I.E.21.;
 - 31 3. Investigate the cause of the failure and submit a report of the investigation
32 findings to Ecology within fifteen (15) days of discovery of not meeting the
33 performance standard(s);
 - 34 4. Submit to Ecology within fifteen (15) days of discovery of not meeting the
35 performance standard(s) documentation supporting a mode of operation
36 where all performance standards listed in Permit Condition III.I.1.b., with the
37 exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification
38 System were met during the demonstration test, if any such mode was
39 demonstrated;
 - 40 5. Based on the information provided to Ecology by the Permittees pursuant to
41 Permit Conditions III.10.I.1.h.i.E.1 through 4 above, and any additional
42 information, Ecology may submit in writing, direction to the Permittees to

1 stop dangerous waste and mixed waste feed to the LAW Vitrification System
2 and/or amend the mode of operation the Permittees are allowed to continue
3 operations prior to Ecology approval of the revised Demonstration Test Plan
4 pursuant to Permit Condition III.10. I.1.h.i.E.6; and

- 5 6. Submit to Ecology within one hundred and twenty (120) days of discovery of
6 not meeting the performance standard(s) a revised Demonstration Test Plan
7 requesting approval to retest as a permit modification pursuant to Permit
8 Conditions III.10.C.2.e.and III.10.C.2.f. The revised Demonstration Test
9 Plan must include substantive changes to prevent failure from reoccurring
10 reflecting performance under operating conditions representative of the
11 extreme range of normal conditions, and include revisions to Permit Tables
12 III.10.I.D and F.

13 F. If any calculations or testing results collected pursuant to the DFETPs in
14 accordance with Permit Conditions III.10.I.1.h.i.A and C show that any emission
15 rate for any constituent listed in Permit Table III.10.I.E, as approved/modified
16 pursuant to Permit Conditions III.10.C.11.c. or d. is exceeded for LAW
17 Vitrification System during the emission test, the Permittees shall perform the
18 following actions:

- 19 1. Verbally notify Ecology within twenty-four (24) hours of the discovery of
20 exceeding the emission rate(s), as specified in Permit Condition I.E.21.;
- 21 2. Submit to Ecology additional risk information to indicate that the increased
22 emissions impact is off-set by decreased emission impact from one or more
23 constituents expected to be emitted at the same time, and/or investigate the
24 cause and impact of the exceedance and submit a report of the investigation
25 findings to Ecology within fifteen (15) days of this discovery of exceeding
26 the emission rate(s); and
- 27 3. Based on the notification and any additional information, Ecology may
28 submit, in writing, direction to the Permittees to stop dangerous and/or mixed
29 waste feed to the LAW Vitrification System and/or to submit a revised
30 Demonstration Test Plan as a permit modification pursuant to Permit
31 Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration
32 Test Plan must include substantive changes to prevent failure from
33 reoccurring reflecting performance under operating conditions representative
34 of the extreme range of normal conditions, and include revisions to Permit
35 Tables III.10.I.D and III.10.I.F.

36 ii. Non-organic Emission Testing

- 37 A. Within forty-eight (48) months of commencing operation pursuant to Permit
38 Section III.10.I, the Permittees shall resubmit to Ecology for approval the
39 "Previously Approved Demonstration Test Plan" revised as a permit modification
40 in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2f. The revised
41 Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test
42 methods and procedures in effect at the time of the submittal, projected

1 commencement and completion dates for emission testing to demonstrate
2 performance standards specified in Permit Conditions III.10.I.1.b.ii., iii., v., vi.,
3 and vii., and non-organic emissions as specified in Permit Table III.10.I.E, as
4 approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c.
5 or d., under "Normal Operating Conditions." "Normal Operating Conditions"
6 shall be defined for the purposes of this permit condition as follows:

- 7 1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and
8 automatic waste feed cut-off parameters specified in Permit Table III.10.I.F,
9 as approved/modified pursuant to Permit Conditions III.10.H.3.d. and
10 III.10.C.11.c. or d., that were established to maintain compliance with Permit
11 Conditions III.10.I.1.b.ii., iii., v., vi., and vii., and non-organic emissions, as
12 specified in Permit Table III.10.I.E, as specified in Attachment 51, Appendix
13 9.15 of this Permit (as approved pursuant to Permit Conditions III.10.H.3.d.
14 and III.10.C.11.c. or d.), are held within the range of the average value over
15 the previous twelve (12) months and the set-point value specified in Permit
16 Table III.10.I.F. The average value is defined as the sum of the rolling
17 average values recorded over the previous twelve (12) months divided by the
18 number of rolling averages recorded during that time. The average value
19 shall not include calibration data, malfunction data, and data obtained when
20 not processing dangerous or mixed waste; and
- 21 2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of
22 the average value over the previous twelve (12) months and the set-point
23 value specified in Permit Table III.10.I.D, as approved/modified pursuant to
24 Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d. The average value is
25 defined as the sum of all rolling average values recorded over the previous
26 twelve (12) months divided by the number of rolling averages recorded
27 during that time. The average value shall not include data obtained when not
28 processing dangerous or mixed waste.

29 For purposes of this permit condition, the "Previously Approved Demonstration
30 Test Plan" is defined to include the Demonstration Test Plan approved pursuant to
31 Permit Condition III.10.H.5.f.

- 32 B. Within sixty (60) days of Ecology's approval of the RDTP, or within sixty (60)
33 months of commencing operation pursuant to Permit Section III.10.I, whichever is
34 later, the Permittees shall implement the RDTP approved pursuant to Permit
35 Condition III.10.I.1.h.ii.A.
- 36 C. The Permittees shall resubmit the RDTP, approved pursuant to Permit Condition
37 III.10.I.1.h.ii.A, revised to include applicable EPA promulgated test methods and
38 procedures in effect at the time of the submittal, and projected commencement and
39 completion dates for emission test as a permit modification in accordance with
40 Permit Conditions III.10.C.2.e. and f. at forty-eight (48) months from the
41 implementation date of the testing required pursuant to Permit Condition
42 III.10.I.1.h.ii.A and at reoccurring forty-eight (48) month intervals from the
43 implementation date of the previously approved RDTP. The Permittees shall

1 implement these newly approved revised RDTP, every sixty (60) months from the
2 previous approved RDTP implementation date or within sixty (60) days of the
3 newly Ecology approved revised RDTP, whichever is later, for the duration of this
4 Permit.

5 D. The Permittees shall submit a summary of operating data collected pursuant to the
6 RDTPs in accordance with Permit Conditions III.10.I.1.h.ii.A and C to Ecology
7 upon completion of the tests. The Permittees shall submit to Ecology the
8 complete test report within ninety (90) calendar days of completion of the testing.
9 The test reports shall be certified pursuant to WAC 173-303-807(8), in accordance
10 with WAC 173-303-680(2) and (3).

11 E. If any calculations or testing results collected pursuant to the DFETPs in
12 accordance with Permit Conditions III.10.I.1.h.ii.A and C show that any emission
13 rate for any constituent listed in Permit Table III.10.I.E, as approved/modified
14 pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d., is exceeded
15 for LAW Vitrification System during the emission test, the Permittees shall
16 perform the following actions:

- 17 1. Verbally notify Ecology within twenty-four (24) hours of the discovery of
18 exceeding the emission rate(s), as specified in Permit condition I.E.21.;
- 19 2. Submit to Ecology additional risk information to indicate that the increased
20 emissions impact is off-set by decreased emission impact from one or more
21 constituents expected to be emitted at the same time, and/or investigate the
22 cause and impact of the exceedance and submit a report of the investigation
23 findings to Ecology within fifteen (15) days of this discovery of exceeding
24 the emission rate(s); and
- 25 3. Based on the notification and any additional information, Ecology may
26 submit, in writing, direction to the Permittees to stop dangerous and/or mixed
27 waste feed to the LAW Vitrification System and/or to submit a revised
28 Demonstration Test Plan as a permit modification pursuant to Permit
29 Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration
30 Test Plan must include substantive changes to prevent failure from
31 reoccurring reflecting performance under operating conditions representative
32 of the extreme range of normal conditions, and include revisions to Permit
33 Tables III.10.I.D and III.10.I.F.

34 F. If any calculations or testing results collected pursuant to the DFETPs in
35 accordance with Permit Conditions III.10.I.1.h.ii.A and C show that one or more
36 of the performance standards listed in Permit Condition III.10.I.1.b., with the
37 exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System
38 were not met during the emission test, the Permittees shall perform the following
39 actions:

- 40 1. Immediately stop dangerous and/or mixed waste feed to the LAW
41 Vitrification System under the mode of operation that resulted in not meeting
42 the performance standard(s);

1 III.10.C.11.c. or d., that were established to maintain compliance with Permit
2 Conditions III.10.I.1.b.viii. and ix., and emissions as specified in Permit
3 Table III.10.I.E, not addressed under Permit Conditions III.10.I.1.h.i. or ii. as
4 specified in Attachment 51, Appendix 9.15 of this Permit, as approved
5 pursuant to Permit Condition III.10.H.3.d., and in accordance with Permit
6 Conditions III.10.I.1.b.xii. and III.10.I.1.c.xi. are held within the range of the
7 average value over the previous twelve (12) months and the set-point value
8 specified on Permit Table III.10.I.F. The average value is defined as the sum
9 of all rolling average values recorded over the previous twelve (12) months
10 divided by the number of rolling averages recorded during that time. The
11 average value shall not include calibration data, malfunction data, and data
12 obtained when not processing dangerous and/or mixed waste; and

- 13 2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of
14 the average value over the previous twelve (12) months and the set-point
15 value specified in Permit Table III.10.I.D, as approved/modified pursuant to
16 Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d. Feed-rate of organics
17 as measured by TOC are held within the range of the average value over the
18 previous twelve (12) months. The average value is defined as the sum of the
19 rolling average values recorded over the previous twelve (12) months divided
20 by the number of rolling averages recorded during that time. The average
21 value shall not include data obtained when not processing dangerous and/or
22 mixed waste.

23 For purposes of this permit condition, the "Previously Approved Demonstration Test
24 Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit
25 Condition III.10.H.5.f.

- 26 B. Within sixty (60) days of Ecology's approval of the RDTP, or within ninety-one
27 (91) months of commencing operation pursuant to Permit Section III.10.I,
28 whichever is later, the Permittees shall implement the RDTP approved pursuant to
29 Permit Condition III.10.I.1.h.iii.A.
- 30 C. The Permittees shall submit a summary of operating data collected pursuant to the
31 RDTPs in accordance with Permit Condition III.10.I.1.h.iii.A to Ecology upon
32 completion of the tests. The Permittees shall submit to Ecology the complete test
33 report within ninety (90) calendar days of completion of the testing. The test
34 reports shall be certified as specified in WAC 173-303-807(8), in accordance with
35 Permit Condition WAC 173-303-680(2) and (3).
- 36 D. If any calculations or testing results show that one or more of the performance
37 standards listed in Permit Condition III.10.I.1.b., with the exception of Permit
38 Condition III.10.I.1.b.x., for the LAW Vitrification System were not met during
39 the emission test, the Permittees shall perform the following actions:
- 40 1. Immediately stop dangerous and/or mixed waste feed to the LAW
41 Vitrification System under the mode of operation that resulted in not meeting
42 the performance standard(s);

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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.

1

Table III.10.IA - LAW Vitrification System Description

2

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos, Specification Nos, etc.)	Narrative Description, Tables and Figures
Melter Feed ^a Systems- Melter 1,2, & 3	LFP LCP GFR	RESERVED	Section 4.2.3.1; Tables 4-4 and 4-11, and Figures 4A-1, 4A-3, and 4A-20 of Attachment 51, Chapter 4 of this Permit
LAW Melters 1,2, & 3	LMP	RESERVED	Section 4.2.3.2; Tables 4-4, and Figure 4A-21 of Attachment 51, Chapter 4 of this Permit
LAW Glass Product Systems-Melter 1,2, & 3	LMP	RESERVED	Section 4.2.3.2 of Attachment 51, Chapter 4 of this Permit
Primary & Secondary Film Coolers-Melter 1, 2, & 3	LOP	RESERVED	Section 4.2.3.3 and Figure 4A-21 of Attachment 51, Chapter 4 of this Permit
Submerged Bed Scrubbers/Condensate Vessels ^a -Melter 1, 2, & 3	LOP	RESERVED	Section 4.2.3.3; Tables 4-4 and 4-11, and Figure 4A-22 of Attachment 51, Chapter 4 of this Permit
Wet electrostatic Precipitators-Melter 1, 2, & 3	LOP	RESERVED	Section 4.2.3.3 and Figure 4A-22 of Attachment 51, Chapter 4 of this Permit
High Efficiency Particulate Air Filters	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Thermal Catalytical Oxidation Unit	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Selective Catalytical Reduction Units	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Caustic Scrubber/Blowdown Vessel ^a	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Electric Heaters	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Heat Exchangers	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Pumps	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Exhaust Fans	LVP	RESERVED	Section 4.2.3.3 of Attachment 51, Chapter 4 of this Permit

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos, Specification Nos, etc.)	Narrative Description, Tables and Figures
Mist Eliminators	LVP	RESERVED	Section 4.2.3.3 of Attachment 51, Chapter 4 of this Permit
LAW Stack	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit

1 a. Requirements pertaining to the tanks in LAW Vitrification System Melter Feed System, Submerged Bed
 2 Scrubbers/Condensate Vessels, and Caustic Scrubber/Blowdown Vessel are specified in Permit Section III.10.E.

3
 4
 5
 6
 7

Table III.10.IB - LAW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains

Sump/Floor Drain I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Engineering Description (Drawing Nos, Specification Nos, etc.)
RESERVED	RESERVED	RESERVED	RESERVED

1
2

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	
Ash Feed Rate	
Total Chlorine/Chloride Feed Rate	
Total Metal Feedrates	

3
4
5
6

Table III.10.I.E - LAW Vitrification System Estimated Emission Rates (RESERVED)

Chemicals	CAS Number	Emission Rates (grams /second)

7
8

TABLE III.10.I.F - LAW Vitrification System Waste Feed Cut-off Parameters* ¹(RESERVED)

10

Sub-system Designation	Instrument Tag Number	Parameter Description	Set-points During Normal Operation

11
12
13
14

*A continuous monitoring system shall be used as defined in Permit Section III.10.C.1.

¹Maximum Feed-rate shall 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

1
2 **III.10.J HLW Vitrification System – Short Term Miscellaneous Thermal Treatment Unit-**
3 **Shakedown, Demonstration Test, and Post Demonstration Test**

4 For purposes of Permit Section III.10.J, where reference is made to WAC 173-303-640, the
5 following substitutions apply: substituting the terms “HLW Vitrification System” for “tank
6 system(s),” “sub-system(s)” for “tank(s),” “sub-system equipment” for “ancillary
7 equipment,” and “sub-system(s) or sub-system equipment of a HLW Vitrification System”
8 for “component(s),” in accordance with WAC 173-303-680.

9 **III.10.J.1. General Conditions During Shakedown, Demonstration Test, and Post-Demonstration Test**
10 **for HLW Vitrification System**

11 **III.10.J.1.a. Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-**
12 **680(2) and (3), and WAC 173-303-340].**

13 i. The Permittees shall construct the HLW Vitrification System (listed in Permit Tables
14 III.10.J.A and III.10.J.B, as approved/modified pursuant to Permit Condition
15 III.10.J.5.) as specified in Permit Condition III.10.J.1. and Attachment 51, Chapter
16 4.0 of this Permit, and Attachment 51, Appendices 10.1 through 10.15 and 10.17 of
17 this Permit, as approved pursuant to Permit Conditions III.10.J.5.a. through d., and
18 III.10.J.5.f.

19 ii. The Permittees shall construct all containment systems for the HLW Vitrification
20 System as specified in Attachment 51, Chapter 4.0 of this Permit, and Attachment 51,
21 Appendices 10.2, 10.4, through 10.14 of this Permit, as approved pursuant to Permit
22 Conditions III.10.J.5.a. through d.

23 iii. The Permittees shall ensure all certifications required by specialists (e.g.,
24 independent, qualified, registered professional engineer, independent corrosion
25 expert, independent qualified installation inspector, etc.) use the following statement
26 or equivalent pursuant to Permit Condition III.10.C.10.:

27 “I, (Insert Name) have (choose one or more of the following: overseen, supervised,
28 reviewed, and/or certified) a portion of the design or installation of a new HLW
29 Vitrification system or component located at (address), and owned/operated by
30 (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for
31 the following HLW Vitrification system components (e.g., the venting piping, etc.),
32 as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3)
33 (applicable paragraphs (i.e., (a) through (g)) in accordance with WAC 173-303-680).

34 “I certify under penalty of law that I have personally examined and am familiar with
35 the information submitted in this document and all attachments and that, based on my
36 inquiry of those individuals immediately responsible for obtaining the information, I
37 believe that the information is true, accurate, and complete. I am aware that there are
38 significant penalties for submitting false information, including the possibility of fine
39 and imprisonment.”

40 iv. The Permittees must ensure that proper handling procedures are adhered to in order
41 to prevent damage to the HLW Vitrification System during installation. Prior to

1 covering, enclosing, or placing the new HLW Vitrification System or component in
2 use, an independent, qualified, installation inspector or an independent, qualified,
3 registered professional engineer, either of whom is trained and experienced in the
4 proper installation of similar systems or components, must inspect the system for the
5 presence of any of the following items:

- 6 G. Weld breaks;
- 7 H. Punctures;
- 8 I. Scrapes of protective coatings;
- 9 J. Cracks;
- 10 K. Corrosion;
- 11 L. Other structural damage or inadequate construction/installation.

12 All discrepancies must be remedied before the HLW Vitrification system is covered,
13 enclosed, or placed in use [WAC 173-303-640(3)(c), in accordance with WAC 173-
14 303-680(2) and (3)].

- 15 v. For the HLW Vitrification System or components that are placed underground and
16 that are back-filled, the Permittees must provide a backfill material that is a non-
17 corrosive, porous, homogeneous substance. The backfill must be installed so that it
18 is placed completely around the HLW Vitrification System and compacted to ensure
19 that the HLW Vitrification System is fully and uniformly supported [WAC 173-303-
20 640(3)(d), in accordance with WAC 173-303-680(2) and (3)].
- 21 vi. The Permittees must test for tightness the HLW Vitrification System or components,
22 prior to being covered, enclosed, or placed into use. If the HLW Vitrification System
23 or components are found not to be tight, all repairs necessary to remedy the leak(s)
24 in the system must be performed prior to the HLW Vitrification System being covered,
25 enclosed, or placed in use [WAC 173-303-640(3)(e), in accordance with WAC 173-
26 303-680(2) and (3)].
- 27 vii. The Permittees must ensure the HLW Vitrification System equipment is supported
28 and protected against physical damage and excessive stress due to settlement,
29 vibration, expansion, or contraction [WAC 173-303-640(3)(f), in accordance with
30 WAC 173-303-680(2) and (3)].
- 31 viii. The Permittees must provide the type and degree of corrosion protection
32 recommended by an independent corrosion expert, based on the information provided
33 in Attachment 51, Appendices 10.9 and 10.11 of this Permit, as approved pursuant to
34 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.,
35 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
36 other corrosion protection if Ecology believes other corrosion protection is necessary
37 to ensure the integrity of the HLW Vitrification System during use of the HLW
38 Vitrification System. The installation of a corrosion protection system that is field
39 fabricated must be supervised by an independent corrosion expert to ensure proper

- 1 installation [WAC 173-303-640(3)(g), in accordance with WAC 173-303-680(2) and
2 (3)].
- 3 ix. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the
4 Permittees shall obtain and keep on file in the WTP Unit operating record, written
5 statements by those persons required to certify the design of the HLW Vitrification
6 System and supervise the installation of the HLW Vitrification System, as specified
7 in WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC 173-
8 303-680, attesting that the HLW Vitrification system and corresponding containment
9 system listed in Permit Tables III.10.J.A and III.10.J.B, as approved/modified
10 pursuant to Permit Condition III.10.J.5., were properly designed and installed, and
11 that repairs, in accordance with WAC 173-303-640(3)(c) and (e), were performed
12 [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(h), in accordance with WAC
13 173-303-680(3)].
- 14 x. The independent HLW Vitrification System installation inspection and subsequent
15 written statements shall be certified in accordance with WAC 173-303-810(13)(a), as
16 modified pursuant to Permit Condition III.10.J.1.a.iii., comply with all requirements
17 of WAC 173-303-640(3)(h) in accordance with WAC 173-303-680, and shall
18 consider, but not be limited to, the following LAW Vitrification System installation
19 documentation:
- 20 A. Field installation report with date of installation;
- 21 B. Approved welding procedures;
- 22 C. Welder qualification and certifications;
- 23 D. Hydro-test reports, as applicable, in accordance with the American Society of
24 Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division
25 1; American Petroleum Institute (API) Standard 620, or Standard 650, as
26 applicable;
- 27 E. Tester credentials;
- 28 F. Field inspector credentials;
- 29 G. Field inspector reports;
- 30 H. Field waiver reports; and
- 31 I. Non-compliance reports and corrective action (including field waiver reports)
32 and repair reports.
- 33 xi. The Permittees shall ensure periodic integrity assessments are conducted on the HLW
34 Vitrification System, listed in Permit Table III.10.J.A, as approved/modified pursuant
35 to Permit Condition III.10.J.5., over the term of this Permit, in accordance with WAC
36 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the
37 description of the integrity assessment program and schedule in Attachment 51,
38 Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i.
39 and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP

- 1 Unit operating record until ten (10) years after post-closure, or corrective action is
2 complete and certified, whichever is later.
- 3 xii. The Permittees shall address problems detected during the HLW Vitrification System
4 integrity assessments specified in Permit Condition III.10.J.1.a.xi. following the
5 integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as
6 approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c.
- 7 xiii. All process monitors/instruments as specified in Permit Table III.10.J.F, as
8 approved/modified pursuant to Permit Condition III.10.J.5., shall be equipped with
9 operational alarms to warn of deviation, or imminent deviation from the limits
10 specified in Permit Table III.10.J.F.
- 11 xiv. The Permittees shall install and test all process and leak detection system
12 monitors/instrumentation as specified in Permit Tables III.10.J.C and III.10.J.F, as
13 approved/modified pursuant to Permit Condition III.10.J.5, in accordance with
14 Attachment 51, Appendices 10.1, 10.2, and 10.14 of this Permit, as approved
15 pursuant to Permit Conditions III.10.J.5.d.x. and III.10.J.5.f.xvi.
- 16 xv. No dangerous and/or mixed waste shall be treated in the HLW Vitrification System
17 unless the operating conditions, specified under Permit Condition III.10.J.1.c. are
18 complied with.
- 19 xvi. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or
20 other materials in the HLW Vitrification System if these substances could cause the
21 subsystem, subsystem equipment, or the containment system to rupture, leak,
22 corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-
23 303-680(2)]. This condition is not applicable to corrosion of HLW Vitrification
24 System sub-system and sub-system equipment that are expected to be replaced as
25 part of normal operations (e.g., melters).
- 26 xvii. The Permittees shall operate the HLW Vitrification System to prevent spills and
27 overflows using description of controls and practices as required under WAC 173-
28 303-640(5)(b) described in Permit Condition III.10.C.5, and Attachment 51,
29 Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.
30 [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), and
31 WAC 173-303-806(4)(c)(ix)].
- 32 xviii. For routinely non-accessible HLW Vitrification System sub-systems, as specified in
33 Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition
34 III.10.J.5.e.vi., the Permittees shall mark all routinely non-accessible HLW
35 Vitrification System sub-systems access points with labels or signs to identify the
36 waste contained in each HLW Vitrification System sub-system. The label, or sign,
37 must be legible at a distance of at least fifty (50) feet, and must bear a legend which
38 identifies the waste in a manner which adequately warns employees, emergency
39 response personnel, and the public of the major risk(s) associated with the waste
40 being stored or treated in the HLW Vitrification System sub-systems. For the
41 purposes of this permit condition, "routinely non-accessible" means personnel are

- 1 unable to enter these areas while waste is being managed in them [WAC 173-303-
2 640(5)(d), in accordance with WAC 173-303-680(2)].
- 3 xix. For all HLW Vitrification System sub-systems not addressed in Permit Condition
4 III.10.J.1.a.xviii., the Permittees shall mark all these HLW Vitrification System sub-
5 systems holding dangerous and/or mixed waste with labels or signs to identify the
6 waste contained in the HLW Vitrification System sub-systems. The labels, or signs,
7 must be legible at a distance of at least fifty (50) feet, and must bear a legend which
8 identifies the waste in a manner which adequately warns employees, emergency
9 response personnel, and the public of the major risk(s) associated with the waste
10 being stored or treated in the HLW Vitrification System sub-systems [WAC 173-303-
11 640(5)(d), in accordance with WAC 173-303-680(2)].
- 12 xx. The Permittees shall ensure that the containment systems for the HLW Vitrification
13 System sub-systems listed in Permit Tables III.10.J.A. and III.10.J.B, as
14 approved/modified pursuant to Permit Condition III.10.J.5, are free of cracks or gaps
15 to prevent any migration of dangerous and/or mixed waste or accumulated liquid out
16 of the system to the soil, groundwater, or surface water at any time during use of the
17 HLW Vitrification System sub-systems. Any indication that a crack or gap may exist
18 in the containment systems shall be investigated and repaired in accordance with
19 Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit
20 Condition III.10.J.5.e.v. [WAC 173-303-640(4)(b)(i), WAC 173-303-
21 640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-
22 680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].
- 23 xxi. The Permittees must immediately, and safely, remove from service any HLW
24 Vitrification System or secondary containment system which, through an integrity
25 assessment, is found to be "unfit for use" as defined in WAC 173-303-040, following
26 Permit Conditions III.10.J.1.a.xxiii.A. through D., and F. The affected HLW
27 Vitrification System, or secondary containment system, must be either repaired or
28 closed in accordance with Permit Condition III.10.J.1.a.xxiii.E. [WAC 173-303-
29 640(7)(e) and (f), and WAC 173-303-640(8), in accordance with WAC 173-303-
30 680(3)].
- 31 xxii. An impermeable coating, as specified in Attachment 51, Appendices 10.4, 10.5, 10.7,
32 10.9, 10.11, and 10.12 of this Permit, as approved pursuant to Permit Condition
33 III.10.J.5.b.v., shall be maintained for all concrete containment systems and concrete
34 portions of containment systems for each HLW Vitrification System sub-systems
35 listed in Permit Tables III.10.J.A and III.10.J.B as approved/modified pursuant to
36 Permit Condition III.10.J.5 (concrete containment systems that do not have a liner,
37 pursuant to WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2),
38 and have construction joints, shall meet the requirements of WAC 173-303-
39 640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2). The coating shall
40 prevent migration of any dangerous and mixed waste into the concrete. All coatings
41 shall meet the following performance standards:
- 42 A. The coating must seal the containment surface such that no cracks, seams, or
43 other avenues through which liquid could migrate, are present;

- 1 B. The coating must be of adequate thickness and strength to withstand the normal
2 operation of equipment and personnel within the given area such that
3 degradation or physical damage to the coating or lining can be identified and
4 remedied before dangerous and mixed waste could migrate from the system; and
- 5 C. The coating must be compatible with the dangerous and mixed waste, treatment
6 reagents, or other materials managed in the containment system [WAC 173-303-
7 640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC
8 173-303-806(4)(i)(A)].

9 xxiii. The Permittees shall inspect all containment systems for the HLW Vitrification
10 System sub-systems listed in Permit Tables III.10.J.A and III.10.J.B, as
11 approved/modified pursuant to Permit Condition III.10.J.5., in accordance with the
12 Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as
13 approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c., and take the
14 following actions if a leak or spill of dangerous and/or mixed waste is detected in
15 these containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in
16 accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-
17 303-806(4)(i)(B)]:

- 18 A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the
19 HLW Vitrification System sub-systems or secondary containment system.
- 20 B. Determine the source of the dangerous and/or mixed waste.
- 21 C. Remove the dangerous and/or mixed waste from the containment area in
22 accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-
23 640(7)(b). The dangerous and/or mixed waste removed from containment areas
24 of the HLW Vitrification System sub-systems shall be, as a minimum, managed
25 as mixed waste.
- 26 D. If the cause of the release was a spill has not damaged the integrity of the HLW
27 Vitrification System sub-system, the Permittees may return the HLW
28 Vitrification System sub-system to service in accordance with WAC 173-303-
29 680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such case, the
30 Permittees shall take action to ensure the incident that caused the dangerous
31 and/or mixed waste to enter the containment system will not re-occur [WAC
32 173-303-320(3)].
- 33 E. If the source of the dangerous and/or mixed waste is determined to be a leak
34 from the primary HLW Vitrification System into the secondary containment
35 system, or the system is unfit for use as determined through an integrity
36 assessment or other inspection, the Permittees shall comply with the
37 requirements of WAC 173-303-640(7) and take the following actions:
 - 38 1. Close the HLW Vitrification System Sub-system following procedures in
39 WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and
40 Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit
41 Condition III.10.C.8., or

- 1 2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as
2 modified pursuant to Permit Condition III.10.J.1.a.iii.) the HLW
3 Vitrification System in accordance with Attachment 51, Appendix 10.18 of
4 this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v., before
5 the HLW Vitrification System is placed back into service [WAC 173-303-
6 640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-
7 303-680].
- 8 F. The Permittees shall document, in the WTP Unit operating record,
9 actions/procedures taken to comply with A. through E. above, as specified in
10 WAC 173-303-640(6)(d), in accordance with WAC 173-303-680(2) and (3).
- 11 G. In accordance with WAC 173-303-680(2) and WAC 173-303-680 (3), the
12 Permittees shall notify and report releases to the environment to Ecology, as
13 specified in WAC 173-303-640(7)(d).
- 14 xxiv. If liquids (e.g., dangerous and/or mixed waste leaks and spills, precipitation, fire
15 water, liquids from damaged or broken pipes) cannot be removed from the secondary
16 containment system within twenty-four (24) hours, Ecology will be verbally notified
17 within twenty-four (24) hours of discovery. The notification shall provide the
18 information in A, B, and C, listed below. The Permittees shall provide Ecology with
19 a written demonstration within seven (7) business days, identifying at a minimum
20 [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with
21 WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:
- 22 A. Reasons for delayed removal;
- 23 B. Measures implemented to ensure continued protection of human health and the
24 environment;
- 25 C. Current actions being taken to remove liquids from secondary containment.
- 26 xxv. All air pollution control devices and capture systems in the HLW Vitrification
27 System shall be maintained and operated at all times in a manner so as to minimize
28 the emissions of air contaminants and to minimize process upsets. Procedures for
29 ensuring that the air pollution control devices and capture systems in the HLW
30 Vitrification System are properly operated and maintained so as to minimize the
31 emission of air contaminants and process upsets shall be established.
- 32 xxvi. In all future narrative permit submittals, the Permittees shall include HLW
33 Vitrification sub-system names with the sub-system designation.
- 34 xxvii. Modifications to approved design, plans, and specifications in Attachment 51 of this
35 Permit for the HLW Vitrification System shall be allowed only in accordance with
36 Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d., e., and h.
- 37 xxviii. For any portion of the HLW Vitrification System that has the potential for formation
38 and accumulation of hydrogen gases, the Permittees shall operate the portion to
39 maintain hydrogen levels below the lower explosive limit [WAC 173-303-
40 815(2)(b)(i)].

- 1 xxix. For each HLW Vitrification System sub-system holding dangerous waste which are
2 acutely or chronically toxic by inhalation, the Permittees shall operate the system to
3 prevent escape of vapors, fumes or other emissions into the air [WAC 173-303-
4 806(4)(i)(i)(B) and WAC 173-303-640(5)(e) in accordance with WAC 173-303-680].

5 **III.10.J.1.b. Performance Standards**

- 6 i. The HLW Vitrification System must achieve a destruction and removal efficiency
7 (DRE) of 99.99% for the principal organic dangerous constituents (PODCs) listed
8 below [40 CFR §63.1203(c)(1) and 40CFR 63.1203(c)(2), in accordance with WAC
9 173-303-680(2)].

10 RESERVED

11 DRE in this this Permit condition shall be calculated in accordance with the formula
12 given below:

13
$$DRE = [1 - (W_{out}/W_{in})] \times 100\%$$

14 Where:

15 W_{in} = mass feedrate of one principal organic dangerous constituent (PODC) in a
16 waste feedstream; and

17 W_{out} = mass emission rate of the same PODC present in exhaust emissions prior to
18 release to the atmosphere.

- 19 ii. Particulate matter emissions from the HLW Vitrification System shall not exceed 34
20 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-
21 303-680(2)];
- 22 iii. Hydrochloric acid and chlorine gas emissions from the HLW Vitrification System shall
23 not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC
24 173-303-680(2)];
- 25 iv. Dioxin and Furan TEQ emissions from the HLW Vitrification System shall not exceed
26 0.2 nanograms (ng)/dscm [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-
27 680(2)];
- 28 v. Mercury emissions from the HLW Vitrification System shall not exceed 45 µg/dscm,
29 [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)].
- 30 vi. Lead and cadmium emissions from the HLW Vitrification System shall not exceed 120
31 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-
32 680(2)].
- 33 vii. Arsenic, beryllium, and chromium emissions from the HLW Vitrification System shall
34 not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC
35 173-303-680(2)].
- 36 viii. Carbon monoxide (CO) emission from the HLW Vitrification System shall not exceed
37 100 parts per million (ppm) by volume, over an hourly rolling average (as measured

1 and recorded by the continuous monitoring system), dry [40 CFR §63.1203(b)(5)(i), in
2 accordance with WAC 173-303-680(2)].

3 ix. Hydrocarbon emission from the HLW Vitrification System shall not exceed 10 parts
4 per million (ppm) by volume, over an hourly rolling average (as measured and recorded
5 by the continuous monitoring system during demonstration testing required by this
6 Permit), dry basis, and reported as propane [40 CFR §63.1203(b)(5)(ii), in accordance
7 with WAC 173-303-680(2)]:

8 x. If the emissions from the HLW Vitrification System exceed the emission rates listed in
9 Permit Table III.10.J.E, as approved pursuant to Permit Condition III.10.C.11.b., the
10 Permittees shall notify Ecology, in accordance with Permit Condition III.10.J.3.d.vii.
11 [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

12 The emission limits specified in Permit Conditions III.10.J.1.b.i. through III.10.J.1.b.x.
13 above, shall be met for the HLW Vitrification System by limiting feed rates as
14 specified in Permit Tables III.10.J.D and III.10.J.F, as approved/modified pursuant to
15 Permit Condition III.10.J.5., compliance with operating conditions specified in Permit
16 Condition III.10.J.1.c. (except as specified in Permit Condition III.10.J.1.b.xii.), and
17 compliance with Permit Condition III.10.J.1.b.xi.

18 xi. Treatment effectiveness, feed-rates and operating rates for dangerous and mixed waste
19 management units contained in the HLW Building, but not included in Permit Table
20 III.10.J.A, as approved/modified pursuant to Permit Condition III.10.J.5., shall be as
21 specified in Permit Sections III.10.D, III.10.E, III.10.F and consistent with assumptions
22 and basis which are reflected in Attachment 51, Appendix 6.3.1 of this Permit, as
23 approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit
24 condition, Attachment 51, Appendix 6.3.1 shall be superceded by Appendix 6.4.1 upon
25 its approval pursuant to either Permit Conditions III.10.C.11.c. or III.10.C.11.d. [WAC
26 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

27 xii. Compliance with the operating conditions specified in Permit Condition III.10.J.1.c.,
28 shall be regarded as compliance with the required performance standards identified in
29 Permit Conditions III.10.J.1.b.i. through x. However, if it is determined that during the
30 effective period of this Permit that compliance with the operating conditions in Permit
31 Condition III.10.J.1.c. is not sufficient to ensure compliance with the performance
32 standards specified in Permit Conditions III.10.J.1.b.i. through x., the Permit may be
33 modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e. and
34 III.10.C.2.f., or III.10.C.2.g.

35 III.10.J.1.c. Operating Conditions [WAC-303-670(6), in accordance with WAC 173-303-680(2)and (3)].

36 The Permittees shall operate the HLW Vitrification System in accordance with Attachment
37 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi., and
38 Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition
39 III.10.J.5.e., and Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to
40 Permit Condition III.10.J.5.f., except as modified pursuant to Permit Conditions
41 III.10.J.1.b.xii., III.10.J.2., III.10.J.3., III.10.J.4., and in accordance with the following:

- 1 i. The Permittees shall operate the HLW Vitrification System in order to maintain the
2 systems and process parameters listed in Permit Tables III.10.J.C and III.10.J.F, as
3 approved/modified pursuant to Permit Condition III.10.J.5., within the set-points
4 specified in Permit Table III.10.J.F.
- 5 ii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.J.F,
6 as approved/modified pursuant to Permit Condition III.10.J.5., to automatically cut-off
7 and/or lock-out the dangerous and mixed waste feed to the HLW Vitrification System
8 when the monitored operating conditions deviate from the set-points specified in
9 Permit Table III.10.J.F.
- 10 iii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.J.F,
11 as approved/modified pursuant to Permit Condition III.10.J.5., to automatically cut-off
12 and/or lock-out the dangerous and mixed waste feed to the HLW Vitrification System
13 when all instruments specified on Permit Table III.10.H.F for measuring the monitored
14 parameters fails or exceeds its span value
- 15 iv. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.J.F,
16 as approved/modified pursuant to Permit Condition III.10.J.5., to automatically cut-off
17 and/or lock out the dangerous and/or mixed waste feed to the HLW Vitrification
18 System when any portion of the HLW Vitrification System is bypassed. The terms
19 "bypassed" and "bypass event" as used in Permit Sections III.10.J and III.10.K shall
20 mean if any portion of the HLW Vitrification System is bypassed so that gases are not
21 treated as during the Demonstration Test.
- 22 v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.J.F,
23 as approved/modified pursuant to Permit Condition III.10.J.5., the Permittees shall
24 immediately, manually cut-off the dangerous and mixed waste feed to the HLW
25 Vitrification System. The Permittees shall not restart the dangerous and/or mixed
26 waste feed until the problem causing the malfunction has been identified and corrected.
- 27 vi. The Permittees shall manually cut-off the dangerous and mixed waste feed to the HLW
28 Vitrification System when the operating conditions deviate from the limits specified in
29 Permit Condition III.10.J.1.c.i., unless the deviation automatically activates the waste
30 feed cut-off sequence specified in Permit Conditions III.10.J.1.c.ii., III.10.J.1.c.iii.,
31 and/or III.10.J.1.c.iv.
- 32 vii. If greater than thirty (30) dangerous and mixed waste feed cut-off, combined, to the
33 HLW Vitrification System occur due to deviations from Permit Table III.10.J.F, as
34 approved/modified pursuant to Permit Condition III.10.J.5., within a sixty (60) day
35 period, the Permittees shall submit a written report to Ecology within five (5) calendar
36 days of the thirty-first exceedance including the information specified below. These
37 dangerous and mixed waste feed cut-offs to the HLW Vitrification System, whether
38 automatically or manually activated, are counted if the specified set-points are deviated
39 from while dangerous waste, mixed waste, and waste residues continue to be processed
40 in the HLW Vitrification System. A cascade event is counted at a frequency of one (1)
41 towards the first waste feed cut-off parameter, specified on Permit Table III.10.J.F,
42 from which the set-point is deviated:

- 1 A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.J.F;
- 2 B. The magnitude, dates, and duration of the deviations;
- 3 C. Results of the investigation of the cause of the deviations; and,
- 4 D. Corrective measures taken to minimize future occurrences of the deviations.
- 5 viii. If any portion of the HLW Vitrification System is bypassed while treating dangerous
6 and/or mixed waste, it shall be regarded as non-compliance with the operating
7 conditions specified in Permit Condition III.10.J.1.c. and the performance standards
8 specified in Permit Condition III.10.J.1.b. After such a bypass event, the Permittees
9 shall perform the following actions:
 - 10 A. Investigate the cause of the bypass event;
 - 11 B. Take appropriate corrective measures to minimize future bypasses;
 - 12 C. Record the investigation findings and corrective measures in the operating record;
13 and
 - 14 D. Submit a written report to Ecology within five (5) days of the bypass event
15 documenting the result of the investigation and corrective measures.
- 16 ix. The Permittees shall control fugitive emissions from the HLW Vitrification System by
17 maintaining the melter under negative pressure.
- 18 x. Compliance with the operating conditions specified in Permit Condition III.10.J.1.c.
19 shall be regarded as compliance with the required performance standards identified in
20 Permit Condition III.10.J.1.b. However, evidence that compliance with these operating
21 conditions is insufficient to ensure compliance with the performance standards, shall
22 justify modification, revocation, or re-issuance of this Permit, in accordance with
23 Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g.

24 III.10.J.1.d. Inspection Requirements [WAC 173-303-680(3)].

- 25 i. The Permittees shall inspect the HLW Vitrification System in accordance with the
26 Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified in
27 accordance with Permit Condition III.10.C.5.c.
- 28 ii. The inspection data for HLW Vitrification System shall be recorded, and the records
29 shall be placed in the WTP Unit operating record for the HLW Vitrification System, in
30 accordance with Permit Condition III.10.C.4.
- 31 iii. The Permittees shall comply with the inspection requirements specified in Attachment
32 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition
33 III.10.J.5.f., and as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2.,
34 III.10.J.3., and III.10.J.4.

35 III.10.J.1.e. Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC -173-303-
36 670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]

- 37 i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling
38 and analysis of the dangerous and mixed waste and exhaust emissions to verify that the

- 1 operating requirements established in the Permit achieve the performance standards
2 delineated in this Permit.
- 3 ii. The Permittees shall comply with the monitoring requirements specified in Attachment
4 51, Appendices 10.2, 10.3, 10.7, 10.13, 10.15, and 10.18 of this Permit, as approved
5 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
6 modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.
- 7 iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and
8 hydrocarbon continuous emission monitors (CEM) specified in this Permit in
9 accordance with Performance Specification 4B and 8A of 40 CFR Part 60, Appendix
10 B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51
11 Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f.,
12 and as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and
13 III.10.J.4.
- 14 iv. The Permittees shall operate, calibrate, and maintain the instruments specified on
15 Permit Tables III.10.J.C and F, as approved/modified pursuant to Permit Condition
16 III.10.J.5., in accordance with Attachment 51, Appendix 10.15 of this Permit, as
17 approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit
18 Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.
- 19 III.10.J.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]
- 20 i. The Permittees shall record and maintain in the WTP Unit operating record for the
21 HLW Vitrification System, all monitoring, calibration, maintenance, test data, and
22 inspection data compiled under the conditions of this Permit, in accordance with Permit
23 Conditions III.10.C.4. and III.10.C.5., as modified by Permit Conditions
24 III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.
- 25 ii. The Permittees shall record in the WTP Unit operating record the date, time, and
26 duration of all automatic waste feed cut-offs and/or lockouts, including the triggering
27 parameters, reason for the deviation, and recurrence of the incident. The Permittees
28 shall also record all incidents of AWFCO system function failures, including the
29 corrective measures taken to correct the condition that caused the failure.
- 30 iii. The Permittees shall submit to Ecology a report semi-annually the first calendar year,
31 and annually thereafter each calendar year within ninety (90) days following the end of
32 the year. The report will include the following information:
- 33 A. Total dangerous and mixed waste feed processing time for the HLW Vitrification
34 System;
- 35 B. Date/Time of all HLW Vitrification System startups and shutdowns;
- 36 C. Date/Time/Duration/Cause/Corrective Action taken for all HLW Vitrification
37 System shutdowns caused by malfunction of either process or control equipment;
38 and

1 D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous
2 and/or mixed waste feed cut-off due to deviations from Permit Table III.10.J.F, as
3 approved/modified pursuant to Permit Condition III.10.J.5.

- 4 iv. The Permittees shall submit an annual report to Ecology each calendar year within
5 ninety (90) days following the end of the year of all quarterly CEM Calibration Error
6 and Annual CEM Performance Specification Tests conducted in accordance with
7 Permit Condition III.10.J.1.e.iii.

8 III.10.J.1.g. Closure

9 The Permittees shall close the HLW Vitrification System in accordance with Attachment 51,
10 Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

11 III.10.J.2. Shakedown Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC -173-303-670(7),
12 and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].

13 III.10.J.2.a. The shakedown period for the HLW Vitrification System shall be conducted in accordance
14 with Permit Condition III.10.J.1., Attachment 51, Appendix 10.15 of this Permit, as
15 approved pursuant to Permit Condition III.10.J.5.f., and as modified in accordance with
16 Permit Conditions III.10.J.1.b.xii., III.10.J.2., and III.10.J.3.

17 III.10.J.2.b. Duration of the Shakedown Period

18 i. The shakedown period for the HLW Vitrification System shall begin with the initial
19 introduction of dangerous waste in the HLW Vitrification System following
20 construction and shall end with the start of the demonstration test.

21 ii. The shakedown period shall not exceed the following limits, as defined by hours of
22 operation of the HLW Vitrification System with dangerous waste. The Permittees may
23 petition Ecology for one (1) extension of each shakedown phase for seven hundred and
24 twenty (720) additional operating hours in accordance with permit modification
25 procedures specified in Permit Conditions III.10.C.2.e. and III.10.C.2.f.

26 Shakedown Phase 1: 720 hours

27 Shakedown Phase 2: 720 hours

28 iii. Shakedown Phase 2 shall not be commenced until documentation has been submitted to
29 Ecology verifying that the HLW Vitrification System has operated at a minimum of
30 75% of the shakedown Phase 1 feed-rate limit for two (2) separate eight (8) consecutive
31 hour periods with no AWFCOs.

32 III.10.J.2.c. Allowable Waste Feed During the Shakedown Period

33 i. The Permittees may feed the dangerous waste specified for the HLW Vitrification
34 System on the Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for
35 those waste outside the waste acceptance criteria specified in the WAP, Attachment 51,
36 Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., except
37 Permit Conditions III.10.J.2.c.ii. through v. also apply.

38 ii. The Permittees shall not feed the following waste to the HLW Vitrification System
39 during Shakedown Phase 1:

- 1 A. Acutely toxic dangerous waste listed in WAC 173-303-081(a)(2)(a)(i).
- 2 B. Mixed waste
- 3 iii. The Permittees shall not feed the following waste to the HLW Vitrification System
4 during Shakedown Phase 2:
- 5 A. Mixed waste
- 6 iv. The feed-rates to the HLW Vitrification System shall not exceed the limits in Permit
7 Tables III.10.J.D and III.10.J.F, as approved/modified pursuant to Permit Condition
8 III.10.J.5.
- 9 v. The Permittees shall conduct sufficient analysis of the dangerous waste treated in the
10 HLW Vitrification System to verify that the waste feed is within the physical and
11 chemical composition limits specified in this Permit.
- 12 III.10.J.3. Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-
13 670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]
- 14 III.10.J.3.a. Demonstration Test Period
- 15 i. The Permittees shall operate, monitor, and maintain the HLW Vitrification System as
16 specified in Permit Condition III.10.J.1., and Attachment 51, Appendix 10.15 of this
17 Permit, as approved pursuant to Permit Condition III.10.J.5.f., except as modified in
18 accordance with Permit Conditions III.10.J.1.b.xii. and III.10.J.3.
- 19 ii. Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit
20 Condition III.10.J.5.f., shall be re-submitted to Ecology for approval by the Permittees
21 as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f. at
22 least one hundred and eighty (180) days prior to the start date of the demonstration test.
23 The revised Demonstration Test Plan shall include applicable EPA promulgated test
24 methods and procedures in effect at the time of the re-submittal and projected
25 commencement and completion dates for the Demonstration Test.
- 26 iii. The Permittees shall not commence the demonstration test period until documentation
27 has been submitted to Ecology verifying that the HLW Vitrification System has
28 operated at a minimum of 90% of the demonstration test period feed-rate limit for a
29 minimum of an eight (8) consecutive hours period on two (2) consecutive days.
- 30 III.10.J.3.b. Performance Standards
- 31 The Permittees shall demonstrate compliance with the performance standards specified in
32 Permit Condition III.10.J.1.b. during the Demonstration Test Period.
- 33 III.10.J.3.c. Allowable Waste Feed During the Demonstration Test Period
- 34 i. The Permittees may feed the dangerous waste specified for the HLW Vitrification
35 System in Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for those
36 waste outside the waste acceptance criteria specified in the WAP, Attachment 51,
37 Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., except
38 Permit Conditions III.10.J.3.c.ii. through iv. also apply.

- 1 ii. The Permittees shall not feed mixed waste to the HLW Vitrification System.
- 2 iv. The dangerous waste feed-rates to the HLW Vitrification System shall not exceed the
- 3 limits in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit
- 4 Condition III.10.J.5.
- 5 v. The Permittees shall conduct sufficient analysis of the dangerous waste treated in the
- 6 HLW Vitrification System to verify that the dangerous waste is within the physical and
- 7 chemical composition limits specified in this Permit.

8 III.10.J.3.d. Demonstration Data Submissions and Certifications

- 9 i. The Permittees shall submit a summary of data collected as required during the
- 10 Demonstration Test to Ecology upon completion of the Demonstration Test. The
- 11 Permittees shall submit to Ecology a complete demonstration test report within one
- 12 hundred and twenty (120) calendar days of completion of the Demonstration Test
- 13 including all data collected during the Demonstration Test and updated Permit Tables
- 14 III.10.K.D, III.10.K.E, and III.10.K.F.
- 15 ii. The Permittees must submit to Ecology a certification that the Demonstration Test has
- 16 been carried out in accordance with the approved Demonstration Test Plan and
- 17 approved modifications within thirty (30) days of the completion of the Demonstration
- 18 Test [WAC 173-303-807(8)].
- 19 iii. After successful completion of the Demonstration Test, the Permittees shall be
- 20 authorized to commence feed of dangerous waste and mixed waste to the HLW
- 21 Vitrification System - up to 50% of the maximum feed-rates for the post-demonstration
- 22 test period indicated in Permit Tables III.10.J.D and F, as approved/modified pursuant
- 23 to Permit Condition III.10.J.5., in compliance with the operating requirements specified
- 24 in Permit Condition III.10.J.1.c.
- 25 iv. After successful completion of the Demonstration Test, Permittees submittal of the
- 26 following to Ecology, and the Permittees receipt of Ecology approval of the following
- 27 in writing, the Permittees shall be authorized to commence dangerous waste and mixed
- 28 waste to the HLW Vitrification System up to 75% of the maximum feed-rates for the
- 29 post-demonstration test period indicated in Permit Tables III.10.J.D and F, as
- 30 approved/modified pursuant to Permit Condition III.10.J.5., in compliance with the
- 31 operating requirements specified in Permit Condition III.10.J.1.c.:
 - 32 A. Calculations and analytical data showing compliance with the performance
 - 33 standard specified in Permit Condition III.10.J.1.b.i.
- 34 v. After successful completion of the Demonstration Test, Permittees submittal of the
- 35 following to Ecology, and Permittees receipt of Ecology approval of the following in
- 36 writing, the Permittees shall be authorized to feed dangerous waste and mixed waste to
- 37 the HLW Vitrification System pursuant to Permit Section III.10.K.
 - 38 A. A complete Demonstration Test Report for the HLW Vitrification System and
 - 39 updated Permit Tables III.10.K.D, III.10.K.E, and III.10.K.F, as
 - 40 approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.C.11.c. or

- 1 III.10.C.11.d., the test report shall be certified in accordance with WAC 173-303-
2 807(8), in accordance with WAC 173-303-680(2) and (3).
- 3 B. A Final Risk Assessment Report completed pursuant to Permit Conditions
4 III.10.C.11.c. or III.10.C.11.d.
- 5 vi. If any calculations or testing results show that one or more of the performance
6 standards listed in Permit Condition III.10.J.1.b., with the exception of Permit
7 Condition III.10.J.1.b.x., for the HLW Vitrification System were not met during the
8 Demonstration Test, the Permittees shall perform the following actions:
- 9 A. Immediately stop dangerous and mixed waste feed to the HLW Vitrification
10 System under the mode of operation that resulted in not meeting the performance
11 standard(s).
- 12 B. Verbally notify Ecology within twenty-four (24) hours of discovery of not
13 meeting the performance standard(s) as specified in Permit Condition I.E.21.
- 14 C. Investigate the cause of the failure and submit a report of the investigation
15 findings to Ecology within fifteen (15) days of discovery of not meeting the
16 performance standard(s).
- 17 D. Submit to Ecology within fifteen (15) days of discovery of not meeting the
18 performance standard(s), documentation supporting a mode of operation where all
19 performance standards listed in Permit Condition III.10.J.1.b., with the exception
20 of Permit Condition III.10.J.1.b.x., for the HLW Vitrification System were met
21 during the demonstration test, if any such mode was demonstrated.
- 22 E. Based on the information provided to Ecology by the Permittees, pursuant to
23 Permit Conditions III.10.J.3.d.vi.A through D above, and any additional
24 information, Ecology may submit, in writing, direction to the Permittees to stop
25 dangerous and/or mixed waste feed to the LAW Vitrification System and/or
26 amend the mode of operation the Permittees are allowed to continue operations
27 prior to Ecology approval of a compliance schedule and/or revised Demonstration
28 Test Plan, pursuant to Permit Conditions III.10.J.3.d.vi.F and G.
- 29 F. If the performance standard listed in Permit Condition III.10.J.1.b.i. was not met
30 during the Demonstration Test, the Permittees shall submit within one hundred
31 and twenty (120) days of discovery of not meeting the performance standard, a
32 revised Demonstration Test Plan (if appropriate) and a compliance schedule for
33 Ecology approval to address this deficiency. If a revised Demonstration Test Plan
34 is submitted, it shall be accompanied by a request for approval to retest as a permit
35 modification pursuant to Permit Conditions II.10.C.2.e. and III.10.C.2.f. The
36 revised Demonstration Test Plan (if submitted) must include substantive changes
37 to prevent failure from reoccurring.
- 38 G. If any of the performance standards listed in Permit Condition III.10.J.1.b., with
39 the exception of Permit Conditions III.10.J.1.b.i. or III.10.J.1.b.x., were not met
40 during the Demonstration Test, the Permittees shall submit to Ecology within one
41 hundred and twenty (120) days of discovery of not meeting the performance

1 standard(s), a revised Demonstration Test Plan requesting approval to retest as a
2 permit modification pursuant to Permit Conditions II.10.C.2.e. and III.10.C.2.f.
3 The revised Demonstration Test Plan must include substantive changes to prevent
4 failure from reoccurring.

5 vii. If any calculations or testing results show that any emission rate for any constituent
6 listed in Permit Table III.10.J.E, as approved pursuant to Permit Condition
7 III.10.C.11.b., is exceeded for HLW Vitrification System during the Demonstration
8 Test, the Permittees shall perform the following actions:

9 A. Verbally notify Ecology within twenty-four (24) hours of the discovery of
10 exceeding the emission rate(s) as specified in Permit Condition I.E.21.

11 B. Submit to Ecology additional risk information to indicate that the increased
12 emissions impact is offset by decreased emission impact from one or more
13 constituents expected to be emitted at the same time, and/or investigate the cause
14 and impact of the exceedance of the emission rate(s) and submit a report of the
15 investigation findings to Ecology within fifteen (15) days of the discovery of
16 exceeding the emission rate(s); and,

17 C. Based on the notification and any additional information, Ecology may submit, in
18 writing, direction to the Permittees to stop dangerous and/or mixed waste feed to
19 the HLW Vitrification System and/or to submit a revised Demonstration Test Plan
20 as a permit modification pursuant to Permit Conditions III.10.C.2.e. and
21 III.10.C.2.f., or III.10.C.2.g. The revised Demonstration Test Plan must include
22 substantive changes to prevent failure from reoccurring.

23 III.10.J.4. Post-Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), and WAC
24 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].

25 III.10.J.4.a. The Permittees shall operate, monitor, and maintain the HLW Vitrification System as
26 specified in Permit Condition III.10.J.1. and Attachment 51, Appendix 10.15 of this Permit,
27 as approved pursuant to Permit Condition III.10.J.5., except as modified in accordance with
28 Permit Conditions III.10.J.1.b.xii., III.10.J.3., and III.10.J.4.

29 III.10.J.4.b. Allowable Waste Feed During the Post-Demonstration Test Period

30 i. The Permittees may feed the dangerous and/or mixed waste specified for the HLW
31 Vitrification System on the Part A Forms (Attachment 51, Chapter 1.0 of this Permit),
32 except for those waste outside the waste acceptance criteria specified in the WAP,
33 Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition
34 III.10.C.3., and except Permit Conditions III.10.J.4.b.ii. and III.10.J.4.b.iii. also apply.

35 ii. The dangerous waste and mixed waste feed rates to the HLW Vitrification System shall
36 not exceed the limits in Permit Tables III.10.J.D and F, as approved/modified pursuant
37 to Permit Condition III.10.J.5., or in Permit Condition III.10.J.3.

38 iii. The Permittees shall conduct sufficient analysis of the dangerous waste and mixed
39 waste treated in HLW Vitrification System to verify that the waste feed is within the
40 physical and chemical composition limits specified in this Permit.

1 III.10.J.5. Compliance Schedules

2 III.10.J.5.a. All information identified for submittal to Ecology in a. through f. of this compliance
3 schedule must be signed and certified in accordance with requirements in WAC 173-303-
4 810(12), as modified in accordance with Permit Condition III.10.J.1.a.iii. [WAC 173-303-
5 806(4)].

6 III.10.J.5.b. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to
7 construction of each secondary containment and leak detection system for the HLW
8 Vitrification System (per level) as identified in Permit Tables III.10.J.A and III.10.J.B,
9 engineering information as specified below, for incorporation into Attachment 51,
10 Appendices 10.2, 10.4, 10.5, 10.7, 10.8, 10.9, 10.11, and 10.12 of this Permit. At a
11 minimum, engineering information specified below will show the following as described in
12 WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below
13 will include dimensioned engineering drawings and information on sumps and floor drains):

- 14 i. IQRPE Reports (specific to foundation, secondary containment, and leak detection
15 system) shall include review of design drawings, calculations, and other information on
16 which the certification report is based and shall include, but not limited to, review of
17 such information described below. Information (drawings, specifications, etc.) already
18 included in Attachment 51, Appendix 10.0 of this Permit, may be included in the report
19 by reference and should include drawing and document numbers. IQRPE Reports shall
20 be consistent with the information separately provided in ii. through ix. below [WAC
21 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-
22 806(4)(i)(i)];
- 23 ii. Design drawings (General Arrangement Drawings, plan and cross sections) and
24 specifications for the foundation, secondary containment including liner installation
25 details, and leak detection methodology. These items should show the dimensions,
26 volume calculations, and location of the secondary containment system, and should
27 include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-
28 640(4)(b) through (f) and WAC 173-303-640(3)(a), in accordance with WAC 173-303-
29 680 and WAC 173-303-806(4)(i)(i)];
- 30 iii. The Permittees shall provide the design criteria (references to codes and standards, load
31 definitions, and load combinations, materials of construction, and analysis/design
32 methodology) and typical design details for the support of the secondary containment
33 system. This information shall demonstrate the foundation will be capable of providing
34 support to the secondary containment system, resistance to pressure gradients above
35 and below the system, and capable of preventing failure due to settlement,
36 compression, or uplift [WAC 173-303-640(4)(c)(ii), in accordance with WAC 173-
37 303-680(2) and WAC 173-303-806(4)(i)(i)(B)];
- 38 iv. A description of materials and equipment used to provide corrosion protection for
39 external metal components in contact with soil, including factors affecting the potential
40 for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680
41 and WAC 173-303-806(4)(i)(i)(A) through (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)];
- 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);
- 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;
- 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)];
- 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 shall 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 Attachment 51, 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):

- i. IQRPE Reports (specific to sub-system) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 10.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall 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)];
- ii. Design drawings [General Arrangement Drawings in plan and cross section, 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. 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

1 specific to off-specification, non-standard, and field-fabricated subsystems shall be
2 submitted for incorporation into the Administrative Record. Documentation shall
3 include, but not be limited to, supporting specifications (test data, treatment
4 effectiveness report, etc.), supporting projected operational capability (e.g., WESP
5 projected removal efficiency for individual metals, halogens, particulates, etc.), and
6 compliance with performance standards specified in Permit Condition III.10.J.1.b
7 [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-
8 303-806(4)(i)(i)(B)];

- 9 iv. A description of materials and equipment used to provide corrosion protection for
10 external metal components in contact with water, including factors affecting the
11 potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-
12 303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];
- 13 v. Sub-system materials selection documentation (e.g., physical and chemical tolerances)
14 [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-
15 303-806(4)(i)(i)(A)];
- 16 vi. Sub-system vendor information (including, but not limited to, required performance
17 warranties, as available), consistent with information submitted under ii. above, shall
18 be submitted for incorporation into the Administrative Record [WAC 173-303-
19 640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A)
20 through (B), and WAC 173-303-806(4)(i)(v)];
- 21 vii. System descriptions (process) related to sub-system units shall be submitted for
22 incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-
23 806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];
- 24 viii. Mass and energy balance for normal projected operating conditions used in developing
25 the Piping and Instrumentation Diagrams and Process Flow Diagrams, including
26 assumptions and formulas used to complete the mass and energy balance, so that they
27 can be independently verified for incorporation into the Administrative Record [WAC
28 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];
- 29 ix. Detailed description of all potential HLW Vitrification System bypass events including:
- 30 A. A report which includes an analysis of credible potential bypass events and
31 recommendations for prevention/minimization of the potential, impact, and
32 frequency of the bypass event to include at a minimum:
- 33 1. Operating procedures
 - 34 2. Maintenance procedures
 - 35 3. Redundant equipment
 - 36 4. Redundant instrumentation
 - 37 5. Alternate equipment
 - 38 6. Alternate materials of construction

- 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);
- 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)];
- 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 shall 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 Attachment 51, 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):

- i. IQRPE Reports (specific to sub-system equipment) shall include a review of design drawings, calculations, and other information as applicable on which the certification report is based. The reports shall include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 10.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall 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)];
- 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. 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)];
- 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

1 the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC
2 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

- 3 v. Materials selection documentation for equipment for each sub-system (e.g., physical
4 and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-
5 680(2) and WAC 173-303-806(4)(i)(i)(A)];
- 6 vi. Vendor information (including, but not limited to, required performance warranties, as
7 available), consistent with information submitted under ii. above, for sub-system
8 equipment shall for equipment shall be submitted for incorporation into the
9 Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-
10 680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(iv)];
- 11 vii. Sub-system, sub-system equipment, and leak detection system instrument control logic
12 narrative description (e.g., software functional specifications, descriptions of fail-safe
13 conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-
14 303-806(4)(i)(v)];
- 15 viii. System description (process) related to sub-system equipment, and system descriptions
16 related to leak detection systems, (including instrument control logic and narrative
17 descriptions), for incorporation into the Administrative Record [WAC 173-303-680,
18 WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];
- 19 ix. A detailed description of how the sub-system equipment will be installed and tested
20 [WAC 173-303-640(3)(c) through (e) and WAC 173-303-640(4)(b) and (c), in
21 accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];
- 22 x. For process monitoring, control, and leak detection system instrumentation for the
23 HLW Vitrification System as identified in Permit Tables III.10.J.C. and III.10.J. F., a
24 detailed description of how the process monitoring, control, and leak detection system
25 instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e),
26 WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-303-
27 806(4)(i)(i)(B)];
- 28 xi. Mass and energy balance for projected normal operating conditions used in developing
29 the Piping and Instrumentation Diagrams and Process Flow Diagrams, including
30 assumptions and formulas used to complete the mass and energy balance, so that they
31 can be independently verified, for incorporation into the Administrative Record [WAC
32 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];
- 33 xii. Documentation that sub-systems equipment are designed to prevent the accumulation
34 of hydrogen gas levels above the lower explosive limit into the Administrative Record
35 [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)]
36 [WAC 173-303-815(2)(b)(ii)];
- 37 xiii. Leak Detection system documentation (e.g. vendor information etc.) consistent with
38 information submitted under Permit Condition III.10.J.5.c.ii. and Permit Conditions
39 III.10.J.5.d.ii., vii., viii., and x. above, shall be submitted for incorporation into the
40 Administrative Record.

- 1 III.10.J.5.e. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees
2 shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., the following as
3 specified below for incorporation into Attachment 51, Appendix 10.18 of this Permit, except
4 Permit Condition III.10.J.5.e.i., which will be incorporated into Attachment 51, Chapter 6.0
5 of this Permit. All information provided under this permit condition must be consistent with
6 information provided pursuant to Permit Conditions III.10.J.5.b., c., d., e., and f.,
7 III.10.C.3.e.v., and III.10.C.11.b., as approved by Ecology:
- 8 i. Integrity assessment program and schedule for the HLW Vitrification System shall
9 address the conducting of periodic integrity assessments on the HLW Vitrification
10 System over the life of the system, as specified in Permit Condition III.10.J.5.b.ix. and
11 as specified in WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and
12 descriptions of procedures for addressing problems detected during integrity
13 assessments. The schedule must be based on past integrity assessments, age of the
14 system, materials of construction, characteristics of the waste, and any other relevant
15 factors [WAC 173-303-640(3)(b), in accordance with WAC 173-303-680 and WAC
16 173-303-806(4)(i)(B)];
 - 17 ii. Detailed plans and descriptions, demonstrating the leak detection system is operated so
18 that it will detect the failure of either the primary or secondary containment structure or
19 the presence of any release of dangerous and/or mixed waste or accumulated liquid in
20 the secondary containment system within twenty-four (24) hours [WAC 173-303-
21 640(4)(c)(iii)]. Detection of a leak of at least 0.1 gallons per hour within twenty-four
22 (24) hours is defined as being able to detect a leak within twenty-four (24) hours. Any
23 exceptions to this criteria must be approved by Ecology in accordance with WAC 173-
24 303-680, WAC 173-303-640(4)(c)(iii), and WAC 173-303-806(4)(i)(b);
 - 25 iii. Detailed operational plans and descriptions, demonstrating that spilled or leaked waste
26 and accumulated precipitation liquids can be removed from the secondary containment
27 system within twenty-four (24) hours [WAC 173-303-806(4)(i)(B)];
 - 28 iv. Descriptions of operational procedures demonstrating appropriate controls and
29 practices are in place to prevent spills and overflows from the HLW Vitrification
30 System or containment systems in compliance with WAC 173-303-640(5)(b)(i)
31 through (iii), in accordance with WAC 173-303-680 and WAC 173-303-
32 806(4)(i)(B);
 - 33 v. Description of procedures for investigation and repair of the HLW Vitrification System
34 [WAC 173-303-640(6) and WAC 173-303-640(7)(e) and (f), in accordance with WAC
35 173-303-680, WAC 173-303-320, WAC 173-303-806(4)(ia)(iv), and WAC 173-303-
36 806(4)(a)(ii)(B)];
 - 37 vi. Updated Chapter 4.0, Narrative Description, Tables and Figures as identified in Permit
38 Tables III.10.J.A and III.10.J.B, as modified pursuant to Permit Condition
39 III.10.H.5.e.x. and updated to identify routinely non-accessible LAW Vitrification sub-
40 systems.

- 1 vii. Description of procedures for management of ignitable and reactive, and incompatible
2 dangerous and/or mixed waste as specified in accordance with WAC 173-303-640(9)
3 and (10), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(B).
- 4 viii. A description of the tracking system used to track dangerous and/or mixed waste
5 generated throughout the HLW Vitrification System, pursuant to WAC 173-303-380.
- 6 ix. Permit Table III.10.J.C and III.10.K.C shall be completed for HLW Vitrification
7 System process and leak detection system monitors and instruments (to include, but not
8 be limited to: instruments and monitors measuring and/or controlling flow, pressure,
9 temperature, density, pH, level, humidity, and emissions) to provide the information as
10 specified in each column heading. Process and leak detection system monitors and
11 instruments for critical systems, as specified in Attachment 51, Appendix 2.0 and as
12 updated pursuant to Permit Condition III.10.C.9.b.and for operating parameters as
13 required to comply with Permit Condition III.10.C.3.e.iii., shall be addressed. Process
14 monitors and instruments for non-waste management operations (e.g., utilities, raw
15 chemical storage, non-contact cooling waters, etc.) are excluded from this permit
16 condition [WAC 173-303-680, WAC 173-303-806(4)(i)(A) through (B), and WAC
17 173-303-806(4)(i)(v)];
- 18 x. Permit Tables III.10.J.A and III.10.K.A amended as follows [WAC 173-303-680 and
19 WAC 173-303-806(4)(i)(A) through (B)]:
- 20 A. Under column 1, update and complete list of dangerous and mixed waste HLW
21 Vitrification System sub-systems, including plant items that comprise each system
22 (listed by item number).
- 23 B. Under column 2, update and complete system designations.
- 24 C. Under column 3, replace the 'Reserved' with Attachment 51, Appendix 10.0 sub-
25 sections (e.g., 10.1, 10.2, etc.) designated in Permit Conditions III.10.J.5.b., c., and
26 d. specific to HLW Vitrification System sub-system, as listed in column 1.
- 27 D. Under column 4, update and complete list of narrative description, tables, and
28 figures.

29 III.10.J.5.f. One hundred and eighty (180) days prior to initial receipt of dangerous and/or mixed waste
30 in the WTP Unit, the Permittees shall submit for review and receive approval for
31 incorporation into Attachment 51, Appendix 10.15 of this Permit, a Demonstration Test Plan
32 for the HLW Vitrification System to demonstrate that the HLW Vitrification Systems meets
33 the performance standards specified in Permit Condition III.10.J.1.b. In order to incorporate
34 the Demonstration Test Plan for the HLW Vitrification System into Attachment 51,
35 Appendix 10.15, Permit Condition III.10.C.2.g. process will be followed. The
36 Demonstration Test Plan shall include, but not be limited to, the following information. The
37 Demonstration Test Plan shall also be consistent with the information provided pursuant to
38 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
39 by Ecology and consistent with the schedule described in Attachment 51, Appendix 1.0 of
40 this Permit. The documentation required pursuant to Permit Condition III.10.J.5.f.xvi., in

1 addition to being incorporated into Attachment 51, Appendix 10.15, shall be incorporated by
2 reference in Attachment 51, Chapter 6.0 of this Permit.

3 *Notes: (1) The following should be consulted to prepare this Demonstration Test Plan:*
4 *"Guidance on Setting Permit Conditions and Reporting Trial Burn Results Volume II of the*
5 *Hazardous Waste Incineration Guidance Series", and EPA/625/6-89/019 and Risk Burn*
6 *Guidance For Hazardous Waste Combustion Facilities", EPA-R-01-001, July 2001, WAC*
7 *173-303-807(2), WAC 173-303-670(5), WAC-173-303-670(6), 40 CFR §63.1207(f)(2), 40*
8 *CFR §63.1209 and Appendix to 40 CFR Part 63 EEE.*

9 *(2) Cross-referencing to the information provided pursuant to permit Conditions III.H.5.b.,*
10 *c., d., e. and III.10.C.3.e.v., as approved by Ecology, that are redundant to elements of the*
11 *Demonstration Test Plan for the HLW Vitrification System is acceptable.*

- 12 i. Analysis of each feed-stream to be fed during the demonstration test, including
13 dangerous waste, glass formers and reductants, process streams (e.g., control air,
14 process air, steam, sparge bubbler air, air in-leakage from melter cave, and gases from
15 HLW Vitrification Vessel Ventilation System, process water, etc.) that includes:
- 16 A. Levels of ash, levels of metals, total chlorine (organic and inorganic), other
17 halogens and radionuclide surrogates.
- 18 B. Description of the physical form of the feed-streams;
- 19 C. An identification and quantification of organics that are present in the feed-stream,
20 including constituents proposed for DRE demonstration;
- 21 A comparison of the proposed demonstration test feed streams to the mixed waste feed
22 envelopes to be processed in the melter must be provided that documents that the
23 proposed demonstration test feed streams will serve as worst case surrogates for
24 organic destruction, formation of products of incomplete oxidation, and metals, total
25 chlorine (organic and inorganic), other halogens, particulate formation, and
26 radionuclides;
- 27 ii. Specification of trial principal organic dangerous constituents (PODCs) for which
28 destruction and removal efficiencies are proposed to be calculated during the
29 demonstration test and for inclusion in Permit Conditions III.10.J.1.b.i. and
30 III.10.K.1.b.i. These trial PODCs shall be specified based on destructibility,
31 concentration or mass in the waste and the dangerous waste constituents or constituents
32 in WAC 173-303-9905;
- 33 iii. A description of the blending procedures, prior to introducing the feed-streams into the
34 melter, including analysis of the materials prior to blending, and blending ratios;
- 35 iv. A description of how the surrogate feeds are to be introduced for the demonstration.
36 This description should clearly identify the differences and justify how any of
37 differences would impact the surrogate feed introduction as representative of how
38 mixed waste feeds will be introduced;
- 39 v. A detailed engineering description of the HLW Vitrification System, including:
- 40 A. Manufacturer's name and model number for each sub-system;

- 1 B. Design capacity of each sub-system including documentation (engineering
2 calculations, manufacturer/vendor specifications, operating data, etc.) supporting
3 projected operational efficiencies (e.g., WESP projected removal efficiency for
4 individual metals, halogens, particulates, etc.) and compliance with performance
5 standards specified in Permit Condition III.10.J.1.b.;
- 6 C. Detailed scaled engineering drawings, including Process Flow Diagrams, Piping
7 and Instrumentation Diagrams, Vessel Drawings (plan, and elevation with cross
8 sections) and General Arrangement Drawings;
- 9 D. Process Engineering Descriptions;
- 10 E. Mass and energy balances for each projected operating condition and each
11 demonstration test condition, including assumptions and formulas used to
12 complete mass and energy balances so that they can be independently verified for
13 incorporation into the Administrative Record;
- 14 F. Engineering Specifications/data sheets (materials of construction, physical and
15 chemical tolerances of equipment, equipment performance warranties, and fan
16 curves);
- 17 G. Detailed Description of Automatic Waste Feed Cut-off System addressing critical
18 operating parameters for all performance standards specified in Permit Condition
19 III.10.J.1.b.
- 20 H. Documentation to support compliance with performance standards specified in
21 Permit Condition III.10.J.1.b., including engineering calculations, test data, and
22 manufacturer/vendor's warranties, etc.
- 23 I. Detailed description of the design, operation and maintenance practices for air
24 pollution control system.
- 25 J. Detailed description of the design, operation, and maintenance practices of any
26 stack gas monitoring and pollution control monitoring system.
- 27 K. Documentation based on current WTP Unit design either confirming the
28 Permittees' demonstration that it is not technically appropriate to correct standards
29 listed in Permit Conditions III.J.1.b.ii. through III.J.1.b.ix. to seven percent (7%)
30 oxygen, or a request, pursuant to Permit Conditions III.10.C.9.e. and II.10.C.9.f.,
31 to update Permit Conditions III.J.1.b.ii. through III.J.1.b.ix., III.K.b.ii. through
32 III.K.b.ix., III.K.e.iii., and III.J.1.e.iii., Permit Tables III.10.J.C, III.10.J.F,
33 III.10.K.C., III.10.K.F. and Attachment 51, Appendix 10.0 to reflect the addition of
34 an oxygen monitor and the correction of the standards to seven percent (7%)
35 oxygen.
- 36 vi. Detailed description of sampling and monitoring procedures including sampling and
37 monitoring locations in the system, the equipment to be used, sampling and monitoring
38 frequency, and planned analytical procedures for sample analysis including, but not
39 limited to:

- 1 A. A short summary narrative description of each stack sample method should be
2 included within the main body of the demonstration test plan, which references an
3 appendix to the plan that would include for each sampling train: (1) detailed
4 sample method procedures, (2) sampling train configuration schematic, (3)
5 sampling recovery flow sheet, (4) detailed analytical method procedures, and (5)
6 sampling preparation and analysis flow sheet. The detailed procedures should
7 clearly flag where the method has provided decision points (e.g., choices of
8 equipment materials of construction, choices of clean-up procedures or whether
9 additional clean-up procedures will be incorporated, whether pretest surveys or
10 laboratory validation work will be performed, enhancements to train to
11 accommodate high moisture content in stack gas, etc.) and what is being proposed
12 along with the basis for the decision.
- 13 B. A short summary narrative description of the feed and residue sampling methods
14 should be included within the main body of the demonstration test plan, which
15 references an appendix that would include for each sample type: (1) detailed
16 sample method procedures, (2) sampling recovery/compositing procedures, and
17 (3) detailed analytical method procedures. The detailed procedures should clearly
18 flag where the method has provided decision points (e.g., choices of equipment
19 materials of construction, choices of clean-up procedures or whether additional
20 clean-up procedures will be incorporated, whether pretest surveys or laboratory
21 validation work will be performed, etc.) and what is being proposed along with the
22 basis for the decision.
- 23 vii. A detailed test schedule for each condition for which the demonstration test is planned,
24 including projected date(s), duration, quantity of dangerous waste to be fed, and other
25 relevant factors;
- 26 viii. A detailed test protocol including, for each test condition, the ranges of feed-rate for
27 each feed system, and all other relevant parameters that may affect the ability of the
28 HLW Vitrification System to meet performance standards specified in Permit
29 Condition III.10.J.1.b.;
- 30 ix. A detailed description of planned operating conditions for each demonstration test
31 condition, including operating conditions for shakedown, demonstration test, post-
32 demonstration test and normal operations. This information shall also include
33 submittal of Permit Tables III.10.J.D, III.10.J.F, III.10.K.D, and III.10.K.F completed
34 with the information as specified in each column heading for each HLW Vitrification
35 System waste feed cut-off parameter and submittal of supporting documentation for
36 Permit Tables III.10.J.D, III.10.J.F, III.10.K.D, and III.10.K.F set-point values.
- 37 x. The test conditions proposed must demonstrate meeting the performance standards
38 specified in Permit Condition III.10.J.1.b. with the simultaneous operation of the melter
39 at capacity and input from the HLW Vitrification Vessel Ventilation System at capacity
40 to simulate maximum loading to the HLW Vitrification System off-gas treatment
41 system and to establish the corresponding operating parameter ranges.

- 1 xi. A detailed description of procedures for start-up and shutdown of waste feed and
2 controlling emissions in the event of an equipment malfunction, including off-normal
3 and emergency shutdown procedures;
- 4 xii. A calculation of waste residence time;
- 5 xiii. Any request to extrapolate metal feed-rate limits from Demonstration Test levels must
6 include:
- 7 A. A description of the extrapolation methodology and rationale for how the
8 approach ensures compliance with the performance standards, as specified in
9 Permit Condition III.10.J.1.b.
- 10 B. Documentation of the historical range of normal metal feed-rates for each
11 feedstream.
- 12 C. Documentation that the level of spiking recommended during the demonstration
13 test will mask sampling and analysis imprecision and inaccuracy to the extent that
14 extrapolation of feed-rates and emission rates from the Demonstration Test data
15 will be as accurate and precise as if full spiking were used.
- 16 xiv. Documentation of the expected levels of constituents in HLW Vitrification System
17 input streams, including, but not limited to, waste feed, glass former and reactants,
18 control air, process air, steam, sparge bubbler air, air in-leakage from melter cave,
19 gases from HLW Vitrification Vessel Ventilation System, and process water.
- 20 xv. Documentation justifying the duration of the conditioning required to ensure the HLW
21 Vitrification System had achieved steady-state operations under Demonstration Test
22 operating conditions.
- 23 xvi. Documentation of HLW Vitrification System process and leak detection system
24 instruments and monitors as listed on Permit Tables III.10.J.C, III.10.J.F, III.10.K.C,
25 and III.10.K.F to include:
- 26 A. Procurement specifications
- 27 B. Location used
- 28 C. Range, precision, and accuracy
- 29 D. Calibration/functionality test procedures (either method number ASTM) or
30 provide a copy of manufacturer's recommended calibration procedures
- 31 E. Calibration/functionality test, inspection, and routine maintenance schedules and
32 checklists, including justification for calibration, inspection and maintenance
33 frequencies, criteria for identifying instruments found to be significantly out of
34 calibration, and corrective action to be taken for instruments found to be
35 significantly out of calibration (e.g., increasing frequency of calibration,
36 instrument replacement, etc.).
- 37 F. Equipment instrument control logic narrative description (e.g., software functional
38 specifications, descriptions of fail safe conditions, etc.) [WAC 173-303-680(2),
39 WAC 173-303-806(4)(i)(B), and WAC 173-303-806(4)(v)]

- 1 xvii. Outline of demonstration test report.
- 2
- 3

Table III.10.J.A - HLW Vitrification System Description

<u>Sub-system Description</u>	<u>Sub-system Designation</u>	<u>Engineering Description</u> (Drawing Nos., Specification Nos., etc.)	<u>Narrative Description, Tables, and</u> <u>Figures</u>
Melter Feed ^a System –Melter 1	HFP HCP		Section 4.2.4.1; Table 4-5 & 4-11, Figures 4A-1, 4A-4, 4A-26
HLW Melter 1	HMP		Section 4.2.4.2; Figures 4A-1, 4A-4, 4A- 27
HLW Glass Product System-Melter 1	HMP		Section 4.2.4.2; Figures 4A-1, 4A-4, 4A- 27
Film Cooler - Melter 1	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A- 27
Submerged Bed Scrubber /Condensate Collection Vessels ^a -Melter 1	HOP		Section 4.2.4.3; Table 4-5 & 4-11, Figures 4A-1, 4A-4, 4A-28
Wet Electrostatic Precipitator-Melter 1	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A- 28
High Efficiency Particulate Air Filters	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A- 29
High Efficiency Mist Eliminator	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A- 28
Thermal Catalytical Oxidation Unit	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A- 29
Selective Catalytical Reduction Unit	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A- 29
Silver Mordenite Column	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-

1
2

<u>Sub-system Description</u>	<u>Sub-system Designation</u>	<u>Engineering Description</u> (Drawing Nos., Specification Nos., etc.)	<u>Narrative Description, Tables, and</u> <u>Figures</u>
			29
Electric Heaters	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Heat Exchangers	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Pumps	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-27, 4A-28, 4A-29
Booster Fans	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
HLW Stack	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29

1

2 a. Requirements pertaining to the tanks in HLW Vitrification System Melter Feed System, Submerged Bed Scrubber/Condensate Vessels are specified in Permit Section III.10.E.

Table III.10.J.D. – Maximum Feed-rates to HLW Vitrification System (RESERVED)

Description of Waste	Shakedown 1 and Post Demonstration Test	Shakedown 2 and Demonstration Test
Dangerous and Mixed Waste Feed Rate		
Ash Feed Rate		
Total Chlorine/Chloride Feed Rate		
Total Metal Feedrates		

Table III.10.J.E. - HLW Vitrification System Estimated Emission Rates (RESERVED)

Chemicals	CAS Number	Emission Rates (grams /second)

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

*A continuous monitoring system shall be used as defined in Permit Section III.10.C.1.

¹Maximum Feed-rate shall be set based on not exceeding any of the constituent (e.g., metals, ash, and chlorine/chloride) feed limits specified on Table III.10.J.D. of this Permit

1 III.10.K HLW Vitrification System – Long Term Miscellaneous Thermal Treatment Unit

2 For purposes of Permit Section III.10.K, where reference is made to WAC 173-303-640, the
3 following substitutions apply: substitute the terms “HLW Vitrification System” for “tank
4 system(s),” “sub-system(s)” for “tank(s),” “sub-system equipment” for “ancillary
5 equipment,” and “sub-system(s) or sub-system equipment of a HLW Vitrification System”
6 for “component(s),” in accordance with WAC 173-303-680.

7 III.10.K.1 Requirements For HLW Vitrification System Beginning Normal Operation

8 Prior to commencing normal operations provided in Permit Section III.10.K, all
9 requirements in Permit Section III.10.J shall have been met by the Permittees and approved
10 by Ecology, including the following: The HLW Vitrification System Demonstration Test
11 results and the revised Final Risk Assessment provided for in Permit Conditions
12 III.10.C.11.c. or d. and Permit Section III.10.J, shall have been evaluated and approved by
13 Ecology, Permit Tables III.10.K.D and F, as approved/modified pursuant to Permit
14 Condition III.10.J.5, shall have been completed, submitted and approved pursuant to Permit
15 Condition III.10.J.3.d.v. and Permit Table III.10.K.E, as approved/modified pursuant to
16 Permit Condition III.10.J.5, shall have been completed, submitted and approved pursuant to
17 Permit Conditions III.10.C.11.c. or d.

18 III.10.K.1.a. Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-
19 680(2) and (3), and WAC 173-303-340]

20 i. The Permittees shall maintain the design and construction of the HLW Vitrification
21 System as specified in Permit Condition III.10.K.1, Attachment 51, Chapter 4.0 of this
22 Permit, and Attachment 51, Appendices 10.1 through 10.17 of this Permit, as approved
23 pursuant to Permit Conditions III.10.J.5.a. through d. and III.10.J.5.f.

24 ii. The Permittees shall maintain the design and construction of all containment systems
25 for the HLW Vitrification System as specified in Attachment 51, Chapter 4.0 of this
26 Permit, and Attachment 51, Appendices 10.2 and 10.4 through 10.14 of this Permit, as
27 approved pursuant to Permit Conditions III.10.J.5.a. through d.

28 iii. Modifications to approved design, plans, and specifications in Attachment 51, of this
29 Permit, for the HLW Vitrification System shall be allowed only in accordance with
30 Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d., e., and h.

31 iv. The Permittees shall ensure all certifications required by specialists (e.g., independent,
32 qualified, registered professional engineer; registered, professional engineer;
33 independent corrosion expert; independent, qualified installation inspector; installation
34 inspector; etc.) use the following statement or equivalent pursuant to Permit Condition
35 III.10.C.10:

36 “I, (Insert Name) have (choose one or more of the following: overseen, supervised,
37 reviewed, and/or certified) a portion of the design or installation of a new HLW
38 Vitrification system or component located at (address), and owned/operated by
39 (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for
40 the following HLW Vitrification system components (e.g., the venting piping, etc.), as

1 required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3)
2 (applicable paragraphs [i.e., (a) through (g)]), in accordance with WAC 173-303-680.

3 "I certify under penalty of law that I have personally examined and am familiar with
4 the information submitted in this document and all attachments and that, based on my
5 inquiry of those individuals immediately responsible for obtaining the information, I
6 believe that the information is true, accurate, and complete. I am aware that there are
7 significant penalties for submitting false information, including the possibility of fine
8 and imprisonment."

- 9 v. The Permittees shall ensure periodic integrity assessments are conducted on the HLW
10 Vitrification System listed in Permit Table III.10.I.A, as approved/modified pursuant to
11 Permit Condition III.10.J.5, over the term of this Permit, in accordance with WAC 173-
12 303-680(2) and (3), as specified in WAC 173-303-640(3)(b) following the description
13 of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this
14 Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c.
15 Results of the integrity assessments shall be included in the WTP Unit operating record
16 until ten (10) years after post-closure, or corrective action is complete and certified,
17 whichever is later.
- 18 vi. The Permittees shall address problems detected during the HLW Vitrification System
19 integrity assessments specified in Permit Condition III.10.K.1.a.v. following the
20 description of the integrity assessment program in Attachment 51, Chapter 6.0 of this
21 Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c.
- 22 vii. All process monitors/instruments as specified in Permit Table III.10.K.F, as
23 approved/modified pursuant to Permit Condition III.10.J.5 and III.10.J.3.d.v., shall be
24 equipped with operational alarms to warn of deviation, or imminent deviation from the
25 limits specified in Permit Table III.10.K.F.
- 26 viii. The Permittees shall install and test all process and leak detection system
27 monitors/instruments, as specified in Permit Tables III.10.K.C and III.10.K.F, as
28 approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.J.3.d.v., in
29 accordance with Attachment 51, Appendices 10.1, 10.2, and 10.14 of this Permit, as
30 approved pursuant to Permit Conditions III.10.J.5.d.x. and III.10.J.5.f.xvi.
- 31 ix. No dangerous and/or mixed waste shall be treated in the HLW Vitrification System
32 unless the operating conditions, specified under Permit Condition III.10.K.1.c. are
33 complied with.
- 34 x. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or
35 other materials in the HLW Vitrification System if these substances could cause the
36 sub-system, sub-system equipment, or the containment system to rupture, leak, corrode,
37 or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)].
38 This condition is not applicable to corrosion of HLW Vitrification System sub-system
39 or sub-system equipment that are expected to be replaced as part of normal operations
40 (e.g., melter).

- 1 xi. The Permittees shall operate the HLW Vitrification System to prevent spills and
2 overflows using the description of controls and practices as required under WAC 173-
3 303-640(5)(b), described in Permit Condition III.10.C.5, and Attachment 51, Appendix
4 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e. [WAC 173-
5 303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), WAC-173-303-
6 806(4)(c)(ix)].
- 7 xii. For routinely non-accessible HLW Vitrification System sub-systems, as specified in
8 Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition
9 III.10.J.5.e.vi., the Permittees shall mark all routinely non-accessible HLW
10 Vitrification System sub-systems access points with labels or signs to identify the waste
11 contained in each HLW Vitrification System sub-system. The label, or sign, must be
12 legible at a distance of at least fifty (50) feet, and must bear a legend which identifies
13 the waste in a manner which adequately warns employees, emergency response
14 personnel, and the public of the major risk(s) associated with the waste being stored or
15 treated in the HLW Vitrification System sub-systems. For the purposes of this permit
16 condition, "routinely non-accessible" means personnel are unable to enter these areas
17 while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with
18 WAC 173-303-680(2)].
- 19 xiii. For all the HLW Vitrification System sub-systems not addressed in Permit Condition
20 III.10.K.1.a.xii., the Permittees shall mark all these HLW Vitrification System sub-
21 systems holding dangerous and/or mixed waste with labels or signs to identify the
22 waste contained in the HLW Vitrification System sub-systems. The labels, or signs,
23 must be legible at a distance of at least fifty (50) feet, and must bear a legend which
24 identifies the waste in a manner which adequately warns employees, emergency
25 response personnel, and the public of the major risk(s) associated with the waste being
26 stored or treated in the HLW Vitrification System sub-systems [WAC 173-303-
27 640(5)(d), in accordance with WAC 173-303-680(2)].
- 28 xiv. The Permittees shall ensure that the secondary containment systems for the HLW
29 Vitrification System sub-systems listed in Permit Tables III.10.K.A and III.10.K.B, as
30 approved/modified pursuant to Permit Condition III.10.J.5, are free of cracks or gaps to
31 prevent any migration of dangerous and/or mixed waste or accumulated liquid out of
32 the system to the soil, groundwater, or surface water at any time during the use of the
33 HLW Vitrification System sub-systems. Any indication that a crack or gap may exist
34 in the containment systems shall be investigated and repaired in accordance with
35 Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit
36 Condition III.10.J.5.e.v. [WAC 173-303-640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C),
37 and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC
38 173-303-806(4)(i)(i)(B), and WAC 173-303-320].
- 39 xv. The Permittees must immediately and safely remove from service any HLW
40 Vitrification System or secondary containment system which through an integrity
41 assessment is found to be "unfit for use" as defined in WAC 173-303-040, following
42 Permit Condition III.10.K.1.a.xvii.A through D, and F. The affected HLW
43 Vitrification System or secondary containment system must be either repaired or closed

1 in accordance with Permit Condition III.10.K.1.a.xvii.E [WAC 173-303-640(7)(e) and
2 (f) and WAC 173-303-640(8)], in accordance with WAC 173-303-680(3)].

3 xvi. An impermeable coating, as specified in Attachment 51, Appendices 10.4, 10.5, 10.7,
4 10.9, 10.11, and 10.12 of this Permit, as approved pursuant to Permit Condition
5 III.10.J.5.b.v., shall be maintained for all concrete containment systems and concrete
6 portions of containment systems for the HLW Vitrification System sub-systems listed
7 in Permit Tables III.10. K.A and III.10.K.B, as approved/modified pursuant to Permit
8 Condition III.10.J.5 (concrete containment systems that do not have a liner, pursuant to
9 WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have
10 construction joints, shall meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in
11 accordance with WAC 173-303-680(2). The coating shall prevent migration of any
12 dangerous and/or mixed waste into the concrete. All coatings shall meet the following
13 performance standards:

- 14 A. The coating must seal the containment surface such that no cracks, seams, or other
15 avenues through which liquid could migrate are present;
- 16 B. The coating must be of adequate thickness and strength to withstand the normal
17 operation of equipment and personnel within the given area such that degradation
18 or physical damage to the coating or lining can be identified and remedied before
19 dangerous and/or mixed waste could migrate from the system; and
- 20 C. The coating must be compatible with the dangerous and/or mixed waste, treatment
21 reagents, or other materials managed in the containment system [WAC 173-303-
22 640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC
23 173-303-806(4)(i)(A)].

24 xvii. The Permittees shall inspect all secondary containment systems for the HLW
25 Vitrification System sub-systems listed in Permit Tables III.10.K.A and III.10.K.B, as
26 approved/modified pursuant to Permit Condition III.10.J.5., in accordance with the
27 Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as
28 approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c., and take the
29 following actions if a leak or spill of dangerous and/or mixed waste is detected in these
30 containment systems [WAC 173-303-640(5)(c), WAC 173-303-640(6) in accordance
31 with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-
32 806(4)(i)(B)]:

- 33 A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the
34 HLW Vitrification System sub-systems or secondary containment system.
- 35 B. Determine the source of the dangerous and/or mixed waste.
- 36 C. Remove the dangerous and/or mixed waste from the containment area in
37 accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-
38 640(7)(b). The dangerous and/or mixed waste removed from containment areas of
39 the HLW Vitrification System shall be, at a minimum, managed as mixed waste.
- 40 D. If the cause of the release was a spill that has not damaged the integrity of the
41 HLW Vitrification System sub-system, the Permittees may return the HLW

1 Vitrifaction System sub-system to service in accordance with WAC 173-303-
2 680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such case, the
3 Permittees shall take action to ensure the incident that caused the dangerous
4 and/or mixed waste to enter the containment system will not reoccur.

5 E. If the source of the dangerous and/or mixed waste is determined to be a leak in
6 from the primary HLW Vitrifaction System into the secondary containment
7 system, or the system is unfit for use as determined through an integrity
8 assessment or other inspection, the Permittees shall comply with the requirements
9 of WAC 173-303-640(7) and take the following actions:

- 10 1. Close the HLW Vitrifaction System sub-system following procedures in
11 WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680, and
12 Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit
13 Condition III.10.C.8; or
- 14 2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as
15 modified pursuant to Permit Condition III.10.K.1.a.iii.) the HLW
16 Vitrifaction System, in accordance with Attachment 51, Appendix 10.18 of
17 this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v., before
18 the HLW Vitrifaction System is placed back into service [WAC 173-303-
19 640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-
20 303-680].

21 F. The Permittees shall document in the operating record actions/procedures taken to
22 comply with A through E above, as specified in WAC 173-303-640(6)(d), in
23 accordance with WAC 173-303-680(2) and (3).

24 G. In accordance with WAC 173-303-680(2) and (3), the Permittees shall notify and
25 report releases to the environment to Ecology as specified in WAC 173-303-
26 640(7)(d).

27 xviii. If liquids (e.g., dangerous and/or mixed waste, leaks and spills, precipitation, fire
28 water, liquids from damaged or broken pipes) cannot be removed from the secondary
29 containment system within twenty-four (24) hours, Ecology will be verbally notified
30 within twenty-four (24) hours of discovery. The notification shall provide the
31 information in A, B, and C, listed below. The Permittees shall provide Ecology with a
32 written demonstration within seven (7) business days, identifying at a minimum [WAC
33 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-
34 303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

35 A. Reasons for delayed removal;

36 B. Measures implemented to ensure continued protection of human health and the
37 environment;

38 C. Current actions being taken to remove liquids from secondary containment.

39 xix. All air pollution control devices and capture systems in the HLW Vitrifaction System
40 shall be maintained and operated at all times in a manner so as to minimize the
41 emissions of air contaminants and to minimize process upsets. Procedures for ensuring

1 that the air pollution control devices and capture systems in the HLW Vitrification
2 System are properly operated and maintained so as to minimize the emission of air
3 contaminants and process upsets shall be established.

4 xx. In all future narrative permit submittals, the Permittees shall include HLW Vitrification
5 sub-system names with the sub-system designation.

6 xxi. For any portion of the HLW Vitrification System which has the potential for formation
7 and accumulation of hydrogen gases, the Permittees shall operate the portion to
8 maintain hydrogen levels below the lower explosive limit [WAC 173-303-
9 815(2)(b)(ii)].

10 xxii. For each HLW Vitrification System sub-system holding dangerous waste which are
11 acutely or chronically toxic by inhalation, the Permittees shall operate the system to
12 prevent escape of vapors, fumes, or other emissions into the air [WAC 173-303-
13 806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680].

14 III.10.K.1.b. Performance Standards

15 i. The HLW Vitrification System must achieve a destruction and removal efficiency
16 (DRE) of 99.99% for the principal organic dangerous constituents (PODCs) listed
17 below [40 CFR §63.1203(c)(1) and 40CFR §63.1203(c)(2), in accordance with WAC
18 173-303-680(2)]:

19 RESERVED

20 DRE in this Permit Condition shall be calculated in accordance with the formula
21 given below:

22
$$DRE = [1 - (W_{out}/W_{in})] \times 100\%$$

23 Where:

24 W_{in} = mass feed-rate of one principal organic dangerous constituent (PODC) in a
25 waste feedstream; and

26 W_{out} = mass emission rate of the same PODC present in exhaust emissions prior to
27 release to the atmosphere.

28 ii. Particulate matter emissions from the HLW Vitrification System shall not exceed 34
29 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-
30 303-680(2)];

31 iii. Hydrochloric acid and chlorine gas emissions from the HLW Vitrification System shall
32 not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC
33 173-303-680(2)];

34 iv. Dioxin and Furan TEQ emissions from the HLW Vitrification System shall not exceed
35 0.2 nanograms (ng)/dscm [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-
36 680(2)];

37 v. Mercury emissions from the HLW Vitrification System shall not exceed 45 µg/dscm
38 [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)];

- 1 vi. Lead and cadmium emissions from the HLW Vitrification System shall not exceed 120
2 $\mu\text{g}/\text{dscm}$, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-
3 680(2)];
- 4 vii. Arsenic, beryllium, and chromium emissions from the HLW Vitrification System shall
5 not exceed 97 $\mu\text{g}/\text{dscm}$, combined [40 CFR §63.1203(b)(4), in accordance with WAC
6 173-303-680(2)];
- 7 viii. Carbon monoxide (CO) emission from the HLW Vitrification System shall not exceed
8 100 parts per million (ppm) by volume, over an hourly rolling average (as measured
9 and recorded by the continuous monitoring system), dry basis [40 CFR
10 §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2) and (3)];
- 11 ix. Hydrocarbon emission from the HLW Vitrification System shall not exceed 10 parts
12 per million (ppm) by volume, over an hourly rolling average (as measured and recorded
13 by the continuous monitoring system during demonstration testing required by this
14 Permit), dry basis and reported as propane [40 CFR §63.1203(b)(5)(ii), in accordance
15 with WAC 173-303-680(2) and (3)];
- 16 x. If the emissions from the HLW Vitrification System exceed the emission rates listed in
17 Permit Table III.10.K.E, as approved pursuant to Permit Condition III.10.C.11.c. or d.,
18 the Permittees shall perform the following actions [WAC 173-303-680(2) and (3), and
19 WAC 173-303-815(2)(b)(ii)]:
- 20 A. Verbally notify Ecology within twenty-four (24) hours of the discovery of
21 exceeding the emission rate(s) as specified in Permit Condition I.E.21;
- 22 B. Submit to Ecology additional risk information to indicate that the increased
23 emissions impact is off-set by decreased emission impact from one or more
24 constituents expected to be emitted at the same time, and/or investigate the cause
25 and impact of the exceedance of the emission rate(s) and submit a report of the
26 investigation findings to Ecology within fifteen (15) days of the discovery of
27 exceeding the emission rate(s); and
- 28 C. Based on the notification and any additional information, Ecology may submit, in
29 writing, direction to the Permittees to stop dangerous and/or mixed waste feed to
30 the HLW Vitrification System and/or to submit a revised Demonstration Test Plan
31 as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or
32 III.10.C.2.g. The revised Demonstration Test Plan must include substantive
33 changes to prevent failure from reoccurring.
- 34 The emission limits specified in Permit Conditions III.10.K.1.b.i. through x. above,
35 shall be met for the HLW Vitrification System by limiting feed rates as specified in
36 Permit Tables III.10.K.D and III.10.K.F, as approved/modified pursuant to Permit
37 Condition III.10.J.5 and III.10.J.3.d.v., compliance with operating conditions specified
38 in Permit Condition III.10.K.1.c. (except as specified in Permit Condition
39 III.10.K.1.b.xii.), and compliance with Permit Condition III.10.K.1.b.xi.
- 40 xi. Treatment effectiveness, feed-rates, and operating rates for dangerous and/or mixed
41 waste management units contained in the HLW Building, but not included in Permit

1 Table III.10.K.A, as approved/modified pursuant to Permit Condition III.10.J.5, shall
2 be as specified in Permit Sections III.10.D, III.10.E, III.10.F and consistent with the
3 assumptions and basis which are reflected in Attachment 51, Appendix 6.3.1 of this
4 Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of
5 this permit condition, Attachment 51, Appendix 6.3.1 shall be superceded by Appendix
6 6.4.1 upon its approval pursuant to either Permit Conditions III.10.C.11.c. or d. [WAC
7 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

- 8 xii. Compliance with the operating conditions specified in Permit Condition III.10.K.1.c.,
9 shall be regarded as compliance with the required performance standards identified in
10 Permit Conditions III.10.K.1.b.i. through x. However, if it is determined that during
11 the effective period of this Permit that compliance with the operating conditions in
12 Permit Condition III.10.K.1.c. is not sufficient to ensure compliance with the
13 performance standards specified in Permit Conditions III.10.K.1.b.i. through x., the
14 Permit may be modified, revoked, or reissued pursuant to Permit Conditions
15 III.10.C.2.e. and f., or III.10.C.2.g.

16 III.10.K.1.c. Operating Conditions [WAC-303-670(6), in accordance with WAC 173-303-680(2)and (3)]

17 The Permittees shall operate the HLW Vitrification System in accordance with Attachment
18 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi.,
19 Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Conditions
20 III.10.J.5.e. and f., and Attachment 51, Appendix 10.15 of this Permit, as approved pursuant
21 to Permit Condition III.10.J.5.f., except as modified pursuant to Permit Conditions III.10.J.3,
22 III.10.K.1.b.x., III.10.K.1.b.xii., III.10.K.1.h., and in accordance with and the following:

- 23 i. The Permittees shall operate the HLW Vitrification System in order to maintain the
24 systems and process parameters listed in Permit Tables III.10.K.C and III.10.K.F, as
25 approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., within the
26 set-points specified in Permit Table III.10.K.F.
- 27 ii. The Permittees shall operate the AWFCO systems, specified in Permit Table
28 III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and
29 III.J.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed waste
30 feed to HLW Vitrification System when the monitored operating conditions deviate
31 from the set-points specified in Permit Table III.10.K.F.
- 32 iii. The Permittees shall operate the AWFCO systems, specified in Permit Table
33 III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and
34 III.J.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed waste
35 feed to HLW Vitrification System when all instruments specified on Permit Table
36 III.10.I.F for measuring the monitored parameters fails or exceeds its span value.
- 37 iv. The Permittees shall operate the AWFCO systems, specified in Permit Table
38 III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and
39 III.J.3.d.v., to automatically cut-off and/or lock out the dangerous and/or mixed waste
40 feed to the HLW Vitrification System when any portion of the HLW Vitrification
41 System is bypassed. The terms "bypassed" and "bypass event" as used in Permit

1 Sections III.10.J and K shall mean if any portion of the HLW Vitrification System is
2 bypassed so that gases are not treated as during the Demonstration Test.

- 3 v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.K.F,
4 as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., the
5 Permittees shall immediately, manually, cut-off the dangerous and/or mixed waste feed
6 to the HLW Vitrification System. The Permittees shall not restart the dangerous and/or
7 mixed waste feed until the problem causing the malfunction has been identified and
8 corrected.
- 9 vi. The Permittees shall manually cut-off the dangerous and/or mixed waste feed to the
10 HLW Vitrification System when the operating conditions deviate from the limits
11 specified in Permit Condition III.10.K.1.c.i., unless the deviation automatically
12 activates the waste feed cut-off sequence specified in Permit Conditions III.10.K.1.c.ii.,
13 iii., and/or iv.
- 14 vii. If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the
15 HLW Vitrification System occur due to deviations from Permit Table III.10.K.F, as
16 approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., within a
17 sixty (60) day period, the Permittees shall submit a written report to Ecology within
18 five (5) calendar days of the thirty-first (31) exceedance including the information
19 specified below. These dangerous and/or mixed waste feed cut-offs to the HLW
20 Vitrification System, whether automatically or manually activated, are counted if the
21 specified set-points are deviated from while dangerous and/or mixed waste and waste
22 residues continue to be processed in the HLW Vitrification System. A cascade event is
23 counted at a frequency of one (1) towards the first waste feed cut-off parameter,
24 specified on Permit Table III.10.K.F, from which the set-point is deviated:
- 25 A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.K.F;
 - 26 B. The magnitude, dates, and duration of the deviations;
 - 27 C. Results of the investigation of the cause of the deviations; and
 - 28 D. Corrective measures taken to minimize future occurrences of the deviations.
- 29 viii. If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the
30 HLW Vitrification System occur due to deviations from Permit Table III.10.K.F, as
31 approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., within a
32 thirty (30) day period, the Permittees shall submit the written report required to be
33 submitted pursuant to Permit Condition III.10.K.1.c.vii. to Ecology, on the first
34 business day following the thirty-first exceedance. These dangerous and/or mixed
35 waste feed cut-offs to the HLW Vitrification System, whether automatically or
36 manually activated, are counted if the specified set-points are deviated from while
37 dangerous and/or mixed waste and waste residues continue to be processed in the HLW
38 Vitrification System. A cascade event is counted at a frequency of one (1) towards the
39 first waste feed cut-off parameter, specified on Permit Table III.10.K.F, from which the
40 set-point is deviated:

1 In accordance with WAC 173-303-680(2) and (3), the Permittees may not resume
2 dangerous and/or mixed waste feed to the HLW Vitrification System until this written
3 report has been submitted; and

4 A. Ecology has authorized the Permittees, in writing, to resume dangerous and/or
5 mixed waste feed, or

6 B. Ecology has not, within seven (7) days, notified the Permittees in writing of the
7 following:

8 1. The Permittees written report does not document that the corrective measures
9 taken will minimize future exceedances; and

10 2. The Permittees must take further corrective measures and document that
11 these further corrective measures will minimize future exceedances.

12 ix. If any portion of the HLW Vitrification System is bypassed while treating dangerous
13 and/or mixed waste, it shall be regarded as non-compliance with the operating
14 conditions specified in Permit Condition III.10.K.1.c. and the performance standards
15 specified in Permit Condition III.10.K.1.b. After such a bypass event, the Permittees
16 shall perform the following actions:

17 A. Investigate the cause of the bypass event;

18 B. Take appropriate corrective measures to minimize future bypasses;

19 C. Record the investigation findings and corrective measures in the operating record;
20 and

21 D. Submit a written report to Ecology within five (5) days of the bypass event
22 documenting the result of the investigation and corrective measures.

23 x. The Permittees shall control fugitive emissions from the HLW Vitrification System by
24 maintaining the melter under negative pressure.

25 xi. Compliance with the operating conditions specified in Permit Condition III.10.K.1.c.
26 shall be regarded as compliance with the required performance standards identified in
27 Permit Condition III.10.K.1.b. However, evidence that compliance with these
28 operating conditions is insufficient to ensure compliance with the performance
29 standards, shall justify modification, revocation, or re-issuance of this Permit, in
30 accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g.

31 **III.10.K.1.d. Inspection Requirements [WAC 173-303-680(3)]**

32 i. The Permittees shall inspect the HLW Vitrification System in accordance with the
33 Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified in
34 accordance with Permit Condition III.10.C.5.c.

35 ii. The inspection data for HLW Vitrification System shall be recorded, and the records
36 shall be placed in the WTP Unit operating record for HLW Vitrification System, in
37 accordance with Permit Condition III.10.C.4.

- 1 iii. The Permittees shall comply with the inspection requirements specified in Attachment
2 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition
3 III.10.J.5.f., and as modified by Permit Conditions III.10.J.3, III.10.K.1.b.x.,
4 III.10.K.1.b.xii., and III.10.K.1.h.

5 **III.10.K.1.e. Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-
6 670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]**

- 7 i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling
8 and analysis of the dangerous and/or mixed waste and exhaust emissions to verify that
9 the operating requirements established in the permit achieve the performance standards
10 delineated in this Permit.
- 11 ii. The Permittees shall comply with the monitoring requirements specified in the
12 Attachment 51, Appendices 10.2, 10.3, 10.7, 10.13, 10.15, and 10.18 of this Permit, as
13 approved pursuant to Permit Condition III.10.J.5, and as modified by Permit
14 Conditions III.10.J.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.
- 15 iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and
16 hydrocarbon continuous emission monitors (CEM) specified in this Permit in
17 accordance with Performance Specifications 4B and 8A of 40 CFR Part 60, Appendix
18 B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51
19 Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f.,
20 and as modified by Permit Conditions III.10.H.3, III.10.K.1.h., and III.10.K.1.b.x. and
21 xii.
- 22 iv. The Permittees shall operate, calibrate, and maintain the instruments specified on
23 Permit Tables III.10.K.C and F, as approved/modified pursuant to Permit Conditions
24 III.10.J.5 and III.J.3.d.v., in accordance with Attachment 51, Appendix 10.15 of this
25 Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by
26 Permit Conditions III.10.J.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.

27 **III.10.K.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]**

- 28 i. The Permittees shall record and maintain in the WTP Unit operating record for the
29 HLW Vitrification System, all monitoring, calibration, maintenance, test data, and
30 inspection data compiled under the conditions of this Permit, in accordance with Permit
31 Conditions III.10.C.4 and 5 as modified by Permit Conditions III.10.J.3, III.10.K.1.h.,
32 and III.10.K.1.b.x. and xii.
- 33 ii. The Permittees shall record in the WTP Unit operating record the date, time, and
34 duration of all automatic waste feed cut-offs and/or lockouts, including the triggering
35 parameters, reason for the deviation, and recurrence of the incident. The Permittees
36 shall also record all incidents of AWFCO system function failures, including the
37 corrective measures taken to correct the condition that caused the failure.
- 38 iii. The Permittees shall submit to Ecology an annual report each calendar year within
39 ninety (90) days following the end of the year. The report will include the following
40 information:

- 1 A. Total dangerous and/or mixed waste feed processing time for the HLW
2 Vitrification System;
- 3 B. Date/Time of all HLW Vitrification System startups and shutdowns;
- 4 C. Date/Time/Duration/Cause/Corrective Action taken for all HLW Vitrification
5 System shutdowns caused by malfunction of either process or control equipment;
6 and
- 7 D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous
8 and/or mixed waste feed cut-off due to deviations from Permit Table III.10.K.F, as
9 approved/modified pursuant to Permit Conditions III.10.J.5 and III.10J.3.d.v.
- 10 iv. The Permittees shall submit an annual report to Ecology each calendar year within
11 ninety (90) days following the end of the year of all quarterly CEM Calibration Error
12 and Annual CEM Performance Specification Tests conducted in accordance with
13 Permit Condition III.10.K.1.e.iii.

14 III.10.K.1.g. Closure

15 The Permittees shall close the HLW Vitrification System in accordance with Attachment 51,
16 Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

17 III.10.K.1.h. Periodic Emission Re-testing Requirements [WAC 173-303-670(5), WAC 173-303-670(7),
18 and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]

19 i. Dioxin and Furan Emission Testing

- 20 A. Within eighteen (18) months of commencing operation pursuant to Permit Section
21 III.10.K, the Permittees shall submit to Ecology for approval, a Dioxin and Furan
22 Emission Test Plan (DFETP) for the performance of emission testing of the HLW
23 Vitrification System gases for dioxin and furans during "Normal Operating
24 Conditions" as a permit modification in accordance with Permit Conditions
25 III.10.C.2.e. and f. The DFETP shall include all elements applicable to dioxin and
26 furan emission testing included in the "Previously Approved Demonstration Test
27 Plan," applicable EPA promulgated test methods and procedures in effect at the
28 time of the submittal, and projected commencement and completion dates for
29 dioxin and furan emission test. "Normal Operating Conditions" shall be defined
30 for the purposes of this permit condition as follows:

- 31 1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and
32 automatic waste feed cut-off parameters specified on Permit Table III.10.K.F
33 (as approved/modified pursuant to Permit Conditions III.10.J.5 and
34 III.10.J.3.d.v), that were established to maintain compliance with Permit
35 Condition III.10.K.1.b.iv., as specified in Attachment 51, Appendix 10.15 of
36 this Permit (as approved pursuant to Permit Condition III.10.J.3.d. and in
37 accordance with III.10.K.1.b.xii. and III.10.K.1.c.xi.), are held within the
38 range of the average value over the previous twelve (12) months and the set-
39 point value specified on Permit Table III.10.K.F. The average value is
40 defined as the sum of the rolling average values recorded over the previous
41 twelve (12) months divided by the number of rolling averages recorded

1 during that time. The average value shall not include calibration data,
2 malfunction data, and data obtained when not processing dangerous and/or
3 mixed waste; and

- 4 2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of
5 the average value over the previous twelve (12) months and the set-point
6 value specified on Permit Table III.10.K.D (as approved/modified pursuant
7 to Permit Conditions III.10.J.5 and III.10.J.3.d.v). Feed-rate of organics as
8 measured by TOC are held within the range of the average value over the
9 previous twelve (12) months. The average value is defined as the sum of the
10 rolling average values recorded over the previous twelve (12) months divided
11 by the number of rolling averages recorded during that time. The average
12 value shall not include data obtained when not processing dangerous and/or
13 mixed waste.

14 For purposes of this permit Condition, the "Previously Approved Demonstration
15 Test Plan" is defined to include the Demonstration Test Plan approved pursuant to
16 Permit Condition III.10.J.5.f.

- 17 B. Within sixty (60) days of Ecology's approval of the DFETP, or within thirty-one
18 (31) months of commencing operation pursuant to Permit Section III.10.K,
19 whichever is later, the Permittees shall implement the DFETP approved, pursuant
20 to Permit Condition III.10.K.1.h.i.A.
- 21 C. The Permittees shall resubmit the DFETP, approved pursuant to Permit Condition
22 III.10.K.1.h.i.A, revised to include applicable EPA promulgated test methods and
23 procedures in effect at the time of the submittal, and projected commencement and
24 completion dates for dioxin and furan emission test as a permit modification in
25 accordance with Permit Conditions III.10.C.2.e. and f. at twenty-four (24) months
26 from the implementation date of the testing required pursuant to Permit Condition
27 III.10.K.1.h.i.A and at reoccurring eighteen (18) month intervals from the
28 implementation date of the previously approved DFETP. The Permittees shall
29 implement these newly approved revised DFETPs every thirty-one (31) months
30 from the previous approved DFETP implementation date or within sixty (60) days
31 of the newly Ecology approved revised DFETP, whichever is later, for the
32 duration of this Permit.
- 33 D. The Permittees shall submit a summary of operating data collected pursuant to the
34 DFETPs in accordance with Permit Conditions III.10.K.1.h.i.A and C to Ecology
35 upon completion of the tests. The Permittees shall submit to Ecology the
36 complete test report within ninety (90) calendar days of completion of the testing.
37 The test reports shall be certified as specified in WAC 173-303-807(8), in
38 accordance with WAC 173-303-680(2) and (3).
- 39 E. If any calculations or testing results collected pursuant to the DFETPs in
40 accordance with Permit Conditions III.10.K.1.h.i.A and C show that one or more
41 of the performance standards listed in Permit Condition III.10.K.1.b., with the
42 exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System

1 were not met during the emission test, the Permittees shall perform the following
2 actions:

- 3 1. Immediately stop dangerous and/or mixed waste feed to the HLW
4 Vitrification System under the mode of operation that resulted in not meeting
5 the performance standard(s).
- 6 2. Verbally notify Ecology within twenty-four (24) hours of discovery of not
7 meeting the performance standard(s) as specified in Permit Condition I.E.21.
- 8 3. Investigate the cause of the failure and submit a report of the investigation
9 findings to Ecology within fifteen (15) days of discovery of not meeting the
10 performance standard(s).
- 11 4. Submit to Ecology within fifteen (15) days of discovery of not meeting the
12 performance standard(s) documentation supporting a mode of operation
13 where all performance standards listed in Permit Condition III.K.1.b., with
14 the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification
15 System were met during the demonstration test, if any such mode was
16 demonstrated.
- 17 5. Based on the information provided to Ecology by the Permittees, pursuant to
18 Permit Conditions III.10.K.1.h.i.E.1 through 4 above, and any additional
19 information, Ecology may submit, in writing, direction to the Permittees to
20 stop dangerous and/or mixed waste feed to the HLW Vitrification System
21 and/or amend the mode of operation the Permittees are allowed to continue
22 operations prior to Ecology approval of the revised Demonstration Test Plan
23 pursuant to Permit Condition III.10. K.1.h.i.E.6.
- 24 6. Submit to Ecology within one hundred and twenty (120) days of discovery of
25 not meeting the performance standard(s) a revised Demonstration Test Plan
26 requesting approval to retest as a permit modification pursuant to Permit
27 Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan must
28 include substantive changes to prevent failure from reoccurring reflecting
29 performance under operating conditions representative of the extreme range
30 of normal conditions, and include revisions to Permit Tables III.10.K.D and
31 F.

32 F. If any calculations or testing results collected pursuant to the DFETPs in
33 accordance with Permit Conditions III.10.K.1.h.i.A and C show that any emission
34 rate for any constituent listed in Permit Table III.10.K.E, as approved/modified
35 pursuant to Permit Conditions III.10.C.11.c. or d., is exceeded for HLW
36 Vitrification System during the emission test, the Permittees shall perform the
37 following actions:

- 38 1. Verbally notify Ecology within twenty-four (24) hours of the discovery of
39 exceeding the emission rate(s) as specified in Permit Condition I.E.21;
- 40 2. Submit to Ecology additional risk information to indicate that the increased
41 emissions impact is off-set by decreased emission impact from one or more

1 constituents expected to be emitted at the same time, and/or investigate the
2 cause and impact of the exceedance and submit a report of the investigation
3 findings to Ecology within fifteen (15) days of this discovery of exceeding
4 the emission rate(s); and

- 5 3. Based on the notification and any additional information, Ecology may
6 submit, in writing, direction to the Permittees to stop dangerous and/or mixed
7 waste feed to the HLW Vitrification System and/or to submit a revised
8 Demonstration Test Plan as a permit modification pursuant to Permit
9 Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration
10 Test Plan must include substantive changes to prevent failure from
11 reoccurring reflecting performance under operating conditions representative
12 of the extreme range of normal conditions, and include revisions to Permit
13 Tables III.10.K.D and F.

14 ii. Non-organic Emission Testing

- 15 A. Within forty-eight (48) months of commencing operation pursuant to Permit
16 Section III.10.K, the Permittees shall resubmit to Ecology for approval the
17 "Previously Approved Demonstration Test Plan" revised as a permit modification
18 in accordance with Permit Conditions III.10.C.2.e. and f. The revised
19 Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test
20 methods and procedures in effect at the time of the submittal, projected
21 commencement and completion dates for emission testing to demonstrate
22 performance standards specified in Permit Conditions III.10.K.1.b.ii., iii., v., vi.,
23 and vii., and non-organic emissions as specified in Permit Table III.10.K.E, as
24 approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c.
25 or d., under "Normal Operating Conditions." "Normal Operating Conditions"
26 shall be defined for the purposes of this permit condition as follows:

- 27 1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and
28 automatic waste feed cut-off parameters specified in Permit Table III.10.K.F,
29 as approved/modified pursuant to Permit Conditions III.10.J.3.d. and
30 III.10.C.11.c. or d., that were established to maintain compliance with Permit
31 Conditions III.10.K.1.b.ii., iii., v., vi., and vii., and non-organic emissions, as
32 specified in Permit Table III.10.K.E, as specified in Attachment 51,
33 Appendix 10.15 of this Permit (as approved pursuant to Permit Conditions
34 III.10.J.3.d. and III.10.C.11.c. or d.), are held within the range of the average
35 value over the previous twelve (12) months and the set-point value specified
36 on Permit Table III.10.K.F. The average value is defined as the sum of the
37 rolling average values recorded over the previous twelve (12) months divided
38 by the number of rolling averages recorded during that time. The average
39 value shall not include calibration data, malfunction data, and data obtained
40 when not processing dangerous and/or mixed waste; and
- 41 2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of
42 the average value over the previous twelve (12) months and the set-point
43 value specified on Permit Table III.10.K.D, as approved/modified pursuant to

1 Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d. The average value is
2 defined as the sum of all rolling average values recorded over the previous
3 twelve (12) months divided by the number of rolling averages recorded
4 during that time. The average value shall not include data obtained when not
5 processing dangerous and/or mixed waste.

6 For purposes of this permit Condition, the "Previously Approved Demonstration
7 Test Plan" is defined to include the Demonstration Test Plan approved pursuant to
8 Permit Condition III.10.J.5.f.

- 9 B. Within sixty (60) days of Ecology's approval of the RDTP, or within sixty (60)
10 months of commencing operation pursuant to Permit Section III.10.K, whichever
11 is later, the Permittees shall implement the RDTP approved pursuant to Permit
12 Condition III.10.K.1.h.ii.A.
- 13 C. The Permittees shall resubmit the RDTP, approved pursuant to Permit Condition
14 III.10.K.1.h.ii.A, revised to include applicable EPA promulgated test methods and
15 procedures in effect at the time of the submittal, and projected commencement and
16 completion dates for emission test as a permit modification in accordance with
17 Permit Conditions III.10.C.2.e. and f. at forty-eight (48) months from the
18 implementation date of the testing required pursuant to Permit Condition
19 III.10.K.1.h.ii.A and at reoccurring forty-eight (48) month intervals from the
20 implementation date of the previously approved RDTP. The Permittees shall
21 implement these newly approved revised RDTP, every sixty (60) months from the
22 previous approved RDTP implementation date or within sixty (60) days of the
23 newly Ecology approved revised RDTP, whichever is later, for the duration of this
24 Permit.
- 25 D. The Permittees shall submit a summary of operating data collected pursuant to the
26 RDTPs in accordance with Permit Conditions III.10.K.1.h.ii.A and C to Ecology
27 upon completion of the tests. The Permittees shall submit to Ecology the
28 complete test report within ninety (90) calendar days of completion of the testing.
29 The test reports shall be certified pursuant to WAC 173-303-807(8), in accordance
30 with WAC 173-303-680(2) and (3).
- 31 E. If any calculations or testing results collected pursuant to the DFETPs in
32 accordance with Permit Conditions III.10.K.1.h.ii.A and C show that any emission
33 rate for any constituent listed in Permit Table III.10.K.E, as approved/modified
34 pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d., is exceeded for
35 HLW Vitrification System during the emission test, the Permittees shall perform
36 the following actions:
- 37 1. Verbally notify Ecology within twenty-four (24) hours of the discovery of
38 exceeding the emission rate(s) as specified in Permit Condition I.E.21;
 - 39 2. Submit to Ecology additional risk information to indicate that the increased
40 emissions impact is off-set by decreased emission impact from one or more
41 constituents expected to be emitted at the same time, and/or investigate the
42 cause and impact of the exceedance and submit a report of the investigation

1 findings to Ecology within fifteen (15) days of this discovery of exceeding
2 the emission rate(s); and

- 3 3. Based on the notification and any additional information, Ecology may
4 submit, in writing, direction to the Permittees to stop dangerous and/or mixed
5 waste feed to the HLW Vitrification System and/or to submit a revised
6 Demonstration Test Plan as a permit modification pursuant to Permit
7 Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration
8 Test Plan must include substantive changes to prevent failure from
9 reoccurring reflecting performance under operating conditions representative
10 of the extreme range of normal conditions, and include revisions to Permit
11 Tables III.10.K.D and III.10.K.F.

12 F. If any calculations or testing results collected pursuant to the DFETPs in
13 accordance with Permit Conditions III.10.K.1.h.ii.A and C show that one or more
14 of the performance standards listed in Permit Condition III.10.K.1.b., with the
15 exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System
16 were not met during the emission test, the Permittees shall perform the following
17 actions:

- 18 1. Immediately stop dangerous and/or mixed waste feed to the HLW
19 Vitrification System under the mode of operation that resulted in not meeting
20 the performance standard(s).
- 21 2. Verbally notify Ecology within twenty-four (24) hours of discovery of not
22 meeting the performance standard(s), as specified in Permit Condition I.E.21.
- 23 3. Investigate the cause of the failure and submit a report of the investigation
24 findings to Ecology within fifteen (15) days of discovery of not meeting the
25 performance standard(s).
- 26 4. Submit to Ecology within fifteen (15) days of discovery of not meeting the
27 performance standard(s) documentation supporting a mode of operation
28 where all performance standards listed in Permit Condition III.K.1.b., with
29 the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification
30 System were met during the demonstration test, if any such mode was
31 demonstrated.
- 32 5. Based on the information provided to Ecology by the Permittees pursuant to
33 Permit Conditions III.10.K.1.h.ii.F.1 through 4 above, and any additional
34 information, Ecology may submit, in writing, direction to the Permittees to
35 stop dangerous and/or mixed waste feed to the HLW Vitrification System
36 and/or amend the mode of operation the Permittees are allowed to continue
37 operations prior to Ecology approval of the revised Demonstration Test Plan
38 pursuant to Permit Condition III.10.K.1.h.ii.F.6.
- 39 6. Submit to Ecology within one hundred and twenty (120) days of discovery of
40 not meeting the performance standard(s) a revised Demonstration Test Plan
41 requesting approval to retest as a permit modification pursuant to Permit

1 Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan must
2 include substantive changes to prevent failure from reoccurring reflecting
3 performance under operating conditions representative of the extreme range
4 of normal conditions, and include revisions to Permit Tables III.10.K.D and
5 F.

6 iii. Other Emission Testing

7 A. Within seventy-eight (78) months of commencing operation pursuant to Permit
8 Section III.10.K, the Permittees shall resubmit to Ecology for approval the
9 “Previously Approved Demonstration Test Plan” revised as a permit modification
10 in accordance with Permit Conditions III.10.C.2.e. and f. The revised
11 Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test
12 methods and procedures in effect at the time of the submittal, projected
13 commencement and completion dates for emission testing to demonstrate
14 performance standards as specified in Permit Conditions III.10.K.1.b.viii. and ix.,
15 and emissions as specified on Permit Table III.10.K.E, as approved/modified
16 pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d., not addressed
17 under Permit Conditions III.10.K.1.h.i. or ii. under “Normal Operating
18 Conditions.” “Normal Operating Conditions” shall be defined for the purposes of
19 this permit Condition as follows:

- 20 1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and
21 automatic waste feed cut-off parameters specified on Permit Table
22 III.10.K.F, as approved/modified pursuant to Permit Condition III.10.J.3.d.
23 and III.10.C.11.c. or d., that were established to maintain compliance with
24 Permit Conditions III.10.K.1.b.viii. and ix., and emissions as specified on
25 Permit Table III.10.K.E, not addressed under Permit Conditions
26 III.10.K.1.h.i. or ii. as specified in Attachment 51, Appendix 10.15 of this
27 Permit, as approved pursuant to Permit Condition III.10.J.3.d., and in
28 accordance with Permit Conditions III.10.K.1.b.xii. and III.10.K.1.c.xi. are
29 held within the range of the average value over the previous twelve (12)
30 months and the set-point value specified on Permit Table III.10.K.F. The
31 average value is defined as the sum of all rolling average values recorded
32 over the previous twelve (12) months divided by the number of rolling
33 averages recorded during that time. The average value shall not include
34 calibration data, malfunction data, and data obtained when not processing
35 dangerous and/or mixed waste; and
- 36 2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of
37 the average value over the previous twelve (12) months and the set-point
38 value specified on Permit Table III.10.K.D, as approved/modified pursuant to
39 Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d. Feed-rate of organics
40 as measured by TOC are held within the range of the average value over the
41 previous twelve (12) months. The average value is defined as the sum of the
42 rolling average values recorded over the previous twelve (12) months divided
43 by the number of rolling averages recorded during that time. The average

1 value shall not include data obtained when not processing dangerous and/or
2 mixed waste.

3 For purposes of this permit Condition, the "Previously Approved Demonstration
4 Test Plan" is defined to include the Demonstration Test Plan approved pursuant to
5 Permit Condition III.10.J.5.f.

- 6 B. Within sixty (60) days of Ecology's approval of the RDTP, or within ninety-one
7 (91) months of commencing operation pursuant to Permit Section III.10.K,
8 whichever is later, the Permittees shall implement the RDTP approved pursuant to
9 Permit Condition III.10.K.1.h.iii.A.
- 10 C. The Permittees shall submit a summary of operating data collected pursuant to the
11 RDTPs in accordance with Permit Condition III.10.K.1.h.iii.A to Ecology upon
12 completion of the tests. The Permittees shall submit to Ecology the complete test
13 report within ninety (90) calendar days of completion of the testing. The test
14 reports shall be certified as specified in WAC 173-303-807(8), in accordance with
15 Permit Condition WAC 173-303-680(2) and (3).
- 16 D. If any calculations or testing results show that one or more of the performance
17 standards listed in Permit Condition III.10.K.1.b., with the exception of Permit
18 Condition III.10.K.1.b.x., for the HLW Vitrification System were not met during
19 the emission test, the Permittees shall perform the following actions:
- 20 1. Immediately stop dangerous and/or mixed waste feed to the HLW
21 Vitrification System under the mode of operation that resulted in not meeting
22 the performance standard(s).
 - 23 2. Verbally notify Ecology within twenty-four (24) hours of discovery of not
24 meeting the performance standard(s), as specified Permit Condition I.E.21.
 - 25 3. Investigate the cause of the failure and submit a report of the investigation
26 findings to Ecology within fifteen (15) days of discovery of not meeting the
27 performance standard(s).
 - 28 4. Submit to Ecology within fifteen (15) days of discovery of not meeting the
29 performance standard(s) documentation supporting a mode of operation
30 where all performance standards listed in Permit Condition III.10.K.1.b.,
31 with the exception of Permit Condition III.10.K.1.b.x., for the HLW
32 Vitrification System were met during the demonstration test, if any such
33 mode was demonstrated.
 - 34 5. Based on the information provided to Ecology by the Permittees pursuant to
35 Permit Conditions III.10.K.1.h.iii.D.1 through 4 above, and any additional
36 information, Ecology may submit, in writing, direction to the Permittees to
37 stop dangerous and/or mixed waste feed to the HLW Vitrification System
38 and/or amend the mode of operation the Permittees are allowed to continue
39 operations prior to Ecology approval of the revised Demonstration Test Plan,
40 pursuant to Permit Condition III.10.K.1.h.iii.D.6.

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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 shall 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 submit, 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	Subsystem Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables and Figures
Melter Feed ^a System -Melter 1	HFP HCP		Section 4.2.4.1; Table 4-5 & 4-11, Figures 4A-1, 4A-4, 4A-26
HLW Melter 1	HMP		Section 4.2.4.2; Figures 4A-1, 4A-4, 4A-27
HLW Glass Product System-Melter 1	HMP		Section 4.2.4.2; Figures 4A-1, 4A-4, 4A-27
Film Cooler - Melter 1	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-27
Submerged Bed Scrubber /Condensate Collection Vessels ^a -Melter 1	HOP		Section 4.2.4.3; Table 4-5 & 4-11, Figures 4A-1, 4A-4, 4A-28
Wet Electrostatic Precipitator-Melter 1	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-28
High Efficiency Particulate Air Filters	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
High Efficiency Mist Eliminator	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-28
Thermal Catalytical Oxidation Unit	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Selective Catalytical Reduction Unit	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Silver Mordenite Column	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Electric Heaters	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Heat Exchangers	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Pumps	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-27, 4A-28, 4A-29
Booster Fans	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
HLW Stack	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29

4 a. Requirements pertaining to the tanks in HLW Vitrification System Melter Feed System, Submerged Bed
 5 Scrubber/Condensate Vessels are specified in Permit Section III.10.E.

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1 **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	
Ash Feed Rate	
Total Chlorine/Chloride Feed Rate	
Total Metal Feed-rates	

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4 **Table III.10.K.E- HLW Vitrification System Estimated Emission Rates (RESERVED)**

Chemicals	CAS Number	Emission Rates (grams /second)

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7 **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

8 *A continuous monitoring system shall be used as defined in Permit Section III.10.C.1.

9 ¹Maximum Feed-rate shall be set based on not exceeding any of the constituent (e.g., metals, ash, and
 10 chlorine/chloride) feed limits specified on Table III.10.K.D. of this Permit

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