



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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

March 31, 2003

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

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

Mr. Ronald F. Naventi, Project Manager
Bechtel National Inc.
3000 George Washington Way, MSIN: H4-02
Richland, Washington 99352

Dear Messrs. Schepens, Klein, and Naventi:

Re: Completion of the March 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 Design Package PTF-001 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). This permit decision becomes effective 30 days after the service of this Notice of Decision.

The final permit modification package consists of the Responsiveness Summary, Statement of Basis, and the approved unit-specific conditions for the WTP on a CD-ROM.

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Messrs. Schepens, Klein, and Naventi

March 31, 2003

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During the 45-day public comment period of the draft permit modification, comments were received from the Office of River Protection (ORP). The comments are addressed in the enclosed Responsiveness Summary as required by Washington Administrative Code (WAC) 173-303-840(9). The page changes have been incorporated into the unit-specific conditions for the WTP included on the CD-ROM. Changes are noted with single-line strike out for text deletions, and double-underline for text additions.

A brief Statement of Basis is included in lieu of a Fact Sheet as allowed in WAC 173-303-840(2)(f). Information from the certified Design Package PTF-001, for the construction of the floor and walls at -45 and -19 feet elevations for the Pretreatment Building, has been placed in appendices in Attachment 51 of the Permit and the Administrative Record, as indicated in the Statement of Basis.

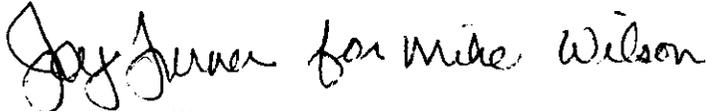
Incorporation of additional design information into WTP permit conditions will require numerous permit modifications over the next two to three years. In order to reduce the volume of paper used in accomplishing these routine agency-initiated permit modifications, Ecology is using the following approach. The draft permit modification will be issued for public review with hard copies of all the modification information at the usual public repositories and the administrative record. However, once the final modification has been issued, the design information, modified conditions, etc. will be incorporated electronically and be distributed on a CD-ROM that reflects the approved unit-specific conditions for the WTP. This will eliminate the distribution of duplicate drawings and documents already in the Administrative Record. The location of the new permit information will be documented in the Statement of Basis and include document name, document number, and revision number. Hard copies of all the information will be kept in the Ecology and ORP Administrative Record locations. Each CD-ROM will contain the complete WTP permit conditions and Attachment 51 and eliminate the necessity of tracking numerous page changes. This copy of the modified WTP unit-specific conditions will be kept separately from the electronic version of the Site Wide Permit. The modified WTP unit-specific conditions will be incorporated into the sitewide permit during the normal sitewide permit updating process.

Hard copies of the information in the final WTP permit modification will be available at the Ecology Administrative Record in Kennewick, ORP 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.

Messrs, Schepens, Klein, and Naventi
March 31, 2003
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If there are any questions regarding this letter, please call Ms. Suzanne Dahl at (509) 736-5705.

Sincerely,

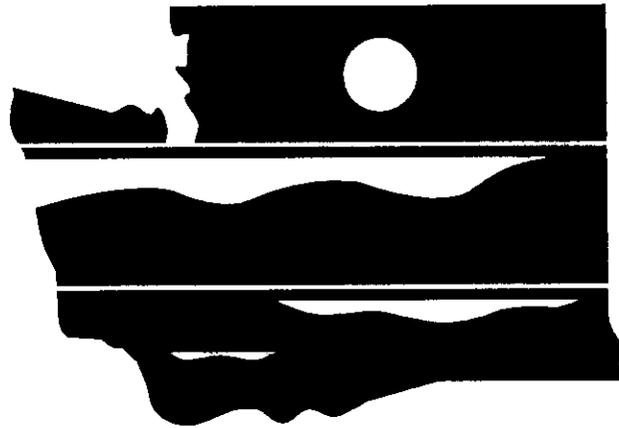
A handwritten signature in black ink that reads "Jay Turner for Mike Wilson". The signature is written in a cursive, flowing style.

Michael A. Wilson
Program Manager
Nuclear Waste Program

SS:jc

Enclosure

cc: Dave Bartus, EPA
Andy Boyd, EPA
Nick Ceto, EPA
Dean Ingemansen, EPA
Cathy Massimino, EPA
Joel Hebdon, USDOE
Tony McKarns, USDOE
Lori Huffman, USDOE/ORP
Jim Rasmussen USDOE/ORP
Bill Taylor, USDOE/ORP
Brad Erlandson, BNI
Fred Beraneck, WGI
Phil Peistrup, WGI
Todd Martin, HAB
Armand Minthorn, CTUIR
Pat Sobotta, NPT
Russell Jim, YN
Ken Niles, OOE
Administrative Record: WTP Dangerous Waste Permit



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, March 2003**

March 2003
Publication No. 03-05-001

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

Prepared by Steven Skurla

Washington State Department of Ecology
Nuclear Waste Program

March 2003
Publication No. 03-05-001

For additional copies of this Responsiveness Summary, contact:

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

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

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

**RESPONSIVENESS SUMMARY FOR THE WASTE TREATMENT
AND IMMOBILIZATION PLANT MODIFICATION OF THE HANFORD
FACILITY RESOURCE CONSERVATION AND RECOVERY ACT
PERMIT, MARCH 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 December 16, 2002, and January 31, 2003. The purpose of the Permit modification was to incorporate the Waste Treatment and Immobilization Plant (WTP) design information contained in Design Package PTF-001. It also includes minor changes to Permit conditions to clarify the timing of leak detection system information submittals. 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 comments from the United States Department of Energy, Office of River Protection (ORP). Many 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, with the exception of Condition III.10.C.2.1., which is addressed at the end of the Responsiveness Summary under **OTHER ECOLOGY CHANGES/CLARIFICATIONS**.

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: It is more appropriate for leak detection information to be submitted pursuant to permit conditions for ancillary equipment. Please make the following changes:

- Leak detection information proposed to be submitted pursuant to condition III.10.E.9.b.x through xiii should be submitted pursuant to “new” condition III.10.E.9.d.xiii through xvi. Please move added text from III.10.9.b.x through xiii to new III.10.E.9.d.xiii through xvi.
- Leak detection information proposed to be submitted prior to construction of a containment building unit containment system pursuant to condition III.10.F.7.c.ix through xii should be submitted prior to installing the leak detection system equipment. Please modify III.10.F.7.c.ix through xii to require submittal prior to installing the leak detection system equipment. Proposed rewording follows:
 - ix. Prior to installation, ~~L~~leak detection system documentation (e.g. vendor information, etc.) consistent with information submitted under i. above, shall be submitted for incorporation into the Administrative Record;
 - x. Prior to installation, the Permittees shall submit ~~L~~leak detection system instrumentation control logic narrative description (e.g., software.g., software functional specifications, descriptions of fail-safe conditions, etc.);
 - xi. Prior to installation, Ssystem ~~D~~descriptions related to leak detection systems (including instrument control logic and narrative descriptions) shall be submitted for incorporation into the Administrative Record;
 - xii. For leak detection system instrumentation for containment buildings as identified in Permit Tables III.10.F.D., a detailed description of how the leak detection system

instrumentation will be installed and tested [40 CFR 264.1101(b)(3) in accordance with WAC 173-303-695] shall be submitted prior to installation.

- Leak detection information proposed to be submitted pursuant to condition III.10.G.10.b.x through xiii should be submitted pursuant to “new” condition III.10.G.10.d.xiii through xvi. Please move added text from III.10.G.10.b.x through xiii to new III.10.G.10.d.xiii through xvi.
- Leak detection information proposed to be submitted pursuant to condition III.10.H.5.b.x through xiii should be submitted pursuant to “new” condition III.10.H.5.d.xiii through xvi. Please move added text from III.10.H.5.b.x through xiii to new III.10.H.5.d.xiii through xvi.
- Leak detection information proposed to be submitted pursuant to condition III.10.J.5.b.x through xiii should be submitted pursuant to “new” condition III.10.J.5.d.xiii through xvi. Please move added text from III.10.J.5.b.x through xiii to new III.10.J.5.d.xiii through xvi.

Ecology Response: After the initial issuance of the final WTP Permit in September 2002, Ecology realized that the Permit conditions regarding submittal of leak detection design information were not specific and could be misinterpreted. In order to rectify the situation, Ecology revised the existing Permit conditions to more specifically identify submittal of leak detection information and included them in this draft Permit modification. Ecology elected to require the submittal of this information with the secondary containment design information packages.

A number of meetings were held with the Permittees to discuss the timing of the leak detection information submittals. The Permittees never questioned the substantive requirements of conditions, only the timing of the submittals. The Permittees claimed that the leak detection information would not be available for submittal with the secondary containment information. The information would be available for submittal with the ancillary equipment submittal packages (for Pretreatment Plant Miscellaneous Units and Low Activity Waste (LAW) and High Level Waste (HLW) Vitrification Systems, leak detection information will be submitted with equipment and sub-system equipment design package submittals). Moving the leak detection information into the equipment packages would relieve them of the administrative burden of tracking partial information submittals and make Permit compliance less burdensome. In addition, the equipment conditions currently contain many of the information requirements that will be needed for leak detection systems (e.g., system descriptions). Incorporating leak detection system information requirements into existing equipment conditions will result in the creation of fewer new Permit conditions.

Ecology has decided to move the submission of the leak detection information from the secondary containment submittals to the equipment submittals in order to simplify the

Permit modification process in the future. This decision does not relieve the Permittees of meeting any of the existing or proposed draft Permit requirements. The only change is the timing of the submittals. The changes to the Permit, as a result of Comment 1, are listed below:

Bullet 1: Ecology deleted the proposed Condition III.10.E.9.b.x through xiii. Ecology chose to include the leak detection requirements in existing conditions to the extent possible. This was done to minimize the number of new conditions. Rather than moving the deleted conditions straight across to a new location, the leak detection requirements that were deleted in Condition III.10.E.9.b.x through xiii were added to Conditions III.10.E.d.vii, viii, x, and new Condition xiii.

Bullet 2: The suggested approach is a reasonable method of clarifying Ecology's intent in regard to containment building leak detection design and installation. The comment was incorporated as suggested.

Bullet 3: Proposed Conditions III.10.G.10.b.x through xiii deleted. Requirements moved to III.10.G.10.d.vii, viii, x, and new Condition III.10.G.10.d.xiii.

Bullet 4: Proposed Conditions III.10.H.5.b.x through xiii deleted. Requirements moved to III.10.H.5.d.vii, viii, x, and new Condition III.10.H.5.d.xiii.

Bullet 5: Proposed Conditions III.10.J.5.b.x through xiii deleted. Requirements moved to III.10.J.5.d.vii, viii, x, and new Condition III.10.J.5.d.xiii.

Comment 2: Due to the requested changes in Comment 1, please change the references in the following Permit conditions as indicated:

- In proposed condition III.10.E.5.b, change the reference from "III.10.E.9.b.xiii" to "III.10.E.9.d.xvi."
- In proposed condition III.10.E.9.b.i, change "ii through xiii" back to "ii through ix;" and in condition III.10.E.9.d.i, change "ii through xii" to "ii through xvi."
- In proposed condition III.10.E.9.e.xi.F, delete the added text "b and."
- In proposed condition III.10.G.5.b, change the reference from "III.10.G.10.b.xiii" to "III.10.G.10.d.xvi."
- In proposed condition III.10.G.10.b.i, remove the strikethrough on "~~ix~~" so that it reads "ii through xiii;" and in condition III.10.G.10.d.i, replace "ii-xi" with "ii through xvi."

- In proposed condition III.10.H.1.a.xiv, instead of referencing III.10.H.5.b.xiii, please reference III.10.H.5.d.xvi.
- In proposed condition III.10.H.5.b.i, change “ii through xiii” back to “ii through ix;” and in condition III.10.H.5.d.i, change “ii through xii” to “ii through xvi.”
- In proposed condition III.10.I.1.a.viii, change the reference from “III.10.H.5.b.xiii” to “III.10.H.5.d.xvi.”
- In proposed condition III.10.J.1.a.xiv, change the reference from “III.10.J.5.b.xiii,” to “III.10.J.5.d.xvi.”
- In proposed condition III.10.J.5.b.i, change “ii through xiii” back to “ii through ix,” and in condition III.10.J.5.d.i, change “ii through xii” to “ii through xvi.”
- In proposed condition III.10.K.1.a.viii, change the reference from “III.10.J.5.b.xiii” to “III.10.J.5.d.xvi.”

Ecology Response: The changes to the references described below are needed due to the Permit condition changes proposed in Comment 1:

- Bullet 1:** The reference in Condition III.10.E.5.b was deleted. The other two existing references are sufficient.
- Bullet 2:** The reference in Condition III.10.E.9.b.i was changed to ii through ix. The reference in Condition III.10.E.9.d.i was changed to ii through xiii.
- Bullet 3:** Text deleted as suggested. Other references do not apply.
- Bullet 4:** In Condition III.10.G.5.b., references to Condition III.10.G.10.b.vii and Condition III.10.G.10.b.xiii. were deleted.
- Bullet 5:** The reference in Condition III.10.G.10.b.i was changed to ii through ix. The reference in Condition III.10.G.10.d.i was changed to ii through xiii.
- Bullet 6:** The reference in Condition III.10.H.1.a.xiv to Condition III.10.H.1.5.b.xiii was deleted. The other two existing references are sufficient.
- Bullet 7:** The reference in Condition III.10.H.5.b.i was changed to ii through ix. The reference in Condition III.10.H.5.d.i was changed to ii through xiii.
- Bullet 8:** The reference in Condition III.10.I.1.a.viii was changed to Condition III.10.H.5.d.x.

Bullet 9: The reference in Condition III.10.J.1.a.xiv was changed to Condition III.10.J.5.d.x.

Bullet 10: The reference in Condition III.10.J.5.b.i was changed to ii through ix. The reference in Condition III.10.J.5.d.i was changed to ii through xiii.

Bullet 11: The reference in Condition III.10.K.1.a.viii was changed to Condition III.10.J.5.d.x.

Comment 3: Tables III.10.E.E through H, III.10.G.C, III.10.H.C, III.10.I.C, III.10.J.C, and III.10.K.C: It is not clear what kind of information would be placed in the column "Control Parameter" for a leak detection instrument. Please include "N/A" as an entry option for the items in this column.

Ecology Response: A control parameter is a design or operational limit that is monitored to ensure the proper and safe operation of the process. The actual control parameter for the leak detection system is dependent on the type of leak detection system that is ultimately selected. Examples of leak detection systems control parameters include liquid level, moisture, etc. The monitoring of this parameter will provide data to determine if there is a leak and trigger an appropriate response (e.g., remove liquid, repair failed containment, etc.).

Comment 4: Table III.10.E.J, page 47: It is not clear why the word "accessible" was included in row 1 column 3 "Sump Type/Nominal Operating Volume (gallons)." The accessibility of a sump can be ascertained by looking at a general arrangement drawing. The table format does not lend itself to repeating information regarding a sump's accessibility. Please delete reference to accessibility in the table.

Ecology Response: Ecology's intent was to differentiate between dry sumps in areas that would be accessible (e.g., C3 areas) and dry sumps in areas that are not accessible (e.g., black cells). The word accessible has been removed and a footnote 'a' has been added to indicate that this sump is routinely accessible for inspections and maintenance. The purpose was to make it plain which sumps are accessible and which are not.

OTHER ECOLOGY CHANGES/CLARIFICATIONS:

In addition to Permit changes resulting from public comments, Ecology has made the following clarifications:

- 1.) The leak detection system was added to the existing instrumentation requirements specified in the following conditions:

- Condition III.10.C.5.c.iv
- Condition III.10.E.5.b
- Conditions III.10.E.9.d,vii, vii and x
- Condition III.10.E.9.e.ix
- Condition III.10.G.5.b
- Conditions III.10.G.10.d.vii, viii, x, and xiii
- Condition III.10.G.10.e.x
- Condition III.10.H.1.a.xiii
- Conditions III.10.H.5.d.vii, viii, x, and xiii
- Conditions III.10.H.10.e.ix, and xvi
- Conditions III.10.I.1.a.vii and xvi
- Condition III.10.J.1.a.xvi
- Conditions III.10.J.5.d.vii, viii, x, and xiii
- Condition III.10.J.5.d.ix
- Conditions III.10.J.5.e.ix and xvi
- Condition III.10.K.1.a.xiii

2.) The following table titles were modified for readability:

- Tables III.10.E.E, F,G, and H
- Table III.10.G.B
- Table III.10.H.C
- Table III.10.I.C
- Table III.10.J.C
- Table III.10.K.C



WASHINGTON STATE
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Statement of Basis

**for the Modification of the Waste Treatment and Immobilization Plant
Modification of the Hanford Facility Resource Conservation and Recovery
Act Permit**

December 2002
Publication No. 02-05-022

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 02-05-022

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. Pursuant to WAC 173-303-830(3), only the conditions that are subject to this modification are reopened for comment.

Because of the low-level of public interest shown in the September 25, 2002, major permit modification, which incorporated the WTP into the Permit as a TSD Unit, Ecology has elected to prepare a Statement of Basis pursuant to WAC 173-303-840(2)(f)(iv) rather than a Fact Sheet. This process will be 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 riser 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 120 packages will have to be incorporated into the Permit. This could potentially trigger 120 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.

Ecology issued a 180-day temporary authorization for the PTF-001 design package on October 31, 2002. Ecology is not expecting to issue temporary authorizations for all packages. 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 December 16, 2002, and ends on January 31, 2002. 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 January 31, 2002. Comments hand delivered by January 31, 2002, to the address below also will be accepted. Direct all written comments to:

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

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

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

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

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

HANFORD PUBLIC INFORMATION REPOSITORIES

Portland

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

Spokane

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

Richland

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

Seattle

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

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

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

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

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

- Inclusion of design package PTF-001 into the Permit (Pretreatment Building, -45 and -21 feet elevations; secondary containment and walls to grade);
- Clarification of leak detection system submittals and correction of minor errors in permit conditions.

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. At issuance of the final permit modification, clean page changes will be issued to the Permittees and Administrative Record.

In this draft permit modification, a number of changes are being proposed for inclusion in Part III, Chapter 10, WTP, of the Permit. The most significant change is the clarification regarding the submittal of information for leak detection system monitoring and instrumentation. The existing secondary containment

permit conditions address leak detection systems, but do not specifically call out submittal of this important information. The changes to the permit conditions and tables attempt to clarify this requirement. For consistency, Ecology has chosen to locate the additional leak detection system permit conditions in the secondary containment portions for each unit (i.e., tanks, miscellaneous units, containment buildings) along with existing leak detection system conditions. Installation of the leak detection system monitoring and instrumentation will not be authorized until, in the case of a temporary authorization, Ecology has reviewed and approved the information, and in the case of a permit modification, until the information is incorporated into the final Permit. This change affects all portions of the Permit in which secondary containment leak detection system requirements are present. As a result of including leak detection system information in the draft Permit, the following draft changes are being proposed:

1. The following Permit Conditions were modified to also apply to leak detection system monitoring and/or instrumentation: III.10.C.5.c.iv., III.10.E.5.b., III.10.E.9.e.ix., III.10.E.9.e.xi., III.10.G.5.b., III.10.G.10.e.x., III.10.G.10.e.xii., III.10.H.1.a.xiv., III.10.H.5.e.ix., III.10.H.5.f.xvi., III.10.I.1.a.viii., III.10.J.1.a.xiv., III.10.J.5.e.ix., III.10.J.5.f.xvi., and III.10.K.1.a.viii.
2. The following Permit Conditions were added to address submittal of information for leak detection systems: III.10.E.9.b.x. through xiii., III.10.F.3.e., III.10.F.7.c.ix. through xii., III.10.F.7.d.v. through vi., III.10.G.10.b.x. through xiii., III.10.H.5.b.x. through xiii., and III.10.J.5.b.x. through xiii.
3. The following Permit Conditions were modified to reference additional leak detection conditions: III.10.E.5.b., III.10.E.9.b.i., III.10.E.9.e.xi.F., III.10.G.5.b., III.10.G.10.b., III.10.H.1.a.xiv., III.10.H.5.b.i., III.10.I.1.a.viii., III.10.J.1.a.xiv., III.10.J.5.b.i., and III.10.K.1.a.viii.
4. The 'Leak Detection Type' column was removed from the following Permit Tables: III.10.E.I through P, III.10.F.B and C, III.10.G.B, III.10.H.B, III.10.I.B, III.10.J.B, and III.10.K.B. The required submittal of this information was added to the following Permit Tables: III.10.E.E through H, III.10.G.C, III.10.H.C, III.10.I.C, III.10.J.C, and III.10.K.C.
5. Permit Condition III.10.E.e.xiii.E. was removed. This information is no longer being requested in the referenced Permit Tables (see Draft Change No. 6).
6. Permit Table III.10.F.D was added to address submittal of information for leak detection system monitoring and instrumentation, including type of leak detection instrument (see Draft Change No. 6).

In addition, to correct minor errors in the Permit, the following draft changes are being proposed:

1. The list of acronyms was updated in Section III.10.C.1.
2. Incorporating sump data provided in the design package resulted in additions and changes to Tables III.10.E.J and III.10.E.E.
3. Permit Condition III.10.E.2.b. was corrected to include Primary Sump Tables III.10.E.I, K, M, and O.
4. Appendix references for Permit Conditions III.10.E.5.b., III.10.G.5.b., III.10.H.1.a.xiv., III.10.I.1.a.viii., III.10.J.1.a.xiv., and III.10.K.1.a.viii. were corrected.
5. Regulatory citations for Permit Conditions III.10.E.9.c.vi. and III.10.E.9.d.vi. were corrected.
6. The format of Permit Tables III.10.E.J, L, N, and P was modified to reflect the table format of sump design information as submitted by the Permittees.
7. The 'PVV' (Process Vessel Vent) System was added to the 'Designation' column in Permit Table III.10.G.A.i.
8. Permit Condition III.10.H.5.e.ix. was corrected to include Permit Table III.10.I.C.
9. Permit Condition III.10.J.5.e.ix. was corrected to include Permit Table III.10.K.C.

Table 1 - Design Packages Submitted by Permittees

PACKAGE PTF-001 Pretreatment Building –45 and -19 Ft. Elevation Secondary Containment			
DOCUMENT/ DRAWING NUMBER	TITLE	REPLACES	PERMIT LOCATION
24590-CM-HC4-HXYG-00138-01-01, Rev C	IQRPE Independent Assessment Report	N/A	Appendix 8.11
24590-PTF-P1-P01T-P0006, Rev 1	General Arrangement Plans (PTF at –45 El)	N/A	Appendix 8.4
24590-PTF-P1-P01T-P0009, Rev 1	General Arrangement Sections	N/A	Appendix 8.4
24590-PTF-P1-P01T-P00012, Rev 0	General Arrangement Sections	N/A	Appendix 8.4
24590-PTF-P1-P01T-P0014, Rev 1	General Arrangement Sections	N/A	Appendix 8.4
24590-PTF-P1-P01T-P0015, Rev 1	General Arrangement Sections	N/A	Appendix 8.4
24590-PTF- PER-M-02-005, Rev 3	Flooding Volume Calculations for PT Facility	N/A	Appendix 8.8
24590-PTF- PER-CSA-02-001, Rev 0	Secondary Containment Design	N/A	Appendix 8.5
24590-PTF- PER-M-02-001, Rev 2	Material Selection for Building Secondary Containment/Leak Detection	N/A	Appendix 8.9
24590-PTF- PER-CON-02-001, Rev 0	Installation of Tank Systems	N/A	Appendix 8.12
24590-PTF- PER-J-02-001, Rev 1	Leak Detection-Sump Level Measurement in Secondary Containment Systems	N/A	Appendix 8.12
24590-PTF- PER-M-02-006, Rev 2	Sump Data for PTF Facility	N/A	Appendix 8.5
24590-WTP-RPT-PR-02-002, Rev A	Hydrogen Accumulation in Secondary Containment	N/A	N/A (Administrative Record)

NOTES:

PTF = Pretreatment Building

IQRPE = Independent, Qualified, Registered Professional Engineer

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

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

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

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

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

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

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

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

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

1 III.10.C.4. Recordkeeping

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

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

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

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

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

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

1 III.10.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, ~~J, L, N,~~ and I through P, as approved/modified pursuant to Permit
27 Condition III.10.E.9., as specified in Attachment 51, Appendices 8.2, 8.4 through 8.15, 9.2,
28 9.4 through 9.14, 9.18, 10.2, 10.4 through 10.14, 10.18 and 11.2, 11.4 through 11.15, 11.15
29 of this 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 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 ~~8-10~~, 8.14, 9.1, 9.2, 9.14, 10.1, 10.2, 10.14, 11.1, 11.2, and 11.14 of
32 this 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 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-
38 640(3)(a), and ~~WAC 173-303-806(4)(c) WAC 173-303-806(4)(i)(i)(A) through (B),~~
39 ~~and WAC 173-303-806(4)(i)(v)~~];
- 40 vii. System Descriptions (process) related to tanks shall be submitted for incorporation into
41 the Administrative Record;
- 42 viii. Mass balance for each projected operating condition, including assumptions and
43 formulas used to complete the mass balance, so that they can be independently verified,
44 and shall be submitted for incorporation into the Administrative Record;
- 45 ix. A detailed description of how the tanks will be installed in compliance with WAC 173-
46 303-640(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.~~ 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(3)(a), and WAC 173-303-806(4)(c) ~~WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)~~];

- 1 vii. ~~Tank, instrument and ancillary equipment, and leak detection system~~ instrument control
2 logic narrative description (e.g., software functional specifications, descriptions of fail-
3 safe conditions, 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, ~~and 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, ~~and 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 ~~E. Under column 5, replace the 'reserved' with the updated and complete list of leak~~
27 ~~detection type for each sump.~~

28

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

2

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

5

Tank System Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Expected Range	Fail States	Instrument Accuracy	Operating Trips (Description & Numerical Limits)	Instrument Calibration Method No. and Range
<u>PWD-SUMP-00071</u> <u>P-B005 (Pit-19)</u>	<u>Not Applicable</u>	<u>Radar</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-00040</u> <u>P-B002 (Pit-45)</u>	<u>Not Applicable</u>	<u>Bubbler</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>

6
7 **Table III.10.E.F – LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Process-Parameters**

8

Tank System Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Expected Range	Fail States	Instrument Accuracy	Operating Trips (Description & Numerical Limits)	Instrument Calibration Method No. and Range
<u>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>

9
10
11
12

1 **Table III.10.E.G - HLW Vitrification Plant Tank System Process and Leak Detection System Instruments and Process-Parameters**

2

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

3

4 **Table III.10.E.H – Laboratory Tank System Process and Leak Detection System Instruments and Process-Parameters**

5

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

6

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

8

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

9 ^a Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in WAC-173-
 10 303-640.

11

1 **Table III.10.E M - HLW Vitrification Plant Tank Systems Primary^a Containment Sump Systems**

2

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

3 ^a Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in
 4 WAC-173-303-640.

5
 6 **Table III.10.E N - HLW Vitrification Plant Tank Systems Secondary Containment Systems Including Sumps and Floor Drains**

7

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

8
 9 **Table III.10.E O - Laboratory Tank Systems Primary^a Containment Sump Systems**

10

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

11 ^a Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in
 12 WAC-173-303-640.

13
 14 **Table III.10.E P - Laboratory Tank Systems Secondary Containment Systems Including Sumps and Floor Drains**

15

Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	<u>Sump Type/Nominal Operating Volume (gallons)</u>	Sump Dimensions (feet <u>inches</u>) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)	Leak Detection Type
RESERVED	RESERVED	<u>RESERVED</u>	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., ~~pursuant to~~ in
30 accordance with 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."

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

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

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

- 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, Appendix
28 Appendices 8.1, 8.2, and 8.14 of this Permit, as approved pursuant to Permit Conditions
29 III.10.G.10.b.vii, III.10.G.10.e.x, and III.10.G.10.d.x.
- 30 III.10.G.5.c. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or other
31 materials in the Pretreatment Plant Miscellaneous Unit Systems if these substances could
32 cause the systems to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in
33 accordance with WAC 173-303-680(2)].
- 34 III.10.G.5.d. The Permittees shall operate the Pretreatment Plant Miscellaneous Unit Systems to prevent
35 spills and overflows using the description of controls and practices, as required under WAC
36 173-303-640(5)(b), described in Permit Condition III.10.C.5, and Attachment 51, Appendix
37 8.15 of this Permit, as approved pursuant to Permit Condition III.10.G.10.e.iv. [WAC 173-
38 303-640(5)(b), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-
39 806(4)(c)(ix)].
- 40 III.10.G.5.e. For routinely non-accessible Pretreatment Plant Miscellaneous Unit Systems, as specified in
41 Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition
42 III.10.G.10.e.vi., the Permittees shall mark all routinely non-accessible Pretreatment Plant
43 Miscellaneous Unit System access points with labels or signs to identify the waste contained
44 in the units. The label, or sign, must be legible at a distance of at least fifty (50) feet and
45 must bear a legend which identifies the waste in a manner which adequately warns
46 employees, emergency response personnel, and the public of the major risk(s) associated
47 with the waste being stored or treated in the miscellaneous unit system(s). For the purposes

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

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

- i. IQRPE Reports (specific to equipment) shall include a review of design drawings, calculations, and other information as applicable, on which the certification report is based. The reports shall include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 8.0 of this Permit may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall be consistent with the information provided separately in ~~ii. xi.~~ ii. through xiii. below and the IQRPE Reports specified in Permit Conditions III.10.G.10.b. and III.10.G.10.c. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];
- ii. Design drawings (Process Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control systems]) specifications and other information specific to equipment (these drawings should include all equipment such as pipe, valves, fittings, pumps, instruments, etc) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];
- iii. The Permittees shall provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the equipment [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(f), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];
- iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil and water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];
- v. Materials selection documentation for equipment (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];
- vi. Vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, for equipment shall

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

4 vii. Miscellaneous unit, and 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, and 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, and control, and leak detection
18 system instrumentation will be installed and tested [WAC 173-303-640(3)(c) through
19 (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-
20 303-806(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 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.)

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

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

^a The Pretreatment Vessel Vent Process System specified in Permit Table III.10.G.A.i is shared between the Pretreatment Plant Miscellaneous Unit Systems. Any references in this Permit to the individual Pretreatment Plant Miscellaneous Unit Systems are also a reference to the Pretreatment Vessel Vent Process System. Any reference in this Permit to Permit Table III.10.G.A is also a reference to Permit Table III.10.G.A.i.

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

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 ~~and 9.15~~ 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 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)(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)(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)(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 ~~xii.~~ 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)(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)(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, ~~and sub-system equipment, instrument and leak detection system~~
19 instrument control logic narrative description (e.g., software functional specifications,
20 descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-
21 806(4)(i)(i)(B), and WAC 173-303-806(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, ~~and control, and leak detection system~~ instrumentation for the
30 LAW 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, ~~and control, and leak detection~~
32 system instrumentation, will be installed and tested [WAC 173-303-640(3)(c) through
33 (e), 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)(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)(A) through (B), and WAC
21 173-303-806(4)(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)(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 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 **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.)	Leak Detection Type
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

2
 3 **Table III.10.H.C - LAW Vitrification System Process and Leak Detection System Instruments and Process 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

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 and 9.15 of this Permit,
15 as 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

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.I.B - LAW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains

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

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 ~~and 10.15~~ of this Permit, as
15 approved 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

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

29 III.10.J.5.f. One hundred and eighty (180) days prior to initial receipt of dangerous and/or mixed waste
30 in the WTP Unit, the Permittees shall submit for review and receive approval for
31 incorporation into Attachment 51, Appendix 10.15 of this Permit, a Demonstration Test Plan
32 for the HLW Vitrification System to demonstrate that the HLW Vitrification Systems meets
33 the performance standards specified in Permit Condition III.10.J.1.b. In order to incorporate
34 the Demonstration Test Plan for the HLW Vitrification System into Attachment 51,
35 Appendix 10.15, Permit Condition III.10.C.2.g. process will be followed. The
36 Demonstration Test Plan shall include, but not be limited to, the following information. The
37 Demonstration Test Plan shall also be consistent with the information provided pursuant to
38 Permit Conditions III.10.J.5.b., c., d. and e., III.10.C.3.e.v. and III.10.C.11.b., as approved
39 by Ecology and consistent with the schedule described in Attachment 51, Appendix 1.0 of
40 this Permit. The documentation required pursuant to Permit Condition III.10.J.5.f.xvi., in

- 1 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)(i)(B), and WAC 173-303-806(4)(i)(v)]

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 ~~and 10.15~~ of this
30 Permit, as 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).

Appendix 1.0
WTP Interim Compliance Schedule

Any procedure, method, data, or information contained in this document that relates solely to radionuclides or to the radioactive source, byproduct material, and/or special nuclear components of mixed waste (as defined by the Atomic Energy Act of 1954, as amended) is not provided for the purpose of regulating the radiation hazards of such components under the authority of this permit and Chapter 70.105 RCW.

Interim Compliance Schedule- WTP Facility		
	Compliance Schedule Submittal	Interim Compliance Date
	III.10.C.2	
1.	Submit documentation stating the WTP has been constructed in compliance with the Permit.	11/30/07
2.	Submit updated Site Transportation Report for incorporation into the Administrative Record.	12/31/03
	III.10.C.3	
3.	Revise and Submit Waste Analysis Plan and associated Quality Assurance Project Plan to Ecology for review and approval	08/12/05
	III.10.C.5.	
4.	Update and submit for approval "Procedures to Prevent Hazards", Chapter 6.0 Sections 6.3, 6.4, 6.5 and the Inspection Schedule.	08/01/06
	III.10.C.6	
5.	Update and submit the Contingency Plan	08/01/06
	III.10.C.7	
6.	Update and resubmit for review and approval Training Program description in Chapter 8 of the Permit.	08/01/06
7.	Submit under separate cover the actual WTP Dangerous Waste Training Plan for incorporation into Administrative Record.	08/01/06
	III.10.C.8	
8.	Update and resubmit the Closure Plan for approval	08/01/06
	III.10.C.11	
9.	Submit Risk Assessment Workplan, revised in consultation with Ecology.	02/03/03 08/15/03
	CONTAINERS	
10.	Submit detailed information associated with containers and container management areas	10/01/04

Interim Compliance Schedule- WTP Facility		
	Compliance Schedule Submittal	Interim Compliance Date
	for the LAW Vitrification Miscellaneous Treatment System	
26.	Submit LAW Vitrification Environmental Performance Demonstration Test Plan for Ecology review and approval	08/01/06
	HLW SHORT TERM MELTER UNIT	
27.	Submit engineering information for HLW Vitrification Miscellaneous Treatment Unit secondary containment	03/01/03 11/21/03
28.	Submit engineering information for HLW Vitrification Miscellaneous Treatment Unit sub-system	08/01/03
29.	Submit engineering information for equipment for each HLW Vitrification Miscellaneous Treatment Unit sub-system	08/01/03
30.	Submit descriptions of management practices for the HLW Vitrification Miscellaneous Treatment System	01/02/07
31.	Submit HLW Vitrification Environmental Performance Demonstration Test Plan for Ecology review and approval	01/02/07
32.	Final Compliance Date	12/31/07

Attachment 51 – Appendix 8.4
Pretreatment Building

General Arrangement Drawings

Any procedure, method, data, or information contained in this document that relates solely to radionuclides or to the radioactive source, byproduct material, and/or special nuclear components of mixed waste (as defined by the Atomic Energy Act of 1954, as amended) is not provided for the purpose of regulating the radiation hazards of such components under the authority of this permit and Chapter 70.105 RCW.

Due to security considerations,
design drawings will not be
available on the internet, but will
be available at the Administrative
Record locations listed in the
letter.

Attachment 51 – Appendix 8.5
Pretreatment Building

**Civil, Structural, and Architectural Criteria and
Typical Design Details**

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