



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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July 25, 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**  
JUL 30 2003  
**EDMC**

Dear Messrs. Schepens, Klein, and Henschel:

Re: Completion of the July 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:

- Pretreatment Facility (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-004 - Pretreatment Building ancillary equipment for tanks of the Plant Wash and Disposal (PWD) System below the 0 foot elevation;
- PTF-005 - Pretreatment Building tanks of the PWD System below the 0 foot elevation;

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- o PTF-006 - Pretreatment Building secondary containment for miscellaneous treatment units on the 0 foot elevation;
- o Low Activity Waste (LAW)-001 - Low Activity Waste Building secondary containment for tanks on the -21 foot elevation;
- o LAW-002 - Low Activity Waste Building tanks of the Radioactive Liquid Disposal (RLD) System on the -21 foot elevation;
- o LAW-003 - Low Activity Waste Building ancillary equipment of the RLD System on the -21 foot elevation; and
- o LAW-004 - Low Activity Waste Building container storage area on the -21 foot elevation.

Additional modifications clarify the definition of 'vendor information' 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 State of Basis for the modification. Changes 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, 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 location listed above.

If there are any questions regarding this letter, please call Ms. Suzanne Dahl at (509) 736-5705.

Sincerely,

*Mike Wilson by Jay Turner*

Michael A. Wilson  
Program Manager  
Nuclear Waste Program

SS:jc

Enclosures

See cc next page

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cc w/o enclosures: Nick Ceto, EPA  
Joel Hebdon, USDOE  
Tony McKarns, USDOE  
John Eschenberg, USDOE-ORP  
Lori Huffman, USDOE-ORP  
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Jim Rasmussen, USDOE-ORP  
Bill Taylor, USDOE-ORP  
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Bob Lawrence, BNI  
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Todd Martin, HAB  
Ken Niles, ODOE  
Fred Beraneck, WGI  
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Steve Piccolo, WGI  
Rick Gay, CTUIR  
Pat Sobotta, NPT  
Russell Jim, YIN

cc w/enclosures: Cathy Massimino, EPA  
Ecology Administrative Record, Kennewick Office (2)  
Administrative Record (2)  
Hanford Public Information Repository, WSU

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**

(New text is double underlined  
Deleted text is struck out)

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

1	10.8	Engineering Calculations (RESERVED)
2	10.9	Material Selection Documentation (RESERVED)
3	10.10	Critical Systems Equipment/Instrument List (RESERVED)
4	10.11	IQRPE Reports (RESERVED)
5	10.12	Installation Plans (RESERVED)
6	10.13	Instrument Control Logic and Narrative Description (RESERVED)
7	10.14	Descriptions of Instrument Installation and Testing Procedures (RESERVED)
8		
9	10.15	Demonstration Test Plan (RESERVED)
10	10.16	Demonstration Test Report (RESERVED)
11	10.17	Treatment Effectiveness Report (RESERVED)
12	10.18	Operating Documents (RESERVED)
13	Appendix 11.0	Laboratory Building
14	11.1	Process Flow Diagrams (RESERVED)
15	11.2	Piping and Instrumentation Diagrams (RESERVED)
16	11.3	System Description Documentation (RESERVED)
17	11.4	General Arrangement Drawings (RESERVED)
18	11.5	Civil, Structural, and Architectural Criteria and Typical Design Details (RESERVED)
19		
20	11.6	Mechanical Drawings (RESERVED)
21	11.7	Specifications (RESERVED)
22	11.8	Engineering Calculations (RESERVED)
23	11.9	Material Selection Documentation (RESERVED)
24	11.10	Critical Systems Equipment/Instrument List (RESERVED)
25	11.11	IQRPE Reports (RESERVED)
26	11.12	Installation Plans (RESERVED)
27	11.13	Instrument Control Logic and Narrative Description (RESERVED)
28	11.14	Descriptions of Instrument Installation and Testing Procedures (RESERVED)
29		
30	11.15	Operating Documents (RESERVED)
31	Appendix 12.0	Balance of Facilities
32	12.1	Process Flow Diagrams (RESERVED)
33	12.2	Piping and Instrumentation Diagrams (RESERVED)
34	12.3	System Description Documentation (RESERVED)
35	12.4	General Arrangement Drawings (RESERVED)
36	12.5	Civil, Structural, and Architectural Criteria and Typical Design Details (RESERVED)
37		
38	12.6	Mechanical Drawings (RESERVED)
39	12.7	Specifications (RESERVED)
40	12.8	Engineering Calculations (RESERVED)
41	12.9	Material Selection Documentation (RESERVED)
42	12.10	Critical Systems Equipment/Instrument List (RESERVED)
43	12.11	IQRPE Reports (RESERVED)
44	12.12	Installation Plans (RESERVED)
45	12.13	Instrument Control Logic and Narrative Description (RESERVED)
46	12.14	Descriptions of Instrument Installation and Testing Procedures (RESERVED)
47		
48	12.15	Operating Documents (RESERVED)

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

2 In addition to the conditions in this chapter, the Permittees must comply with all the  
3 applicable portions of the Dangerous Waste Portion and EPA portion of the Resource  
4 Conservation and Recovery Act (RCRA) Permit for the Hanford Facility. In the event that a  
5 Unit-Specific Condition for the WTP Unit in Conditions III.10.C. through III.10.K. conflicts  
6 with a general condition in Conditions I and II of this permit, the Unit-Specific Condition  
7 shall apply to the WTP Unit.

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

9 III.10.C.1 Facility-Specific Definitions and Acronyms

10 The following definitions are specific to the WTP Unit:

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

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

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

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

31 **“dangerous and/or mixed waste management unit”** means dangerous and/or mixed waste  
32 management units, areas, systems, and sub-systems as defined in Permit Tables III.10.D.A,  
33 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  
34 III.10.K.A.

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

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

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

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

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

1           **"one-minute average"** means the average of detector responses calculated at least every  
2 sixty (60) seconds from responses obtained at least every fifteen (15) seconds.

3           **"Permittees"** means the United States Department of Energy (owner/operator) and Bechtel  
4 National, Inc. (co-operator).

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

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

11           **"rolling average"** means the average of all one-minute averages over the averaging period.

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

16           **"standard operating procedure"** or **"SOP"** shall mean a written description of the  
17 procedures by which a process, equipment, etc. shall be operated. An SOP may be written  
18 by the manufacturer and/or the Permittees.

19           **"successful completion of the demonstration test"** shall mean operations including a  
20 minimum of three test runs without significant interruptions (i.e., each test run was  
21 completed on the same day initiated and the samples have been preserved and maintained  
22 intact, and one in which sampling of exhaust gas was representative of the LAW  
23 Vitrification System or HLW Vitrification System Operations, whichever is applicable, and  
24 adequate to achieve evaluation of PODCs destruction and removal efficiency (DRE) to  
25 99.99%).

26           **"TEQ"** means toxicity equivalence, the international method of relating the toxicity of  
27 various dioxin/furan congeners to the toxicity of 2,3,7,8- tetrachlorodibenzo-p-dioxin.

28           **"pre-process"** means prior to introduction into a dangerous or mixed waste management  
29 unit at the WTP Unit.

30           **"in-process"** means duration of a waste in a dangerous or mixed waste management unit at  
31 the WTP Unit.

32           **"post-process"** means prior to the introduction into a subsequent dangerous or mixed waste  
33 management unit at the WTP Unit or prior to shipment from the WTP Unit.

34           **"vendor information"** means documentation prepared by a vendor (e.g., catalog cut sheets) for plant  
35 items that are routinely manufactured and stocked by vendors (i.e., items that are considered "off the  
36 shelf") and are not being procured in accordance with Permittee's engineering drawings and  
37 specifications. Documentation such as catalog cut sheets shall be annotated to specify selected items  
38 which meet Permittee's procurement requirements. Documentation associated with "one of a kind",  
39 custom items, and commercial grade items (e.g., bulk pipe, valves) that will be procured in  
40 accordance with the Permittees engineering drawings and specifications is not considered vendor  
41 information. Changes to the drawings and specifications may require a permit modification.  
42

43           The following acronyms are specific to the WTP Unit:

44           AWFCO       Automatic Waste Feed Cut-off  
45           CEMS         Continuous Emissions Monitoring System  
46           CMS         Continuous Monitoring System

1	DFETP	Dioxin and Furan Emission Test Plan
2	DRE	Destruction and Removal Efficiency
3	Dscf	Dry standard cubic feet
4	ERP	Emergency Response Plan
5	IHLW	Immobilized High-Level Waste (Glass)
6	ILAW	Immobilized Low-Activity Waste (Glass)
7	IQRPE	Independent, qualified, registered, professional engineer
8	HLW	High-level Waste
9	LAW	Low Activity Waste
10	NCR	Nonconformance Report
11	PODC	Principal Organic Dangerous Constituents
12	RDTP	Revised Demonstration Test Plan
13	RPP-WTP	River Protection Project-Waste Treatment Plant
14	TOC	Total Organic Carbon
15	WTP	River Protection Project – Waste Treatment and Immobilization Project (also
16		known as the Waste Treatment Plant and Vitrification Plant)
17	6Mo	Six Percent Molybdenum Alloy
18	304L	ASTM A240 Grade 304L Stainless Steel
19	316L	ASTM A240 Grade 316L Stainless Steel

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

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

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

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

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

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

- 1 III.10.C.2.d. Dangerous and/or mixed waste may be transferred from the WTP TSD unit to a permitted  
2 TSD only, in accordance with the receiving TSD unit's waste acceptance criteria.
- 3 III.10.C.2.e. Permit modifications pursuant to this Permit for dangerous and/or mixed waste at the request  
4 of the Permittees must be done according to the three tiered modification system specified in  
5 WAC 173-303-830(4) and Condition I.C.3. The Permit modification request must include  
6 page changes to the Permit, attachments, and permit application supporting documentation  
7 necessary to incorporate the proposed permit modification.
- 8 III.10.C.2.f. In addition to other requirements in WAC 173-303-830, within forty-five (45) days of a  
9 permit change (i.e., permit modification) being put into effect or approved, the Permittees  
10 shall retype the relevant portions of the Permit and attachments, to incorporate the change (if  
11 not already reflected in the change pages submitted in the original permit modification  
12 request), reprint the documents, and submit them to Ecology. This submittal does not  
13 require certification described in WAC 173-303-810(13).
- 14 III.10.C.2.g. For permit modifications pursuant to Attachment 51, Appendix 1.0 of this Permit, a draft  
15 permit will be prepared and issued by Ecology pursuant to WAC 173-303-830(3)(a)(ii) and  
16 WAC 173-303-840. A final permit decision will be issued by Ecology pursuant to WAC  
17 173-303-840.
- 18 III.10.C.2.h. RESERVED
- 19 III.10.C.2.i. The Permittees shall submit a Part A, Form 3 Permit Application revision for Ecology  
20 approval 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., in accordance with the schedule in Attachment 51, Appendix  
22 1.0 of this Permit to incorporate changes to Tables III.10.D.A, III.10.E.A through D,  
23 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  
24 pursuant to the compliance schedule in Attachment 51, Appendix 1.0 of this Permit.
- 25 III.10.C.2.j. The Permittees shall submit to Ecology the potential disposal path(s), including the potential  
26 authorized TSD facilities, for each waste stream generated at the WTP Unit in accordance  
27 with the schedule in Attachment 51, Appendix 1.0 of this Permit for incorporation into the  
28 Administrative Record.
- 29 III.10.C.2.k. The Permittees shall submit to Ecology, traffic information at the WTP Unit pursuant to  
30 WAC 173-303-806(4)(a)(x), in accordance with the schedule in Attachment 51, Appendix  
31 1.0 of this Permit for incorporation into the Administrative Record.
- 32 III.10.C.2.l. During operations of the LAW Vitrification System and HLW Vitrification System,  
33 pursuant to Permit Sections III.10.H. and J., processing of materials in the LAW and HLW  
34 Vitrification Systems that would designate as dangerous waste are fully subject to the  
35 requirements of this Permit, excluding the melter feed system as identified in Tables  
36 III.10.H.A. and III.10.J.A., respectively. This exclusion does not apply to mixed waste.
- 37 III.10.C.3. Waste Analysis
- 38 III.10.C.3.a. The Permittees shall maintain adequate knowledge of any waste to be managed properly by  
39 the WTP Unit before acceptance, after receipt, and during treatment and storage of these  
40 waste. The Permittees will ensure this knowledge through compliance with the  
41 requirements of WAC-173-303-300 and with the provisions of the WAP, Attachment 51,  
42 Chapter 3.0 of this Permit [WAC 173-303-806(4)(a)(ii), WAC 173-303-300(1)].
- 43 III.10.C.3.b. When laboratory analytical methods are required to confirm the Permittees knowledge of the  
44 waste, the Permittees must ensure that the sampling and test procedures listed as acceptable  
45 by WAC 173-303-110, Appendices II and III to 40 CFR Part 261, the current revision of  
46 SW-846, or equivalent methods approved in writing by Ecology are used.

- 1 III.10.C.3.c. The Permittees are responsible for obtaining accurate information for each waste stream.  
2 Inaccurate waste analysis information provided by the generating site (or unit) is not a  
3 defense for noncompliance by the Permittees with the waste management requirements and  
4 conditions of this Permit, WAC 173-303, and the LDR in 40 CFR Part 268, as incorporated  
5 by reference in Chapter 173-303.
- 6 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  
7 maintained as described in Condition II.I.1. of this Permit. The WTP Unit operating record  
8 shall include, but not be limited to, information requirements for waste analysis in  
9 Conditions I.E.10 and II.I of this Permit.
- 10 III.10.C.3.e. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees  
11 shall submit to Ecology for review and approval a revised WAP and QAPP in Attachment  
12 51, Chapter 3.0 of this Permit as a permit modification pursuant to Conditions III.10.C.2.e  
13 and III.10.C.2.f, and Compliance Schedule in Attachment 51, Appendix 1.0. The revised  
14 WAP and QAPP shall include:
- 15 i. All the elements listed in WAC 173-303-300(5), Condition II.D.3 of this Permit (Waste  
16 Analysis), and in compliance with Condition II.E. of this Permit (Quality  
17 Assurance/Quality Control).
- 18 ii. Requirements that characterization shall be performed on the waste feed prior to  
19 transfer to the WTP Unit in conformance with the regulatory data quality objectives  
20 supporting the *Tank Waste Remediation System Privatization Project "Regulatory*  
21 *DQO" Process* (Wiemers and others, 1998), as amended. Requirements that the  
22 following analyses, at a minimum, shall be conducted on each new batch prior to waste  
23 transfer to the WTP Unit, in accordance with the methods under WAC 173-303-110:  
24 Ammonia, pH, metals, organic acids, mercury, cyanide, volatiles, semi-volatiles,  
25 PCBs/pesticides, anions, TOC, and compatibility (ASTM Method D5058-90). For the  
26 purposes of this Permit Condition, a "new batch" is one that has been sampled and  
27 analyzed in accordance with the *Tank Waste Remediation System Privatization Project*  
28 *"Regulatory DQO" Process* (Wiemers and others, 1998), and has received no further  
29 additions. Further additions require the Permittees to resample and reanalyze, unless an  
30 exception is approved by Ecology on a case-by-case basis. Only mixed waste meeting  
31 the definition of "new batch", or granted an exception as discussed above, are  
32 authorized for transfer to the WTP Unit. Water additions for the purposes of waste  
33 transfer are not considered additions for the purposes of this Permit Condition.
- 34 iii. Identify and include operating parameters to be monitored/controlled and limitations  
35 for these parameters for pre-process, in-process, and post-process operations addressing  
36 on a unit specific basis treatment effectiveness, as specified in Tables III.10.E.E  
37 through H, III.10.G.C, III.10.H.C, III.10.I.C, III.10.J.C, and III.10.K.C, waste  
38 compatibility, safe operation, and compatibility with unit materials of construction.  
39 Amend the sampling, analysis, and QA/QC procedures to include these parameters and  
40 the monitoring frequency.
- 41 iv. Requirements that the Permittees shall, for Type I sumps if liquids are detected, and for  
42 Type II sumps, as defined in Attachment 51, Chapter 4.0 of this Permit, if liquid levels  
43 are outside normal operating parameters, either collect the liquid and return to the  
44 treatment process, or designate the sump contents for proper management and disposal  
45 prior to removal.
- 46 v. For ILAW and IHLW containers, a description of procedures used to verify exterior  
47 container surfaces are visually free of mixed waste.

- 1 vi. Requirement that wastes generated at the WTP Unit meet the receiving authorized TSD  
2 facility waste acceptance criteria prior to a waste stream transfer.
- 3 vii. Requirements and criteria for reevaluation of sampling and analysis frequency for all  
4 waste streams.
- 5 viii. Documentation demonstrating methods for obtaining samples of wastes are  
6 representative as discussed in WAC 173-303-110(2).

7 **III.10.C.4. Recordkeeping**

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

14 **III.10.C.5 Procedure to Prevent Hazards**

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

17 **III.10.C.5.b.** Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees  
18 shall update and resubmit for approval Attachment 51, Chapter 6.0, Sections 6.3, 6.4, and  
19 6.5 as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, to  
20 be consistent with design details and schedule described in Attachment 51, Appendix 1.0.  
21 The WTP Unit fire protection systems shall be constructed to the applicable codes listed in  
22 Attachment 51, Chapter 6.0, Section 6.3.1.4. Updated Section 6.4.4. shall include  
23 descriptions of the essential loads and critical systems supplied with back-up, un-  
24 interruptible, and standby power.

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

- 36 i. Detailed dangerous and/or mixed waste management unit specific and general inspection  
37 schedules and description of procedures (not examples) pursuant to WAC 173-303-  
38 395(1)(d), 173-303-630(6), 173-303-640(4)(a)(i) and (6), 173-303-670(7)(b) in  
39 accordance with 173-303-680(3), 40 CFR, 264.1101(c)(4). The inspection schedule  
40 shall be presented in the form of a table that includes a description of the inspection  
41 requirement, inspection frequency, and types of problems to look for during the  
42 inspections.
- 43 ii. The proposed locations (scaled drawing with layout) and capabilities of camera(s) (i.e.,  
44 zoom angles, field of view, etc.) to be used for remote inspections.
- 45 iii. Schedule and program description for performing integrity assessments as specified in  
46 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.,  
47 III.10.J.5.e.i., and III.10.K.1.a.v.

- 1           iv. Inspection schedules for leak detection system and control instrumentation to include,  
2           but not limited to, valves pressure devices, flow devices, measuring devices, as  
3           specified in Permit Conditions III.10.E.9.e.xi, III.10.F.3.c, and III.10.G.10.e.xii, and  
4           Permit Conditions III.10.H.5.f.xvi, and III.10.J.5.f.xvi.
- 5           v. Inspection schedule shall include inspections for all dangerous and/or mixed waste  
6           management units specified in Permit Sections III.10.D, E, F, G, H, I, J, and K.
- 7   III.10.C.5.d. The Permittees shall equip the WTP Unit with the equipment specified in Attachment 51,  
8           Chapter 6.0, as required by WAC 173-303-340(1) and Condition II.B.1 of this Permit.
- 9   III.10.C.5.e. The Permittees shall test and maintain the equipment specified in Attachment 51, Chapter  
10           6.0, as necessary, to assure proper operation in the event of emergency as required by  
11           Condition II.B.2 of this Permit.
- 12
- 13   III.10.C.5.f. The Permittees shall maintain access to communications or alarms pursuant to WAC 173-  
14           303-340(2), as provided in the *RPP-WTP Emergency Response Plan*, Attachment 51,  
15           Chapter 7.0 as required by Condition II.B.3 of this Permit.
- 16   III.10.C.6. Contingency Plan
- 17   III.10.C.6.a. The Permittees shall immediately carry out applicable provisions of the *RPP-WTP*  
18           *Emergency Response Plan*, Attachment 51, Chapter 7.0 of this Permit, pursuant to WAC  
19           173-303-360(2), whenever there is a release of dangerous and/or mixed waste or dangerous  
20           waste constituents, or other emergency circumstance, any of which threatens human health  
21           or the environment.
- 22   III.10.C.6.b. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees  
23           shall update and resubmit the Contingency Plan in compliance with Attachment 51, Chapter  
24           7.0, and pursuant to WAC 173-303-350(5), as a permit modification pursuant to Permit  
25           Conditions III.10.C.2.e and III.10.C.2.f, to be consistent with design details and schedule  
26           described in Attachment 51, Appendix 1.0.
- 27   III.10.C.6.c. After initial receipt of dangerous and/or mixed waste, the Permittees shall review and  
28           amend, if necessary, the applicable portions of the Contingency Plan, Attachment 51,  
29           Chapter 7.0 of this Permit, and in accordance with the provisions of WAC 173-303-350(5)  
30           and WAC 173-303-830(4). The Contingency Plan shall be amended as a permit  
31           modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f.
- 32   III.10.C.6.d. RESERVED.
- 33   III.10.C.6.e. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees  
34           shall comply with the requirements of WAC 173-303-350(3) and -360(1) concerning the  
35           emergency coordinator specific to the WTP Unit in compliance with Permit Condition  
36           II.A.4.
- 37   III.10.C.7. Training Plan
- 38   III.10.C.7.a. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees  
39           shall update and resubmit, to Ecology for review and approval, the Training Program  
40           description in Attachment 51, Chapter 8.0 of this Permit as a permit modification pursuant to  
41           Permit Conditions III.10.C.2.e and III.10.C.2.f, and Compliance Schedule in Attachment 51,  
42           Appendix 1.0. The revised Training Program description shall include but not be limited to:
- 43           i. Detailed unit specific and general Training Program descriptions (not typical)  
44           consistent with WAC 173-303-806(4)(a)(xii).
- 45           ii. Sufficient detail to document that the training and qualification program for all  
46           categories of personnel whose activities may reasonably be expected to directly affect

- 1 emissions from the LAW and HLW Systems, except control room operators, is  
2 appropriately consistent with 40 CFR 63.1206(c)(6)(ii), and for control room operators,  
3 is appropriately consistent with 40 CFR 63.1206(c)(6)(i) and 63.1206(c)(6)(iii) through  
4 63.1206(c)(6)(vi) [WAC 173-303-680(2)].
- 5 III.10.C.7.b. The Permittees shall ensure that the LAW and HLW Systems are operated and maintained,  
6 at all times, by persons who are trained and qualified to perform these and any other duties  
7 that may reasonably be expected to directly affect emissions from the LAW and HLW  
8 Systems [WAC 173-303-680(2)].
- 9 III.10.C.7.c. The Permittees shall conduct personnel training in accordance with the approved description  
10 of the WTP Unit Training Plan, Attachment 51, Chapter 8.0 of this Permit, pursuant to  
11 WAC 173-303-330. The Permittees shall maintain documents in accordance with Condition  
12 II.C.1. of this Permit and WAC 173-303-330(2) and (3).
- 13 III.10.C.7.d. RESERVED.
- 14 III.10.C.7.e. The Permittees shall submit, under separate cover, the actual detailed WTP Unit Dangerous  
15 Waste Training Plan in accordance with the Compliance Schedule in Attachment 51,  
16 Appendix 1.0. The WTP Unit Dangerous Waste Training Plan will be reviewed for  
17 compliance with the outline of the training program in Attachment 51, Chapter 8.0 and  
18 requirements of WAC 173-303-330. The Training Plan will be incorporated into the  
19 Administrative Record.
- 20 III.10.C.8. Closure
- 21 III.10.C.8.a. The Permittees must conduct closure of the WTP Unit according to the Closure Plan in  
22 Attachment 51, Chapter 11.0, and Conditions II.J. (Facility Closure), II.K. (Soil/Ground  
23 Water Closure Performance Standards), and III.10.C.8. of this Permit. The closure plan  
24 shall be modified according to provisions of WAC 173-303-610(3)(b)(ii).
- 25 III.10.C.8.b. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees  
26 shall update and resubmit the Closure Plan, Attachment 51, Chapter 11.0 of this Permit, for  
27 approval as a permit modification pursuant to Permit Condition III.10.C.2.g., to be  
28 consistent with design details and schedule described in Attachment 51, Appendix 1.0. The  
29 updated Closure Plan must be consistent with the closure performance standards specified in  
30 Permit Condition II.K, WAC 173-340 and, in addition for Containment Buildings, consistent  
31 with 40 CFR 264.1102(b) as referenced by WAC 173-303-695.
- 32 III.10.C.8.c. The Permittees shall submit, for Ecology review and approval, an update to the Closure  
33 Plan, Attachment 51, Chapter 11.0 within one hundred eighty (180) days prior to  
34 commencing partial closure, as a permit modification pursuant to Permit Conditions  
35 III.10.C.2.e and III.10.C.2.f.
- 36 III.10.C.8.d. One hundred eighty (180) days prior to commencing closure, the Permittees must submit to  
37 Ecology, for review and approval, a Sampling and Analysis Plan and a revised Closure Plan  
38 as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f.
- 39 III.10.C.8.e. At least forty-five (45) days before initiating closure, the Permittees must provide  
40 Notification of Closure pursuant to WAC 173-303-610(3)(c).
- 41 III.10.C.8.f. Ecology may require additional sampling and/or investigation after the Permittees  
42 implement the approved Sampling and Analysis Plan if Ecology determines that the  
43 sampling and analyses have not adequately demonstrated whether clean closure has been  
44 achieved. Such a requirement will be implemented pursuant to WAC 173-303-830(3).  
45 Additional sampling and analysis may be required for the following reasons:

- 1 i. Specialized sample collection or analytical techniques are required to ensure adequate  
2 quantitation limits for chemical constituents; or
- 3 ii. Results indicate the need to analyze for additional constituents at certain locations; or
- 4 iii. Results indicate additional soil or groundwater sampling is required in certain  
5 locations; or
- 6 iv. Other reasons indicate the Sampling and Analysis Plan has not adequately  
7 demonstrated whether clean closure has been achieved.

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

9 III.10.C.8.h. Documentation supporting the independent registered professional engineer's certification of  
10 closure must be submitted to Ecology with the closure certification required by WAC 173-  
11 303-610(6). In addition to the items in Attachment 51, Chapter 11.0, the documentation  
12 must include the following and other information Ecology may request. The Permittees are  
13 required to furnish documentation supporting the independent registered professional  
14 engineer's certification to Ecology upon request, until Ecology has notified the Permittees in  
15 writing that Ecology agrees with and has accepted the Permittees' closure certification:

- 16 i. Sampling procedures that were followed;
- 17 ii. soil and concrete locations that were sampled;
- 18 iii. Sample labeling and handling procedures that were followed, including chain of  
19 custody procedures;
- 20 iv. Description of procedures that were followed to decontaminate concrete or metal to  
21 meet the clean closure standards as set by Ecology, on a case by case basis, in  
22 accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii) and  
23 in a manner that minimizes or eliminates post-closure escape of dangerous waste  
24 constituents, or to achieve a "clean debris surface" as specified in 40 CFR 268.45,  
25 Table 1, concrete surfaces, as incorporated by reference in WAC 173-303-140. [WAC  
26 173-303-610(2)(b)(ii)].
- 27 v. Laboratory and field data, including supporting QA/QC summary;
- 28 vi. Report that summarizes closure activities;
- 29 vii. Copy of all field notes taken by the independent registered professional engineer; and  
30 viii. Copy of all contamination survey results.

31 III.10.C.9. Critical Systems

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

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

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

42 III.10.C.9.d. The Permittees shall submit a nonconformance report (NCR) to the Ecology representative,  
43 as applicable, within five (5) calendar days of the Permittees becoming aware of

1 incorporation of minor nonconformance from the approved designs, plans, and  
2 specifications into the construction of critical systems, as defined in the Hanford Site-wide  
3 Permit definition section. Such minor nonconformance shall be defined, for the purposes of  
4 this Permit Condition, as nonconformance that is necessary to accommodate proper  
5 construction and the substitution of the use of equivalent or superior materials or equipment  
6 that do not substantially alter the Permit conditions or reduce the capacity of the facility to  
7 protect human health or the environment. Such minor nonconformance shall not be  
8 considered a modification of this Permit. If Ecology determines that the nonconformance is  
9 not minor, it will notify the Permittees in writing that a permit modification is required for  
10 the deviation and notify the Permittees in writing whether prior approval is required from  
11 Ecology before work proceeds which affect the nonconforming item.

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

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

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

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

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

48 III.10.C.10 Equivalent Materials

1 III.10.C.10.a. If certain equipment, materials, and administrative information (such as names, phone  
2 numbers, addresses) are specified in this Permit, the Permittees may use equivalent or  
3 superior substitutes. Use of such equivalent or superior items within the limits (e.g.,  
4 ranges, tolerances, and alternatives) already clearly specified in sufficient detail in  
5 Attachment 51 of this Permit, are not considered a modification of this Permit. However,  
6 the Permittees must place documentation of the substitution, accompanied by a narrative  
7 explanation and the date the substitution became effective in the operating record within  
8 seven (7) days of putting the substitution into effect, and submit documentation of the  
9 substitution to Ecology. Upon review of the documentation of the substitution, if deemed  
10 necessary, Ecology may require the Permittees to submit a permit modification in  
11 accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f.

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

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

20 III.10.C.11. Risk Assessment

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

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

39 III.10.C.11.b. The Permittees shall submit for Ecology approval, prior to initial receipt of dangerous  
40 and/or mixed waste in the WTP Unit, a Pre-Demonstration Test Risk Assessment Report as  
41 Attachment 51, Appendix 6.3 addressing direct and indirect human health and ecological  
42 risks performed pursuant to Ecology approved work plan under Permit Condition  
43 III.10.C.11.a. This report shall also include submittal of projected stack emissions data in  
44 Tables III.10.G.D., III.10.H.E., and III.10.J.E. of this Permit and Attachment 51, Appendix  
45 6.3.1 (Basis and Assumptions), completed and updated which details the basis and  
46 assumptions for these emissions, including but not limited to, projected operating

1 conditions, feed-rates, and treatment effectiveness, consistent with information provided  
2 and approved pursuant to Permit Conditions III.10.G.6., III.10.G.10., III.10.H.5., and  
3 III.10.J.5. as a permit modification pursuant to Permit Conditions III.10.C.2.e. and  
4 III.10.C.2.f.

5 III.10.C.11.c. Within ninety (90) days of Ecology approval of the Demonstration Report(s) submitted  
6 pursuant to Permit Condition III.10.H.3.d.i, the Permittees shall submit a Final Risk  
7 Assessment Report as Attachment 51, Appendix 6.4, incorporating the emission test results  
8 from the Demonstration Report(s). The Final Risk Assessment Report shall be prepared in  
9 accordance with the Risk Assessment Work Plan, as approved by Ecology pursuant to  
10 Permit Condition III.10.C.11.a, except the following updates are hereby incorporated. The  
11 Permittees shall also submit with this Final Risk Assessment Report, Tables III.10.G.D. and  
12 III.10.I.E. of this Permit and Attachment 51, Appendix 6.4.1 (Basis and Assumptions)  
13 updated to incorporate the emissions data from this Final Risk Assessment Report(s), as a  
14 permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f.

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

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

- 36 i. Toxicity data current at the time of the submittal;
- 37 ii. Compounds newly identified or updated emissions data from current waste  
38 characterization and emission testing;
- 39 iii. Air modeling updated to include stack gas parameters based on most current emissions  
40 testing;
- 41 iv. Physical/transport properties of constituents current at the time of the submittal;
- 42 v. Update of receptor locations based on land use or land use zoning changes, if any;
- 43 vi. Process description based on current WTP Unit design;
- 44 vii. Emissions data and all supporting calculations based on current WTP Unit; and

- 1                   viii. Data from final risk assessment report pursuant to Permit Condition III.10.C.11.c, if  
2                   available first, or simultaneously.
- 3   III.10.C.11.e. The Final Risk Assessment Report(s) required by Permit Conditions III.10.C.11.c. and  
4                   III.10.C.11.d. may be combined, or provided separately, as appropriate.
- 5   III.10.C.12   Air Emissions
- 6   III.10.C.12.a Prior to installing or using any equipment subject to the requirements of WAC 173-303-  
7                   690, the Permittees shall obtain a Permit Modification following the Permit Condition  
8                   III.10.C.2.g. process to incorporate WAC 173-303-690 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.b Prior to installing or using any equipment subject to the requirements of WAC 173-303-  
12                  691, the Permittees shall obtain a Permit Modification following the Permit Condition  
13                  III.10.C.2.g. process to incorporate WAC 173-303-691 standards into the permit  
14                  application and this Permit prior to generation/receipt of dangerous and/or mixed waste in  
15                  the WTP Unit.
- 16   III.10.C.12.c The Permittees shall comply with the organic air emission standards as set forth in WAC  
17                  173-303-692. The Permittees shall obtain a permit modification following the Permit  
18                  Condition III.10.C.2.g. process to incorporate WAC 173-303-692 standards into the permit  
19                  application and this Permit prior to generation/receipt of dangerous waste in the WTP Unit.
- 20   III.10.C.13   Remote Data Access
- 21                   Onsite, unrestricted, twenty-four (24) hour access to key WTP Unit operating data and  
22                   emissions monitoring data shall be provided to Ecology. This onsite, unrestricted access  
23                   shall include providing and maintaining for Ecology only use a computer terminal and  
24                   printer linked to key WTP Unit operating data and emissions monitoring data. This  
25                   terminal shall be equipped with all necessary software and hardware to monitor, retrieve,  
26                   and trend this data. Additional remote access will be provided on Ecology request if  
27                   security concerns can be addressed.
- 28   III.10.C.14.   Performance Test Demonstrations
- 29                   The performance test program will demonstrate that the melter and melter off-gas systems  
30                   are capable of 99.99% Destruction Removal Efficiency (DRE) for organics pursuant to  
31                   Permit Conditions III.10.H.1.b.i. and III.10.J.1.b.i. The test program will include analyses  
32                   and a demonstration with a pilot scale melter using high concentrations (above rated design  
33                   limits) of organic spikes in order to obtain detectable output concentrations upon which to  
34                   determine DRE. The pilot scale performance test plan will be submitted by the Permittees to  
35                   Ecology by January 31, 2004. Ecology approval of the of the pilot scale melter test plan is  
36                   expected by March 31, 2004. Demonstration of compliance with the 99.99% DRE listed in  
37                   Permit Conditions III.10.H.1.b.i. and III.10.J.1.b.i. in the pilot scale melter shall be  
38                   conducted in accordance with the approved pilot scale melter test plan and completed by  
39                   November 15, 2004. If the test compromises the ability of the melter to continue operations  
40                   due to high organic spikes, as defined by the approved pilot scale test performance test plan,  
41                   then no further full-scale, high-organic demonstration testing on the WTP Unit melters shall  
42                   be required. The testing of the installed, operational WTP Unit melters and off-gas systems  
43                   will use pilot scale pilot melter test data and revised WTP Unit test parameters for the full  
44                   scale demonstration test.
- 45                   The pilot scale performance test plan will include the following information:
- 46                   i.   Discussion on how the pilot scale melter reasonably simulates operations in the LAW  
47                   and HLW Vitrification Systems;

- 1 ii. Identification of high organic spikes test levels, spiking methods, and types of
- 2 chemicals to be used for spiking;
- 3 iii. Definition of expected waste feed organic content (concentration and types), plus sugar
- 4 content, plus organic spike content (concentration and types);
- 5 iv. Identification of proposed test conditions, including consideration of testing combined
- 6 organics and metals, as well as separate metal and organic testing; and
- 7 v. Identification of the criteria for test success or failure and a discussion of how the
- 8 results will be interpreted.

9 Results from the Test Report will be incorporated into the full-scale demonstration test.

10 III.10.D. CONTAINERS

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

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

18 III.10.D.1.b. The Permittees may place and store dangerous and mixed waste only in approved container  
19 storage areas and containment systems listed in Permit Tables III.10.D.A, III.10.D.B, and  
20 III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10.), in accordance  
21 with Permit Section III.10.D, and in accordance with Attachment 51, Chapters 1.0 and 4.0,  
22 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,  
23 10.18, 12.4, 12.5, 12.7, 12.8, 12.9, and 12.15 of this Permit, as approved pursuant to Permit  
24 Conditions III.10.D.10.b. through d. The Permittees shall limit the total volume of waste to  
25 quantities specified for the individual container storage areas listed in Permit Table  
26 III.10.D.A.

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

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

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

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

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

44 III.10.D.2.a. The Permittees shall construct container storage areas identified in Permit Table III.10.D.A  
45 (as approved/modified pursuant to Permit Condition III.10.D.10.), as specified in all

1 applicable drawings and specifications in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9,  
2 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.b. The Permittees shall construct all permanent containment systems identified in Permit Table  
5 III.10.D.B (as approved/modified pursuant to Permit Condition III.10.D.10.), as specified in  
6 all applicable drawings and specifications in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8,  
7 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  
8 pursuant to Permit Condition III.10.D.10.b.

9 III.10.D.2.c. All container storage areas and containment systems identified in Permit Tables III.10.D.A,  
10 III.10.D.B, and III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10.),  
11 must be constructed, or operated to protect containers from contact with accumulated liquids  
12 (e.g., leaks, spills, precipitation, fire water, liquids from damaged or broken pipes) [WAC  
13 173-303-630(7)(a)(i) and WAC 173-303-630(7)(c)(ii)].

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

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

19 III.10.D.3.a. RESERVED.

20 III.10.D.3.b. The Permittees shall obtain and place in the WTP Unit operating record, within thirty (30)  
21 days of completion of each container storage area and containment system identified in  
22 Permit Tables III.10.D.A, and III.10.D.B (as approved/modified pursuant to Permit  
23 Condition III.10.D.10.), written statements by a qualified, installation inspector or a  
24 qualified registered, professional engineer, attesting that these areas were installed in  
25 compliance with WAC 173-303-630(7)(a), (b), and (c) [WAC 173-303-630(7), WAC 173-  
26 303-340].

27 III.10.D.4 Container Management Practices

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

30 III.10.D.4.b. The Permittees shall manage all containerized dangerous and mixed waste for container  
31 storage areas and containment systems identified in Permit Tables III.10.D.A, III.10.D.B,  
32 and III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10.), in  
33 accordance with procedures described in Attachment 51, Chapter 4.0, Appendices 9.18,  
34 10.18, and 12.15 of this Permit, as approved pursuant to Permit Condition III.10.D.10.c, and  
35 the following conditions:

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

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

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

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

- 44 III.10.D.5.a. Pursuant to WAC 173-303-630(3), the Permittees shall ensure that all dangerous and/or  
45           mixed waste containers (except as otherwise specified in Attachment 51, Chapter 4.0,  
46           Section 4.2.1.3., as updated pursuant to Permit Condition III.10.D.10.c.i., for containers of

1 ILAW and IHLW) are labeled in a manner that adequately identifies the major risk(s)  
2 associated with the contents. For purposes of container labeling, major risk(s) could include  
3 but are not limited to the following:

- 4 i. PERSISTENT (if a WP01 or WP02 waste code);
- 5 ii. TOXIC (if a WT01, WT02, or D waste code other than D001, D002, or D003);
- 6 iii. FLAMMABLE (if a D001 and other waste codes);
- 7 iv. CORROSIVE (if a D002 and other waste codes);
- 8 v. REACTIVE (if a D003 and other waste codes).

9 III.10.D.5.b. For all dangerous and mixed waste containers (except as otherwise specified in Attachment  
10 51, Chapter 4.0, Section 4.2.1.3., as updated pursuant to Permit Condition III.10.D.10.c.i.,  
11 for containers of ILAW and IHLW), the Permittees shall ensure that:

- 12 i. Labels are not obscured or otherwise unreadable;
- 13 ii. Waste containers are oriented so as to allow inspection of the labels identified in Permit  
14 Conditions III.10.D.5.a and III.10.D.5.b, the container tracking number, and, to the  
15 extent possible, any labels which the generator placed upon the container; and
- 16 iii. Empty dangerous and mixed waste containers, as defined by WAC 173-303-160(2),  
17 must have their dangerous and/or mixed waste labels destroyed or otherwise removed  
18 immediately upon being rendered empty.

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

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

24 III.10.D.6.a. Containerized dangerous and mixed waste, and other materials that are incompatible, shall  
25 not be staged, segregated, or stored within the same containment system as identified in  
26 Permit Tables III.10.D.B. and III.10.D.C., as approved/modified pursuant to Permit  
27 Condition III.10.D.10. (e.g., metal pan, concrete berm, portable containment system) [WAC  
28 173-303-630(9)(c)].

29 III.10.D.6.b. The integrity of containment systems identified in Permit Tables III.10.D.B. and III.10.D.C.  
30 (as approved/modified pursuant to Permit Condition III.10.D.10.) must be maintained in  
31 accordance with WAC 173-303-630(7)(a)(i). Cracks, gaps, loss of integrity, deterioration,  
32 corrosion, or erosion of containment pads, joints in containment pads, berms, curbs,  
33 trenches, sumps, and coatings must be repaired in accordance with Attachment 51, Chapter  
34 6.0 of this Permit, as approved/modified pursuant to Permit Conditions III.10.D.10.c.vii.,  
35 III.10.C.5.b., and III.10.C.5.c. [WAC 173-303-320, WAC 173-303-630(7)(a)(i)].

36 III.10.D.6.c. An impermeable coating, as specified in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9,  
37 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  
38 concrete containment systems identified in Permit Table III.10.D.B (as approved/modified  
39 pursuant to Permit Condition III.10.D.10.) and shall meet the following performance  
40 standards [WAC 173-303-630(7)(a)]:

- 41 i. The coating must seal the containment system surface such that no cracks, seams, or  
42 other pathways through which liquid could migrate are present;
- 43 ii. The coating must be of adequate thickness and strength to withstand the normal  
44 operation of equipment and personnel within the given area such that degradation or

1 physical damage to the coating or lining can be identified and remedied before waste  
2 could migrate from the containment system; and

3 iii. The coating must be compatible with the waste managed in the containment system.

4 III.10.D.6.d. The Permittees must inspect all containment systems specified in Permit Tables III.10.D.B  
5 and III.10.D.C in accordance with the inspection schedules and requirements in Attachment  
6 51, Chapter 6.0, as approved/modified pursuant to Permit Conditions III.10.D.10.e.vii. and  
7 III.10.C.5.c, and take the following actions if liquid is detected in these containment  
8 systems:

9 i. Remove the liquid from the containment system in accordance with procedures  
10 described in Attachments 51, Chapter 6.0, (as modified pursuant to Permit Conditions  
11 III.10.C.5.b. and III.10.C.5.c.), Permit Condition III.10.C.6.a., and Attachment 51,  
12 Chapter 7.0 (as modified pursuant to Permit Condition III.10.C.6.b.). The liquid  
13 removed from containment systems shall be managed as dangerous and/or mixed  
14 waste, except for liquids from the Non-Radioactive Dangerous Waste Container  
15 Storage Area which shall be managed as dangerous waste, unless the Permittees  
16 demonstrate, to Ecology's satisfaction, that the liquid is not a dangerous waste.

17 ii. Determine the source of the liquid.

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

20 iv. The Permittees must take action to ensure the incident that caused liquid to enter the  
21 containment system will not reoccur.

22 v. The Permittees shall document in the WTP Unit operating record actions/procedures  
23 taken to comply with i. through iv. above in accordance with WAC 173-303-630(6).

24 vi. The Permittees shall notify and report releases to the environment to Ecology in  
25 accordance with Permit Condition III.10.C.6.a.

26 III.10.D.7 Inspections

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

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

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

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

38 III.10.D.9. Closure

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

42 III.10.D.10. Compliance Schedules

- 1 III.10.D.10.a. All information identified for submittal to Ecology in III.10.D.10.b. through III.10.D.10.d.  
2 of this compliance schedule must be signed in accordance with requirements in WAC 173-  
3 303-810(12).
- 4 III.10.D.10.b. The Permittees shall submit to Ecology, consistent with the schedule described in  
5 Attachment 51, Appendix 1.0, for review and approval, prior to construction of container  
6 storage area and permanent containment systems as identified in Permit Tables III.10.D.A  
7 and III.10.D.B respectively, engineering information as specified below, for incorporation  
8 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,  
9 12.5, 12.7, 12.8, and 12.9 of this Permit. In order to incorporate engineering information  
10 specified below into Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7,  
11 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  
12 followed. At a minimum, container storage area and permanent containment system  
13 drawings and specifications will show the following pursuant to WAC 173-303-806(4)(b)  
14 and WAC 173-303-630:
- 15 i. Design drawings (General Arrangement Drawings - in plan and cross sections) and  
16 specifications including references to specific building codes (e.g., UBC, ASCE) for  
17 each container storage areas' foundation and permanent containment systems. These  
18 items should show basic design parameters and dimensions, and location of the  
19 container storage areas and permanent containment systems; how permanent  
20 containment system design promotes positive drainage control (such as a locked  
21 drainage valve) to prevent release of contaminated liquids and so that uncontaminated  
22 liquids can be drained promptly for convenience of operation; capacity of the  
23 permanent containment system relative to the volume of the largest container to be  
24 stored; for permanent containment systems, how the base underlying the containers is  
25 sloped (i.e., floor slopes to sumps) or the containment system is otherwise designed  
26 and operated to drain and remove liquids resulting from leaks, spills, or other liquids,  
27 or how containers are kept from contact with standing liquids in the permanent  
28 containment system (i.e., elevated or are otherwise protected); for container storage  
29 areas without permanent containment systems, a description of how the storage area is  
30 designed or operated to drain and remove liquids or how containers are kept from  
31 contact with standing liquids;
  - 32 ii. Permanent containment systems materials selection documentation (including, but not  
33 limited to, materials of construction, coatings and liner materials for concrete portions  
34 of containment systems);
  - 35 iii. Sketches, drawings, or data demonstrating compliance with WAC 173-303-630(8)  
36 (location of buffer zone and containers holding ignitable or reactive waste) and WAC  
37 173-303-630(9)(c) (location of incompatible waste), where applicable;
  - 38 iv. Submit Permit Table III.10.D.B. completed to provide for all permanent containment  
39 systems, the information as specified in each column heading, consistent with  
40 information to be provided in i. through iii. above.
- 41 III.10.D.10.c. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees  
42 shall update and submit to Ecology, consistent with the schedule described in Attachment  
43 51, Appendix 1.0, for review and approval, the following, as specified below, for  
44 incorporation into Attachment 51, Chapter 4.0, and Appendices 9.18, 10.18, and 12.15 of  
45 this Permit, except Permit Condition III.10.D.10.c.vii., which will be incorporated into  
46 Attachment 51, Chapter 6.0 of this Permit. In order to incorporate the following  
47 information (specified below) into Attachment 51, Appendix 9.18, 10.18, and 12.15, Permit  
48 Condition III.10.C.2.g. will be followed. All information provided under this permit  
49 condition must be consistent with information provided pursuant to Permit Conditions

1 III.10.D.10.b., III.10.D.10.c., and III.10.D.10.d. as approved by Ecology, and will include  
2 at a minimum, the following information as required pursuant to WAC 173-303-630 and  
3 WAC 173-303-340:

- 4 i. Attachment 51, Chapter 4.0, Narrative Descriptions, updated;
- 5 ii. Descriptions of procedures for addition and removal of waste from containers;
- 6 iii. Descriptions of procedures for opening and closing of containers, including any  
7 inspections performed prior to opening;
- 8 iv. Descriptions of procedures for handling and transport of containers within the WTP  
9 Unit;
- 10 v. Description of the tracking system used to track containers throughout the WTP Unit  
11 pursuant to WAC 173-303-380. The tracking system, at a minimum, will do the  
12 following:
- 13 A. Track the location of containers within the WTP Unit;
- 14 B. Track which containers have been shipped off-facility and/or off-site, and to  
15 where they have been shipped;
- 16 C. For containers intended for transport off-site, include information in accordance  
17 with the requirements specified in WAC 173-303-190(3)(b);
- 18 D. Record the date container is placed in the container storage area;
- 19 E. Record the nature of the waste in any given container, including dangerous waste  
20 designation codes, any associated land disposal restriction treatment requirements,  
21 and the major risk(s) associated with the waste (as described in Permit Conditions  
22 III.10.D.5.a. and III.10.D.5.c.).
- 23 vi. Descriptions of procedures for container spacing, stacking, and labeling pursuant to  
24 WAC 173-303-630(3), WAC 173-303-630(5)(c), WAC 173-303-340(3), WAC 173-  
25 303-630(6);
- 26 vii. Descriptions of procedures for investigating container storage areas and investigating  
27 and repairing containment systems [WAC 173-303-320, WAC 173-303-630(6)];
- 28 viii. Descriptions of procedures for responding to damaged (e.g., severe rusting, apparent  
29 structural defects) or leaking containers [WAC 173-303-630(2)];
- 30 ix. Descriptions of operational procedures demonstrating how accumulated liquids can be  
31 analyzed and removed from permanent and portable containment systems to prevent  
32 overflow [WAC 173-303-806(4)(b)(i)(E)];
- 33 x. For portable containment systems, vendor information, design drawings, or sketches  
34 showing the following information. These items shall include as a minimum basic  
35 design parameters, dimensions, and materials of construction; how the design  
36 promotes positive drainage control (such as a locked drainage valve) to prevent release  
37 of contaminated liquids and so that uncontaminated liquids can be drained promptly  
38 for convenience of operation; how the base underlying the containers is sloped (i.e.,  
39 floor slopes to sumps) or the containment system is otherwise designed and operated  
40 to drain and remove liquids resulting from leaks, spills, or other liquids, or how  
41 containers are kept from contact with standing liquids in the containment system (i.e.,  
42 elevated or are otherwise protected); and capacity of the containment system relative  
43 to the volume of the largest container to be stored;

- 1 xi. Where ignitable and reactive waste are stored or otherwise managed in containers, a  
2 description of the procedures used to ensure compliance with WAC 173-303-630(8)(a)  
3 and (b);
- 4 xii. Where incompatible waste are stored or otherwise managed in containers, a  
5 description of the procedures used to ensure compliance with WAC 173-303-630(9)(a)  
6 and (b), and 173-303-395(1)(b) and (c);
- 7 xiii. Submit Permit Table III.10.D.C completed to provide for all portable containment  
8 systems, the information as specified in each column heading, consistent with  
9 information to be provided in i. through xii. above;
- 10 xiv. Test procedures and results or other documentation or information to show that the  
11 waste do not contain free liquids, as applicable.
- 12 III.10.D.10.d. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees  
13 shall submit to Ecology, consistent with the schedule described in Attachment 51,  
14 Appendix 1.0, for review and approval, completed Permit Tables III.10.D.A, III.10.D.B,  
15 and III.10.D.C, for incorporation into Attachment 51, Chapter 4.0, and Appendices 9.18,  
16 10.18, and 12.15 of this Permit. In order to incorporate the information into Attachment  
17 51, Chapter 4.0, and Appendices 9.18, 10.18, and 12.15 of this Permit, Permit Condition  
18 III.10.C.2.g. process will be followed.  
19

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

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

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<sup>a</sup> Capacity is for immobilized glass waste storage.  
<sup>b</sup> Capacity is for dangerous and/or mixed waste storage.  
<sup>c</sup> All material within the containment systems will be considered waste for the purposes of calculating free volume, where free volume is the amount of space available in containment systems (i.e., free volume = total capacity of containment systems [which includes total capacity of portable containment systems] minus volume occupied by equipment and containers within containment systems).  
<sup>d</sup> Gallons converted to cubic feet using a conversion factor of 1 gallon (liquid) x 0.134 = 1ft<sup>3</sup> (rounded to the nearest whole number).  
<sup>e</sup> Location and capacities of containers stored within portable containment systems specified on Table III.10.D.C are limited to the dangerous and mixed waste container storage areas and capacities specified above.

**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<sup>a</sup>**

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

<sup>a</sup> Location and capacities of containers stored within portable containment systems specified on this Permit Table are limited to the dangerous and mixed waste container storage areas and capacities specified in Permit Table III.10.D.A.

**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 I,  
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  
6 to, 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

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

3 **Table III.10.E.E – Pretreatment Plant 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
PWD-SUMP-00071 P-B005 (Pit-19) <sup>a</sup>	Not Applicable	Radar <u>Leak Detector</u>	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00040 P-B002 (Pit-45) <sup>a</sup>	Not Applicable	Bubbler <u>Leak Detector</u>	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
<u>PWD-SUMP-00001</u> <u>P-0108B</u> <sup>a</sup>	<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>PWD-SUMP-00001A</u> <u>P-0108C</u> <sup>a</sup>	<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>PWD-SUMP-00002</u> <u>P-0108A</u> <sup>a</sup>	<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>PWD-SUMP-00002A</u> <u>P-0108</u> <sup>a</sup>	<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>PWD-SUMP-00003</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>P-0123 (Hot Cell)<sup>a</sup></u>									
<u>PWD-SUMP-00029</u> <u>P-0123 (Hot Cell)<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>
<u>PWD-SUMP-00031</u> <u>P-0119<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>
<u>PWD-SUMP-00032</u> <u>P-0123A (Maintenance Cave)<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>
<u>PWD-SUMP-00033</u> <u>P-0123A (Maintenance Cave)<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>
<u>PWD-SUMP-00034</u> <u>P-0121A<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>
<u>PWD-SUMP-00035</u> <u>P-0122A<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>
<u>PWD-SUMP-00036</u> <u>P-0118<sup>a</sup></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>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>

1 <sup>a</sup> P&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**

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<b>Tank System Locator and Name (including P&amp;ID)</b>	<b>Control Parameter</b>	<b>Type of Measuring or Leak Detection Instrument</b>	<b>Location of Measuring Instrument (Tag No.)</b>	<b>Instrument Range</b>	<b>Expected Range</b>	<b>Fail States</b>	<b>Instrument Accuracy</b>	<b>Operating Trips (Description &amp; Numerical Limits)</b>	<b>Instrument Calibration Method No. and Range</b>
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<u>RLD-SUMP-00028</u> <u>L-B001B<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>RLD-SUMP-00029</u> <u>L-0123<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>RLD-SUMP-00030</u> <u>L-0123<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>RLD-SUMP-00031</u> <u>L-0124<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>RLD-SUMP-00032</u> <u>L-0124<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>RLD-SUMP-00033</u> <u>L-0125<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>RLD-SUMP-00034</u> <u>L-0125<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>RLD-SUMP-00035</u> <u>L-0126<sup>a</sup></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>RESERVED</u>	<u>Not Applicable</u>	<u>RESERVED</u>
<u>RLD-SUMP-00036</u> <u>L-0126<sup>a</sup></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>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>	<u>RESERVED</u>

1 <sup>a</sup> P&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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6 **Table III.10.E.G - HLW Vitrification Plant 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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2  
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**Table III.10.E.H – Laboratory 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
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

4  
5  
6

**Table III.10.E.I – Pretreatment Plant Tank Systems Primary<sup>a</sup> 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

7 <sup>a</sup> 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-  
 8 303-640.  
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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 (gallons)	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 <sup>a</sup>	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
<u>PWD-SUMP-00001</u> <u>P-0108B</u>	<u>73.5</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By ~28" deep</u> <u>304L</u>	<u>24590-PTF-M6-PWD-P00008</u>
<u>PWD-SUMP-00001A</u> <u>P-0108C</u>	<u>73.5</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By ~28" deep</u> <u>304L</u>	<u>24590-PTF-M6-PWD-P00010</u>
<u>PWD-SUMP-00002</u> <u>P-0108A</u>	<u>73.5</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By ~28" deep</u> <u>304L</u>	<u>24590-PTF-M6-PWD-P00008</u>
<u>PWD-SUMP-00002A</u> <u>P-0108</u>	<u>73.5</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By ~28" deep</u> <u>304L</u>	<u>24590-PTF-M6-PWD-P00010</u>
<u>PWD-SUMP-00003</u> <u>P-0106</u>	<u>73.5</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By ~28" deep</u> <u>304L</u>	<u>24590-PTF-M6-PWD-P00008</u>
<u>PWD-SUMP-00004</u> <u>P-0104</u>	<u>73.5</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By ~28" deep</u> <u>304L</u>	<u>24590-PTF-M6-PWD-P00008</u>
<u>PWD-SUMP-00005</u> <u>P-0102A</u>	<u>73.5</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By ~28" deep</u> <u>304L</u>	<u>24590-PTF-M6-PWD-P00008</u>
<u>PWD-SUMP-00006</u> <u>P-0102</u>	<u>73.5</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By ~28" deep</u> <u>304L</u>	<u>24590-PTF-M6-PWD-P00008</u>
<u>PWD-SUMP-00007</u> <u>P-0109</u>	<u>73.5</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By ~28" deep</u> <u>304L</u>	<u>24590-PTF-M6-PWD-P00009</u>
<u>PWD-SUMP-00008</u> <u>P-0111</u>	<u>73.5</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By ~28" deep</u> <u>304L</u>	<u>24590-PTF-M6-PWD-P00009</u>
<u>PWD-SUMP-00009</u> <u>P-0112</u>	<u>73.5</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By ~28" deep</u> <u>304L</u>	<u>24590-PTF-M6-PWD-P00009</u>
<u>PWD-SUMP-00010</u> <u>P-0113</u>	<u>73.5</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By ~28" deep</u> <u>304L</u>	<u>24590-PTF-M6-PWD-P00009</u>
<u>PWD-SUMP-00011</u> <u>P-0114</u>	<u>73.5</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By ~28" deep</u> <u>304L</u>	<u>24590-PTF-M6-PWD-P00009</u>

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

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

<sup>1</sup> \*This sump is routinely accessible for inspections and maintenance.

<sup>2</sup> **Table III.10.E K - LAW Vitrification Plant Tank Systems Primary\* Containment Sump Systems**

<sup>3</sup>

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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<sup>a</sup> 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.L - LAW Vitrification Plant Tank Systems Secondary Containment Systems Including Sumps and Floor Drains**

<u>Sump or Drain Line I.D.# &amp; Room Location</u>	<u>Maximum Sump (gallons) or Drain Line (gallons per minute) Capacity (gallons)</u>	<u>Sump Type/Nominal Operating Volume (gallons)</u>	<u>Sump or Drain Line Dimensions (inches) &amp; Materials of Construction</u>	<u>Engineering Description (Drawing Nos., Specifications Nos., etc.)</u>
<u>RLD-SUMP-00028 L-B001B</u>	<u>59</u>	<u>Dry Sump<sup>a</sup></u>	<u>24" Dia. By 30" deep 304L or higher grade</u>	<u>24590-LAW-M6-RLD-P0002</u>
<u>RLD-SUMP-00029 L-0123</u>	<u>46</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By 15" deep 304L or higher grade</u>	<u>24590-LAW-M6-RLD-P0003</u>
<u>RLD-SUMP-00030 L-0123</u>	<u>46</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By 15" deep 304L or higher grade</u>	<u>24590-LAW-M6-RLD-P0003</u>
<u>RLD-SUMP-00031 L-0124</u>	<u>46</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By 15" deep 304L or higher grade</u>	<u>24590-LAW-M6-RLD-P0003</u>
<u>RLD-SUMP-00032 L-0124</u>	<u>46</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By 15" deep 304L or higher grade</u>	<u>24590-LAW-M6-RLD-P0003</u>
<u>RLD-SUMP-00033 L-0125</u>	<u>46</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By 15" deep 304L or higher grade</u>	<u>24590-LAW-M6-RLD-P0003</u>
<u>RLD-SUMP-00034 L-0125</u>	<u>46</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By 15" deep 304L or higher grade</u>	<u>24590-LAW-M6-RLD-P0003</u>
<u>RLD-SUMP-00035 L-0126</u>	<u>46</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By 15" deep 304L or higher grade</u>	<u>24590-LAW-M6-RLD-P0003</u>
<u>RLD-SUMP-00036 L-0126</u>	<u>46</u>	<u>Dry Sump<sup>a</sup></u>	<u>30" Dia. By 15" deep 304L or higher grade</u>	<u>24590-LAW-M6-RLD-P0003</u>

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

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

**Table III.10.E M - HLW Vitrification Plant Tank Systems Primary<sup>a</sup> 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

<sup>a</sup>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 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

**Table III.10.E O – Laboratory Tank Systems Primary<sup>a</sup> 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

<sup>a</sup>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**

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.

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

Mixed Waste Containment Building Units* & Systems	Dimensions (LxWxH) (in feet)	Unit Description	Narrative Description and Figures	Container Storage Areas <sup>b</sup>	Tank Systems <sup>c</sup>	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 <sup>a</sup> Containment Building Units include associated process systems and equipment

4 <sup>b</sup> Requirements pertaining to the containers in the Containment Building Units are specified in Section III.10.D. of this Permit.

5 <sup>c</sup> Requirements pertaining to the tanks in the Containment Building Units are specified in Section III.10.E. of this Permit.



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.i. 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)(i), 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)];

- 1           ix. A detailed description of how the miscellaneous unit will be installed in compliance  
2           with WAC 173-303-640(3)(c), (d), and (e), in accordance with WAC 173-303-680 and  
3           WAC 173-303-806(4)(i)(i)(B);
- 4           x. Documentation that miscellaneous units are designed to prevent the accumulation of  
5           hydrogen gas levels above the lower explosive limit for incorporation into the  
6           Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC  
7           173-303-806(4)(i)(v)];
- 8           xi. Documentation that miscellaneous units are designed to prevent escape of vapors and  
9           emissions of acutely or chronically toxic (upon inhalation) EHW, for incorporation  
10          into the Administrative Record [WAC 173-303-640(5)(e), in accordance with WAC  
11          173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

12   III.10.G.10.d. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to  
13   installation of equipment as identified in Permit Tables III.10.G.A and III.10.G.B, not  
14   addressed in Permit Condition III.10.G.10.c., engineering information as specified below  
15   for incorporation into Attachment 51, Appendices 8.1 through 8.14 of this Permit. At a  
16   minimum, engineering information specified below will show the following as required  
17   pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information  
18   specified below will include dimensioned engineering drawings):

- 19          i. IQRPE Reports (specific to equipment) shall include a review of design drawings,  
20          calculations, and other information as applicable, on which the certification report is  
21          based. The reports shall include, but not be limited to, review of such information  
22          described below. Information (drawings, specifications, etc.) already included in  
23          Attachment 51, Appendix 8.0 of this Permit may be included in the report by reference  
24          and should include drawing and document numbers. The IQRPE Reports shall be  
25          consistent with the information provided separately in ii. through xiii. below and the  
26          IQRPE Reports specified in Permit Conditions III.10.G.10.b. and III.10.G.10.c. [WAC  
27          173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-  
28          806(4)(i)(i)(A) through (B)];
- 29          ii. Design drawings (Process Flow Diagrams, Piping and Instrumentation Diagrams  
30          [including pressure control systems]) specifications and other information specific to  
31          equipment (these drawings should include all equipment such as pipe, valves, fittings,  
32          pumps, instruments, etc) [WAC 173-303-640(3)(a), in accordance with WAC 173-  
33          303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];
- 34          iii. The Permittees shall provide the design criteria (references to codes and standards,  
35          load definitions, and load combinations, materials of construction, and analysis/design  
36          methodology) and typical design details for the support of the equipment [WAC 173-  
37          303-640(3)(a) and WAC 173-303-640(3)(f), in accordance with WAC 173-303-680  
38          and WAC 173-303-806(4)(i)(i)(B)];
- 39          iv. A description of materials and equipment used to provide corrosion protection for  
40          external metal components in contact with soil and water, including factors affecting  
41          the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC  
42          173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];
- 43          v. Materials selection documentation for equipment (e.g., physical and chemical  
44          tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and  
45          WAC 173-303-806(4)(i)(i)(A)];
- 46          vi. Vendor information (including, but not limited to, required performance warranties, as  
47          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)(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)(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)(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)(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)(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)(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)(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)(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)(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)(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 <sup>a</sup>	Miscellaneous Unit System Designation	Description Drawings	Narrative Description, Tables, & Figures	Maximum Capacity (gallons)
<b>Waste Feed Evaporation Process System</b> (Comprised of the following miscellaneous units and equipment: Evaporator Feed Vessels V11001A-B <sup>b</sup> , Waste Feed Evaporator Separator Vessels V11002A-B, Evaporator Process Condensate Pot V11005 <sup>b</sup> , 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
<b>Cesium Nitric Acid Recovery Process System</b> (Comprised of the following miscellaneous units and equipment: Cs Evaporator (ID RESERVED), Cs Concentrate Reboiler, Eluant Contingency Storage Vessel V13073 <sup>b</sup> , Recovered Nitric Acid Vessel V13028 <sup>b</sup> , Cesium Concentrate Lute Pot V13030 <sup>b</sup> , 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
<b>Technetium Eluant Recovery Process System</b> (Comprised of the following miscellaneous units and equipment: Technetium Eluant Recovery Evaporator V43069, Tc Concentrate Reboiler, Recovered Tc Eluant Vessel V43071 <sup>b</sup> , Tc Concentrate Lute Pot V43072 <sup>b</sup> , 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
<b>Treated LAW Evaporation Process System</b> (Comprised of the following miscellaneous units and equipment: LAW Evaporator Separator Vessel V41011, Process Condensate Hold Vessel V41013 <sup>b</sup> , Plant Wash Vessels A-B V45009A-B <sup>b</sup> , 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

<sup>a</sup> 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.

<sup>b</sup> 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 <sup>b</sup> , Condensate Collection Vessel V15038 <sup>b</sup> , Caustic scrubber, High Efficiency Mist Eliminators (HEME), HEME Drain Collection Vessels V15326-7 <sup>b</sup> , 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

<sup>a</sup> 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.

<sup>b</sup> 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-Shutdown, 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 Shutdown, 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                I; 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

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- 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)(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)(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)(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)(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)(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)(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)];

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- 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)] [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 subsystems. Structural support calculations specific to off-specification, non-standard and field fabricated subsystems shall be submitted for incorporation into the Administrative Record. Documentation shall include but not limited to, supporting specifications, test data, treatment effectiveness report, etc. supporting projected operational capability (e.g., WESP projected removal efficiency for individual metals, halogens, particulates, etc.) and compliance with performance standards specified in Permit Condition III.10.H.1.b [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];
  - iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];
  - v. Sub-system materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];
  - vi. Sub-system vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];
  - vii. System descriptions (process) related to sub-system units shall be submitted for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];
  - viii. Mass and energy balance for normal projected operating conditions used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];
  - ix. Detailed description of all potential LAW Vitrification System bypass events including:
    - A. A report which includes an analysis of credible potential bypass events and recommendations for prevention/minimization of the potential, impact, and frequency of the bypass event to include at a minimum:
      - 1. Operating procedures

- 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 <sup>a</sup> 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 <sup>a</sup> -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 <sup>a</sup>	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 <sup>a</sup> 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)**

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

1  
2

3

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

Chemicals	CAS Number	Emission Rates (grams /second)

**TABLE III.10.H.F - LAW Vitrification System Waste Feed Cutoff Parameters\* <sup>1</sup> (RESERVED)**

Sub-system 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.

<sup>1</sup> 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

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

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

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

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

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;

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

xvii. The Permittees shall inspect all secondary containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as approved/modified pursuant to Permit Condition III.10.H.5, in accordance with the Inspection Schedule specified 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., and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)].

- A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the LAW Vitrification System sub-systems or secondary containment system.
- B. Determine the source of the dangerous and/or mixed waste.
- C. Remove the waste from the containment area in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(b). The waste removed from containment areas of the LAW Vitrification System sub-systems shall be, as a minimum, managed as dangerous and/or mixed waste.
- D. If the cause of the release was a spill that has not damaged the integrity of the LAW Vitrification System sub-system, the Permittees may return the LAW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees shall take action to ensure the incident that caused the dangerous and/or mixed waste to enter the containment system will not reoccur.
- E. If the source of the dangerous and/or mixed waste is determined to be a leak from the primary LAW Vitrification System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees shall comply with the requirements of WAC 173-303-640(7) and take the following actions:
  - 1. Close the LAW Vitrification System sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or
  - 2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.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 
$$\text{DRE} = [1 - (W_{\text{out}}/W_{\text{in}})] \times 100\%$$

9 Where:

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

12  $W_{\text{out}}$  = 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 A WFCO 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.10.1.1.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.10.1.1.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.2.f. 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                   2.   Verbally notify Ecology within twenty-four (24) hours of discovery of not  
2                   meeting the performance standard(s), as specified in Permit condition I.E.21.;
- 3                   3.   Investigate the cause of the failure and submit a report of the investigation  
4                   findings to Ecology within fifteen (15) days of discovery of not meeting the  
5                   performance standard(s);
- 6                   4.   Submit to Ecology within fifteen (15) days of discovery of not meeting the  
7                   performance standard(s) documentation supporting a mode of operation  
8                   where all performance standards listed in Permit Condition III.1.1.b., with the  
9                   exception of Permit Condition III.10.1.1.b.x., for the LAW Vitrification  
10                  System were met during the demonstration test, if any such mode was  
11                  demonstrated;
- 12                 5.   Based on the information provided to Ecology by the Permittees pursuant to  
13                   Permit Conditions III.10.1.1.h.ii.F.1 through 4 above, and any additional  
14                   information, Ecology may submit in writing, direction to the Permittees to  
15                   stop dangerous and/or mixed waste feed to the LAW Vitrification System  
16                   and/or amend the mode of operation the Permittees are allowed to continue  
17                   operations prior to Ecology approval of the revised Demonstration Test Plan  
18                   pursuant to Permit Condition III.10.1.1.h.ii.F.6; and
- 19                 6.   Submit to Ecology within one hundred and twenty (120) days of discovery of  
20                   not meeting the performance standard(s) a revised Demonstration Test Plan  
21                   requesting approval to retest as a permit modification pursuant to Permit  
22                   Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan must  
23                   include substantive changes to prevent failure from reoccurring reflecting  
24                   performance under operating conditions representative of the extreme range  
25                   of normal conditions, and include revisions to Permit Tables III.10.I.D and F.

26                 iii.   Other Emission Testing

- 27                 A.   Within seventy-eight (78) months of commencing operation pursuant to Permit  
28                   Section III.10.I, the Permittees shall resubmit to Ecology for approval the  
29                   "Previously Approved Demonstration Test Plan" revised as a permit modification  
30                   in accordance with Permit Conditions III.10.C.2.e. and f. The revised  
31                   Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test  
32                   methods and procedures in effect at the time of the submittal, projected  
33                   commencement and completion dates for emission testing to demonstrate  
34                   performance standards as specified in Permit Conditions III.10.1.1.b.viii. and ix.,  
35                   and emissions as specified in Permit Table III.10.I.E, as approved/modified  
36                   pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d., not addressed  
37                   under Permit Conditions III.10.1.1.h.i. or ii. under "Normal Operating  
38                   Conditions." "Normal Operating Conditions" shall be defined for the purposes of  
39                   this permit condition as follows:
  - 40                   1.   Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and  
41                   automatic waste feed cut-off parameters specified in Permit Table III.10.I.F,  
42                   as approved/modified pursuant to Permit Condition III.10.H.3.d. and

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);

- 1 2. Verbally notify Ecology within twenty-four (24) hours of discovery of not  
2 meeting the performance standard(s), as specified in Permit Condition  
3 I.E.21.;
- 4 3. Investigate the cause of the failure and submit a report of the investigation  
5 findings to Ecology within fifteen (15) days of discovery of not meeting the  
6 performance standard(s);
- 7 4. Submit to Ecology within fifteen (15) days of discovery of not meeting the  
8 performance standard(s) documentation supporting a mode of operation  
9 where all performance standards listed in Permit Condition III.I.1.b., with the  
10 exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification  
11 System were met during the demonstration test, if any such mode was  
12 demonstrated;
- 13 5. Based on the information provided to Ecology by the Permittees pursuant to  
14 Permit Conditions III.10.I.1.h.iii.D.1 through 4 above, and any additional  
15 information, Ecology may submit in writing, direction to the Permittees to  
16 stop dangerous and/or mixed waste feed to the LAW Vitrification System  
17 and/or amend the mode of operation the Permittees are allowed to continue  
18 operations prior to Ecology approval of the revised Demonstration Test Plan,  
19 pursuant to Permit Condition III.10. I.h.1.iii.D.6.; and
- 20 6. Submit to Ecology within one hundred and twenty (120) days of discovery of  
21 not meeting the performance standard(s) a revised Demonstration Test Plan  
22 requesting approval to retest as a permit modification pursuant to Permit  
23 Conditions II.10.C.2.e. and f. The revised Demonstration Test Plan must  
24 include substantive changes to prevent failure from reoccurring reflecting  
25 performance under operating conditions representative of the extreme range  
26 of normal conditions, and include revisions to Permit Tables III.10.I.D and  
27 III.10.I.F.

- 28 E. If any calculations or testing results show that any emission rate for any  
29 constituent listed in Permit Table III.10.I.E, as approved/modified pursuant to  
30 Permit Conditions III.10.C.11.c. or d., is exceeded for LAW Vitrification System  
31 during the emission test, the Permittees shall perform the following actions:
- 32 1. Verbally notify Ecology within twenty-four (24) hours of the discovery of  
33 exceeding the emission rate(s), as specified in Permit Condition I.E.21.;
  - 34 2. Submit to Ecology additional risk information to indicate that the increased  
35 emissions impact is off-set by decreased emission impact from one or more  
36 constituents expected to be emitted at the same time, and/or investigate the  
37 cause and impact of the exceedance of the emission rate(s) and submit a  
38 report of the investigation findings to Ecology within fifteen (15) days of the  
39 discovery of the exceedance of the emission rate(s); and
  - 40 3. Based on the notification and any additional information, Ecology may  
41 submit, in writing, direction to the Permittees to stop dangerous and/or mixed

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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.

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**Table III.10.I.A - LAW Vitrification System Description**

<b>Sub-system Description</b>	<b>Sub-system Designation</b>	<b>Engineering Description (Drawing Nos, Specification Nos, etc.)</b>	<b>Narrative Description, Tables and Figures</b>
Melter Feed <sup>a</sup> 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 <sup>a</sup> -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 <sup>a</sup>	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.

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**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

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**Table III.10.I.C - LAW Vitrification Systems Process and Leak Detection System Instruments and Parameters**

<b>Sub-system Locator and Name (including P&amp;ID)</b>	<b>Control Parameter</b>	<b>Type of Measuring or Leak Detection Instrument</b>	<b>Location of Measuring Instrument (Tag No.)</b>	<b>Instrument Range</b>	<b>Failure State</b>	<b>Expected Range</b>	<b>Instrument Accuracy</b>	<b>Instrument Calibration Method No. and Range</b>
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

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**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	

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

Chemicals	CAS Number	Emission Rates (grams /second)

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

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

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

<sup>1</sup>Maximum 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

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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) in  
24 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)(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)(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)(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)(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)(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.

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- vii. Description of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed waste as specified in accordance with WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B).
  - viii. A description of the tracking system used to track dangerous and/or mixed waste generated throughout the HLW Vitrification System, pursuant to WAC 173-303-380.
  - ix. Permit Table III.10.J.C and III.10.K.C shall be completed for HLW Vitrification System process and leak detection system monitors and instruments (to include, but not be limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emissions) to provide the information as specified in each column heading. Process and leak detection system monitors and instruments for critical systems, as specified in Attachment 51, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b. and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii., shall be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];
  - x. Permit Tables III.10.J.A and III.10.K.A amended as follows [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)]:
    - A. Under column 1, update and complete list of dangerous and mixed waste HLW Vitrification System sub-systems, including plant items that comprise each system (listed by item number).
    - B. Under column 2, update and complete system designations.
    - C. Under column 3, replace the 'Reserved' with Attachment 51, Appendix 10.0 sub-sections (e.g., 10.1, 10.2, etc.) designated in Permit Conditions III.10.J.5.b., c., and d. specific to HLW Vitrification System sub-system, as listed in column 1.
    - D. Under column 4, update and complete list of narrative description, tables, and figures.
  - III.10.J.5.f. One hundred and eighty (180) days prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall submit for review and receive approval for incorporation into Attachment 51, Appendix 10.15 of this Permit, a Demonstration Test Plan for the HLW Vitrification System to demonstrate that the HLW Vitrification Systems meets the performance standards specified in Permit Condition III.10.J.1.b. In order to incorporate the Demonstration Test Plan for the HLW Vitrification System into Attachment 51, Appendix 10.15, Permit Condition III.10.C.2.g. process will be followed. The Demonstration Test Plan shall include, but not be limited to, the following information. The Demonstration Test Plan shall also be consistent with the information provided pursuant to Permit Conditions III.10.J.5.b., c., d. and e., III.10.C.3.e.v. and III.10.C.11.b., as approved by Ecology and consistent with the schedule described in Attachment 51, Appendix 1.0 of 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)(i)(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 <sup>a</sup> 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 <sup>a</sup> -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-

<u>Sub-system Description</u>	<u>Sub-system Designation</u>	<u>Engineering Description (Drawing Nos., Specification Nos., etc.)</u>	<u>Narrative Description, Tables, and 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.

<sup>1</sup>Maximum 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)(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)(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)(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 xxii. 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.10.J.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.

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

9                   E.   If any calculations or testing results show that any emission rate for any  
10                  constituent listed in Permit Table III.10.K.E, as approved/modified pursuant to  
11                  Permit Condition III.10.C.11.c. or d., is exceeded for HLW Vitrification System  
12                  during the emission test, the Permittees shall perform the following actions:

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

1  
 2  
 3

**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 <sup>a</sup> 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 <sup>a</sup> -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.

6  
 7



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	

2  
3  
4

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

Chemicals	CAS Number	Emission Rates (grams /second)

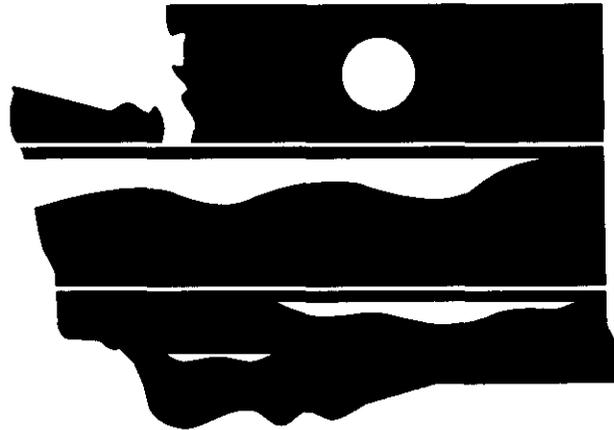
5  
6

7 **TABLE III.10.K.F - HLW Vitrification System Waste Feed Cut-off Parameters\* <sup>1</sup>(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 <sup>1</sup>Maximum 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

11  
12



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, July 2003**

July 2003  
Publication No. 03-05-004

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

Prepared by Steven Skurla

Washington State Department of Ecology  
Nuclear Waste Program

July 2003  
Publication No. 03-05-004

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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.*

**RESPONSIVENESS SUMMARY FOR THE WASTE TREATMENT  
AND IMMOBILIZATION PLANT MODIFICATION OF THE HANFORD  
FACILITY RESOURCE CONSERVATION AND RECOVERY ACT  
PERMIT, JULY 2003**

**INTRODUCTION**

This Responsiveness Summary is a result of written comments on the Draft Modification of the *Dangerous Waste Portion of the Hanford Facility Resource Conservation and Recovery Act Permit* (Permit) which was available for public comment between June 2, 2003, and July 18, 2003. The purpose of the Permit modification was to incorporate the Waste Treatment and Immobilization Plant (WTP) design information contained in nine Design Packages. It also includes minor changes to Permit conditions to clarify the definition of 'vendor information' and to add sump data submitted by the Permittees to tables in the permit. The Responsiveness Summary consists of this Introduction, the Response to Comments, and a copy of all public comments received on the draft Permit modification.

The Permit is comprised of six (6) Parts. Parts I and II consist of general conditions that apply to all Hanford regulated dangerous waste treatment, storage, and/or disposal (TSD) units. Part III contains unit-specific conditions for final status operations. Part IV contains unit-specific conditions covering corrective actions. Part V provides unit-specific conditions for units undergoing closure. Part VI provides unit-specific conditions for units in post-closure. This WTP modification will add Permit-required information into appendices in Chapter 10, Attachment 51, and modify WTP unit-specific conditions in Chapter 10 of Part III.

The Washington State Department of Ecology (Ecology) received one comment from the United States Department of Energy, Office of River Protection (ORP). The issues raised by the Permittees are valid concerns and the changes made to the Permit modification based on these comments reflect Ecology's willingness to consider and incorporate the Permittees' suggestions where appropriate. Permits are based on the regulations and information submitted by the Permittees. While input from the Permittees is factored into the Permit, Ecology is responsible for setting the final Permit conditions. The comments were of considerable help in assisting Ecology to make the Permit conditions clear and more effective in meeting the requirements of the regulations. No public hearing was held on this modification because it was not requested by the public, or the Permittees, during the public comment period.

Ecology also made some format and editorial changes to the draft Permit conditions (e.g., ensuring all numbering is consistent throughout the Permit modification, addition/deletion of commas, periods, correcting typographical errors, etc.). These changes are made throughout the Permit conditions and are not specifically identified in the following comments. Ecology considers these changes as administrative in nature and no further reference to them is made.

This Responsiveness Summary is intended to address all public comments received and show how those comments were evaluated. The comments are listed in the order in which they were

received. This Responsiveness Summary will be made part of the Hanford Facility Administrative Record for future reference.

**COMMENTOR:**

JAMES E. RASMUSSEN, DIRECTOR  
ENVIRONMENTAL MANAGEMENT DIVISION  
OFFICE OF RIVER PROTECTION  
UNITED STATES DEPARTMENT OF ENERGY  
P.O. BOX 450, MSIN: H6-60  
RICHLAND, WASHINGTON 99352

**Comment 1:** Permit conditions III.10.E.9.c.vii and III.10.E.9.d.viii require submittal of systems descriptions related to tanks, system descriptions related to ancillary equipment, and system descriptions related to leak detection systems, (including instrument control logic and narrative descriptions), for incorporation into the Administrative Record. In the statement of basis (Ecology Publication No. 03-05-002), Table 1, under Package LAW-002, Document No. 24590-LAW-3YD-20-00001, Revision 0, a System Description is identified for inclusion in Appendix 9.3 of the permit, rather than inclusion in the administrative record per Permit Condition III.10.E.9.c.vii. Also in Table 1, under Package PTF-005, Document No. 24590-PTF-3YD-PWD-00001, Revision 0, a System Description is identified for inclusion in Appendix 8.3 of the permit, rather than inclusion in the administrative record. These documents should be incorporated into the administrative record, rather than enforceable provisions of the permit.

**Ecology Response:** The Permittees are correct in their assertion that the System Descriptions are required to be included in the Administrative Record by the Permit Conditions III.10.E.9.c.vii and III.10.E.9.d.viii. This change will be incorporated into the revised Statement of Basis and the system description documents 24590-LAW-3YD-20-00001, Revision 0 and 24590-PTF-3YD-PWD-00001, Revision 0 will be placed in the Administrative Record.



## **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**

July 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

**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 the last major Permit modification, issued March 30, 2003. 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 June 2, 2003, and ends on July 18, 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 July 18, 2003. Comments hand delivered by July 18, 2003, to the address below also will be accepted. Direct all written comments to:

Mr. Steve Skurla  
Department of Ecology  
1315 W. 4<sup>th</sup> 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:
  - 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-004 – Pretreatment Building ancillary equipment for tanks of the Plant Wash and Disposal (PWD) System below the 0 foot elevation
  - PTF-005 - Pretreatment Building tanks of the PWD System below the 0 foot elevation
  - PTF-006 - Pretreatment Building secondary containment for miscellaneous treatment units on 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;
  - LAW-004 - Low Activity Waste Building container storage area on the -21 foot elevation;
- Clarification of vendor information definition 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. The complete information included in the permit

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 will specify drawing numbers and locations.

#### **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 is being proposed for inclusion in Part III, Chapter 10 of the Permit. The change is to include the term "vendor information" in the definitions in Permit Condition III.10.C.1. The definition should clarify what Ecology means by vendor information.

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**

<b>PACKAGE PTF-002, Rev 1 PTF, 0 Ft. Elevation - Tank System Secondary Containment</b>			
<b>DOCUMENT/ DRAWING NUMBER</b>	<b>TITLE</b>	<b>REPLACES</b>	<b>PERMIT LOCATION</b>
24590-PTF-P1-P01T-P0001, Rev 2	General Arrangement Plans	24590-PTF-P1-P01T-P0001, Rev 1	Appendix 8.4
24590-PTF-P1-P01T-P0007, Rev 2	General Arrangement Sections	24590-PTF-P1-P01T-P0007, Rev 0	Appendix 8.4
24590-PTF-P1-P01T-P0008, Rev 2	General Arrangement Sections	24590-PTF-P1-P01T-P0008, Rev 0	Appendix 8.4
24590-PTF-P1-P01T-P0009, Rev 5	General Arrangement Sections	24590-PTF-P1-P01T-P0009, Rev 4	Appendix 8.4
24590-PTF-P1-P01T-P0010, Rev 2	General Arrangement Sections	24590-PTF-P1-P01T-P0010, Rev 0	Appendix 8.4
24590-PTF-P1-P01T-P0011, Rev 3	General Arrangement Sections	24590-PTF-P1-P01T-P0011, Rev 2	Appendix 8.4
24590-PTF-P1-P01T-P0012, Rev 3	General Arrangement Sections	24590-PTF-P1-P01T-P0012, Rev 1	Appendix 8.4
24590-PTF-P1-P01T-P0013, Rev 2	General Arrangement Sections	24590-PTF-P1-P01T-P0013, Rev 0	Appendix 8.4
24590-PTF-P1-P01T-P0014, Rev 4	General Arrangement Sections	24590-PTF-P1-P01T-P0014, Rev 2	Appendix 8.4
24590-PTF-P1-P01T-P0015, Rev 4	General Arrangement Sections	24590-PTF-P1-P01T-P0015, Rev 2	Appendix 8.4
24590-PTF-P1-P01T-P0016, Rev 2	General Arrangement Sections	24590-PTF-P1-P01T-P0016, Rev 0	Appendix 8.4
24590-PTF-P1-P01T-P0017, Rev 2	General Arrangement Sections	24590-PTF-P1-P01T-P0017, Rev 0	Appendix 8.4
24590-PTF-PER-M-02-005, Rev 7	Flooding Volume Calculations for PTF	24590-PTF- PER-M-02-005, Rev 0	Appendix 8.8
24590-PTF- PER-M-02-006, Rev 5	Sump Data for PTF Facility	N/A	Appendix 8.5
<b>PACKAGE PTF-003, Rev 1 PTF, 0 ft. Elevation - Containment Buildings for Hot Cell and Maintenance Area</b>			
<b>DOCUMENT/ DRAWING NUMBER</b>	<b>TITLE</b>	<b>REPLACES</b>	<b>PERMIT LOCATION</b>
Package PTF-003, Rev 1 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.			
<b>PACKAGE PTF-004, Rev 1 PTF, -19, -45 ft. Elevation – Tank System Ancillary Equipment for the PWD System</b>			
24590-CM-HC4-HXYG-00138-01-02, Rev 00C	IQRPE Independent Assessment Report	N/A	Appendix 8.11
24590-WTP-3PS-MCE0-TP002, Rev 1	Specifications	N/A	Appendix 8.11
24590-WTP-3PS-MPC0-TP002, Rev 1	Specifications	N/A	Appendix 8.11
24590-WTP-PER-PL-02-001, Rev 2	Piping Material Class Description	N/A	Appendix 4.0
24590-WTP-PER-PS-02-001, Rev 2	Ancillary Equipment Pipe Support Design	N/A	Appendix 8.5
24590-PTF-PER-J-02-001, Rev 1	System Logic Description for Plant Wash and	N/A	Appendix 8.13

	Disposal System		
<b>PACKAGE PTF-005 PTF, -19,-45 ft. Elevation - Tanks for PWD System</b>			
<b>DOCUMENT/ DRAWING NUMBER</b>	<b>TITLE</b>	<b>REPLACES</b>	<b>PERMIT LOCATION</b>
24590-CM-HC4-HXYG-00138-01-07, Rev 00B	IQRPE Independent Assessment Report	N/A	Appendix 8.11
24590-PTF-M5-V17T-P0022002, Rev1	Process Flow Diagram	N/A	Appendix 8.1
24590-PTF-M6-PWD-P0002, Rev 1	Piping and Instrumentation Diagram	N/A	Appendix 8.2
24590-PTF-M6-PWD-P0012, Rev 1	Piping and Instrumentation Diagram	N/A	Appendix 8.2
24590-PTF-M6-PWD-P0041, Rev 1	Piping and Instrumentation Diagram	N/A	Appendix 8.2
24590-PTF-M6-PWD-P0043, Rev 1	Piping and Instrumentation Diagram	N/A	Appendix 8.2
24590-PTF-MV-PWD-P0005, Rev 1	Mechanical Drawings	N/A	Appendix 8.6
24590-PTF-MV-PWD-P0001001, Rev 1	Mechanical Drawings	N/A	Appendix 8.6
24590-PTF-MV-PWD-P0001002, Rev 1	Mechanical Drawings	N/A	Appendix 8.6
24590-PTF-MV-PWD-P0003001, Rev 1	Mechanical Drawings	N/A	Appendix 8.6
24590-PTF-MV-PWD-P0003002, Rev 1	Mechanical Drawings	N/A	Appendix 8.6
24590-WTP-3PS-MV00-TP002, Rev 1	Specifications	N/A	Appendix 8.7
24590-WTP-3PS-MV00-TP003, Rev 1	Specifications	N/A	Appendix 8.7
24590-WTP-3PS-G000-TP002, Rev 1	Specifications	N/A	Appendix 8.7
24590-PTF-MVD-PWD-P0001, Rev 1	Mechanical Data Sheets	N/A	Appendix 8.6
24590-PTF-MVD-PWD-P0003, Rev 1	Mechanical Data Sheets	N/A	Appendix 8.6
24590-PTF-MVD-PWD-P0010, Rev 1	Mechanical Data Sheets	N/A	Appendix 8.6
24590-WTP-PER-CSA-02-001, Rev 3	Secondary Containment Design	N/A	Appendix 8.5
24590-PTF-N1D-PWD-P0002, Rev 1	Vessel/Tank Material Selection Data Sheets	N/A	Appendix 8.9
24590-PTF-N1D-PWD-P0005, Rev 1	Vessel/Tank Material Selection Data Sheets	N/A	Appendix 8.9
24590-PTF-N1D-PWD-P0006, Rev 1	Vessel/Tank Material Selection Data Sheets	N/A	Appendix 8.9
24590-WTP-PER-CON-02-001, Rev 1	Installation of Tank Systems	N/A	Appendix 8.12
24590-CM-POA-MVA0-00001-04-07, Rev 00B	Tank Vendor Information	N/A	Administrative Record
24590-CM-POA-MVA0-00001-04-08, Rev 00B	Tank Vendor Information	N/A	Administrative Record
24590-PTF-3YD-PWD-00001, Rev 0	System Description Plant Wash and Disposal System (PWD) and Radioactive Liquid Waste Disposal System (RLD)	N/A	Administrative Record

<b>PACKAGE PTF-006, Rev 1 PTF, 0 ft. Elevation - Secondary Containment for Miscellaneous Treatment Units</b>			
<b>DOCUMENT/ DRAWING NUMBER</b>	<b>TITLE</b>	<b>REPLACES</b>	<b>PERMIT LOCATION</b>
Package PTF-006 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.			
<b>PACKAGE LAW-001, Rev 2 LAW Building, -21 ft. Elevation - Secondary Containment for Tank System</b>			
<b>DOCUMENT/ DRAWING NUMBER</b>	<b>TITLE</b>	<b>REPLACES</b>	<b>PERMIT LOCATION</b>
24590-LAW-P1-P01T-P0001, Rev 2	General Arrangement Plan	24590-LAW-P1-P01T-P0001, Rev 0	Appendix 9.4
24590-LAW-P1-P01T-P0007, Rev 3	General Arrangement Section	24590-LAW-P1-P01T-P0007, Rev 0	Appendix 9.4
24590-LAW-P1-P01T-P0009, Rev 3	General Arrangement Section	24590-LAW-P1-P01T-P0009, Rev 0	Appendix 9.4
24590-LAW-PER-M-02-002, Rev 3	Flooding Volume for LAW Facility	24590-LAW-PER-M-02-002, Rev 2	Appendix 9.8
24590-LAW-PER-M-02-001, Rev 3	LAW Sump Data	N/A	Appendix 9.5
<b>PACKAGE LAW-002 LAW Building, -21 ft. Elevation – Secondary Containment for RLD Tank System</b>			
<b>DOCUMENT/ DRAWING NUMBER</b>	<b>TITLE</b>	<b>REPLACES</b>	<b>PERMIT LOCATION</b>
24590-CM-HC4-HXYG-00138-01-05, Rev D	IQRPE Independent Assessment Report	N/A	Appendix 9.11
24590-LAW-M6-RLD-P0002, Rev 2	Piping and Instrumentation Diagram	N/A	Appendix 9.2
24590-LAW-MV-RLD-P0001, Rev 2	Mechanical Drawing	N/A	Appendix 9.6
24590-LAW-MVD-RLD-P0001, Rev 1	Mechanical Data Sheet	N/A	Appendix 9.6
24590-LAW-NID-RLD-P0001, Rev 1	Vessel/Tank Material Selection Data Sheet	N/A	Appendix 9.9
24590-LAW-3YD-20-00001, Rev 0	System Description	N/A	Administrative Record
<b>PACKAGE LAW-003, Rev 1 LAW Building, -21 ft. Elevation – Ancillary Equipment for RLD Tank System</b>			
<b>DOCUMENT/ DRAWING NUMBER</b>	<b>TITLE</b>	<b>REPLACES</b>	<b>PERMIT LOCATION</b>
24590-CM-HC4-HXYG-00138-01-09, Rev B	IQRPE Independent Assessment Report	N/A	Appendix 9.11
24590-WTP-3PS-MX00-TP001, Rev 1	Specifications	N/A	Appendix 9.7

<b>PACKAGE LAW-004 LAW Building, -21 ft. Elevation – Container Storage for Buffer Storage Area</b>			
<b>DOCUMENT/ DRAWING NUMBER</b>	<b>TITLE</b>	<b>REPLACES</b>	<b>PERMIT LOCATION</b>
Package LAW-004 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.			
<p><b>NOTES:</b>  PTF = Pretreatment Building  IQRPE = Independent, Qualified, Registered Professional Engineer  LAW = Low Activity Waste  PWD = Plant Wash and Disposal System  RLD = Radioactive Liquid Waste Disposal System</p>			