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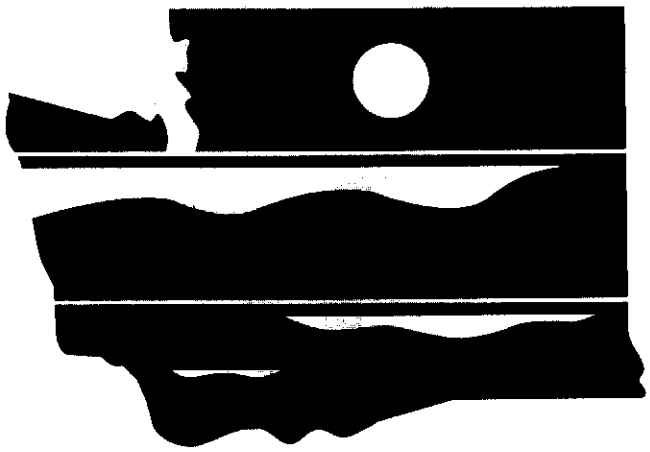

WASHINGTON STATE
DEPARTMENT OF
ECOLOGY

Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit For The Treatment, Storage and Disposal of Dangerous Waste

Hanford Waste Treatment and Immobilization Plant Draft Permit

Volume I

May 2002
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Hanford Waste Treatment and Immobilization Plant Draft Permit

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FACT SHEET

FOR

THE HANFORD FACILITY
RESOURCE CONSERVATION AND RECOVERY ACT
DRAFT PERMIT
FOR THE TREATMENT, STORAGE, AND DISPOSAL
OF DANGEROUS WASTE

Publication Number 01-05-006

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)
3000 George Washington Way
Richland, Washington 99352

This Fact Sheet has been developed by the Washington State Department of Ecology (Ecology) in accordance with the requirements of Washington Administrative Code (WAC) 173-303-840(f). Its purpose is to present information on Ecology's tentative decision modify the Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit for the proposed treatment, storage, and/or disposal (TSD) of dangerous and/or mixed waste at the Hanford Facility to include the River Protection Project-Waste Treatment and Immobilization Plant (WTP) as an operating unit.

This Fact Sheet is divided into several sections, which include:

1.0 Hanford Facility Permit Background
2.0 Procedures for Reaching a Final Decision on the Draft Permit
3.0 Proposed Modifications to the Hanford Facility RCRA Permit

1.0 Hanford Facility Permit Background

Ecology issued the Dangerous Waste Portion of the RCRA Permit (Permit) for the Hanford Facility in 1994.

The Permit for Hanford 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 status standards. The unit described in this Fact Sheet will be incorporated into the Permit and constructed and operated under final status standards. After incorporating a TSD unit into the Permit, the general conditions (Parts I and II of the

Permit) apply. In addition, each TSD unit is subject to conditions based on its status as operating, undergoing closure, or in post-closure.

Conditions of the Hanford Facility RCRA 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)

The draft WTP Permit includes proposed conditions and modifications that will add the WTP to the Unit-Specific Conditions for Final Status Operations (Part III) portion of the Permit. This Fact Sheet only addresses the WTP proposed conditions and modifications. This is a special modification to include the WTP in the Hanford Facility Permit. This modification will allow the United States Department of Energy and Bechtel National, Inc. to start construction of the WTP.

2.0 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 Washington Administrative Code (WAC), regulate the management of dangerous waste in Washington. According to 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 the draft WTP modifications to the Hanford RCRA Permit begins on May 15, 2002, and ends on June 30, 2002. All comments received during the public comment period will be considered and responded to before final decisions are made on the proposed conditions. Regulatory requirements for the public review process (for permit modifications) are described in WAC 173-303-830(3) and in WAC 173-303-840(3). Comments must be post-marked or received by e-mail no later than June 30, 2002. Comments hand delivered by June 30, 2002, to the address below also will be accepted. Direct all written comments to:

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

A public meeting will be held on June 12, 2002, at the Department of Ecology (address shown above). Verbal comments can be made at the meeting. Ecology will consider and respond to all written comments submitted by the deadline, and verbal comments submitted at the public meeting. 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 permit changes 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 the final permit decision has been received.

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

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

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

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 Fact Sheet and proposed draft permit modifications 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).

3.0 Proposed Modifications to the Hanford Facility RCRA Permit

Proposed Modifications to the Hanford Facility RCRA Permit include:

- Permitting one operating unit (Part III):
  - Waste Treatment and Immobilization Plant (WTP)

3.1 Background on WTP Permitting

Ecology received a Dangerous Waste Permit Application for the WTP on April 28, 2000, from British Nuclear Fuels Limited (BNFL) (as owner/operator) and the United States Department of Energy (USDOE) (as land-owner). USDOE's Office of River Protection (ORP) terminated the privatization contract with BNFL in May 2000. Ecology reviewed the application and found it to be 'incomplete.' Ecology issued Notice of Deficiency (NOD) comments to ORP and CH_2M-Hill Hanford Co. (CHG) (interim contractor) on August 14, 2000. ORP and CHG submitted responses to the NOD comments on December 6, 2000. In December 2000, the contract to design and construct the WTP was awarded by ORP to Bechtel National Inc. (BNI). The NOD comments were discussed in workshops and revised NOD responses were submitted to Ecology by ORP and BNI on May 17, 2001.

On December 6, 2001, ORP (as owner/operator) and BNI (as co-operator) submitted a revised Dangerous Waste Permit Application to Ecology. Ecology has reviewed this application and originally judged it to be 'incomplete.' However, ORP and BNI submitted a demonstration, pursuant to WAC 173-303-806(4)(a), on February 6, 2002, that certain information needed for the permit application is not available at this time and suggested dates when the information will be available. Based on the fact that the WTP Dangerous Waste Permit Application addresses all the information requirements listed in WAC 173-303-806(4)(a), Ecology

has accepted the demonstration and has made allowances for the submission of additional information to supplement that material already provided.

Ecology has prepared a draft Permit, based on the information provided in the application, with a compliance schedule to submit additional information as it becomes available. This compliance schedule assures that even though the WTP Dangerous Waste Permit will have been issued, construction and operation of the WTP will proceed in a staged manner with Ecology's review and approval required at each stage.

Ecology's decision to proceed in this fashion is based on the unique circumstances surrounding the WTP construction. These circumstances include the grave threat to human health and the environment posed by approximately 53 million gallons of highly radioactive mixed waste stored in outdated, and in some cases, leaking underground tanks. The amount of time it would take to complete the detailed design and follow a traditional permitting process would delay construction up to four years. This would not allow the Permittees to comply with the Tri-Party Agreement milestone to begin operations in 2008 and would add to the risk that this waste poses to current residents and future generations.

The draft WTP Dangerous Waste Permit has been prepared in the format typically used statewide by Ecology. The Permit modification contains boilerplate conditions that are similar to most facilities in Washington State, and attachments, which are excerpts from the WTP Dangerous Waste Permit Application. This format follows the format used in Modification F of the Permit, which is different from what has been done in past modifications (e.g., incorporating the entire WTP Dangerous Waste Permit Application as an attachment to the Permit). It is the Ecology Nuclear Waste Program's intention to conform to state standards and to simplify the maintenance of the Hanford Facility RCRA Permit by using the new format.

In August 1996, an environmental impact statement titled *Final Environmental Impact Statement for the Tank Waste Remediation System* (DOE/EIS/0189) (EIS) was coauthored by Ecology and USDOE. The scope of the EIS included tank waste retrieval, tank continued operations, and waste treatment and waste disposal. The EIS was published to fulfill the requirements of both the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA) (WAC 197-11). The pretreatment and vitrification activities at the WTP are covered by the analysis represented in this EIS. A NEPA Record of Decision was issued and, following public comment, the SEPA Fact Sheet was issued August 30, 1996.

Because this document is by both Ecology and USDOE, the EIS serves as SEPA coverage for permitting activities related to the WTP, as long as the WTP stays within the bounds of the original analysis. It is Ecology's determination that the WTP, as presently planned, is within the bounds of the original EIS.

3.2 The WTP Permitting Process

The present lack of complete design information presents unique challenges in processing a permit for the WTP Facility. Currently, the overall design of the WTP is less than 30% complete and much of the detailed design information usually included in a permit application is not yet available.

For the reasons stated above, Ecology believes that it is in the best interest of the State of Washington for ORP to begin treating Hanford tank waste at the earliest possible time. Ecology will employ a permitting approach that is different from the usual process for issuing a dangerous waste permit in order to begin tank waste treatment as soon as practical. The permitting approach will be to modify the Hanford Facility RCRA Permit and allow construction to start without a complete design being available, subject to Ecology's review and approval authority over future, more detailed design submittals.

This approach to permitting the WTP will involve three major steps. First, the Permit will be issued with a compliance schedule to provide the additional detailed information necessary to ensure compliance with the standards applicable to a hazardous waste management facility. The initial Permit will include enough detailed design information so that ORP and BNI may start construction on the bottom floor of the facilities

(i.e., the floor and walls below grade). This public comment period covers this first step of construction of the WTP.

Second, design information packages will be prepared for each subsequent stage of facility construction (e.g., installing tanks in the subgrade portions and installing the ground floor). A number of these packages will be submitted during the construction process (e.g., level by level, system by system). This design information will be reviewed by Ecology, approved by Ecology, and incorporated into the Permit prior to construction of that portion of the WTP proceeding. Following public review of each design information package and incorporation into the Permit, Ecology's approvals will allow construction to proceed only on those regulated portions of the WTP that have been approved.

Third, a significant portion of the operations information will be submitted in a large, major (Class 3) modification of the Permit about 18 months before the start of cold (non-radioactive) commissioning of the WTP. This includes the operating portions of the Permit that need relatively complete design to finalize (e.g., training, contingency, and inspection plans).

At this point, all the information normally included in a permit application will have been submitted, reviewed, and approved through public comment, and the Permit will then be considered in compliance with WAC 173-303. After public comment, the Permit will be modified to include the supplemented information. The WTP will then be given approval to begin cold commissioning. Part of cold commissioning will be testing the melter systems to demonstrate performance of the melter systems with respect to emissions and glass production.

Ecology expects to add more conditions to the Permit as the project proceeds and more detailed information becomes available. It is expected that the Permit will be modified numerous times before the facility is operating.

The information needed to supplement the Permit will be submitted according to a compliance schedule included in Attachment 51, Appendix 1.0 of the Permit. Two slightly different modification processes are proposed for the WTP Permit. WAC 173-303-830(3) allows Ecology to modify, or revoke and reissue a permit based on information submitted as required in the Permit. Because the Permit requires the compliance schedule submittals, these submittals will be incorporated into the Permit as agency initiated modifications per WAC 173-303-830(3). Agency initiated modifications require a 45-day public comment period. Changes to information already in the Permit will follow a different modification process. Once information has been incorporated into the Permit, changes to the Permit information will follow the Permittee initiated modification process using Class 1, Class 2, or Class 3 modifications as described in WAC 173-303-830(4). Class 2 and 3 modifications require 60 day (for Class 2) and 45 and 60-day (for Class 3) public comment periods prior to approval by Ecology. The modification process described here is included in Permit Conditions III.10.C.2.e., III.10.C.2.f., and III.10.C.2.g.

Design is an optimization process in which various elements are balanced to provide the best value for a given cost. The types of elements that are balanced include things like process rate, treatment effectiveness, construction cost, operating cost, regulatory requirements, and closure costs. The design process normally results in a series of changes as the design is optimized. Under the usual permitting scenario, the design information in the permit application is complete, or nearly complete, before construction begins. Under the close-coupled design and construction approach, the optimization process continues after construction has started. Ecology will not require a permit modification resulting from a design change until construction on that portion of the WTP is ready to proceed. Before construction on that portion of the WTP can proceed, the Permit must be modified in accordance with WAC 173-303-830(4) to incorporate the changes into the Permit. In this way, Ecology does not interfere with the design optimization process and the administrative burden will be reduced, while still retaining approval authority over the construction activities. Changes to the drawings incorporated into the Permit, that do not effect a regulated area or activity in the building will be considered Class 1 modifications and will be incorporated into the Permit following the Hanford Site

permit process and are incorporated into the Permit quarterly. For example, if a general arrangement drawing in the Permit has one regulated cell on a level in the plant, changes to non-regulated areas (moving a stairwell, increasing the size of a change room, etc.) on that level would trigger a Class 1 modification.

A Permittee is allowed to request a temporary authorization to implement a Class 2 or 3 modification prior to public notice and comment, pursuant to WAC 173-303-830(4)(e). A temporary authorization must meet the criteria described in WAC 173-303-830(4)(ii)(A). 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. Ecology may approve the request for a temporary authorization if the request meets one of the five criteria in WAC 173-303-830(4)(e)(iii)(B).

ORP has requested a temporary authorization to start the construction of the low activity waste (LAW) and high level waste (HLW) vitrification waste treatment facilities prior to issuance of the Permit modification. Ecology has determined that the request could meet three of the five criteria, namely: (I) To facilitate timely implementation of closure or corrective action activities; (III) To prevent disruption of ongoing waste management activities; and (V) To facilitate other changes to protect human health and the environment. Any delay in start of construction past July 1, 2002, is likely to have an adverse impact to the project schedule and delay the treatment of tank waste. The tank waste poses a very great risk to human health and the environment. ORP and BNI have submitted additional information prior to this public comment period to supplement the information in the permit application for the below ground level portions of the two buildings. This information has been incorporated into the draft Permit. Ecology has reviewed the supplemental information and is considering this request. Ecology will grant the temporary authorization only after the public comment period is complete, and only if no major public comments are received that would require major changes to the Permit. If granted, the temporary authorization will not exceed 180 days and will be only for the construction of sub-grade portions of the Law and HLW Vitrification Buildings.

In addition to the Permit modification review process, Ecology will be conducting an ongoing review process to ensure the design of the WTP is in compliance with the dangerous waste regulations. The review process, in part, will consist of reviews of preliminary drafts of key design drawings (e.g., process flow diagrams, piping and instrumentation diagrams). Ecology will also be conducting compliance inspections at the construction site and monitor BNI and ORP inspection activities.

One of the most difficult issues for Ecology during construction is how to balance need for design approval against the sheer volume of technical information being generated during the design process. The project is expected to generate tens of thousands of drawings. In a normal permitting situation, with nearly complete design, the permittee and the regulators sift through the drawings and select a small subset for demonstrating compliance with the regulations and incorporate these drawings into the Permit. Because the drawings are not available and will be issued continuously during the concurrent design and construction process, Ecology cannot determine in advance all the drawings that need to be incorporated into the Permit. As design proceeds, Ecology will review drawing types identified in Attachment 51, Appendix 3.0 for compliance with the Permit and may select a set of drawings to be incorporated into the Permit in addition to those supplied by the Permittees that will best demonstrate compliance with the regulations.

Ecology believes that this permitting approach meets the requirements of WAC 173-303. Normally, Ecology will not issue a final facility permit until a complete, or nearly complete, design has been received. Although the WTP Dangerous Waste Permit Application has addressed all the information requirements for a permit application listed in WAC 173-303-806(4)(a), much of the information has not been supplied to the level of detail Ecology demands, because some aspects of the WTP Facility design are not far enough along to have the information available. Applicable regulations give Ecology the discretion to determine when an application is 'complete.' Ecology's regulations further allow the agency to make allowances, on a 'case by case basis' for the submittal of additional supplementing information when the Permittee can demonstrate it cannot provide the full extent of information required by the regulations. For any information prescribed in

the Part B requirements, but not adequately provided in the permit application, Ecology, pursuant to WAC 173-303-806(4)(a), has required the Permittee to demonstrate in writing that the information cannot currently be provided to the extent required.

Ecology has received and evaluated the demonstration from ORP and BNI, and will make allowances for submission of supplementing information through schedules of compliance as described in WAC 173-303-815(3). Ecology is requiring the submittal of more information than shown on the completion schedule in the permit application or in the demonstration letter. Ecology has included in the permit schedules of compliance in Attachment 51, Appendix 1.0, numerous interim requirements, dates for their achievement, and a final date of permit compliance. A permit condition has been written that requires the permittee to notify Ecology, in writing, 14 days following each interim date, and the final date of compliance or noncompliance with the interim or final requirements. The ability of the WTP to start cold commissioning and hot commissioning will be contingent upon successful completion of the specified interim and final requirements. Operations will not be allowed to start until written authorization is provided by Ecology (Permit Condition III.10.C.2.a.). WAC 173-303-830, Appendix I, lists changes to interim compliance dates, with prior approval of Ecology, as a Class 1 modification and extension of the final compliance date as a Class 3 modification. The final compliance date is the date the WTP initially receives dangerous or mixed waste.

The owner/operator of a proposed facility is required by WAC 173-303-806(4)(a)(xi) to identify the seismic risk zone in which the proposed facility is intended to be located and to demonstrate that the facility can and will be designed to resist seismic ground motion and that the design is sufficient to withstand the maximum horizontal acceleration of a design earthquake specified in the demonstration. The WTP Dangerous Waste Permit Application, Supplement 1 (*Compliance with Uniform Building Code Seismic Design Requirements*) states that in accordance with Uniform Building Code, Figure 16-2, the USGS seismic hazards survey map, the WTP site is designated as seismic zone 2B. This report also provides information and concludes that structures, systems and components designed in accordance with the requirements established for the WTP project will adequately resist the maximum horizontal and vertical acceleration ground motions associated with the seismic zone 2B or site-specific seismic response spectra, as permitted by the Uniform Building Code, and thus satisfy the requirements of WAC 173-303-806(4)(a)(xi).

In a Memorandum of Understanding (MOU) dated April 2000, Ecology, Washington State Department of Health (DOH), and the USDOE's Office of Safety Regulation (OSR) agreed to coordinate regulatory activities for the design, construction, and operation of the WTP. The purpose of the MOU is to improve regulatory efficiency and effectiveness by eliminating duplicate efforts with no diminution of protection provided to the workers, the public, and the environment. Pursuant to this MOU, Ecology will utilize the results of the OSR Safety Evaluation Reports as additional evidence that regulatory requirements of WAC 173-303-806(4)(a)(xi) are being met. The OSR staff has the required expertise to review all phases of the safety documentation. BNI will submit a Construction Authorization Request (CAR) which will be reviewed and an evaluation for approval or disapproval will be contained in a Safety Evaluation Report.

The OSR uses a structured process to sequentially review each BNI submittal. The review process is based on review guidance prepared by the OSR prior to the BNI submittals. The review guidance, *Review Guidance for the Construction Authorization Request (CAR)*, RL/REG-99-05, was published by the OSR in May 1999 for use by the OSR reviewers in evaluating the Construction Authorization Request. The guidance document is part of the OSR public record.

As is the case with Ecology and DOH, OSR has agreed to do staged approvals to allow construction to begin. The HLW and LAW facilities Partial Construction Authorization Requests are being reviewed prior to BNI submittal of the Construction Authorization Requests to enable an early start for construction. The review will provide assurance that BNI's proposed partial construction activities will provide for adequate safety of the workers and the public.

Criteria for review of the facility structures for the BNI facilities are found in Section 1.2 of the Review Guidance Document. The review is conducted to ensure that BNI has adequately described the facility features that could affect potential accidents and their consequences. Examples of these features are the facility locations, facility design information, including seismic information, and the location and arrangement of the treatment facilities on the facility site.

Criteria for review of the facility seismic characteristics are found in Section 4.6 of the Review Guidance Document. The review is conducted to ensure that BNI has adequately described the selection and analysis of external Design Basis Events (e.g., seismic events), the potential hazards and accidents caused by such events, and how they will be acceptably mitigated. BNI's submittals on seismic event will be judged to be acceptable if the following information is provided:

1. Categorization of the performance of important-to-safety Structures, Systems, and Components that require qualification against seismic events.
2. Selection of seismic design criteria, including development of the seismic hazard curve and response spectra.
3. Facility preliminary seismic analysis, demonstrating that the preliminary design will meet applicable requirements for load when subjected to the design-basis earthquake. This analysis includes the modeling approach for the dynamic analysis of the facility. The modeling approach describes the treatment of live load mass, the proposed damping value, and stiffness modeling assumption for structural elements and connections.
4. Seismic acceptance criteria, including the process to compare the calculated seismic demand on important-to-safety Structures, Systems, and Components from the seismic analysis with the corresponding seismic capacity derived from the acceptance criteria of industrial codes and standards.
5. Detailing requirements, including the approach for connections, anchorage, bracing, and pipe supports.
6. Calculational methods used to assess Design Basis Events.
7. Accident prevention and mitigating features, including facility features that are relied on or required for seismic safety.

Following completion of the detailed review of the BNI construction requests, the OSR will issue a Safety Evaluation Report summarizing their evaluation and recommending either approval or disapproval of the Construction Authorization Requests. If the BNI request is approved, a Construction Authorization Agreement will be signed and issued by the Manager of ORP authorizing construction work to begin.

Ecology will review design submittal information submitted by BNI to confirm that all regulatory requirements and permit conditions have been met. Ecology will review the OSR Safety Evaluation Report, and, if found acceptable, will modify the Dangerous Waste Permit to allow construction to proceed.

3.3. WTP Design and Construction Process

Ecology and the public have questioned if construction of the WTP should begin before design is complete. The driving force for ORP to expedite the design and construction process is the requirement of the Hanford Federal Facility Agreement and Consent Order (HFFACO) [also known as the Tri-Party Agreement (TPA)] milestone to begin operation of the WTP by December 2007. With the change in contract from a privatization contractor to the traditional government owned-contractor operated style contract, valuable time was lost.

BNI was selected as the contractor, in part, because they have developed a system of managing complex projects using a concurrent design and construction approach. BNI calls this system the 'close coupled engineering, procurement, and construction (EPC) process.' This method reduces the time needed to get a facility from design, through construction, and into operation and is thought to be the only way ORP can meet the December 2007 TPA milestone. The current BNI project baseline shows that, using this method, they can meet the December 2007 TPA milestone if construction on the TSD facility starts in July 2002.

BNI provided, as part of the WAC 173-303-806(4)(a) demonstration documentation, a description of the EPC process. The BNI information is included in this Fact Sheet to inform the public on the EPC process.

"BNI uses a close coupled engineering, procurement, and construction (EPC) process to tightly coordinate the development and implementation of detailed design information.

In the close coupled EPC process as applied to large industrial facilities, the facility is divided into construction planning zones after major process and structural features are defined. Detailed design and procurement for a particular zone is completed to support construction of the items within that area in advance of other areas to be constructed later. For example, early design and procurement activities will focus on the elements associated with the lowest elevation of the facility and the first pour of structural concrete. Design and procurement activities then shift to support features on upper elevations that are constructed and installed later. This results in plant elements within the many construction planning zones that are at different stages of design, procurement, fabrication, and installation.

The Bechtel Group, including BNI, has successfully used the close coupled EPC process for decades to design and construct major capital projects across the industrial sectors Bechtel supports. Chemical and petrochemical facilities, fossil and nuclear power plants, mining and ore processing facilities, water and waste processing plants are typical of large projects where efficiency and time to market considerations dictate a close coupled EPC approach.

The success of major projects depends on close integration of fully engaged construction, procurement, and project planning personnel with detailed engineering execution. This is achieved most effectively if procurement and construction mobilize concurrently with the design effort in an integrated EPC team. This opportunity for real time coordination at a very detailed level contributes substantially to the quality and constructability of the design and the ultimate success of the project. It also allows early stages of procurement and construction to proceed in parallel with later stages of design.

Close coupled EPC process may be contrasted with the design-build approach used for some smaller facilities where design may be accomplished in a packaged effort in advance of the physical work or where commercial considerations dictate arms-length relationships between designers and builders.

Effective execution of the close coupled EPC strategy requires recognition and accommodation of the following considerations:

- ***Linkage of design, procurement and construction:*** *the design process must be organized in a logical sequence that generates the information needed for early project phases first. For example, plant layout and structural design, and thus initial procurement and construction activities, must be supported by early definition of system processes and major equipment. Design of commodities such as HVAC, piping, and pipe routing can follow because they support later installation activities. Very detailed, integrated schedules capture this logic and serve as the primary tool for tracking progress and highlighting problems areas.*
- ***Design input maturity:*** *design is typically based on inputs derived from multiple sources. A design deliverable is not issued for use by other design organizations, procurement, or construction until inputs are finalized for the purpose of supporting the specific deliverable.*

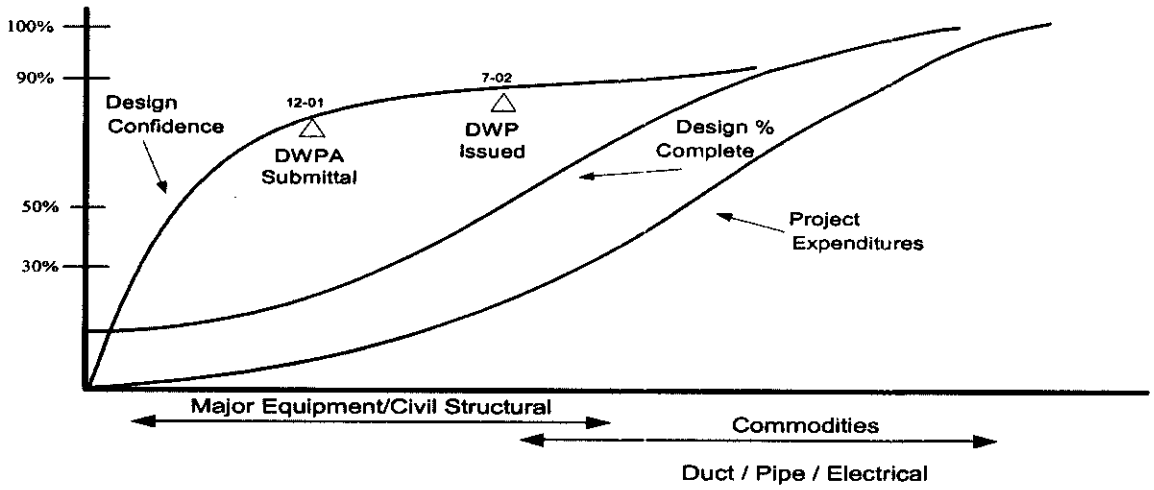
  For example, basic process features to pretreat and then vitrify the waste stream are approved on process flow diagrams (PFDs). These then serve as input to more specific representation of the sequence of equipment, piping, valve and control features shown on piping and

instrumentation diagrams (P&IDs). P&IDs then serve as input to the 3 dimensional computer model of the plant. The model allows optimization of the plant arrangement and footprint from various perspectives, including efficient space utilization, constructability, operability and maintainability.

Details are developed in the model to support sequential construction activities. Major structural features, including floors and walls are finalized first so that structural analyses and structural details can be developed. Equipment locations are refined so that embedments for equipment anchorage can be designed. Piping systems, HVAC duct, and electrical distribution systems are routed so that fabrication details of these commodities can be developed.

Formal coordination, review, and approval processes precede release of each element of the design concept. The 3-D model and certain high level design documents contain a combination of some information that is relevant to early EPC activities and other information that supports later activities. The content of such design documents can be released in stages with information added and approved incrementally to support sequential design, procurement and construction activities.

***Firm design concept:** substantial confidence must exist in the adequacy of the front*



end design concept. The figure above is a qualitative illustration of the distinction between design confidence, reflecting completion of front-end design decisions and supporting analyses (including safety and environmental), and design percent complete reflecting design hours expended divided by total hours forecast.

BNI confidence in the design increased with initial due diligence assessments that affirmed many areas of the front-end design, provided focus on areas of uncertainty, and supported development of systematic strategies to resolve or mitigate the impact of remaining uncertainties. Design confidence also advance substantially as safety and environmental analyses are completed that confirm the adequacy of the design approach and envelope detailed design development.

Review and approval of the DWPA will further enhance confidence that cost/schedule intensive detailed work can proceed with minimal uncertainty and risk. Detailed design work to-go is job-hour intensive and will generate substantial numbers of implementation documents. However, this remaining effort consists of conventional design activities within the envelope of the front-end design. These remaining activities carry limited residual uncertainty or risk to detract from

overall confidence that the design can be executed consistent with its mission and requirements."

Ecology believes that this course of action is the only practical way to complete construction of the WTP and begin this important cleanup task. In addition, BNI has a successful record implementing this methodology on other large construction projects.

3.4 WTP Facility Description

The WTP is a waste management unit that is to be constructed just outside the eastern boundary of the 200 East Area. The purpose of the facility is treat and store mixed and dangerous waste currently stored in 177 underground tanks located in the 200 East and 200 West Areas of the Hanford Site. The volume of waste stored in the tanks is about 53 million gallons. The initial WTP campaign requires that the WTP treat through vitrification, at least 10% of the tank waste by volume and 25% by radioactivity by 2018. The initial campaign would have to treat a minimum volume of 5.3 million gallons by 2018 to achieve a 10% reduction. The expectation is that the plant will be able to exceed this target. The WTP may also treat waste generated within the WTP Facility boundary or from other waste management units in addition to the 5.3 million gallons of tank waste. Current design allows waste to be received only through the Double-Shell Tank (DST) System. ORP has conducted a limited characterization of the waste in the initial campaign. The Waste Analysis Plan in this permit will require further characterization, principally for organics, before the waste is accepted in the WTP.

The WTP Facility consists of three permitted main processing buildings: Pretreatment Building, LAW Building, and HLW Building. Also included in this Permit are container storage buildings for mixed and dangerous waste containers and mixed waste melters and portions of the WTP Analytical Laboratory Building.

3.4.1 Pretreatment Building

The Pretreatment Building houses 70 regulated mixed waste tanks and 4 regulated miscellaneous units. The number of regulated tanks could increase as more design information becomes available. The regulated tanks are identified in Permit Section III.10.E. Four miscellaneous units as defined in WAC 173-303-680 is identified in the Pretreatment Building and consists of the Waste Feed Evaporation System, Cesium Nitric Acid Recovery System, Technetium Eluant Recovery Process System, and the Treated LAW Evaporation system. These miscellaneous unit systems include support systems such as tanks and share an air emission treatment train. The air emission treatment train, which is referred to as the Pretreatment Vessel Vent Process System, is also shared by the other mixed waste management operations (tanks systems, and containment building units) in the Pretreatment Building. The Pretreatment Vessel Vent Process System is primarily comprised of scrubbers, filters, absorbers, and a catalytic oxidizer to treat/remove constituents in the air emissions from the mixed waste management operations in the Pretreatment Building prior to release to the atmosphere from the Pretreatment Building Stack.

The Pretreatment Building receives waste from the Double-Shell Tank (DST) System. The DST waste is pumped to the WTP through new underground double-contained pipelines. The DST waste is received in batches as large as 1 million gallons and stored in four 388,000-gallon tanks with a total capacity of about 1.5 million gallons. These large tanks are equipped with mixers to keep the solids suspended.

Pretreatment consists of several treatment steps performed in equipment classified as tank systems in WAC 173-303-640. The purpose of pretreatment is to divide the waste into HLW and LAW waste streams for vitrification in separate HLW and LAW Vitrification Buildings. The process is designed to remove the solids that contain most of the radioactivity, and route the solids to the HLW Vitrification Plant. The LAW waste, mainly a solids-free liquid with much lower radioactivity, will be routed to the LAW Vitrification Plant. These pretreatment steps in this process include:

- Evaporation to concentrate the waste;
- Chemical precipitation of strontium in some waste feeds;
- Ultrafiltration to remove the solids;
- Ion exchange to remove cesium in solution;
- Ion exchange to remove the technetium in solution; and
- Evaporation of the remaining LAW feed to concentrate the waste.

The Pretreatment process creates a number of secondary waste streams. The volumes and compositions of the streams are being determined as part of the design process. The mixed/dangerous secondary waste streams, identified thus far, include:

- Process condensate from evaporation [routed to the RCRA permitted 200 Area Effluent Treatment Facility (ETF) for treatment and disposal];
- Spent ion exchange resins [dewatered and shipped to the Hanford RCRA permitted Central Waste Complex (CWC) for storage];
- Solid waste (e.g., failed pumps and other equipment) containerized and shipped to CWC; and
- Liquid (e.g., scrubber effluents) and solid wastes (e.g., filters, spent carbon, etc.) from the Pretreatment Vessel Vent Process System.

3.4.2 LAW Vitrification Building

The LAW Vitrification Building houses 16 regulated mixed waste tanks identified in the permit application. The number of regulated tanks could increase as more design information becomes available. Miscellaneous units, as defined in WAC 173-303-680, are identified in the LAW Vitrification Building and consist of the 3 LAW melter systems (consisting of the melters and the air emissions treatment trains). The 3 LAW melter systems include a primary and secondary off-gas treatment train. Each LAW melter system includes a dedicated primary off-gas treatment train primarily consisting of wet scrubbers. The LAW melter systems share the secondary off-gas treatment train with the other mixed waste management operations (container storage, tanks systems, and containment building units) in the LAW Vitrification Building. The secondary off-gas treatment train is primarily comprised of filters, a wet scrubber, a catalytic oxidizer, and a catalytic reduction unit. The LAW melter systems, including the primary and secondary off-gas treatment train treat/remove constituents in the air emissions from the mixed waste management operations in the LAW Vitrification Building prior to release to the atmosphere from the LAW Vitrification Building Stack.

Waste is received into the LAW Vitrification Building from the Pretreatment Building via a double-contained underground pipeline. The waste is stored in a receipt tank. The waste is transferred into a mixing tank where glass formers (such as silica and sucrose) are added to produce the desired glass quality. This slurry is transferred to a melter feed tank, and then into the melter. The melters are electrically powered and operate at temperatures between 900 to 1200 °C. Each melter is designed to produce 15 metric tons of glass per day, with an expected output of up to 30 metric tons per day of glass. As the waste is added to the melter, the liquids quickly evaporate and the solids are incorporated in the melt (molten solids). Melt is poured into large stainless steel canisters where it solidifies into glass. Lids are welded on the canisters. The outsides of the canisters are decontaminated. Canisters are then stored in the LAW Building before transport to a RCRA permitted onsite disposal area (to be constructed).

The LAW Vitrification process creates a number of secondary waste streams. The volumes and compositions of the streams are being developed as part of the design process. The mixed/dangerous waste secondary waste streams, identified thus far, include:

- Spent LAW melters (after openings are sealed) transferred to a melter storage building before final disposal in a RCRA compliant trench to be constructed;
- Solid waste (e.g., failed pumps and other equipment) containerized and shipped to the CWC;

- Liquid (e.g., scrubber effluents) and solid wastes (e.g., filters, spent catalyst, etc.) from the melter systems primary and secondary off-gas treatment train; and
- Condensates within the building are collected and will be routed to the ETF for treatment and disposal.

3.4.3 HLW Vitrification Building

The HLW Vitrification Building houses 12 regulated mixed waste tanks identified in the permit application. The number of regulated tanks may increase as more design information becomes available. Miscellaneous units, as defined in WAC 173-303-680, are identified in the HLW Building and consist of the HLW melter system (consisting of the melters and the air emissions treatment trains). The HLW melter system includes a primary and secondary off-gas treatment train. The HLW melter system's primary off-gas treatment train primarily consisting of wet scrubbers. The HLW melter system shares the secondary off-gas treatment train with the other mixed waste management operations (container storage, tanks systems, and containment building units) in the HLW Vitrification Building. The secondary off-gas treatment train is primarily comprised of filters, a catalytic oxidizer, a catalytic reduction unit, and a silver mordenite unit. The HLW melter system, including the primary and secondary off-gas treatment train treat/remove constituents in the air emissions from the mixed waste management operations in the HLW Vitrification Building prior to release to the atmosphere from the HLW Vitrification Building Stack. The HLW Vitrification Building is being constructed with two melter cells; one will be empty and can house a second melter at a later date.

Waste is received into the HLW Vitrification Building from the Pretreatment Building via a double-contained underground pipeline. The waste is stored in a receipt tank. The waste is transferred to a mixing tank where glass formers (such as silica and sucrose) are added to produce the desired glass quality. This slurry is transferred to a melter feed tank, and then into the melter. The melter is electrically powered and operates at temperatures between 900 to 1200 °C. The melter is designed to produce 1.5 metric tons of glass per day, with an expected output of up to 3 metric tons per day of glass. As the waste is added to the melter, the liquids quickly evaporate and the solids are incorporated in the melt. Melt is poured into large stainless steel canisters where it solidifies into glass. Lids are welded on the canisters. The outsides of the canisters are decontaminated. Canisters are then stored in the HLW Building before transport to a RCRA permitted Canister Storage Building located on the Hanford Site. The HLW canisters are designed to meet the disposal criteria for the National Repository located at Yucca Mountain, Nevada.

The HLW Vitrification process creates a number of secondary waste streams. The volumes and compositions of the streams are being developed as part of the design process. The mixed/dangerous secondary waste streams, identified thus far, include:

- Spent HLW melters in welded overpacks will be transferred to a melter storage building (final disposal pathway for spent and failed HLW waste melters has not been developed);
- Solid waste (e.g., failed pumps and other equipment) containerized and shipped to CWC;
- Liquid (e.g., scrubber effluents) and solid wastes (e.g., filters, spent catalyst, etc.) from the melter systems primary and secondary off-gas treatment train; and
- Condensates within the building are collected and can be routed to the ETF for treatment and disposal.

3.4.4 Analytical Laboratory

A standalone laboratory building will be constructed at the WTP to perform analyses in support of WTP operations. The laboratory is in the conceptual design phase and details are not available. The Analytical Building is planned to house 2 regulated mixed waste tanks identified in the permit application. The number of regulated tanks could change as more design information becomes available. The laboratory tank system will be connected to the Pretreatment Building by an underground double-contained pipeline that will allow laboratory waste to be transferred out of the Laboratory Building into the Pretreatment Building. This transfer of laboratory waste will be a regulated activity under this Permit.

As the design of the laboratory advances it may be determined that permitted storage areas may be required. These storage areas will be added to the Permit as a Class 3 modification. As in any laboratory, analytical work will generate secondary waste streams. The volumes and compositions of the waste streams are being determined as part of the design process. The mixed waste streams include waste from analyzing process and compliance samples. This waste will be returned to the Pretreatment Building for treatment or transferred to the ETF for treatment and disposal. Dangerous waste generated in the laboratory will be transferred to an offsite RCRA-permitted TSD for disposal. All waste generating activities within the analytical laboratory will be regulated under WAC 173-303-170 through 230. Dangerous and mixed waste management will be regulated under this Permit.

3.4.5 Other Regulated WTP Facilities

Four other buildings will include regulated dangerous and mixed waste container storage areas at the WTP site and are included in this Permit. They include the Central Waste Storage Facility, HLW Melter Out-of-Service Storage Area, LAW Melter Out-of-Service Storage Area, and the Non-Radioactive Dangerous Waste Container Storage Area. The volumes and compositions of the waste streams are being determined as part of the design process. As the design progresses, and before construction, these units will be incorporated into the Permit as a Class 3 modification.

3.5 Basis for Draft WTP Permit Conditions

The purpose of this section of the Fact Sheet is to describe the significant factual, legal, methodological, and policy questions considered in preparing the draft Permit modification. This section also will include a brief summary of the draft conditions and the regulatory basis for those conditions. This section describes the reasons for any alternatives to required standards and provides justification for those alternatives.

The major policy decision, of proceeding with the Permit and allowing construction before design was complete, was made several years ago by Ecology management (letter to Jackson Kinzer from Suzanne Dahl, 02/10/97 and Letter to Richard French from Thomas Fitzsimmons, 12/08/99). The reasons for this decision were given in the 'Permitting Process' section of the Fact Sheet.

This section will deal with the detailed description of conditions in the draft Permit modification. The WTP Permit modification differs from permit conditions for other units in the Hanford Facility RCRA Permit in that it contains many more conditions than that required for the typical Hanford TSD facility. Because the design of the facility is not complete, not all the information needed for the Permit is currently available. As a result, Ecology has written conditions that require compliance with the regulations in WAC 173-303 and have described, in as much detail as possible at this time, the information that must be submitted to supplement the Permit in order to allow construction and operations to begin. As design proceeds and new issues arise, Ecology will modify this Permit to include new conditions or modify existing conditions, as described in WAC 173-303-830(3) and WAC 173-303-840(2) and (3).

3.5.1 Unit–Specific Conditions for the WTP

This section discusses conditions in Sections III.10.A, III.10.B, and III.10.C of the Permit.

3.5.1.1 General Waste Management

Permit Condition III.10.C.2.a. does not allow the Permittees to accept dangerous or mixed waste into the WTP Facility until the Permittees have received a Permit modification allowing waste to be received and have submitted to Ecology a letter stating that the facility has been constructed in compliance with this Permit. The Permit modification allowing the start of operations will be processed in accordance with WAC173-303-830 (3) and WAC 173-303-840(2) and (3) and will have a public review period. Ecology reserves the right to inspect the facility for compliance prior to allowing the acceptance of waste.

Permit Conditions III.10.C.2.a. and III.10.C.2.e. authorizes the Permittees to accept waste specified on the Part A Permit Application and in accordance with the Waste Analysis Plan included in the Permit in Chapter 3.0. WAC 173-303-806(2)(a) requires the Permittees submit a Part A Permit Application with the Part B Permit Application. The Part A has been attached to the Permit in order to document waste codes and quantities to be treated or stored at the WTP. WAC 173-303-300 requires analysis of waste prior to storage, treatment, or disposal and to have a Waste Analysis Plan for characterizing the waste.

In addition to not having design information, some treatment units characterized in the permit application as 'tanks' by BNI, under WAC 173-303-640, are being reclassified as 'miscellaneous units' according to WAC 173-303-680 by Ecology. The rationale for this recharacterization is given in Section 3.5.5 of this Fact Sheet. In addition, some units within the WTP, which the Permittees thought were not regulated, will be included as regulated units in the Permit. The rationale for this determination is given in Section 3.5.3 of this Fact Sheet. Normally, these differences are resolved during the permit application review process. So as not to delay the Permit issuance, the Permittees will be required, in a compliance schedule, to update the Permit to include the reclassified units/equipment in the Tables in Sections C, E, G, I, J, K, and L and to update the quantity of waste treated in the Part A Permit Application. Permit Condition III.10.C.2.i. requires the Permittees to update and resubmit the Part A to reflect the changes in the quantities and types of waste stored at the WTP.

3.5.1.2 Waste Analysis Plan (WAP)

According to WAC 173-303-300(5), each facility owner or operator is required to develop and maintain a WAP that must be kept at the facility and must include, at a minimum: what each dangerous waste will be analyzed for; a justification as to why the parameters selected will provide adequate information to ensure proper waste management; how and why each dangerous waste will be analyzed; how the waste will be representatively sampled; how often the waste analysis will occur and when it will be repeated; what information will be provided by the waste generator; and how the movement of waste will be tracked through the facility. The purpose of the plan is to document how the owner or operator will obtain information about the waste they produce and/or store, treat, or dispose. Knowledge of waste characteristics is necessary to ensure the owner or operator appropriately manages any dangerous waste. According to WAC 173-303-300, the owner or operator is required to obtain a detailed chemical, physical, and/or biological analysis of a dangerous waste before it is stored, treated, or disposed. The knowledge obtained through the analysis must be adequate to ensure management of the waste in compliance with all requirements specified in WAC 173-303.

Because the design of the facility and its waste processing systems is not complete, not all the information needed for the WAP is currently available. As a result, Ecology has written Conditions III.10.C.3.a. through III.10.C.3.e. that require compliance with the regulations in WAC 173-303-300 and have described, in as much detail as possible at this time, the information that needs to be submitted to comply with the requirements for a WAP.

Permit Condition III.10.C.3.e. requires the Permittees to submit a revised WAP and Waste Analysis Quality Assurance Project Plan to Ecology, for approval, prior to the receipt of any waste. The revised WAP will be incorporated into this Permit in accordance with the compliance schedule in Attachment 51, Appendix 1.0.

3.5.1.3 Recordkeeping

The WTP must maintain detailed operating records at the facility, as described in Attachment 51, Chapter 12.0. These records document compliance with conditions of the Permit and dangerous waste regulations. Records must also be made of spills, releases, incidents of noncompliance, and emergency situations.

Permit Condition II.I.1. requires the Permittees to maintain a written Facility Operating Record until ten (10) years after post-closure, or corrective action is complete and certified for the Facility, whichever is later. Except as specifically provided otherwise in this Permit, the Permittees shall also record all information referenced in this Permit in the Facility Operating Record within seven (7) working days after the information becomes available. This requirement applies to all Hanford final permitted units, including the WTP.

3.5.1.4 Procedures to Prevent Hazards

This section of the Permit requires that the Permittees construct and operate the WTP with the security, communications, and emergency equipment described in Attachment 51, Chapter 6.0 of the Permit. Condition III.10.C.5.b. requires that the Permittees update this section of the permit with additional details in accordance with the compliance schedule in Attachment 51, Appendix 1.0. Condition III.10.C.5.e. requires the equipment be maintained to be available in case of an emergency.

The facility inspection schedule is included in Attachment 51, Chapter 6.0. The inspection schedule details the frequency and method of inspecting the regulated units within the WTP as required by WAC 173-303-395(1)(d), -630(6), -640(4)(a)(i), -670(7), -680(3), and 40 CFR 264.1101(c)(4). In general, the regulations require daily, weekly, or monthly inspections. Permit Condition III.10.C.5.c. requires that the inspection schedule will be updated prior to operations and in accordance with the compliance schedule in Attachment 51, Appendix 1.0.

WAC 173-303-395 and -640(6) requires inspections, but does not specify that the inspections must be visual. At most dangerous waste facilities, visual inspections are the most convenient way to meet the inspection requirement. The WTP presents some unique challenges for inspections due to the extremely high radiation fields surrounding many of the tanks and miscellaneous treatment units. Routine human access to most of these areas is not possible while in operation.

The Permittees have proposed that the routine inspections for the high radiation areas be accomplished using sumps with continuous leak detection. The Permittees are required to provide calculations that demonstrate nearly all the cells containing tanks or miscellaneous units can detect a leak of 0.1 gallons per hour within a 24 hour period as suggested by EPA guidance. The equivalent of 0.1 gallons per hour is 12 ounces per hour. Permit Condition III.10.E.9.ii., III.10.G.10.e.ii., III.10.H.5.e.ii., and III.10.J.5.e.ii. address leak rate for tanks and miscellaneous units and allows for the Permittees to request a case by case exception. Ecology has accepted the continuous monitoring approach as being adequate to protect human health and the environment, considering the fact that these cells are located in a massive concrete building, with welded stainless steel secondary containment, and extensive ventilation controls. The Permittees will need to provide access to these cells for the periodic integrity assessments required by WAC 173-303-640 (3)(b) and for inserting video cameras for visual inspections, if unusual circumstances require a visual inspection.

3.5.1.5 Contingency Plan

Each owner or operator of a dangerous waste TSD facility is required by WAC 173-303-350 to have a contingency plan at the facility to use in emergencies or sudden or nonsudden releases which threaten human health and the environment. At Hanford, the contingency plan consists of two parts. One part of the contingency plan requirement is met by the *Hanford Emergency Management Plan* (DOE/RL-94-02). This

plan covers sitewide emergency requirements such as sirens, agreements with local authorities, and site evacuations plans. This plan is Attachment 4 to the Hanford Facility Permit.

The other portion of the WAC 173-303-350 requirements are met by a WTP-specific contingency plan. The WTP requirements are contained in the *River Protection Project – Waste Treatment Plant Emergency Response Plan* (24590-WTP-PL-OP-01-003) and is included in Attachment 51, Chapter 7.0 of this Permit modification. This plan includes the specific responses to emergencies that may occur at the WTP. The format and level of detail of the attached WTP plan is similar to that used at other TSD Facilities at Hanford. Because the design is not complete, all the information usually available (e.g., evacuation plan, list of emergency equipment, alarms, and decontamination equipment) is not available at this time.

Permit Condition III.10.C.6.b. requires the Permittees to submit a revised and updated WTP emergency response plan 18 months before the start of cold commissioning. This revision will include the information that is not currently available. The facility will not be allowed to start operations until the plan is approved by Ecology and incorporated into the Permit.

3.5.1.6 Training Plan

Requirements for personnel training are contained in WAC 173-303-330. The program's overall goal is to teach personnel to perform their duties in a way that ensures the facility's compliance with the Dangerous Waste Regulations, teaches the personnel dangerous waste management procedures relevant to the position in which they are employed, and ensures that facility personnel can effectively respond to emergencies. The personnel training requirements for the WTP are included in Attachment 51, Chapter 8.0 of this Permit modification.

At Hanford, an agreement has been reached between the USDOE and Ecology to include a brief description of the facility's training program in the facility-specific portion of the Hanford Facility Permit. Permit Condition III.10.C.7.e. requires the facility's entire training plan be submitted to Ecology separate from the Permit, allowing Ecology to ensure that the requirements in Chapter 8.0 are being met yet providing the facility the flexibility to update the plan as needed to reflect current facility operations.

Permit Condition III.10.C.7.a.ii. requires that all categories of personnel whose activities directly affect emissions from the LAW and HLW Vitrification Systems be provided with specialized training. As the LAW and HLW Vitrification Systems included in this Permit are complex thermal treatment systems, this specialized training is critical to assure Ecology that the systems are operated, as well as designed, to be protective of human health and the environment. This permit condition is based on WAC 173-303-680(2).

Permit Condition III.10.C.7.a. requires the Permittees to submit a revised and updated WTP training plan 18 months before the start of cold commissioning. This revision will include the information that is not currently available. The facility will not be allowed to start operations until the plan is approved by Ecology.

3.5.1.7 Closure

Requirements in WAC 173-303-610 address the requirements for closing a dangerous waste TSD facility. The WTP Closure Plan is included in Attachment 51, Chapter 11.0 of this permit modification. A closure plan must address how each dangerous waste management unit at the WTP will be closed in conformance with the applicable closure performance standard. These standards are defined in the closure plan and must be in accordance with the requirements of WAC 173-303-610(2). The plan also includes methods used to remove or decontaminate equipment, structures, and soils.

The Permit includes conditions that require the Permittees to resubmit the closure plan 180 days prior to a partial closure. Submit a Sampling and Analysis Plan 180 days before starting closure. Approved plans must be in place before beginning closure. The Permit also specifies the requirements for the independent,

qualified, registered professional engineer when certifying closure. Ecology reserves the right to require additional sampling.

Permit Condition III.10.C.8.b. requires the Permittees to submit a revised and updated WTP closure plan 18 months before the start of cold commissioning. This revision will include the information that is not currently available. The facility will not be allowed to start operations until the plan is approved by Ecology.

3.5.1.8 Critical Systems

In the Hanford Facility Permit definitions the term "Critical Systems" is defined as follows:

> *"The term "**Critical Systems,**" as applied to determining whether a Permit Modification is required, means those specific portions of a TSD unit's structure, or equipment, whose failure could lead to the release of dangerous waste into the environment, and/or systems which include processes which treat, transfer, store, or dispose of regulated wastes. A list identifying the critical systems of a specific TSD unit may be developed and included in Part III, V, and/or VI of this Permit. In developing a critical system list, or in the absence of a critical system list, WAC 173-303-830 Modifications shall be considered."*

The design of WTP is broken down by plant and each plant is broken down into smaller design "systems." Each system is designated by a name and a three-letter code [e.g., Technetium Ion Exchange System (TXP), Waste Feed Evaporation Process system (FEP)]. Many of the WTP design systems are described in the permit application. Based on the permit application, a list of WTP critical systems (systems which include processes which treat, transfer, store, or dispose of regulated wastes) was developed and included in Attachment 51, Appendix 2.0 of this Permit. This departs somewhat from the critical systems definition used in the Hanford Facility Permit definition above, which, in addition to defining equipment that treat, transfer, store, or dispose of regulated wastes, also includes the facility's structure and equipment that prevents dangerous and mixed waste from escaping to the environment. The structures and equipment are mainly the secondary containment systems and the air emissions control systems. In Section III.10 of this Permit, secondary containment, containment buildings, and air emissions control equipment shall be considered part of the individual tank, container, or miscellaneous unit and will be included with the appropriate critical system in Attachment 51, Appendix 2.0. As design information becomes available, Ecology reserves the right in Condition III.10.C.9.b. to add additional systems to the critical systems list.

This section also includes requirements for Ecology review and approval of design change notices and nonconformance reports that are generated during the construction of the WTP.

3.5.1.9 Equivalent Materials

Permit Condition III.10.C.10.a. allows the Permittee the flexibility to substitute equivalent or superior equipment, materials, and administrative information (such as names, phone numbers, addresses) for those specified in this Permit. Use of such equivalent or superior items are not considered a modification of the Permit as long as the equipment etc, is within the limits (e.g., ranges, tolerances, and alternatives) already clearly specified in sufficient detail in the attachments to this Permit. If Ecology determines that the change is not equivalent, Permit Condition III.10.C.10.b. requires the Permittee use the permit modification process in WAC 173-303-830.

3.5.1.10 Risk Assessment

The Permit requires the Permittees to perform a risk assessment consistent with WAC 173-303-680 and WAC 173-303-812(2)(b)(ii) pursuant to EPA's policy that the permitting processes for hazardous waste combusters (i.e., includes incinerators) or thermal treatment process of similar or greater complexity (e.g., with respect to design, operations and potential emissions) must address site-specific risks not otherwise

addressed by existing regulations. On July 30, 1999, EPA's Administrator signed the rule for "Final Standards for Hazardous Air Pollutants for Hazardous Waste Combustors" (40 CFR Part 63 Subpart EEE). As part of the preamble to the final rule, EPA outlined some of the limitations of the national risk assessment which was performed for the final rule including: (1) No assessment of risk from nondioxin products of incomplete combustion, and (2) By its nature, a national risk assessment cannot address unique site-specific considerations. As a result of these limitations, Ecology continues to recognize the need for site-specific analysis to assure that a given hazardous waste combustor or thermal treatment process of similar or greater complexity is operated in a manner that is protective of human health and the environment as required under the Dangerous Waste regulations. Unique site-specific considerations for the WTP include the presence of sensitive receptors with potentially significantly different intakes/exposures (e.g., Native Americans), presence of significant ecological considerations [proximity to particular sensitive ecosystems (e.g., salmon, eagles, etc.)] and the special considerations associated with the radioactive components of the emissions.

This risk assessment will include an evaluation of risks from people eating foods and breathing air potentially contaminated by the emissions from the WTP. The risk assessment will also be required to look at risks to plants and animals living in areas potentially contaminated by the emissions from the WTP. The risk assessment will be used to determine if any operating conditions, in addition to those specified in the regulations are needed to ensure that the WTP will be protective of human health and the environment.

Two phases of risk assessment are required to be performed under the Permit. The first phase is a Preliminary Risk Assessment which will be performed prior to operation of the facility based on estimated emissions from the proposed waste management operations. The second phase is the Final Risk Assessment to be performed after WTP construction and demonstration testing of the LAW and HLW Vitrification Systems. This second phase incorporates the actual emission data from the LAW and HLW Vitrification System with the estimated emission data from the other WTP waste management operations.

Work on the Risk Assessment Work Plan has been proceeding for several years. The draft work plan has been reviewed by Ecology and EPA, comments issued, and resolved. The Permittees did not have sufficient time to incorporate the comments into the work plan before issuance of this permit modification. The Preliminary Risk Assessment Work Plan, comments, and comment resolutions are attached to the Permit in Attachment 51, Appendices 6.1.1 and 6.1.2. Permit Condition III.10.C.11.a. requires the work plan comments be incorporated and the Risk Assessment Work Plan incorporated into the Permit as a permit modification with a public review process.

The Risk Assessment Work Plan details how both phases of the risk assessment will be performed. The Preliminary Risk Assessment Report (phase one) will be used to further refine the constituents of concern (chemicals and radionuclides), exposure pathways, exposure impact locations, and potential receptors (human and ecological) for incorporation into the Final Risk Assessment. The further refinement of the constituents of concerns will also be incorporated into LAW and HLW Vitrification Systems' Demonstration Tests. During the Demonstration Tests during cold (nonradioactive) commissioning, sampling will be conducted to measure the concentrations of chemical constituents in the LAW and HLW Vitrification Systems' emissions under controlled conditions. The purpose of the Demonstration Test is to collect data that will be used in the Final Risk Assessment Report and to demonstrate the ability of the HLW and LAW Vitrification Systems to meet the performance standards specified in Permit Conditions III.10.H.1.b., III.10.I.1.b., III.10.J.1.b.,and III.10.K.1.b. at the outer boundaries of their operating conditions. Additional details on the performance standards can be found in Sections 3.5.6 and 3.5.7 of this Fact Sheet. The Final Risk Assessment Report will be used to assure that Permit limits for operations of the WTP that are protective of human health and the environment.

The basis for the Permit requirements under Permit Section III.10.C.11 for performance of the risk assessment for the WTP is WAC 173-303-812(2)(b)(ii) and WAC 173-303-680(2).

3.5.1.11 Air Emissions

Permit Condition III.10.C.12 requires the Permittees to obtain permit modifications prior to installing or using equipment or waste management processes which would be subject to the organic emissions controls requirements of WAC 173-303-690, -691, or -692.

3.5.1.12 Remote Access

Permit Condition III.10.C.13 requires the Permittees to provide to Ecology onsite, unrestricted twenty-four (24) access to key WTP operating and emission monitoring data. This permit condition provides an Ecology only use computer station for monitoring WTP operations to assure that the thermal treatment systems are operated to be protective of human health and the environment. This permit condition is based on WAC 173-303-815(2)(b)(ii) and WAC 173-303-680(3).

3.5.1.13 Performance Demonstration Test

The Permittees are required by Sections III.10.H and III.10.J to complete performance demonstration tests prior to receiving mixed waste into the WTP Facility. The purpose of the Demonstration Tests is to collect data that will be used in the Final Risk Assessment Report and to demonstrate the ability of the HLW and LAW Vitrification Systems to meet the performance standards specified in Permit Conditions III.10.H.1.b., III.10.I.1.b., III.10.J.1.b., and III.10.K.1.b. at the outer boundaries of their operating conditions. One of the tests required to be performed is a demonstration that the Vitrification systems can achieve an organic Destruction and Removal Efficiency (DRE) of 99.99 %. In order to perform the test, the Permittees will have to spike the waste simulant feed to the melters during cold commissioning with a known amount of selected organic constituents and measure the concentration of the constituent after treatment and before discharge. For details on the testing see Sections 3.5.6 and 3.5.7 of this Fact Sheet.

The Permittees have expressed the concern that injecting high concentrations of organics into the melters will change the chemistry of the melt and cause the metals in the melt to form metal sulfides. The metal sulfides would sink to the bottom of the melter and could short-circuit the melter electrodes. The melter would then become unusable and have to be replaced. Experience with melters has shown that the formation of a metals layer can be a major limiting factor on melter life. There is no data available to quantify the amount of organics that would cause an unacceptable build-up of metals in melters. However, failure of the WTP melters due to organic spikes during demonstration testing is not acceptable to the Permittees or to Ecology.

To address this problem the Permittees have agreed to Permit Condition III.10.C.14 which requires pilot-scale tests be performed on the one third scale prototype melter, located in Maryland. A test plan will be submitted to Ecology for approval by January 31, 2004, and the tests will be completed by November 15, 2004. It is expected that the pilot scale program will determine if the spiking of organics will have an adverse effect on melter life. If the pilot scale testing results in melter failure, no further testing at high concentrations will be required for the WTP melters. The Permittees would have to modify the demonstration test plan to include the pilot-scale results and an alternative method of demonstrating that the DRE requirement has been met.

3.5.2 Containers

Regulations in WAC 173-303-630 address requirements for design and management of container storage areas, and containers within those areas at a dangerous waste TSD facility. Information addressing WAC 173-303-630 requirements is included in Attachment 51, Chapter 4.0, Section 4.2.1 of this permit modification. The information addresses how each container storage area and containers stored within those areas are managed in compliance with the dangerous waste regulations.

WAC 173-303-630(3) requires containers of dangerous waste to be labeled in a manner which adequately identifies the major risk(s) associated with the contents of the containers for employees, emergency response personnel, and the public. This requirement will be modified for the ILAW and IHLW containers. Due to the expected high radioactivity levels of the ILAW and IHLW containers, they will be handled remotely using a combination of cranes and hoists with grappling equipment that could scratch or tear a conventional label, rendering it unreadable. In addition, the expected radioactivity levels of the containers would eventually destroy a conventional label. Finally, employee, emergency response personnel, and public access to areas where ILAW and IHLW containers are to be stored will be limited and controlled administratively, also due to high radioactivity levels. In place of a conventional label, a unique identifier welded onto the shoulder and side wall of each container at the time of container construction will be used, as described in Attachment 51, Chapter 4.0, Section 4.2.1.3 of this permit modification, and as required pursuant to Permit Condition III.10.D.5.a. Each container's unique identifier will be tracked using the plant information network (i.e., plant tracking system), and will include dangerous waste numbers and major risk(s) associated with the dangerous waste in that particular container. In addition, Permit Condition III.10.D.5.c. requires the Permittees to post entrances and access points to all ILAW and IHLW container storage areas, and any other areas where ILAW and IHLW containers are handled, with signs that clearly identify the major risk(s) associated with the containers of ILAW and IHLW. Ecology believes the proposed alternative meets the intent of the regulatory requirement, while continuing to ensure personnel safety.

WAC 173-303-630(5)(c) requires a minimum thirty-inch separation between aisles of containers holding dangerous waste(s). The purpose of this requirement is to allow an inspector access to the containers and the container storage area and to ensure access in the event of a release or emergency. This requirement will be modified for the containers of ILAW and IHLW. Direct access to containers of ILAW and IHLW for the purposes of inspection is precluded due to high radioactivity levels. Therefore, general inspections of the ILAW and IHLW containers and container storage areas will be performed remotely with closed circuit television cameras or by cell window, as described in Attachment 51, Chapter 6.0, Section 6.2.4.1 and Appendix 6A, Table 6A-2 of this permit modification. Permit Condition III.10.D.4.b.ii. requires the physical arrangement (i.e., spacing) of immobilized LAW and HLW waste containers to be as described in Attachment 51, Chapter 4.0, Section 4.2.1.2.1 of this permit modification, which specifies a range of four (4) to sixteen (16) inches between containers. The combination of the container spacing and location of the unique identifier on each containers shoulder will allow an inspector to remotely identify and inspect any container stored within these areas. Ecology believes the proposed alternative meets the intent of the regulatory requirement, while continuing to ensure personnel safety.

WAC 173-303-630(6) requires areas where containers are stored, to be inspected weekly, looking for leaking or deteriorating containers, and deterioration of the containment system. The ILAW and IHLW container storage areas do not have containment systems pursuant to WAC 173-303-630(7)(a), as they will not be storing wastes that contain free liquids, exhibit the characteristics of ignitability or reactivity as described in WAC 173-303-090(5) or (7), and will not be designated as F020, F021, F022, F023, F026, or F027 dangerous wastes [WAC 173-303-630(7)(c)]. The ILAW and IHLW container storage areas and container stored within those areas will be generally inspected weekly by remote means with closed circuit television cameras when the container storage areas are in use. A thorough inspection of each ILAW and IHLW container will be performed remotely when they are placed into, or removed from the container storage areas, as described in Attachment 51, Chapter 6.0, Section 6.2.4.1 and Appendix 6A, Table 6A-2 of this permit modification. Remote inspection of the ILAW and IHLW is necessary, as personnel entry is precluded due to high radioactivity levels. In addition, the ILAW and IHLW containers will be cooled, will be will be chemically and physically stable, and lids welded on prior to transferring to the ILAW and IHLW container storage areas. For the reasons above, Ecology believes the proposed alternative inspection is reasonable, and equally protective of human health and the environment.

Because the design of the facility and its container storage areas is not complete, not all the information needed for the container storage areas is currently available. As a result, Ecology has written a compliance schedule in Permit Condition III.10.D.10. that requires compliance with the regulations in WAC 173-303-

630 and WAC 173-303-806(4)(a) and (b), and describes, in as much detail as possible at this time, the information that needs to be submitted to comply with the requirements for container storage areas. The engineering information required in Permit Condition III.10.D.10.b. must be incorporated into the Permit through the permit modification process before construction can begin on those particular areas. The operational information required in Permit Condition III.10.D.10.c. must be incorporated into the Permit through the permit modification process prior to the initial receipt of dangerous or mixed waste in those container storage areas.

3.5.3 Tank Systems

During the development of the DWPA, ORP and BNI made several regulatory interpretations, which are not consistent with the regulations. One interpretation concerns the evaporation or volatilization of mixed waste at the WTP in units such as evaporators and melters. ORP and BNI determined that waste, once vaporized into the air emission control system, is not considered a contained gas and would be a newly generated waste and no longer carry the listed codes acquired from tank farms (F001 through F005).

Ecology has determined this interpretation is incorrect. The preamble discussion in the December 11, 1989, Federal Register clearly identifies condensed gases as being regulated under RCRA (December 11, 1989; 54 FR 50973). Residues from treating, storing, or disposing of a listed dangerous waste continue to be listed dangerous wastes under the derived from rule [WAC 173-303-070(2)(a)]. The only way such a residue ceases to be dangerous is if the generator petitions the Department for a delisting and is granted that delisting. This is consistent with the regulation of process condensate from the 242-A Evaporator, which is a listed waste until exempted after treatment at the 200 ETF. Therefore, gases and/or process condensate resulting from treatment, either in tanks or in the off-gas systems, will continue to be a listed waste until delisted. As a result of this determination, tanks containing process condensate are regulated under WAC 173-303 and need to be included in this Permit. Permit Condition II.10.E.9.e.vi. requires the Permittees to update the list of tanks in Permit Tables III.10.E.A and III.10.E.B, and update Attachment 51, Chapter 4.0 of this permit modification.

Another interpretation made by ORP and BNI assumed that process water could be blended with process condensate and it would not become listed waste. Ecology has determined that if process water includes recycled process condensate derived from a listed waste, the process water used in the facilities will be regulated as a dangerous waste. According to WAC 173-303-082(3), "If a person mixes a solid waste with a waste that would be designated as a dangerous waste source under this section, then the entire mixture is designated as a dangerous waste source. The mixture has the same designation (DW), and the same dangerous waste number as the dangerous waste source which was mixed with the solid waste." As a result, tanks containing process water that has been blended with process condensate are regulated under WAC 173-303 and need to be included in this Permit. Permit Condition II.10.E.9.e.vi. requires the Permittees to update the list of tanks and Chapter 4.0 included in the Permit.

Because the design of the facility and its waste processing systems are not complete, not all the information needed to permit the tank system is currently available. As a result, Ecology has written Permit Condition III.10.E.9 to require compliance with the regulations in WAC 173-303-640 and WAC 173-303-806(4)(a) and (c), and have described, in as much detail as possible at this time, the information that needs to be submitted to comply with the requirements for tank systems. The submission of independent, qualified, registered professional engineer (IQRPE) certifications of tank structural integrity and material compatibility required by WAC 173-303-640(3)(a) must be incorporated into the Permit before the tanks can be installed. For the initial design package only, the IQRPE certification for the secondary containment structures in the below grade portions of the HLW and LAW Buildings will be submitted with the initial tank IQRPE certification submittal.

Permit Condition III.10.E.9.e.vi. requires the Permittees to submit an updated Chapter 4.0, narrative descriptions, and tables and figures to Ecology, for approval, prior to the receipt of any waste. The revised

information will be incorporated into this Permit in accordance with the compliance schedule in Attachment 51, Appendix 1.0.

WAC 173-303-640(5)(d) requires all tank systems holding dangerous waste to be marked with labels or signs to identify the waste contained in the tank. The label, or sign, must be legible at a distance of at least fifty feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the tank system(s). (Note: If there already is a system in use that performs this function in accordance with local, state, or federal regulations, then such system will be adequate.) Attachment 51, Chapter 4.0, Section 4.2.2.9 describes how the Permittees will mark accessible tanks. Permit Condition III.10.E.5.f. requires the Permittees to mark accessible tank systems in accordance with WAC 173-303-640(5)(d). Many tank systems will be routinely non-accessible to personnel (i.e., personnel are unable to enter these areas while waste is being managed in them) due to expected high radioactivity levels in those areas. Permit Condition III.10.E.5.e. requires the Permittees to mark routinely non-accessible tank system access points in accordance with WAC 173-303-640(5)(d). In addition, Permit Condition III.10.E.9.e.vi. requires the Permittees to update Attachment 51, Chapter 4.0 of this permit modification to include a list of routinely non-accessible tank systems. Ecology believes the proposed alternative meets the intent of the regulatory requirement, while continuing to ensure personnel safety.

WAC 173-303-640(6)(b)(i) requires aboveground portions of the tank system, if any, to be inspected at least once each operating day to detect corrosion or releases of dangerous waste. While most of the tank systems will be located aboveground (i.e., above grade), many of them will be routinely non-accessible to personnel due to expected high radioactivity levels in those areas, as discussed above. With the exception of the two outside tanks at the pretreatment plant, the tanks will be located indoors within process cells, process rooms, or caves with controlled access. Many of these areas will not have direct or remote visual inspection capabilities on a daily basis. For tank system areas where direct or remote daily visual inspection is not feasible, continuous, leak detection systems for those areas is required pursuant to Permit Condition III.10.E.9.b.ii. Normally, continuous leak detection systems are only required for double-walled tanks where an inspection of the tank system to detect corrosion or releases of dangerous waste is not possible. Ecology believes providing these non-accessible areas with continuous leak detection systems, in lieu of a daily, direct or remote visual inspection, meets the intent of the regulatory requirement, while continuing to ensure personnel safety, and protection of human health and the environment.

WAC 173-303-640(7) requires tank systems or secondary containment systems from which there has been a leak or spill, or which is unfit for use, to be removed from service immediately. The tank system is to remain out of service until the owner/operator fulfills a set of requirements including identifying the source of the leak or spill, cleaning up the leak or spill, and repairing the damaged tank system. Permit Condition III.10.E.5.i.i. requires the Permittees (upon detection of a leak or spill of dangerous and/or mixed waste), to immediately and safely stop the flow of dangerous and/or mixed waste into the tank system or secondary containment system. Permit Condition III.10.E.5.i.i. was written to ensure the sequence of actions taken by the Permittees are consistent with the WTP Facility safety basis, and are most protective of personnel safety, human health, and the environment.

3.5.4 Containment Buildings

Regulations for containment buildings are found in WAC 173-303-695, which incorporates by reference federal requirements for containment buildings found in 40 CFR Part 264 Subpart DD. The containment building designation was developed to provide a method for storing and managing dry, bulk (uncontainerized) dangerous waste. The regulations are primarily designed to prevent the migration of waste and dust from the containment building holding the dangerous waste.

The Permittees have requested containment building designations for 12 areas within the WTP. The containment building designation gives the facility more operational flexibility by allowing the treatment and

storage of uncontained equipment in the designated areas of the WTP. During operations routine maintenance activities, including replacing pumps, valves, melter components, etc. will occur. Some equipment will need to be repaired in maintenance rooms in each of the three process buildings. Before equipment can be removed from the facility, it may need to be size reduced, decontaminated (to reduce radiation levels), and containerized for disposal. These activities are considered treatment as defined in WAC 173-303-040. The Permittees have requested that these areas be classified as "containment buildings" because treatment is allowed in containment buildings. Container storage areas as defined in WAC 173-303-630 are for storage of closed containerized waste, not waste treatment. Containment buildings will provide the Permittees the flexibility to repair, store, or containerize solid dangerous and mixed wastes as needed in the designated areas.

For treatment or storage of dangerous and mixed waste with free liquids (e.g., routine decontamination in designated areas) 40 CFR 264.1101 has additional requirements, including the requirement for primary and secondary containment barriers with leak detection. The secondary containment requirements are detailed in 40CFR 264.1101(b) (Design and Operating Standards). Decontamination or other treatment with free liquids must be contained within the primary barrier. The 40CFR 264.1101(b) containment requirements are similar to the tank containment requirements in WAC 173-303-640.

Any closed containers stored in the containment buildings that are not removed from the containment building areas within 90 days of generation are required to be identified per Permit Condition III.10.F.5.e. There are no additional container requirements in 40 CFR 264.1101. Therefore, closed containers storing dangerous or mixed waste within a containment building must be stored in container storage areas and comply with the container requirements in WAC 173-303-630. These container storage areas will be identified in Permit Section III.10.D (container conditions).

Regulations in 40 CFR 264.1101(c)(2) require the certification of a qualified registered professional engineer that the containment building unit's design meets applicable requirements. These requirements include certification of the structural integrity of the containment building floor, walls and ceiling, the ability of the structure to contain the waste, and the type of liner the containment building is utilizing.

The Permittees have indicated in the permit application that some of the containment building units will be certified to treat with free liquids and other areas will not. Permit Condition III.10.F.5.e. requires the Permittees to identify areas that will treat with free liquids and will prohibit treatment with free liquids in areas not certified to meet the regulatory requirements. This condition also requires the Permittees to identify container storage areas within the containment buildings units.

3.5.5 Pretreatment Plant Miscellaneous Unit Systems

WAC 173-303-680 addresses requirements for "miscellaneous units." Under WAC 173-303-040, a "miscellaneous unit" means a dangerous waste management unit where dangerous waste is treated, stored, or disposed of and that is not a container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, underground injection well with appropriate technical standards under 40 CFR Part 146, containment building, corrective action management unit, temporary unit, staging pile, or unit eligible for a research, development, and demonstration permit under WAC 173-303-809.

The pretreatment waste feed evaporator separator vessels, LAW evaporator separator vessel, cesium evaporator, and technetium eluant recovery evaporator are thermal treatment units as defined in WAC 173-303-040, and are designed to separate the incoming liquid waste stream into a vapor stream and a concentrated liquid stream. Thermal treatment as defined in WAC 173-303-040 means, the treatment of dangerous waste in a device which uses elevated temperatures as the primary means to change the chemical, physical, or biological character or composition of the dangerous waste.

Attachment 51, Chapter 4.0, Sections 4.1.2.2, 4.1.2.6, 4.1.2.9, and 4.1.2.11 of this permit modification describes each evaporator's process in more detail. Treatment that is typical of tanks includes pH adjustment, minor chemical addition, blending, mixing etc. The thermal treatment that will be occurring in the evaporators is more complex than typical tank treatment, and as such, the Waste Feed Evaporation System, Cesium Nitric Acid Recovery System, Technetium Eluant Recovery Process System, and the Treated LAW Evaporation system are properly classified as "miscellaneous unit systems" under WAC 173-303-680.

These miscellaneous unit systems include support systems such as tanks and share an air emission treatment train. The air emission treatment train, which is referred to as the Pretreatment Vessel Vent Process System, is also shared by the other mixed waste management operations (containers storage, tanks systems, and containment building units) in the Pretreatment Building. The Pretreatment Vessel Vent Process System is primarily comprised of scrubbers, filters, absorbers, and a catalytic oxidizer to treat/remove constituents in the air emissions from the mixed waste management operations in the Pretreatment Building prior to release to the atmosphere from the Pretreatment Building Stack. Please note, Permit Table III.10.G.A includes some tanks that are regulated in Permit Section III.10.E, "Tank Systems." These tanks have been marked with an asterisk, and the table footnote explains they have been included in Permit Table III.10.G.A for system description completeness only, and are regulated under Permit Section III.10.E, "Tank Systems."

The requirements that Ecology has determined to be appropriate and included in this Permit for these miscellaneous unit systems include the following:

- General and Miscellaneous Unit System Specific Waste Management Requirements under Permit Conditions III.10.A, B, and C, and III.10.G.1, G.5, and G.7-9., including, but not limited to, waste analysis, inspections, recordkeeping, procedures to prevent hazards, contingency planning, training, and closure. Additional details on these requirements are provided in Section 3.5.1 of this Fact Sheet. The basis for these conditions is WAC 173-303-680(2) and (3).

- Permit Conditions III.10.G.1, G.2, G.3, G.4, and G.10 address requirements for the miscellaneous unit systems including installation and certifications, secondary containment, and integrity assessments as appropriate requirements from WAC 173-303-640 for tanks based on WAC 173-303-680(2) and (3). Additional details on these requirements are provided under Section 3.5.2 of this Fact Sheet.

- Permit Conditions III.10.G.5 and G.6 addresses requirements for operation of the miscellaneous unit systems including, but not limited to, maintaining impermeable coating on concrete containment systems, procedures for responding to leaks and preventing release of toxic emissions into the air as appropriate requirements from WAC 173-303-640 and WAC 173-303-806(4)(a) and (c) based on WAC 173-303-680(2) and (3).

- Permit Conditions III.10.G.5.1. and III.10.G.6 also includes requirements that assure the operation of the miscellaneous unit systems (treatment effectiveness, feedrates, and operating limits) in the Pretreatment Buildings combined with the other mixed waste management operations in the Pretreatment Building are consistent with the assumptions and basis reflected for the Pretreatment Building in the Risk Assessment described in Section 3.5.1.10 of this Fact Sheet. The emission limits at Permit Table III.10.G.D., which are currently reserved, will initially be established based on the Preliminary Risk Assessment and then updated based on the Final Risk Assessment. The Permittee's compliance with these operating requirements for miscellaneous unit systems and other mixed waste management operations in the Pretreatment Building is an essential element in Ecology's determination that the WTP Facility operated in accordance with this Permit will be protective of human health and the environment. The basis for these operating requirements are WAC 173-303-815(2)(b)(ii) and WAC 173-303-680(2) and (3).

Because the design of the facility and its waste processing systems are not complete, not all the information needed to permit the miscellaneous unit systems is currently available. As a result, Ecology has written Permit Condition III.10.G.10, similar to Permit Condition III.10.E.9, to require compliance with the appropriate requirements in WAC 173-303-640 and WAC 173-303-806(4)(a) and (c) based on WAC 173-303-680 and the appropriate requirements in WAC 173-303-806(4)(i), and have described, in as much detail as possible at this time, the information that needs to be submitted to comply with the requirements for miscellaneous unit systems. The submission of independent, qualified, registered professional engineer (IQRPE) certifications of miscellaneous unit structural integrity and material compatibility must be incorporated into the Permit before the miscellaneous units can be installed. For the initial design package only, the IQRPE certification for the secondary containment structures in the below grade portions of the Pretreatment Buildings will be submitted with the initial miscellaneous unit IQRPE certification submittal.

3.5.6 Low Activity (LAW) and High Level Waste (HLW) Vitrification Systems Short Term Operations

Permit Sections III.10.H and III.10.J set forth conditions and includes testing for treatment in the LAW and HLW Vitrification Systems. The LAW and HLW Vitrification Systems include the melter feed system (piping and pumps to convey wastes from tanks to the melter), the melters and the downstream air pollution control systems (e.g., scrubbers, filters, coolers, oxidation units, reduction units, etc.). The LAW and HLW Vitrification Systems have been determined to not the fit the definition of container, tank, surface impoundment, waste pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, or underground injection well. Therefore, the LAW and HLW Vitrification systems are categorized as miscellaneous treatment units under WAC 173-303-680.

In accordance with WAC 173-303-680, the requirements that are appropriate for the miscellaneous units being permitted are included in these sections. In determining what appropriate requirements apply to the LAW and HLW Vitrification systems, the wastes that will be treated, and what occurs to the constituents contained in the waste, are major factors. These requirements include limitations for waste management, secondary containment, integrity assessments, and certifications as required under Permit Section III.10.E for tanks. Also like an incinerator, the LAW and HLW Vitrification Systems will: (1) volatilize organics; (2) breakdown organics (i.e., destroy); (3) promote formation of products incomplete destruction; (4) remove organics and metals and transfer to liquid, solid and./or gas media; and (5) collect and remove acid gases and particulate matter.

The requirements that Ecology has determined to be appropriate and included in this Permit for the LAW and HLW Vitrification Systems include the following:

- General and LAW and HLW Vitrification Systems Specific Waste Management Requirements under Permit Conditions III.10.A, B, and C, III.10.H.1.d., f., and g., III.H.2.c., III.H.3.c., III.H.4.c., III.10.J.1.d., f., g., III.J.2.c., III.J.3.c., and III.J.4.c. addressing, but not limited to, waste analysis, inspections, recordkeeping, procedures to prevent hazards, contingency planning, training, and closure. Additional details on these requirements are provided in Section 3.5.1 of this Fact Sheet. The basis for these conditions is WAC 173-303-680(2) and (3).

- Permit Conditions III.10.H.1.a. and III.10.J.1.a. address requirements for the LAW and HLW Vitrification Systems including installation and certifications, secondary containment, and integrity assessments as appropriate requirements from WAC 173-303-640 for tanks based on WAC 173-303-680(2) and (3). Additional details on these requirements are provided under Section 3.5.2 of this Fact Sheet.

- Permit Conditions III.10.H.1.a. and III.10.J.1.a. also addresss requirements for operation of the LAW and HLW Vitrification Systems including, but not limited to, maintaining impermeable coating on concrete containment systems, procedures for responding to leaks and preventing release of toxic

emissions into the air as appropriate requirements from WAC 173-303-640 and WAC 173-303-806(4)(a) and (c) based on WAC 173-303-680(2) and (3).

- Permit Conditions III.10.H.1.b. and III.10.I.1.b require compliance with appropriate performance standards as specified in WAC 173-303-670 and 40 CFR Part 63 Subpart EEE for incinerators based on WAC 173-303-680(2) and (3), including:

  - 99.99% destruction and removal efficiency (DRE) for organics;
  - carbon monoxide (C0) at or less than 100 parts per million by volume on an hourly rolling average basis;
  - hydrocarbon (HC) at or less than 20 parts per million by volume on an hourly rolling average basis;
  - particulate matter (PM) at or less than .015 grains per dry standards cubic foot;
  - hydrochloric acid and chlorine gas emission shall not exceed 21 parts per million on a volume basis;
  - mercury emission at or less than 45 micrograms (μg) per dry standard cubic meter (dscm);
  - lead and cadmium emissions at or less than 120 μg/dscm;
  - arsencic, beryllim, and chromium emissions at or less than 97 μg/dscm; and
  - dioxin and furan emissions at or less than .2 nanograms (ng)/dscm.

  Air is used in the LAW and HLW Vitrification Systems to operate components, provide negative pressure control, and ventilate process vessels. Compared to an incinerator, the consumption of oxygen in the melters is not significant as the melters use electrical heating instead of fossil fuel to process the waste. The lack of significant consumption of oxygen in the melters combined with the large inputs of air into the LAW and HLW Vitrification Systems to operate components, provide negative pressure control, and ventilate process vessels, results in high oxygen levels in the LAW and HLW Vitrification Systems' exhaust. The standard correction of emission standards to 7% oxygen for incinerators is not being applied to the LAW and HLW Vitrification Systems, as it is technically inappropriate.

- Permit Conditions III.10.H.1.b., III.10.J.1.b., III.10.H.1.c., III.10.J.1.c., III.10.H.1.e., and III.10.J.1.e. also include requirements that assure the operation of the HLW and LAW Vitrification Systems (treatment effectiveness, feedrates, and operating limits) in the LAW and HLW Buildings combined with the other mixed waste management operations in the HLW and LAW Buildings are consistent with the assumptions and basis reflected for the LAW and HLW Buildings in the Risk Assessment described in Section 3.5.1.10 of this Fact Sheet. The emission limits at Permit Tables III.10.H.E and III.10.J.E, which are currently reserved, will be established for short term operations of the LAW and HLW Vitrifications Systems based on the Preliminary Risk Assessment. The Permittee's compliance with these operating requirements for LAW and HLW Vitrifications Systems and other mixed waste management operations in the LAW and HLW Buildings is an essential element in Ecology's determination that the WTP Facility operated in accordance with this Permit will be protective of human health and the environment. The basis for these operating requirements are WAC 173-303-81592)(b)(ii) and WAC 173-303-680(2) and (3).

- Permit Conditions III.10.H.1.c. and III.10.J.1.d. include requirements for reporting, operation, and maintenance of automatic waste feed cut-off systems when LAW and HLW Vitrification Systems

operating conditions deviate from those operating limits to be specified in Permit Tables III.10.H.C, III.10.H.F, III.10.J.C, and III.10.J.F. These Permit Tables are currently reserved and will be established for short term operations of the LAW and HLW Vitrification Systems based on completed design information to be submitted to Ecology under Permit Conditions III.10.H.5 and III.10.J.5 (Compliance Schedules). The basis for these requirements are WAC 173-303-680(2) and (3).

- Permit Conditions III.10.H.2, 3, and 4, and III.10.J.2, 3, and 4 include requirements for the start-up, demonstration testing and post demonstration test operations of the LAW and HLW Vitrification Systems until such time as Ecology approves the Demonstration Test Report(s) and Final Risk Assessment Report and finalizes the operating conditions based on these Reports. These permit conditions also include requirements for ceasing dangerous and mixed waste feed to the LAW and HLW Vitrification Systems under operating conditions where performance standards are not met. The basis for these requirements are WAC 173-303-680(2) and (3).

Because the design of the facility and its waste processing systems are not complete, not all the information needed to permit the LAW and HLW Vitrifications Systems is currently available. As a result, Ecology has written Permit Conditions III.10.H.5 and III.10.J.5, similar to Permit Condition III.10.G.10, to require compliance with the appropriate requirements in WAC 173-303-640, WAC 173-303-670, 40 CFR Part 63 Subpart EEE, and WAC 173-303-806(4)(a), (c), and (f) based on WAC 173-303-680 and the appropriate requirements in WAC 173-303-806(4)(i), and have described, in as much detail as possible at this time, the information that needs to be submitted to comply with the requirements for these systems. The submission of independent, qualified, registered professional engineer (IQRPE) certifications of LAW and HLW Vitrification Systems structural integrity and material compatibility must be incorporated into the Permit before the LAW and Vitrification Systems can be installed. For the initial design package only, the IQRPE certification for the secondary containment structures in the below grade portions of the LAW and HLW Buildings will be submitted with the initial IQRPE certification submittal.

3.5.7 LAW and HLW Vitrification Systems Long Term Operation

Permit Sections III.10.I and III.10.K set forth conditions for normal operation of the LAW and HLW Vitrifications Systems following successful operation and demonstration testing of these systems under Permit Sections III.10.H and III.10.J.

- General and LAW and HLW Vitrification Systems Specific Waste Management Requirements under Permit Conditions III.10.A, B, and C, III.10.I.1.d., f., and g., III.I.2.c., III.I.3.c., III.I.4.c., III.10.K.1.d., f., and g., III.10.K.2.c., III.10.K.3.c., and III.10.K.4.d. addressing, but not limited to, waste analysis, inspections, recordkeeping, procedures to prevent hazards, contingency planning, training, and closure. Additional details on these requirements are provided in Section 3.5.1 of this Fact Sheet. The basis for these conditions is WAC 173-303-680(2) and (3).

- Permit Conditions III.10.I.1.a. and III.10.K.1.a. address requirements for the LAW and HLW Vitrification Systems including maintaining design and construction, certifications, secondary containment, and integrity assessments, as appropriate requirements from WAC 173-303-640 for tanks based on WAC 173-303-680(2) and (3). Additional details on these requirements are provided under Section 3.5.2 of this Fact Sheet.

- Permit Conditions III.10.I.1.a. and III.10.K.1.a. also addresses requirements for operation of the LAW and HLW Vitrification Systems including, but not limited to, maintaining impermeable coating on concrete containment systems, procedures for responding to leaks and preventing release of toxic emissions into the air as appropriate requirements from WAC 173-303-640 and WAC 173-303-806(4)(a) and (c) based on WAC 173-303-680(2) and (3).

- Permit Conditions III.10.I.1.b. and III.10.K.1.b require compliance with appropriate performance standards as specified in WAC 173-303-670 and 40 CFR Part 63 Subpart EEE for incinerators based on WAC 173-303-680(2) and (3), including:

  - 99.99% destruction and removal efficiency (DRE) for organics;
  - carbon monoxide (CO) at or less than 100 parts per million by volume on an hourly rolling average basis;
  - hydrocarbon (HC) at or less than 20 parts per million by volume on an hourly rolling average basis;
  - particulate matter (PM) at or less than .015 grains per dry standards cubic foot;
  - hydrochloric acid and chlorine gas emission shall not exceed 21 parts per million on a volume basis;
  - mercury emission at or less than 45 micrograms (μg) per dry standard cubic meter (dscm);
  - lead and cadmium emissions at or less than 120 μg/dscm;
  - arsencic, beryllim, and chromium emissions at or less than 97 μg/dscm; and
  - dioxin and furan emissions at or less than .2 nanograms (ng)/dscm.

  Air is used in the LAW and HLW Vitrification Systems to operate components, provide negative pressure control, and ventilate process vessels. Compared to an incinerator the consumption of oxygen in the melters is not significant as the melters use electrical heating instead of fossil fuel to process the waste. The lack of significant consumption of oxygen in the melters combined with the large inputs of air into the LAW and HLW Vitrification Systems to operate components, provide negative pressure control, and ventilate process vessels, results in high oxygen levels in the LAW and HLW Vitrification Systems' exhaust. The standard correction of emission standards to 7% oxygen for incinerators is not being applied to the LAW and HLW Vitrification Systems, as it is technically inappropriate.

- Permit Conditions III.10.I.1.b., III.10.K.1.b., III.10.I.1.c., III.10.K.1.c., III.10.I.1.e., and III.10.K.1.e. also include requirements that assure the operation of the HLW and LAW Vitrification Systems (treatment effectiveness, feedrates, and operating limits) in the LAW and HLW Buildings combined with the other mixed waste management operations in the HLW and LAW Buildings are consistent with the assumptions and basis reflected for the LAW and HLW Buildings in the Risk Assessment described in Section 3.5.1.10 of this Fact Sheet. The emission limits at Permit Tables III.10.I.E and III.10.K.E, which are currently reserved, will be based on the Final Risk Assessment. The Permittee's compliance with these operating requirements for LAW and HLW Vitrifications Systems and other mixed waste management operations in the LAW and HLW Buildings is an essential element in Ecology's determination that the WTP Facility operated in accordance with this Permit will be protective of human health and the environment. The basis for these operating requirements are WAC 173-303-815(2)(b)(ii) and WAC 173-303-680(2) and (3).

- Permit Conditions III.10.I.1.c. and III.10.K.1.c. include requirements for reporting, operation, and maintenance of automatic waste feed cut-off systems when LAW and HLW Vitrification Systems operating conditions deviate from those operating limits to be specified in Permit Tables III.10.I.C and F, and III.10.K.C and F. These Permit Tables are currently reserved and will be based on the Demonstration Test and Final Risk Assessment Reports. Permit Conditions III.10.I.c.viii. and III.10.K.c.viii. require that the Permittees obtain Ecology approval to restart waste feed to the LAW and

HLW Vitrification Systems if the number of waste feed cut-offs due to deviations from Permit Tables III.10.I.F and III.10.K.F exceed thirty (30) in thirty calendar days. As this Permit includes a complex technology, the LAW and HLW Vitrification Systems, minimizing operations outside the specified operating limits is critical to assuring Ecology that operation of the WTP Facility continues to be protective of human health and the environment. The basis for these requirements are WAC 173-303-680(2) and (3).

- Permit Conditions III.10.I.h. and III.10.K.h. include requirements for performance of additional emission testing of the LAW and HLW Vitrification Systems during the duration of this Permit to confirm continuing conformance with performance standards. As this Permit includes a complex technology, it is essential that its continued conformance with the performance standards be periodically reconfirmed. The re-occurrence frequency for this emission testing was established based on emission retesting freguency for hazardous waste incinerators specified in Hazardous Waste Combustion Maximum Achievable Control Technology (MACT) requirements under 40 CFR Part 63 Subpart EEE. The permit conditions require this additional emission testing be performed under normal operating conditions and feeds in contrast to the initial Demonstration Testing under Permit Sections III.10.H and III.10.J which is required to be performed at worst case operating conditions and feeds. These permit conditions also include requirements for ceasing dangerous and mixed waste feed to the LAW and HLW Vitrification Systems under operating conditions where performance standards are not met. These permit conditions are based on WAC 173-303-680(2) and (3).

3.6 Changes to Permit Application Text

During review of the WTP Dangerous Waste Permit Application a number of errors and instances of unclear wording were found in the text and figures. Ecology modified the text where necessary. The changes are summarized in Table 1 below. Where the changes are substantial, Ecology is requiring that the text be clarified by the Permittees through permit condition requirements.

Table 1: Text Changes in Attached Permit Application Chapters

Page Number in the Permit Application	WTP Tracking Number	Changes Made to the Permit Application Text by Ecology
Page 3-3, Line 41 Page 3-4, Line 10 Section 2.1 in WAP (Appendix 3A)		Remove "other" from the sentence, now reads: "strontium and transuranic elements (TRU) …"
P3-21, L32 Sec. 5.2 in WAP (Appendix 3A)		Added "of ignitability (D001) and reactivity (D003)" to the last bullet, now reads: "Characteristic of ignitability (D001) and reactivity (D003) waste numbers can be removed after testing or the application of process knowledge, as appropriate."
		Permit Application Section 4.2 changed to Section 4.1 in the Attachment 51, Chapter 4. Permit Application Section 4.3 changed to Section 4.2 in the Attachment 51, Chapter 4. Permit Application Section 4.4 changed to Section 4.3 in the Attachment 51, Chapter 4.
		Permit Application Appendix 4B "Tank System Design Assessment" changed to Permit Attachment 51, Appendices 8.10, 9.10, 10.10, and 11.10.

Page Number in the Permit Application	WTP Tracking Number	Changes Made to the Permit Application Text by Ecology
		Permit Application Appendix 4C "Tank System Installation Inspection" changed to Permit Attachment 51, Appendices 8.11, 9.11, 10.11, and 11.11. Permit Application Appendix 4D "Treatment Effectiveness Report for Miscellaneous Units" changed to Permit Attachment 51, Appendices 9.16, and 10.16.
P4-5, L31 Sec. 4.1.2	DWPA-04-090	Deleted "and neutralize," now reads: "Concentrate the separated radionuclides"
P4-7, L30-40 Sec. 4.1.2.2	DWPA-04-092	Deleted "recirculation" from "recirculation pump" in the paragraphs, now reads: "A pump maintains a high flow rate around the evaporation system. The pump transfers the waste through the reboiler and back into the waste feed evaporator separator vessel. The recirculating waste stream is prevented from boiling in the reboiler tubes by maintaining sufficient hydrostatic head to increase the boiling point above the temperature of the liquor in the reboiler. As the liquid travels through the reboiler, the hydrostatic head diminishes and flash evaporation occurs as the flow enters the waste feed evaporator separator vessel. The liquid continues to flash and the vapor and liquid streams are separated. The liquid stream circulates in this closed loop and becomes more concentrated, while the vapor stream passes to the evaporator overheads system. The concentrate off-take comes from a pump and is discharged to evaporator concentrate buffer vessels (V12010A and V12010B) in the UFP."
P4-8, L1 Sec. 4.1.2.2		"If radiologically contaminated" change to "if the condensate does not meet the LERF/ETF waste acceptance criteria"
P4-8, L4 Sec. 4.1.2.2	DWPA-04-095	"CRP" changed to "FEP" in the following sentence: "Instrumentation, alarms, controls, and interlocks will be provided for the FEP to indicate or prevent the follows conditions:"
P4-8, L19 Sec. 4.1.2.3	DWPA-04-096	"LAW" changed to "LAW feed" in the following sentence: "The Ultrafiltration Process System (UFP) separates the concentrated waste feed from the evaporator system into a high solids stream, referred to as the HLW stream and a solids free stream, the LAW feed stream."
P4-8, L16 to P4-9, L24 Sec. 4.1.2.3	DWPA-04-097 DWPA-04-098 DWPA-04-101	Section 4.2.2.3 "Ultrafiltration Process System (UFP)" revised as follows: "4.2.2.3 Ultrafiltration Process System (UFP) The Ultrafiltration Process System (UFP) separates the concentrated waste feed from the evaporator system into a high solids stream, referred to as the HLW feed stream and a solids free stream, the LAW feed stream. The separated solids may undergo additional treatment (washing and/or leaching operation). These operations will be performed in the UFP system. In addition, the LAW feed stream may require Sr/TRU removal. This operation will also be performed in the UFP system prior to solids separation. The main components of the UFP system are:

Page Number in the Permit Application	WTP Tracking Number	Changes Made to the Permit Application Text by Ecology
		• Two evaporator concentrate buffer vessels (V12010A and V12010B) each equipped with pulse jet mixers and cooling jackets • Two concentrate transfer pumps • Two ultrafiltration feed vessels (V12011A and V12011B) each equipped with pulse jet mixers and cooling jackets • Two ultrafilter feed pumps • Two ultrafilter trains, each containing three individual ultrafilter units [(G12002A, G12003A, G12004A) and (G12002B, G12003B, G12004B)] • Associated ultrafilter backpulsing equipment • Three LAW permeate hold vessels (V12015A, V12015B, V12015C) each equipped with pulse jet mixers Ultrafiltration is a filtration process in which the waste stream is processed axially through the ultrafilters, which are long bundles of permeable tubes. Solids free liquids pass radially through the permeable ultrafilter tubes surface while the concentration of the solids in the recirculating stream continuously increases. The resulting solids slurry may need treatment such as caustic leaching and/or water washing to reduce interstitial liquid buildup to minimize the quantity of glass produced. Waste is received from the FEP into the evaporator concentrate buffer vessels (V12010A and V12010B) of the UFP system. The waste may be sampled here to determine the Ultrafiltration parameters. For Envelope C feeds, chemicals are added to the evaporator concentrate buffer vessel to precipitate strontium and TRU elements contained in the incoming waste stream prior to solids concentration by ultrafiltration. Heat (if required) and agitation are applied to ensure that the precipitation process is completed. The solids free stream generated by Ultrafiltration is designated as the LAW feed stream, which is then routed to one of the three LAW permeate hold vessels (V12015A, V12015B, or V12015C). Here, the permeate is sampled for solids prior to further processing, which includes cesium and technetium removal and additional evaporation prior to LAW vitrification. The concentrated slurry may then be washed with process water or caustic leached to remove interstitial liquid, soluble salts, and/or HLW glass limiting compounds and further processed through the ultrafilter. The concentrated solids stream, or HLW feed stream, is transferred to the lag storage vessels (V12001D and V12001E) of the HLW Lag Storage and Feed Blending System (HLP) and then on to the HLW vitrification process. The treated solids may also be returned to the DST system via the Waste Feed Receipt Process System (FRP). During waste processing, the permeability of the ultrafilters is reduced over time. Re-establishing the ultrafilters' permeability can be accomplished using one of two different methods which include backpulsing with filter permeate

Page Number in the Permit Application	WTP Tracking Number	Changes Made to the Permit Application Text by Ecology
		or cleaning utilizing nitric acid or caustic. Backpulsing may be utilized while the filter is in operation, but cleaning requires the filters to be out of operation. Filter performance will be monitored to determine when cleaning is required. Instrumentation, alarms, controls, and interlocks will be provided for the UFP system as follows: " • Vessels have level instrumentation with high alarms and trip functions to minimize the chances of overflowing • Vessels have a designated overflow route designed to handle the largest possible flow rate into the vessels • Level instrumentation and overflow piping with alarm set points will be used to prevent the overfilling of the vessels and subsequent liquid discharge into the vessel vent system • In case of an in-cell equipment failure, the waste will remain within the secondary containment (C5 cell) which will have an engineered route back into the process • Leaks will be detected via sump instrumentation."
P4-10, L34 Sec. 4.1.2.5	DWPA-04-102	Deleted "standby" between "supply" and "reagents", now reads: "In addition, the cesium reagent vessel is used to supply demineralized water and caustic solutions, as well as to supply reagents (nitric acid, demineralized water, and caustic solution) for elution."
P4-11, L42 Sec. 4.1.2.5	DWPA-04-104	"low-level" changed to "high level" in the following sentence: "Loss of containment: Vessels are protected against containment loss by liquid level indication, high-level interlocks to shut off feed sources, and PCS control and alarm functions, as required."
P4-12, L33 Sec. 4.1.2.6		Added "routed through the waste feed evaporator, and" right after the world "after-condenser" to tie to Figure 4A-10
P4-13, L18 Sec. 4.1.2.6	DWPA-04-110	Deleted "and/or neutralization" after "cesium decay," now reads: "Due to the heat generated in the eluate contingency storage vessel from cesium decay, two cooling coils (one operating and one spare) with a cooling water supply are provided for temperature control."
P4-14, L11 Sec. 4.1.2.7	DWPA-04-078	The sentence rewritten to clarify the process, now reads: "... for cesium removal. The cesium ion exchange resin is conditioned in the ion exchange column to utilize the acidic and caustic conditioning solutions through plant processes."
P4-18, L30 Sec. 4.1.2.11	DWPA-04-080	Text rewritten to further explain the function of the third vessel, now reads: "The treated LAW buffer vessels (V43110A/B/C) will be configured in such a way that one will be filling, one will be feeding the LAW evaporator separator vessel, and one will be full, empty, or out-of-service."
P4-21, L36 Sec. 4.1.2.13	DWPA-04-082	Text rewritten to further explain the function of the resin dewatering moisture separation vessel:

Page Number in the Permit Application	WTP Tracking Number	Changes Made to the Permit Application Text by Ecology
		"...a moisture separator vessel. Circulation of a warm, dry air stream through the spent resin picks up moisture. The moist air stream is cooled and circulated to the moisture separation vessel where the moisture (water droplets) is separated. The blower sucks the dry air from the separation vessel and circulate the air to the resin again. When the water content in the resin is reduced to an acceptable level, the resin is dewatered."
P4-24, L32 Sec. 4.2.2.15	DWPA-04-084	Vessel names on page 4-24 have been revised as follows: "• Alkaline effluent vessels (V15013 and V15018) • Plant wash vessel (V15009A) • Primary and secondary acidic/alkaline effluent vessels (V45013 and V45018) • C3 drain collection vessel (V15319) • HLW effluent transfer vessel (V12002) • Ultimate overflow vessel (V15009B)"
P4-30, L10 Sec. 4.2.2.17	DWPA-04-089	Text added in Section 4.2.2.17 to give more information on the vessel vent scrubber purge line listed on Figure 4A-19, after the phrase "... or during maintenance activities." "The vessel vent caustic scrubber generates the liquid purge stream based on the absorption and cooling of the incoming vent exhausts from various vessels in the Pretreatment plant. The vessel vent scrubber recirculation pump transfers, by batch, the scrubbing liquid purge stream once a day to the Plant Wash and Disposal System (PWD). The scrubbing liquid purge stream transfers the accumulated condensate, radiolytic particulates and salts from the recirculating scrubbing liquid stream in the vessel vent scrubber."
P4-38, L11-12 Sec. 4.1.3.2	DWPA-04-040	Text rewritten in the following bullets: " • Decrease or loss of melter plenum vacuum • Plenum pressurization "
P4-39, L1 Sec. 4.1.3.3		Text changed to "ten times nominal flow" from "seven times steam flow and three times non-condensable flow"
P4-39, L41 Sec. 4.1.3.3	DWPA-04-013	Text changed to "ten times nominal flow" from "seven times steam flow and three times non-condensables"
P4-40, L32 Sec. 4.1.3.3 (SBS)	DWPA-04-017	Text added in the sentence, now reads: "...simultaneously. Submerged bed scrubber condensate from the submerged bed scrubber condensate collection vessel ultimately flows to the Plant Wash and Disposal System (PWD). Venting ..."
P4-41, L14 Sec. 4.1.3.3 (WESP)	DWPA-04-051	Based on Figure 4A-22 and Figure 4A-25, text in the sentence change to : "The tube drain and wash solution are routed to the C3/C5 effluent collection vessel (V25002)."
P4-41, L25 Sec. 4.1.3.3		Based on the information provided in Page 4-39, Line 10-14, this sentence change to: "The standby line consists of an offgas duct from the melter to the submerged bed scrubber, a film cooler, and an isolation valve."
P4-42, L7	DWPA-04-051	"HLW" changed to "LAW" in the following sentence:

Page Number in the Permit Application	WTP Tracking Number	Changes Made to the Permit Application Text by Ecology
Sec. 4.1.3.3	/S	"It does this by maintaining the various LAW process vessels under a slight vacuum relative to the cell."
P4-45, L27 Sec. 4.1.3.4		Added "Condensate that forms in the header." Text revised to read: "The vessel (LAW C3/C5 Effluent Collection Vessel) is vented into a common vessel ventilation header. Condensate that forms in the header, drains into the LAW C3/C5 Effluent Collection Vessel."
P4-45, L31-33 Sec. 4.1.3.4		"When" replaced by 'until' in the following sentence: "Effluent generated from other sources will be pumped to the plant wash vessel until it reaches a predetermined level to maintain adequate capacity for fire protection water."
P4-46, L16-23 Sec. 4.1.3.5	DWPA-04-023	Deleted "process vessels," replaced "vessel" with "melter," and changed "central waste storage area" to "LAW out-of-service melter storage area." Text now reads: "The primary functions of this system will be to provide methods and packaging for the change-out of LAW melter and other miscellaneous mixed wastes. In the event of a failure, the out-of-service melter will be prepared for export by rinsing, disconnection of the process lines, and decontamination. The melter will be lifted out of the process cell and covered, to prevent a spread of contamination. The melter will be placed in an approved overpack container staged for receipt. Once closed and secured, the overpack, containing the melter, will be delivered to the LAW out-of-service melter storage area. A similar process in reverse will be used for the introduction and installation of new LAW melter."
P4-50, L23 Sec. 4.1.3.6	DWPA-04-029	Text rewritten as follows: "...an out-of-specification container. Otherwise, the dose rate is measured and is recorded with the container's records. Out-of-specification ILAW containers are routed back through the decontamination and fixative stations until the radiological contamination levels are within specification. The container is then ..."
P4-59, L36-38 Sec. 4.1.4.3		Add two bullets to address dangerous waste constituents of concern, now reads: " • Nitrogen oxides (NOx) from decomposition of metal nitrates in the melter feed. • Chloride, fluoride, and sulfur as oxides, acid gases and salts • Dangerous waste metals • Dangerous waste organics • Radionuclide particulates and aerosols"
P4-105, L20 Sec. 4.3.2.6.1	DWPA-04-113	After "... under WAC 173-303-640(4)(e)(i)(B).", deleted "Table 4-11 presents the calculated minimum liner height. Calculations for the liner size necessary in the berms are available upon request."
P4-113, L30		"(Appendix to Chapter 3)" changed to "(Appendix 3A)".

Page Number in the Permit Application	WTP Tracking Number	Changes Made to the Permit Application Text by Ecology
Sec. 4.3.3.7		
P4-118, L29 Sec. 4.3.4.2	DWPA-04-072	Text "south" changed to "east" in the following sentence: "The pretreatment maintenance containment building comprises the majority of the east end of the building."
P4-139, L19 Sec. 4.3.4.10		Changed "northwest" to "northeast"
P4-147, L39 Sec. 4.4.7		"Waste minimization information is presented in Chapter 10." changed to "Waste minimization information is presented in Chapter 10 of the permit application."
Table 4-3	DWPA-04-084	No. 61 - Description revised to read: "Primary Acidic/Alkaline Effluent Vessel" No. 62 - Description revised to read: "Secondary Acidic/Alkaline Effluent Vessel" No. 63 - Description revised to read: "Alkaline Effluent Vessel" No. 66 - Description revised to read: "Alkaline Effluent Vessel"
Table 4-11		Add a "Northeast Process Bulge" column
Table 4-11	DWPA-04-113	In "LAW Buffer Vessel Cell", changed "V41011B" to "V45009B"
Table 4-12	DWPA-04-074	"HLW Vitrification Plant C3 Workshop Containment Building" dimension changed to "(30x27x19)+(33x15x19)" from "27x66x19"
Figure 4A-78	DWPA-04-071	Figure 4A-78 is revised: removed the boundary line on the south end of the Pretreatment Plant
Figure 4A-79	DWPA-04-075	Figure 4A-79 is revised: adjusted the cross hatching shown on the northeastern end of the plant
Figure 4A-87	DWPA-04-076	Figure 4A-87 is revised: included cross hatching over vessel V31102
Figure 4A-89	DWPA-04-077	Figure 4A-89 is revised: label "HLW Vitrification Plant Workshop Containment Building" changed to "HLW Vitrification Plant C3 Workshop Containment Building"

CHAPTER 10

Waste Treatment and Immobilization Plant

The Waste Treatment and Immobilization Plant (WTP) is the facility designed to treat the mixed (radioactive and dangerous) waste stored in underground tanks at the Hanford Site. The waste will be separated into High-level and Low-level waste streams in a Pretreatment Building. The waste streams are mixed with glass forming additives, heated to 900-1200°C in melters, and poured into containers. The waste is immobilized in the glass matrix. The immobilized waste is transported from the WTP for disposal.

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

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

ATTACHMENT 51

Chapter 1.0	Part A, Form 3 Permit Application, Revision 1 (December 6, 2001)
Chapter 2.0	Facility Description (Topographic Map)
Chapter 3.0	Waste Analysis Plan
Chapter 4.0	Process Information
Chapter 6.0	Procedures to Prevent Hazards
Chapter 7.0	Contingency Plan
Chapter 8.0	Personnel Training
Chapter 11.0	Closure
Chapter 12.0	Reporting and Recordkeeping
Appendix 1.0	Compliance Schedule
Appendix 2.0	Critical Systems
Appendix 3.0	Drawing Category Table
Appendix 4.0	Piping Material Index Table (RESERVED)
Appendix 5.0	Legends for Process Flow Diagrams and Piping and Instrumentation Diagrams (RESERVED)
Appendix 6.0	Risk Assessment
6.1	Preliminary Risk Assessment Work Plan
6.1.1	Previously Submitted Preliminary Risk Assessment Work Plan
6.1.2	Documentation of Revisions to Preliminary Risk Assessment Work Plan
6.2	Risk Assessment Work Plan (RESERVED)
6.3	Pre-Demonstration Test Risk Assessment Report (RESERVED)
6.3.1	Basis and Assumptions (RESERVED)
6.4	Final Risk Assessment Report (RESERVED)
6.4.1	Basis and Assumptions (RESERVED)
Appendix 7.0	(RESERVED)
Appendix 8.0	Pretreatment Building

10.12 Installation Plans (RESERVED)
10.13 Instrument Control Logic and Narrative Description (RESERVED)
10.14 Descriptions of Instrument Installation and Testing Procedures (RESERVED)
10.15 Demonstration Test Plan (RESERVED)
10.16 Demonstration Test Report (RESERVED)
10.17 Treatment Effectiveness Report (RESERVED)
10.18 Operating Documents (RESERVED)

Appendix 11.0 Laboratory Building
11.1 Process Flow Diagrams (RESERVED)
11.2 Piping and Instrumentation Diagrams (RESERVED)
11.3 System Description Documentation (RESERVED)
11.4 General Arrangement Drawings (RESERVED)
11.5 Civil, Structural, and Architectural Criteria and Typical Design Details (RESERVED)
11.6 Mechanical Drawings (RESERVED)
11.7 Specifications (RESERVED)
11.8 Engineering Calculations (RESERVED)
11.9 Material Selection Documentation (RESERVED)
11.10 Critical Systems Equipment/Instrument List (RESERVED)
11.11 IQRPE Reports (RESERVED)
11.12 Installation Plans (RESERVED)
11.13 Instrument Control Logic and Narrative Description (RESERVED)
11.14 Descriptions of Instrument Installation and Testing Procedures (RESERVED)
11.15 Operating Documents (RESERVED)

Appendix 12.0 Balance of Facilities
12.1 Process Flow Diagrams (RESERVED)
12.2 Piping and Instrumentation Diagrams (RESERVED)
12.3 System Description Documentation (RESERVED)
12.4 General Arrangement Drawings (RESERVED)
12.5 Civil, Structural, and Architectural Criteria and Typical Design Details (RESERVED)
12.6 Mechanical Drawings (RESERVED)
12.7 Specifications (RESERVED)
12.8 Engineering Calculations (RESERVED)
12.9 Material Selection Documentation (RESERVED)
12.10 Critical Systems Equipment/Instrument List (RESERVED)
12.11 IQRPE Reports (RESERVED)
12.12 Installation Plans (RESERVED)
12.13 Instrument Control Logic and Narrative Description (RESERVED)
12.14 Descriptions of Instrument Installation and Testing Procedures (RESERVED)
12.15 Operating Documents (RESERVED)

III.10.B STANDARD CONDITIONS AND GENERAL FACILITY CONDITIONS

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

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

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

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

The following definitions are specific to the WTP facility:

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

"batch" refers to waste staged in one DST designated as mixed waste for transfer to the WTP for treatment.

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

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

"dangerous and/or mixed wastes management unit" means dangerous and/or mixed wastes management units, areas, systems, and sub-systems as defined in Permit Tables III.10.D.A, III.10.E.A through D, III.10.F.A, III.10.G.A, III.10.H.A, III.10.I.A, III.10.J.A, and III.10.K.A.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

"in-process" means duration in a waste in a dangerous or mixed waste management unit at the WTP.

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

The following acronyms are specific to the WTP facility:

AWFCO	Automatic Waste Feed Cut-off
CEMS	Continuous Emissions Monitoring System
CMS	Continuous Monitoring System
DFETP	Dioxin and Furan Emission Test Plan
DRE	Destruction and Removal Efficiency
Dscf	Dry standard cubic feet
IHLW	Immobilized High-Level Waste (Glass)
ILAW	Immobilized Low-Activity Waste (Glass)
IQRPE	Independent, qualified, registered, professional engineer
HLW	High-level Waste
LAW	Low Activity Waste

NCR	Nonconformance Report
PODC	Principal Organic Dangerous Constituents
RDTP	Revised Demonstration Test Plan
TOC	Total Organic Carbon
WTP	River Protection Project – Waste Treatment and Immobilization Project (also known as the Waste Treatment Plant and Vitrification Plant)

III.10.C.2. General Waste Management

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

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

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

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

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

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

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

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

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

III.10.C.2.h. Processing materials (including surrogates used during demonstration testing) in the HLW or LAW is defined as waste treatment. Any processing of these materials that would

designate as dangerous and/or mixed wastes are fully subject to the requirements of this Permit.

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

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

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

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

III.10.C.3. Waste Analysis

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

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

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

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

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

i. All the elements listed in WAC 173-303-300(5), Condition II.D.3 of this Permit (Waste Analysis), and in compliance with Condition II.E. of this Permit (Quality Assurance/Quality Control).

ii. Requirements that characterization shall be performed on the waste feed prior to transfer to the WTP in conformance with the regulatory data quality objectives supporting the *Tank Waste Remediation System Privatization Project "Regulatory DQO" Process* (Wiemers and others, 1998). Requirements that the following analyses, at a minimum, shall be conducted on each new batch prior to waste transfer to the WTP, in accordance with the methods under WAC 173-303-110: Ammonia, pH, metals, organic acids, mercury, cyanide, volatiles, semi-volatiles, PCBs/pesticides, anions, TOC, and compatibility (ASTM Method D5058-90). For the purposes of this Permit condition, a "new batch" is one that has been sampled and analyzed in accordance with the *Tank Waste Remediation System Privatization Project "Regulatory DQO" Process* (Wiemers and others, 1998), and has received no further additions. Further additions require the Permittees to resample and reanalyze, unless an exception is approved by Ecology on a case-by-case basis. Only mixed wastes meeting the definition of "new batch", or granted an exception as discussed above, are authorized for transfer to the WTP. Water additions for the purposes of waste transfer are not considered additions for the purposes of this Permit Condition.

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

iv. Requirements that the Permittees shall, for Type I sumps if liquids are detected, and for Type II sumps, as defined in Attachment 51, Chapter 4.0 of this Permit, if liquid levels are outside normal operating parameters, either collect the liquid and return to the treatment process, or designate the sump contents for proper management and disposal prior to removal.

v. For ILAW and IHLW containers, a description of procedures used to verify exterior container surfaces are free of mixed waste.

vi. Requirement that wastes generated at the WTP meet the receiving authorized TSD facility waste acceptance criteria prior to a waste stream transfer.

vii. Requirements and criteria for reevaluation of sampling and analysis frequency for all waste streams.

viii. Documentation demonstrating methods for obtaining samples of wastes are representative as discussed in WAC 173-303-110(2).

III.10.C.4. Recordkeeping

III.10.C.4.a. The unit specific portion of the Hanford Facility Operating Record shall include the documentation specified in Attachment 51, Chapter 12.0, General Condition II.I, applicable

to the WTP and other documentation specified in Attachment 51. The facility and unit specific record keeping requirements are distinguished in Table 12-1 of the General Information portion, Attachment 33 to the Sitewide Permit, and tied to the associated Sitewide Permit Conditions.

III.10.C.5 Procedure to Prevent Hazards

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

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

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

i. Detailed dangerous and/or mixed wastes management unit specific and general inspection schedules and description of procedures (not examples) consistent with WAC 173-303-395(1)(d), 173-303-630(6), 173-303-640(4)(a)(i) and (6), 173-303-670(7)(b) in accordance with 173-303-680(3), 40 CFR, 264.1101(c)(4). The inspection schedule shall be presented in the form of a table that includes a description of the inspection requirement, inspection frequency, and types of problems to look for during the inspections.

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

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

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

v. Inspection schedule shall include inspections for all dangerous and/or mixed wastes management units specified in Permit Sections III.10.D, E, F, G, H, I, J, and K.

III.10.C.5.d. The Permittees shall equip the Facility with the equipment specified in WAC 173-303-340(1) as specified in the *Hanford Emergency Management Plan*, Attachment 4.0 per Condition II.B.1 of this Permit.

III.10.C.5.e. The Permittees shall test and maintain the equipment specified in Attachment 51, Chapter 6.0, as necessary, to assure proper operation in the event of emergency as required by Condition II.B.2 of this Permit.

III.10.C.5.f. The Permittees shall maintain access to communications or alarms pursuant to WAC 173-303-340(2), as provided in the *Hanford Emergency Management Plan* (Attachment 4) and the *River Protection Project – Waste Treatment Plant Emergency Response Plan*, Attachment 51, Chapter 7.0 of this Permit.

III.10.C.6. Contingency Plan

III.10.C.6.a. The Permittees shall carry out the provisions of the *Hanford Emergency Management Plan* as provided in Attachment 4, pursuant to Condition II.A, and the *WTP Emergency Response Plan*, Attachment 51, Chapter 7.0 of this Permit, pursuant to WAC 173-303-360(2), whenever there is a release of dangerous waste and/or mixed wastes or dangerous waste constituents, or other emergency circumstance, any of which threatens human health or the environment.

III.10.C.6.b. Prior to the initial receipt of dangerous and/or mixed wastes in the WTP Facility, the Permittees shall update and resubmit the Contingency Plan in compliance with Attachment 51, Chapter 7.0, and pursuant to WAC 173-303-350(5), as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, to be consistent with design details and schedule described in Attachment 51, Appendix 1.0.

III.10.C.6.c. After receipt of dangerous and/or mixed wastes, the Permittees shall review and amend, if necessary, the applicable portions of the Contingency Plan, Attachment 51, Chapter 7.0 of this Permit, and in accordance with the provisions of WAC 173-303-350(5) and WAC 173-303-830(4). The Permittees shall demonstrate how amendments to the applicable portions are controlled. The Contingency Plan shall be amended as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f.

III.10.C.6.d. The Permittees shall note in the facility operating record the time, date, and details of any incident that requires implementing the Contingency Plan, Attachment 51, Chapter 7.0 of this Permit. Within fifteen days after the incident, the Permittees shall submit a written report on the incident to Ecology. Such a report shall, at a minimum, include all items specified in WAC 173-303-360(2)(k).

III.10.C.6.e. Prior to the initial receipt of dangerous and/or mixed wastes in the WTP Facility, the Permittees shall comply with the requirements of WAC 173-303-350(3) and –360(1) concerning the emergency coordinator specific to the WTP Facility in compliance with Permit Condition II.A.4.

III.10.C.7. Training Plan

III.10.C.7.a. Prior to the initial receipt of dangerous and/or mixed wastes in the WTP, the Permittees shall update and resubmit, to Ecology for review and approval, the Training Program description in Attachment 51, Chapter 8.0 of this Permit as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, and Compliance Schedule in Attachment 51, Appendix 1.0. The revised Training Program description shall include but not be limited to:

i. Detailed unit specific and general Training Program descriptions (not typical) consistent with WAC 173-303-806(4)(a)(xii).

ii. Sufficient detail to document that the training and certification program for all categories of personnel whose activities may reasonably be expected to directly affect emissions from the LAW and HLW Systems, except control room operators, is appropriately consistent with 40 CFR 63.1206(c)(6)(ii), and for control room operators,

is appropriately consistent with 40 CFR 63.1206(c)(6)(i) and 63.1206(c)(6)(iii) through 63.1206(c)(6)(vi) [WAC 173-303-680(2)].

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

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

III.10.C.7.d. All WTP Facility personnel, not limited to dangerous waste worker categories as listed in Attachment 51, Chapter 8.0, Table 8-1, shall receive general facility training specified in Condition II.C.2. of this Permit within six (6) months of hire. This training shall provide personnel with orientation of dangerous and/or mixed wastes management activities being conducted at the Hanford Facility.

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

III.10.C.8. Closure

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

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

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

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

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

III.10.C.8.f.1 Ecology may require additional sampling and/or investigation after the Permittees implement the approved Sampling and Analysis Plan if Ecology determines that the sampling and analyses have not adequately demonstrated whether clean closure has been achieved. Such a requirement will be implemented pursuant to WAC 173-303-830(3). Additional sampling and analysis may be required for the following reasons:

i. Specialized sample collection or analytical techniques are required to ensure adequate quantitation limits for chemical constituents; or

ii. Results indicate the need to analyze for additional constituents at certain locations; or

iii. Results indicate additional soil or groundwater sampling is required in certain locations; or

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

III.10.C.8.g. In addition to activities specified in Attachment 51, Chapter 11.0, the activities of an independent registered professional engineer to assure that closure is conducted in accordance with the approved plan and requirements of this Permit must specifically include, but are not limited to, field observation and record review of the following:

i. Sampling procedures;

ii. Locations of soil and concrete sampling to ensure locations were as specified in the Sampling and Analysis Plan;

iii. Sample labeling and handling, including chain of custody procedures; and

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

III.10.C.8.h. Documentation supporting the independent registered professional engineer's certification of closure must be submitted to Ecology with the closure certification required by WAC 173-303-610(6). In addition, to the items in Attachment 51, Chapter 11.0, the documentation must include:

i. Laboratory and field data, including supporting QA/QC summary;

ii. Report that summarizes closure activities;

iii. Copy of all field notes taken by the independent registered professional engineer; and

iv. Copy of all contamination survey results.

III.10.C.9. Critical Systems

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

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

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

III.10.C.9.d. The Permittees shall submit a nonconformance report (NCR) to the Ecology representative, as applicable, within five (5) calendar days of the Permittees becoming aware of incorporation of minor nonconformance from the approved designs, plans, and

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

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

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

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

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

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

III.10.C.10 Equivalent Materials

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

ranges, tolerances, and alternatives) already clearly specified in sufficient detail in Attachment 51 of this Permit, are not considered a modification of this Permit. However, the Permittees must place documentation of the substitution, accompanied by a narrative explanation and the date the substitution became effective in the operating record within seven (7) days of putting the substitution into effect, and submit documentation of the substitution to Ecology. Upon review of the documentation of the substitution, if deemed necessary, Ecology may require the Permittees to submit a permit modification in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f.

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

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

III.10.C.11. Risk Assessment

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

i. EPA guidance for performance of Human Health and Ecological Risk Assessments for Hazardous Waste Combustion Facilities current at the time of the submittal;

ii. Toxicity data current at the time of the submittal;

iii. Compounds newly identified or updated emissions data from current waste characterization and emission testing;

iv. Air modeling updated to include stack gas parameters based on most current emissions testing and WTP Facility design;

v. Physical/transport properties of constituents current at the time of the submittal;

vi. Process Description based on most current WTP Facility design;

vii. Emissions data and all supporting calculations based on most current WTP Facility; and

viii. Update of receptor locations based on land use or land use zoning changes, if any.

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

and III.10.J.5. as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f.

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

i. Toxicity data current at the time of the submittal;

ii. Compounds newly identified or updated emissions data from current waste characterization and emission testing;

iii. Air modeling updated to include stack gas parameters based on most current emissions testing;

iv. Physical/transport properties of constituents current at the time of the submittal;

v. Update of receptor locations based on land use or land use zoning changes, if any;

vi. Process description based on current WTP Facility design;

vii. Emissions data and all supporting calculations based on current WTP Facility; and

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

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

i. Toxicity data current at the time of the submittal;

ii. Compounds newly identified or updated emissions data from current waste characterization and emission testing;

iii. Air modeling updated to include stack gas parameters based on most current emissions testing;

iv. Physical/transport properties of constituents current at the time of the submittal;

v. Update of receptor locations based on land use or land use zoning changes, if any;

vi. Process description based on current WTP Facility design;

vii. Emissions data and all supporting calculations based on current WTP Facility; and

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

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

III.10.C.12 Air Emissions

III.10.C.12.a Prior to installing or using any equipment subject to the requirements of WAC 173-303-690, the Permittees shall obtain a Permit Modification following the Permit Condition III.10.C.2.g. process to incorporate WAC 173-303-690 standards into the permit application and this Permit prior to generation/receipt of dangerous and/or mixed wastes in the WTP Facility.

III.10.C.12.b Prior to installing or using any equipment subject to the requirements of WAC 173-303-691, the Permittees shall obtain a Permit Modification following the Permit Condition III.10.C.2.g. process to incorporate WAC 173-303-691 standards into the permit application and this Permit prior to generation/receipt of dangerous and/or mixed wastes in the WTP Facility.

III.10.C.12.c The Permittees shall comply with the organic air emission standards as set forth in WAC 173-303-692. The Permittees shall obtain a permit modification following the Permit Condition III.10.C.2.g. process to incorporate WAC 173-303-692 standards into the permit application and this Permit prior to generation/receipt of dangerous waste in the WTP Facility.

III.10.C.13 Remote Data Access

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

III.10.C.14. Performance Test Demonstrations

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

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

i. Discussion on how the pilot scale melter reasonably simulates operations in the LAW and HLW Vitrification Systems;

ii. Identification of high organic spikes test levels, spiking methods, and types of chemicals to be used for spiking;

iii. Definition of expected waste feed organic content (concentration and types), plus sugar content, plus organic spike content (concentration and types);

iv. Identification of proposed test conditions, including consideration of testing combined organics and metals, as well as separate metal and organic testing; and

v. Identification of the criteria for test success or failure and a discussion of how the results will be interpreted.

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

III.10.D. CONTAINERS

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

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

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

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

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

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

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

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

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

III.10.D.2.b. The Permittees shall construct all permanent containment systems identified in Permit Table III.10.D.B (as approved/modified pursuant to Permit Condition III.10.D.10.), as specified in all applicable drawings and specifications in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9 of this Permit, as approved pursuant to Permit Condition III.10.D.10.b.

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

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

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

III.10.D.3.a. Prior to placing any new permanent containment system identified in Permit Table III.10.D.B (as approved/modified pursuant to Permit Condition III.10.D.10.), in use, a qualified, installation inspector or a qualified, registered professional engineer, must inspect the permanent containment system for the presence of any of the following items:

i. Scrapes of protective coatings;

ii. Cracks or gaps;

iii. Other structural damage or inadequate construction/installation.

All discrepancies must be remedied before the permanent containment system is placed in use [WAC 173-303-630(7), WAC 173-303-340].

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

III.10.D.4 Container Management Practices

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

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

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

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

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

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

v. At all times, the Permittees shall place and store incompatible dangerous and/or mixed wastes in accordance with the procedures described in Attachment 51, Appendix 9.18, 10.18, and 12.15, as approved pursuant to Permit Condition III.10.D.10.c.xii.

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

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

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

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

x. If a container holding dangerous and/or mixed wastes is not in good condition (e.g., exhibits severe rusting, apparent structural defects, or any other condition that could lead to container rupture or leakage) or is leaking, the Permittees shall manage the container in accordance with procedures described in Attachment 51, Appendices 9.18, 10.18, and 12.15 of this Permit, as approved pursuant to Permit Condition III.10.D.10.c.viii. [WAC 173-303-630(2)].

xi. The Permittees shall maintain an adequate inventory of containers and/or over-pack containers at the WTP Facility for use pursuant to Permit Condition III.10.D.4.b.x.

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

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

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

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

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

i. PERSISTENT (if a WP01 or WP02 waste code);

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

iii. FLAMMABLE (if a D001 and other waste codes);

iv. CORROSIVE (if a D002 and other waste codes);

v. REACTIVE (if a D003 and other waste codes).

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

i. Labels are not obscured or otherwise unreadable;

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

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

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

III.10.D.6. Containment Systems

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

III.10.D.6.b. The integrity of containment systems identified in Permit Tables III.10.D.B. and III.10.D.C. (as approved/modified pursuant to Permit Condition III.10.D.10.) must be maintained in accordance with WAC 173-303-630(7)(a)(i). Cracks, gaps, loss of integrity, deterioration, corrosion, or erosion of containment pads, joints in containment pads, berms, curbs, trenches, sumps, and coatings must be repaired in accordance with Attachment 51, Chapter

6.0 of this Permit, as approved/modified pursuant to Permit Conditions III.10.D.10.c.vii., III.10.C.5.b., and III.10.C.5.c. [WAC 173-303-320, WAC 173-303-630(7)(a)(i)].

III.10.D.6.c. An impermeable coating, as specified in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9 shall be maintained for all concrete containment systems identified in Permit Table III.10.D.B (as approved/modified pursuant to Permit Condition III.10.D.10.) and shall meet the following performance standards [WAC 173-303-630(7)(a)]:

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

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

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

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

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

ii. Determine the source of the liquid.

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

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

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

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

III.10.D.7 Inspections

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

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

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

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

III.10.D.9. Closure

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

III.10.D.10. Compliance Schedules

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

III.10.D.10.b. The Permittees shall submit to Ecology, consistent with the schedule described in Attachment 51, Appendix 1.0, for review and approval, prior to construction of container storage area and permanent containment systems as identified in Permit Tables III.10.D.A and III.10.D.B respectively, engineering information as specified below, for incorporation into Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9 of this Permit. In order to incorporate engineering information specified below into Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9, Permit Condition III.10.C.2.g. process will be followed. At a minimum, container storage area and permanent containment system drawings and specifications will show the following pursuant to WAC 173-303-806(4)(b) and WAC 173-303-630:

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

ii. Permanent containment systems materials selection documentation (including, but not limited to, materials of construction, coatings and liner materials for concrete portions of containment systems);

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

iv. Submit Permit Table III.10.D.B. completed to provide for all permanent containment systems, the information as specified in each column heading, consistent with information to be provided in i. through iii. above.

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

i. Attachment 51, Chapter 4.0, Narrative Descriptions, updated;

ii. Descriptions of procedures for addition and removal of waste from containers;

iii. Descriptions of procedures for opening and closing of containers, including any inspections performed prior to opening;

iv. Descriptions of procedures for handling and transport of containers within the WTP Facility;

v. Description of the tracking system used to track containers throughout the WTP Facility pursuant to WAC 173-303-380. The tracking system, at a minimum, will do the following:

A. Track the location of containers within the WTP Facility;

B. Track which containers have been shipped off-facility and/or off-site, and to where they have been shipped;

C. For containers intended for transport off-site, include information in accordance with the requirements specified in WAC 173-303-190(3)(b);

D. Record the date container is placed in the container storage area;

E. Record the nature of the waste in any given container, including dangerous waste designation codes, any associated land disposal restriction treatment requirements, and the major risk(s) associated with the waste (as described in Permit Conditions III.10.D.5.a. and III.10.D.5.c.).

vi. Descriptions of procedures for container spacing, stacking, and labeling pursuant to WAC 173-303-630(3), WAC 173-303-630(5)(c), WAC 173-303-340(3), WAC 173-303-630(6);

vii. Descriptions of procedures for investigating container storage areas and investigating and repairing containment systems [WAC 173-303-320, WAC 173-303-630(6)];

viii. Descriptions of procedures for responding to damaged (e.g., severe rusting, apparent structural defects) or leaking containers [WAC 173-303-630(2)];

ix. Descriptions of operational procedures demonstrating how accumulated liquids can be analyzed and removed from permanent and portable containment systems to prevent overflow [WAC 173-303-806(4)(b)(i)(E)];

x. For portable containment systems, vendor information, design drawings, or sketches showing the following information. These items shall include as a minimum basic design parameters, dimensions, and materials of construction; how the design promotes positive drainage control (such as a locked drainage valve) to prevent release of contaminated liquids and so that uncontaminated liquids can be drained promptly for convenience of operation; how the base underlying the containers is sloped (i.e., floor slopes to sumps) or the containment system is otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or other liquids, or how containers are kept from contact with standing liquids in the containment system (i.e., elevated or are otherwise protected); and capacity of the containment system relative to the volume of the largest container to be stored;

xi. Where ignitable and reactive wastes are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with WAC 173-303-630(8)(a) and (b);

xii. Where incompatible wastes are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with WAC 173-303-630(9)(a) and (b), and 173-303-395(1)(b) and (c);

xiii. Submit Permit Table III.10.D.C completed to provide for all portable containment systems, the information as specified in each column heading, consistent with information to be provided in i. through xii. above;

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

III.10.D.10.d. Prior to initial receipt of dangerous and/or mixed wastes in the WTP Facility, the Permittees shall submit to Ecology, consistent with the schedule described in Attacment 51, Appendix 1.0, for review and approval. In order to incorporate the information into Permit Tables III.10.D.A, III.10.D.B, and III.10.D.C, Permit Condition III.10.C.2.g. process will be followed.

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

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

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

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

Container Storage Areas	Permanent Containment System Description – Drawing #s	Permanent Containment System Sump/Floor Drain ID#	Permanent Containment System Dimensions (ft) & Materials of Construction	Permanent Containment System Capacity (gal) (relative to 10% of the volume of all containers within the container storage area, or 100% of the volume of the largest container, whichever is greater).
Central Waste Storage Facility	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.D.C – Container Storage Area Portable Containment Systems[a]

Portable Containment System Description – Specifications and Vendor Information	Portable Containment System Container Storage Area(s) Location(s)	Portable Containment System Dimensions (ft) & Materials of Construction	Portable Containment System Capacity (gal) (relative to 10% of the volume of all containers managed within the portable containment system, or 100% of the volume of the largest container, whichever is greater).
RESERVED	RESERVED	RESERVED	RESERVED
RESERVED	RESERVED	RESERVED	RESERVED
RESERVED	RESERVED	RESERVED	RESERVED

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

III.10.E TANK SYSTEMS

III.10.E.1 Approved Wastes and Storage Limits

III.10.E.1.a. The Permittees may store in tank systems all dangerous and/or mixed wastes listed in the Part A Forms, Attachment 51, Chapter 1.0 of this Permit and in accordance with the Waste Analysis Plan, Attachment 51, Chapter 3.0 as approved pursuant to Permit Condition III.10.C.3. of this Permit. Total tank system dangerous and/or mixed wastes storage at the Facility shall not exceed 4,735,000 gallons pursuant to requirements in Permit Condition III.10.E.1.

III.10.E.1.b. The Permittees may store and manage dangerous and/or mixed wastes only in approved tank systems listed in Permit Tables III.10.E.A through D, I, K, M, and O, as approved/modified pursuant to Permit Condition III.10.E.9., in accordance with Permit Section III.10.E of this Permit, and in accordance with Attachment 51, Chapters 1.0 and 4.0, and Attachment 51, Appendices 8.1 through 8.15, 9.1 through 9.14, 9.18, 10.1 through 10.14, 10.18, and 11.1 through 11.15 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.b through e. The Permittees shall limit the total volume of wastes to quantities specified for the individual units listed in Permit Tables III.10.E.A through D, I, K, M, and O.

III.10.E.1.c. The Permittees shall manage ignitable and reactive, and incompatible wastes in accordance with WAC 173-303-395(1). Any tank system specified in Permit Tables III.10.E.A through D and III.10.E, I, K, M, and O as approved/modified pursuant to Permit Condition

III.10.E.9., in which ignitable, reactive, or incompatible wastes are managed shall meet the requirements specified in WAC 173-303-640(9) and (10).

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

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

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

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

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

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

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

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

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

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

i. Weld breaks;

ii. Punctures;

iii. Scrapes of protective coatings;

iv. Cracks;

v. Corrosion;

vi. Other structural damage or inadequate construction/installation.

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

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

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

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

III.10.E.3.e. The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Attachment 51, Appendices 8.9, 8.11, 9.9, 9.11, 10.9, 10.11, 11.9, and 11.11 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.b.i., III.10.E.9.b.iv., III.10.E.9.b.v., III.10.E.9.c.i., III.10.E.9.c.iv., III.10.E.9.c.v., III.10.E.9.d.i., III.10.E.9.d.iv., and III.10.E.9.d.v. or other corrosion protection if the Ecology believes other corrosion protection is necessary to ensure the integrity of the tank system during use of the tank system. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation [WAC 173-303-640(3)(g)].

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

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

i. Field installation report with date of installation;

ii. Approved welding procedures;

iii. Welder qualifications and certification;

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

v. Tester credentials;

vi. Field inspector credentials;

vii. Field inspector reports;

viii. Field waiver reports; and

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

III.10.E.4 Integrity Assessments

III.10.E.4.a. The Permittees shall ensure periodic integrity assessments are conducted on the WTP Tank Systems listed in Permit Tables III.10.E.A through D, I, K, M, and O, as approved/modified pursuant to Permit Condition III.10.E.9., over the term of this Permit as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP Facility operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

III.10.E.4.b. The Permittees shall address problems detected during the tank integrity assessments specified in Permit Condition III.10.E.4.a. following the integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.i. and III.10.C.5.c.

III.10.E.4.c. The Permittees must immediately and safely remove from service any Tank System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Conditions III.10.E.5.i.i through iv., vi., and vii. The affected tank system or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.E.5.i.v. [WAC 173-303-640(7)(e) and (f), WAC 173-303-640(8)].

III.10.E.5 Tank Management Practices

III.10.E.5.a. No dangerous and/or mixed wastes shall be managed in the WTP Tank System unless the operating conditions, specified under Permit Condition III.10.E.5 are complied with.

III.10.E.5.b. The Permittees shall install and test all process monitoring/instrumentation, as specified in Permit Tables III.10.E.E through H, as approved/modified pursuant to Permit Condition III.10.E.9., in accordance with Attachment 51, Appendices 8.1, 8.14, 9.1, 9.14, 10.1, 10.14, 11.1, and 11.14 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.ix. and III.10.E.9.d.x.

III.10.E.5.c. The Permittees shall not place dangerous and/or mixed wastes, treatment reagents, or other materials in the WTP Tank System if these substances could cause the tank system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a)].

III.10.E.5.d. The Permittees shall operate the WTP Tank System to prevent spills and overflows using the description of controls and practices as required under WAC 173-303-640(5)(b) described in Permit Condition III.10.C.5, and Attachment 51, Appendices 8.15, 9.18, 10.18, and 11.15 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.iv. [WAC 173-303-640(5)(b), WAC 173-303-806(4)(c)(ix)].

III.10.E.5.e. For routinely non-accessible WTP Tank Systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.E.9.e.vi., the Permittees shall mark all routinely non-accessible tank system access points with labels or signs to identify

the waste contained in the tanks. The label, or sign, must be legible at a distance of at least (fifty) 50 feet and must bear a legend that identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the tank system(s). For the purposes of this Permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d)].

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

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

III.10.E.5.h. An impermeable coating, as specified in Attachment 51, Appendices 8.4, 8.5, 8.7, 8.9, 8.11, 8.12, 9.4, 9.5, 9.7, 9.9, 9.11, 9.12, 10.4, 10.5, 10.7, 10.9, 10.11, 10.12, 11.4, 11.5, 11.7, 11.9, 11.11, and 11.12 of this Permit, as approved pursuant to Permit Condition III.10.E.9.b.v., shall be maintained for all concrete containment systems and concrete portions of containment systems for each WTP Tank System listed in Permit Tables III.10.E.A through D and I through P, as approved/modified pursuant to Permit Condition III.10.E.9. Concrete containment systems that do not have a liner and have construction joints, must meet the requirements of WAC 173-303-640(4)(e)(ii)(C) and -806(4)(C)(vii). The coating shall prevent migration of any dangerous and/or mixed wastes into the concrete. All coatings shall meet the following performance standards:

i. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

ii. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and/or mixed wastes could migrate from the system; and

iii. The coating must be compatible with the dangerous and/or mixed wastes, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), WAC 173-303-806(4)(c)(vii)].

III.10.E.5.i. The Permittees shall inspect all secondary containment systems for WTP Tank Systems listed in Permit Tables III.10.E.A through D and I through P, as approved/modified pursuant to Permit Condition III.10.E.9., in accordance with the Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.v. and III.10.C.5., and take the following actions if a leak or spill of dangerous

and/or mixed wastes is detected in these containment systems [WAC 173-303-320, WAC 173-303-640(5)(c), WAC 173-303-640(6), WAC 173-303-806(4)(a)(v)]:

i. Immediately and safely stop the flow of dangerous and/or mixed wastes into the tank system or secondary containment system, in accordance with procedures based on all applicable safety analysis documentation;

ii. Determine the source of the dangerous and/or/or mixed waste;

iii. Remove the wastes from the secondary containment area pursuant to WAC 173-303-640(7)(b). The waste removed from containment areas of WTP Tank Systems shall be managed as dangerous and/or mixed wastes;

iv. If the cause of the release was a spill that has not damaged the integrity of the tank system, the Permittees may return the tank system to service pursuant to WAC 173-303-640(7)(e)(ii). In such a case, the Permittees shall take action to ensure the incident that caused liquid to enter the containment systems of these tank systems will not reoccur [WAC 173-303-320(3);

v. If the source of the dangerous waste and/or mixed wastes is determined to be a leak from a primary WTP Tank System, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees must comply with the requirements of WAC 173-303-640(7) and take the following actions [WAC 173-303-640(5)(c)]:

A. Close the tank system according to procedures in WAC 173-303-640(7)(e)(i), and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or

B. Repair and re-certify [in accordance with WAC 173-303-810(13)(a) as modified pursuant to Permit Condition III.10.E.1.d.] the tank system in accordance with Attachment 51, Appendices 8.15, 9.18, 10.18, and 11.15 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.v. before the tank system is placed back into service [WAC 173-303-640(7)(e) and (f), and WAC 173-303-806(4)(c)(vii)];

vi. The Permittees shall document in the operating record actions/procedures taken to comply with i. through v. above in accordance with WAC 173-303-640(6)(d);

vii. The Permittees shall notify and report releases to the environment to Ecology in accordance with WAC 173-303-640(7)(d).

III.10.E.5.j. If liquids (e.g., dangerous and/or mixed wastes leaks and spills, precipitation, fire water liquids from damaged or broken pipes) can not be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification shall provide the information in A, B, and C listed below. The Permittees shall provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv), WAC 173-303-640(7)(b)(ii), WAC 173-303-806(4)(c)(vii)]:

A. Reasons for delayed removal;

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

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

III.10.E.5.k. The Permittees shall operate the WTP Tank System in accordance with Attachment 51, Chapter 4.0 as updated pursuant to Permit Condition III.10.E.9.e.vi. and Appendices 8.15, 9.18, 10.18, and 11.15 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e., and the following:

i. The Permittees shall operate the WTP Tank System in order to maintain the systems and process parameters listed in Permit Tables III.10.E.E through H, as approved/modified pursuant to Permit Condition III.10.E.9., within the operating trips and operating ranges specified in Permit Tables III.10.E.E through H, and consistent with assumptions and basis which are reflected in Attachment 51, Appendix , 6.3.1. as approved pursuant to Permit Condition III.10.C.11.b. [WAC 173-303-815(2)(b)(ii) and WAC 173-303-640(5)(b)]. For the purposes of this permit condition, Attachment 51, Appendix 6.3.1 shall be superceded by Appendix 6.4.1 upon its approval pursuant to either Permit Conditions III.10.C.11.c. or III.10.C.11.d.;

ii. The Permittees shall calibrate/function test the instruments listed on Permit Tables III.10.E.E through H in accordance with Attachment 51, Appendices 8.15, 9.18, 10.18, and 11.15 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.xi.

III.10.E.5.l. Tank systems that have the potential for formation and accumulation of hydrogen gases must be operated to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

III.10.E.5.m. For each tank system holding dangerous wastes which are acutely or chronically toxic by inhalation, operate the system to prevent escape of vapors, fumes or other emissions into the air [WAC 173-303-640(5)(e), WAC 173-303-806(4)(c)(xii)].

III.10.E.6 Inspections [WAC 173-303-640(6)]

III.10.E.6.a. The Permittees shall inspect the WTP Tank Systems in accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified pursuant to Permit Condition III.10.C.5.c.

III.10.E.6.b. The inspection data for the WTP Tank Systems shall be recorded, and the records shall be placed in the WTP Facility operating record, in accordance with Permit Condition III.10.C.4.

III.10.E.7 Recordkeeping (WAC 173-303-380)

For the WTP Tank Systems, the Permittees shall record and maintain in the WTP Facility operating record, all monitoring, calibration, recording, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4. and III.10.C.5.

III.10.E.8 Closure

The Permittees shall close the WTP Tank Systems in accordance with Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

III.10.E.9 Compliance Schedule

III.10.E.9.a. All information identified for submittal to Ecology in b. through e. of this compliance schedule must be signed and certified in accordance with requirements in WAC 173-303-810(12), as modified in accordance with Permit Condition III.10.E.1.d. [WAC 173-303-806(4)].

III.10.E.9.b. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to construction of each secondary containment and leak detection system for the WTP Tank

System (per level, per WTP building and outside the WTP buildings) as identified in Permit Tables III.10.E.A through D, J, L, N, and P, engineering information as specified below, for incorporation into Attachment 51, Appendices 8.4, 8.5, 8.7, 8.8, 8.9, 8.11, 9.4, 9.5, 9.7, 9.8, 9.9, 9.11, 10.4, 10.5, 10.7, 10.8, 10.9, 10.11, 11.4, 11.5, 11.7, 11.8, 11.9, and 11.11 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640 (the information specified below will include dimensioned engineering drawings and information on sumps and floor drains):

i. IQRPE Reports (specific to foundation, secondary containment, and leak detection system) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendices 8.0 through 11.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. IQRPE Reports shall be consistent with the information separately provided in ii. through ix. below. The IQRPE Report(s) (specific to foundation, secondary containment and leak detection system) for the LAW and HLW buildings (-21 foot elevation only) shall be submitted with the first IQRPE Report for tanks, identified in Permit Condition III.10.E.9.c.i. [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

ii. Design drawings (General Arrangement Drawings in plan and cross sections) and specifications for the foundation, secondary containment, including, liner installation details, and leak detection methodology [Note: leak detection systems for areas where daily, direct, or remote visual inspection is not feasible, shall be continuous in accordance with WAC 173-303-640(4)(e)(iii)(C)]. These items should show the dimensions, volume calculations, and location of the secondary containment system, and should include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-640(4)(b) through (f), WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

iii. 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 secondary containment system. This information shall demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), WAC 173-303-806(4)(c)(vii)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion as required under WAC 173-303-640(3)(a)(iii)(B) [WAC 173-303-806(4)(c)(v)];

v. Secondary containment/foundation and leak detection system materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials as applicable) [WAC 173-303-806(4)(c)(i)];

vi. Detailed description of how the secondary containment for each tank system will be installed in compliance with WAC 173-303-640(3)(c) [WAC 173-303-806(4)(c)(vi)];

vii. Submit Permit Tables III.10.E.J, L, N, and P, completed to provide for all secondary containment sumps and floor drains, the information as specified in each column heading, consistent with information to be provided in i. through vi. above;

viii. Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-340].

ix. A detailed description of how tank system design provides access for conducting future tank integrity assessments [WAC 173-303-640(3)(b), WAC 173-303-806(4)(c)(vi)].

III.10.E.9.c. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to installation of each tank as identified in Permit Tables III.10.E.A through D, and I, K, M, and O 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. Tanks shall include primary sumps. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640 (the information specified below will include dimensioned engineering drawings):

i. IQRPE Reports (specific to tanks) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendices 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 separately provided in ii. through xiv. below and the IQRPE Report specified in Permit Condition III.10.E.9.b.i. [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

ii. Design drawings (General Arrangement Drawings in plan and cross sections, Process Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control systems], Mechanical Drawings) and specifications, and other information, specific to tanks (to show location and physical attributes of each tank) [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i) through (iv)];

iii. 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 tank(s). Structural support calculations specific to off-specification, non-standard, and field fabricated tanks shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), 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 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. Tank materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

vi. Tank vendor information (including, but not limited to required performance warranties, as available), consistent with information submitted under ii. above, shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

vii. System Descriptions (process) related to tanks shall be submitted for incorporation into the Administrative Record;

viii. Mass and energy balance for each projected operating condition, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified, and shall be submitted for incorporation into the Administrative Record;

ix. A detailed description of how the tanks will be installed in compliance with WAC 173-303-640(3)(c), (d), and (e) [WAC 173-303-806(4)(c)(vi)];

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 xiv., except xi.;

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 xii. 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), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

vii. Tank instrument and ancillary equipment instrument control logic narrative description (e.g., software requirement specifications, descriptions of fail-safe conditions, etc.);

viii. System Descriptions (process) related to ancillary equipment (including instrument control logic and narrative descriptions) for incorporation into the Administrative Record;

ix. A detailed description of how the ancillary equipment will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), and WAC 173-303-806(4)(c)(vi)];

x. For process monitoring and control instrumentation for the WTP Tank System as identified in Permit Tables III.10.E.E through H, a detailed description of how the process monitoring and control instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi)];

xi. Mass balance for projected normal operating condition used in developing the process and instrumentation diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified, for incorporation into the Administrative Record;

xii. Documentation that ancillary equipment is designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-340].

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

i. Integrity assessment program and schedule for all WTP tanks shall address the conducting of periodic integrity assessments on all WTP tanks over the life of the tank, in accordance with III.10.E.9.b.ix. and WAC 173-303-640(3)(b), and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the tank system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), WAC 173-303-806(4)(c)(vi)];

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

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

iv. Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from tanks or containment systems in compliance with WAC 173-303-640(5)(b)(i) through (iii) [WAC 173-303-640(5)(b), WAC 173-303-806(4)(c)(ix)];

v. Description of procedures for investigation and repair of tank systems [WAC 173-303-320, WAC 173-303-640(6), WAC 173-303-640(7)(e) and (f), WAC 173-303-806(4)(a)(v), WAC 173-303-806(4)(c)(vii)];

vi. Updated Chapter 4.0, Narrative Descriptions, Tables and Figures as identified in Permit Tables III.10.E.A through D (as modified pursuant to Permit Condition III.10.E.9.e.xii.) and updated to identify routinely non-accessible tank systems;

vii. Description of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed wastes in accordance with WAC 173-303-640(9) and (10) [WAC 173-303-806(4)(c)(x)].

viii. A description of the tracking system used to track dangerous and/or mixed wastes throughout the WTP Tank System, pursuant to WAC 173-303-380.

ix. Permit Tables III.10.E.E through H shall be completed for WTP Tank System process monitors and instruments (to include but not limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emission) to provide the information as specified in each column heading. Process monitors and instruments for critical systems as specified in Attachment 51, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b. and for operating parameters as required to comply with Permit Condition III.10.C.3.e.v shall be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition.

x. Supporting documentation for operating trips and expected operating range as specified in Permit Tables III.10.E.E through H as approved pursuant to Permit Condition III.10.E.9.e.ix.

xi. Documentation of process instruments and monitors (as listed in Permit Tables III.10.E.E through H) for the WTP Tank Systems to include but not be limited to the following:

A. Procurement specifications;

B. Location used;

C. Range, precision, and accuracy;

D. Detailed descriptions of Calibration/functionality test procedures (e.g., method number [ASTM]) or provide a copy of manufacturer's recommended calibration procedures;

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be

significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.);

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

xii. Permit Tables III.10.E.A through D, I, K, M, and O amended as follows:

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

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

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

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

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

Table III.10.E.A – Pretreatment Plant Tank Systems Description

Dangerous and/or mixed wastes Tank Systems Name	System Designation	Engineering Description (Drawing Nos., Specifications Nos., etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
Waste Feed Receipt Vessels V11020A-D (Waste Feed Receipt Process System)	FRP	RESERVED	Section 4.1.2.1; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-5, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V11020A = 388,000 V11020B = 388,000 V11020C = 388,000 V11020D = 388,000
Evaporator Feed Vessels V11001A-B, Waste Feed Evaporator Separator Vessels V11002A-B Evaporator Process Condensate Pot V11005, (Waste Feed Evaporation Process System)	FEP	RESERVED	Section 4.1.2.2; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-6, 4A-61, 4A-62, 4A-63, 4A-78, 4A-79, 4A-80 of Attachment 51, Chapter 4.0 of this Permit.	V11001A = 59,070 V11001B = 90,070 V11005 = 1,190 V11002A = 21,240 V11002B = 21,240
LAW Permeate Hold Vessels V12015A-C, Evaporator Concentrate Buffer Vessels V12010A-B, Ultrafiltration Feed Vessels V12011A-B, Ultrafilters G12002A-B, G12003A-B, and G12004A-B (Ultrafiltration Process System)	UFP	RESERVED	Section 4.1.2.3; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-7, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V12015A = 28,390 V12015B = 28,390 V12015C = 28,390 V12010A = 62,340 V12010B = 62,340 V12011A = 26,840 V12011B = 26,840 G12002A = 140 G12002B = 140 G12003A = 140 G12003B = 140 G12004A = 140 G12004B = 140
HLW Feed Blending Vessel V12007, Sr/TRU Lag Storage Vessels V12001A & C, Lag Storage Vessels V12001D & E	HLP	RESERVED	Section 4.1.2.4; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-8, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0	V12007 = 18,070 V12001A = 96,900 V12001C = 96,900

Dangerous and/or mixed wastes Tank Systems Name	System Designation	Engineering Description (Drawing Nos., Specifications Nos., etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
(HLW Lag Storage and Feed Blending Process system)			of this Permit.	V12001D = 96,900 V12001E = 96,900
Cesium Ion Exchange Columns C13001-4, LAW Feed Vessel V13001, Caustic Rinse Collection Vessel V13008, Cs IX Gas Separation Vessels (ID RESERVED) (Cesium Ion Exchange Process System)	CXP	RESERVED	Section 4.1.2.5; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-9, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	C13001 = 680 C13002 = 680 C13003 = 680 C13004 = 680 V13001 = 61,200 V13008 = 2,400 Cs IX Gas Separation Vessels = RESERVED
Eluate Contingency Storage Vessel V13073, Recovered Nitric Acid Vessel V13028, Cesium Concentrate Lute Pot V13030, Eluant Contingency Storage Vessel , Recovered Nitric Acid Vessel, Cesium Concentrate Lute Pot (Cesium Nitric Acid Recovery Process System)	CNP	RESERVED	Section 4.1.2.6; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-10, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V13073 = 11,060 V13028 = 5,410 V13030 = 70
Technetium Ion Exchange Buffer Vessel, Cs Treated LAW Collection Vessel (ID RESERVED) V43001, Technetium Ion Exchange Columns C43006-9, Caustic Rinse Collection Vessel V43056, Treated LAW Buffer Vessels V43110A-C (Technetium Ion Exchange Process System)	TXP	RESERVED	Section 4.1.2.8; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-12, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V43001 = 18,100 C43006 = 680 C43007 = 680 C43008 = 680 C43009 = 680 V43056 = 3,300 V43110A = 33,050 V43110B = 33,050 V43110C = 33,170
Recovered Technetium Eluant Vessel	TEP	RESERVED	Section 4.1.2.9; Table 4-3 and 4-11; and	V43071 = 7,900

Dangerous and/or mixed wastes Tank Systems Name	System Designation	Engineering Description (Drawing Nos., Specifications Nos., etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
V43071, Technetium Concentrate Lute Pot V43072 (Technetium Eluant Recovery Process System)			Figures 4A-1, 4A-2, 4A-13, 4A-61, 4A-78 of Attachment 51, Chapter 4.0 of this Permit.	V43072 = 70
Process Condensate Hold Vessel V41013, Plant Wash Vessels V45009A-B, LAW SBS Purge Receipt Vessels (Treated LAW Evaporation Process System (TLP)), LAW Buffer Storage Vessel V41001 (Treated LAW Concentrate Storage Process System (TCP))	TLP TCP	RESERVED	Section 4.1.2.11 & 4.2.2.12; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-16, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V41013 = 450 V45009A = 88,920 V45009B = 88,920 V41001 = 117,000
Spent Resin Collection Vessels V43135A-B, Resin Flush Collection Vessel V43136, Spent Resin Dewatering Moisture Separation Vessel (ID RESERVED) (Spent Resin and Dewatering Process System)	RDP	RESERVED	Section 4.1.2.13; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-15, 4A-61, 4A-78 of Attachment 51, Chapter 4.0 of this Permit.	V43135A = 8,720 V43135B = 8,720 V43136 = 11,220 Spent Resin Dewatering Moisture Separation Vessel= RESERVED
Process Condensate Vessels V45028A-B (Pretreatment Plant Radioactive Liquid Waste Disposal System)	RLD	RESERVED	Section 4.1.2.16; Table 4-3; and Figures 4A-1, 4A-2, 4A-18, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V45028A = 321,720 V45028B = 321,720
Ultimate Overflow Vessel V15009B, HLW Effluent Transfer Vessel V12002, Primary Acidic/Alkaline Effluent Vessel V45013, Secondary Acidic/Alkaline Effluent Vessel V45018, Alkaline Effluent Vessels V15013 & V15018, Plant Wash Vessel V15009A, C3 Floor Drains Tank V15319 (Pretreatment Plant Wash and Disposal	PWD	RESERVED	Section 4.1.2.15; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-17, 4A-60, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V15009B = 23,000 V12002 = 23,000 V45013 = 49,850 V45018 = 49,850 V15013 = 93,180 V15009A = 73,860 V15319 = 450

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

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

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

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

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

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

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

Table III.10.E.E – Pretreatment Plant Tank System Instrument and Process Parameters

Tank System Locator and Name (including P&ID)	Control Parameter	Type of Measuring 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

Table III.10.E.F – LAW Vitrification Plant Tank System Instrument and Process Parameters

Tank System Locator and Name (including P&ID)	Control Parameter	Type of Measuring 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

Table III.10.E.G - HLW Vitrification Plant Tank System Instrument and Process Parameters

Tank System Locator and Name (including P&ID)	Control Parameter	Type of Measuring 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

Table III.10.E.H – Laboratory Tank System Instrument and Process Parameters

Tank System Locator and Name (including P&ID)	Control Parameter	Type of Measuring 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

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

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

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

Table III.10.E J – Pretreatment Plant Tank Systems Secondary Containment Systems Including Sumps and Floor Drains

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

Table III.10.E K - LAW Vitrification Plant Tank Systems Primary[a] Containment Sump Systems

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

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

Table III.10.E.L - LAW Vitrification Plant Tank Systems Secondary Containment Systems Including Sumps and Floor Drains

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

Table III.10.E M - HLW Vitrification Plant Tank Systems Primary[a] Containment Sump Systems

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

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

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

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

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

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

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

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

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

III.10.F. CONTAINMENT BUILDING UNITS

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

III.10.F.1.a. Approved Wastes and Storage Limits

i. The Permittees may store and treat, in containment building units listed in Permit Table III.10.F.A., as modified by Permit Condition III.10.F.7.d.iv., all dangerous and mixed wastes listed in the Part A Forms, Attachment 51, Chapter 1.0 of this Permit, except for those wastes outside the waste acceptance criteria specified in the WAP, Attachment 51, Chapter 3.0, as approved pursuant to Permit Condition III.10.C.3. Total dangerous and mixed waste storage at the containment building units shall not exceed the sum of the capacities in column 7 of Permit Table III.10.F.A., as modified pursuant to Permit Condition III.10.F.7.d.iv.

ii. The Permittees may place and store dangerous and mixed wastes only in the containment building units listed in Permit Table III.10.F.A., as modified pursuant to Permit Condition III.10.F.7.d.iv., in accordance with Permit Condition III.10.F., and in accordance with Attachment 51, Chapters 1.0 and 4.0, and Attachment 51, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18 of this Permit, as approved pursuant to Permit Conditions III.10.F.5.c. and III.10.F.5.d. The Permittee shall limit the volume of dangerous and mixed waste not exceed the quantities specified for the individual areas listed in column 7 of Permit Table III.10.F.A., as modified pursuant to Permit Condition III.10.F.7.d.iv.

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

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

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

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

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

III.10.F.2. Containment Building Unit Design and Construction

III.10.F.2.a. The Permittee shall design and construct the containment building units identified in Permit Table III.10.F.A., as modified pursuant to Permit Condition III.10.F.7.d.iv., as specified in Attachment 51, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18 of this Permit, as approved in accordance with Permit Condition III.10.F.5.a. of this Permit and WAC 173-303-695.

III.10.F.2.b. The Permittees shall design and construct all applicable containment building units' secondary containment systems for each unit listed in Permit Table III.10.F.A., as specified in Attachment 51, Appendices 8.4 through 8.9, 8.15, 9.4 through 9.9, 9.18, 10.4 through 10.9, and 10.18 of this Permit, as approved in accordance with Permit Condition III.10.F.5.a. of this Permit and WAC 173-303-695.

III.10.F.2.c. Modifications to approved design plans and specifications, in Attachment 51, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18 for the containment building units shall be allowed only in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g., III.10.C.9.d, and III.10.C.9.e.

III.10.F.3. Containment Building Unit Management Practices

III.10.F.3.a. The Permittees shall manage all dangerous and mixed wastes in containment building units in accordance with procedures described in Attachment 51, Appendices 8.15, 9.18, 10.18 and Chapter 4.0 of this Permit, as approved pursuant to Permit Condition III.10.F.7.d.iv. of this Permit.

III.10.F.3.b. The Permittee shall follow the description of operating procedures described in Attachment 51, Appendices 8.15, 9.18, 10.18 and Chapter 4, as approved pursuant to Permit Condition III.10.F.7.d.iv. and Permit Condition III.10.F.3., and as specified below:

i. Maintain the primary barrier to be free of significant cracks, gaps, corrosion, or other deterioration that could cause dangerous and mixed waste to be released from the primary barrier;

ii. Maintain the level of stored/treated dangerous and mixed waste within the containment building unit walls so that the height of the wall is not exceeded;

iii. Take measures to prevent the tracking of dangerous and mixed waste out of the unit by personnel or by equipment used in handling the waste. An area must be designated to decontaminate equipment and any rinsate must be collected and properly managed;

iv. Maintain the containment building unit at all times to prevent the spread of airborne dangerous and/or mixed wastes contamination into less contaminated or uncontaminated areas. All air pollution control devices for exhaust from containment building unit must be properly maintained and operational when storing or treating dangerous and mixed waste in the containment building units;

v. Collect and remove liquids and waste to minimize hydraulic head on the containment system at the earliest practicable time.

III.10.F.3.c. The Permittee shall inspect the containment building units per requirements in the Attachment 51, Chapter 6.0 as approved pursuant to Permit Condition III.10.C.5., 40 CFR 264.1101(c)(4),in accordance with WAC 173-303-695 and WAC 173-303-320 and record in the Facility's operating record, at least once every seven (7) days, data gathered from monitoring equipment and leak detection equipment as well as the containment building unit

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

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

i. Upon detection of a condition that has lead to the release of dangerous and/or mixed wastes (e.g., upon detection of leakage from the primary barrier) the Permittee must:

A. Enter a record of the discovery in the facility operating record;

B. Immediately remove the portion of the containment building unit affected by the condition from service;

C. Determine what steps must be taken to repair the containment building unit, remove any leakage from the secondary collection system, and establish a schedule for accomplishing the cleanup and repairs; and

D. Within seven (7) days after the discovery of the condition, notify Ecology of the condition, and within fourteen (14) working days, provide a written notice to Ecology with a description of the steps taken to repair the containment building unit, and the schedule for accomplishing the work.

ii. Ecology will review the information submitted, make a determination regarding whether the containment building unit must be removed from service completely or partially until repairs and cleanup are complete, and notify the Permittee of the determination and underlying rationale in writing.

iii. Upon completing all repairs and cleanup the Permittee must notify Ecology in writing and provide verification, signed by a qualified, registered, professional engineer, that repairs have been completed according to the written notice submitted in accordance with Permit Condition III.10.F.3.d.i.D.

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

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

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

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

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

III.10.F.6. Closure

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

III.10.F.7. Compliance Schedule

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

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

III.10.F.7.c. The Permittees shall submit to Ecology pursuant to Permit Condition III.10.C.9.f., prior to construction of the containment building unit containment system, and as appropriate, leak detection system for each containment building unit (per level, per WTP building) as identified in Permit Condition III.10.F.1., Permit Tables III.10.F.A., engineering information as specified below, for incorporation, as appropriate, into Attachment 51, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18 of this Permit. At a minimum, engineering information specified below will show the following as required in accordance with WAC 173-303-695 (the information specified below will include dimensioned engineering drawings showing floors, walls, and ceilings/roof of the containment building units and other information on floor drains and sumps):

i. Design drawings (General Arrangement Drawings in plan and cross sections) and specifications for the foundation, containment, including liner/coating installation details and leak detection methodology, as appropriate [40 CFR 264.1101(a)(1) and (b), in accordance with WAC 173-303-695].

ii. The Permittees shall provide the design criteria (codes and standards, load definitions and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the containment system. This information shall demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [40 CFR 264.1101(a)(2) in accordance with WAC 173-303-695, in accordance with WAC 173-303-695].

iii. The Permittees shall provide documentation addressing how coatings will withstand the movement of personnel, waste, and equipment during the operating life of the containment building per 40 CFR 264.1101(a)(2), (a)(4), and (b) in accordance with WAC 173-303-695.

iv. Containment/foundation and, as appropriate, for leak detection systems, materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials as applicable [e.g. physical and chemical tolerances]) [40 CFR 264.1101(a)(4) and (b) in accordance with WAC 173-303-695].

v. A detailed description of how the containment/foundation and, as appropriate, leak detection systems, will be installed.

vi. Submit Permit Tables III.10.F.B and III.10.F.C, completed to provide for all secondary containment sumps and floor drains, the information as specified in each column heading, consistent with the information to be provided in i. through viii.

vii. A detailed description of how fugitive emissions will be controlled such that any openings (e.g., doors, windows, vents, cracks, etc.) exhibit no visible emissions [40 CFR 264.1101(c)(1)(iv) in accordance with WAC 173-303-695].

viii. Prior to installation, the Permittees shall submit coating vendor information specific to containment buildings for incorporation into the Administrative Record [40 CFR 264.1101(a)(4) and (b) in accordance with WAC 173-303-695].

III.10.F.7.d Prior to initial receipt of dangerous and mixed waste, in the WTP Facility, the Permittees shall submit the following, as specified below, for incorporation into Attachment 51. The information specified below into Attachment 51, and incorporated pursuant to Permit Condition III.10.C.2.g. shall be followed:

i. Registered Professional Engineer certification documentation consistent with the information provided in III.10.F.5.b. and III.10.F.5.c. for incorporation in the Administrative Record. The certification must be maintained in the WTP Operating Record [40 CFR 264.1101(c)(2)];

ii. Updated Chapter 4.0, Section 4.2.1., and the figures for containment building units identified in Permit Table III.10.F.A. (as modified pursuant to Permit Condition III.10.F.7.d.iv., consistent with Attachment 51, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18, as approved pursuant Permit Conditions III.10.F.7.a. through d.);

iii. Description of operating procedures demonstrating compliance with 40 CFR 264.1101(c) and (d) in accordance with WAC 173-303-695;

iv. Permit Table III.10.F.A., amended as follows:

A. Under column 1, update and complete list of dangerous and mixed waste containment building units including room location and number.

B. Under column 2, update unit dimensions.

C. Under column 3, replace the 'Reserved' with the Attachment 51, Appendices 8.0, 9.0, and 10.0, subsections specific to containment building units as listed in column 1.

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

E. Under column 5, replace the 'Reserved' to indicate if container storage is used in each containment building units (Yes or No) consistent with Permit Table III.10.D.A. updated pursuant to Permit Condition III.10.D.10.d.

F. Under column 6, replace the 'Reserved' to indicate if tank storage is used in each containment building units (Yes or No) consistent with Permit Tables III. 10.E.A-D., updated pursuant to Permit Condition III.10.E.9.e.vi.

G. Under column 7, replace the 'Reserved' with the maximum capacity for each containment building unit, to include the container storage capacity specified in Permit Table III.10.D.A., tank capacity specified in Permit Tables III. 10.E.A-D. and update the total capacity for the containment building units.

H. Under column 8, update the status of each containment building unit.

III.10.F.7.e. All information provided under Permit Condition III.10.F.7.d. must be consistent with information provided pursuant to Permit Conditions III.10.F.7.a. through d., as approved by Ecology.

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

Mixed Waste Containment Building Units[a] & Systems	Dimensions (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

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

Table III.10.F.B. – Containment Building Primary[a] Containment Sump Systems

Sump I.D.# & Room Location	Maximum Capacity (gallons)	Dimensions (feet) & Materials of Construction	Maximum Allowable Liquid Height (inches)	Secondary Containment Volume (gallons)	Unit Description Drawings[#]	Leak Detection Type
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

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

Table III.10.F.C. – Containment Building Secondary Containment Systems Including Sumps and Floor Drains

Sump I.D.# & Room Location	Maximum Capacity (gallons)	Dimensions (feet) & Materials of Construction	Maximum Allowable Liquid Height (inches)	Secondary Containment Volume (gallons)	Unit Description Drawings[#]	Leak Detection Type
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

III.10.G PRETREATMENT PLANT MISCELLANEOUS UNIT SYSTEMS

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

III.10.G.1 Approved Wastes and Storage Limits

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

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

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

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

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

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

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

III.10.G.2 Miscellaneous Unit Systems Design and Construction [WAC 173-303-640, in accordance with WAC 173-303-680(2) and WAC 173-303-340].

III.10.G.2.a. The Permittees shall construct the Pretreatment Plant Miscellaneous Unit Systems identified in Permit Table III.10.G.A, as specified in Attachment 51, Appendices 8.1 through 8.14 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.b., III.10.G.10.c., and III.10.G.10.d.

III.10.G.2.b. The Permittees shall construct all secondary containment systems for the Pretreatment Plant Miscellaneous Unit Systems identified in Permit Tables III.10.G.A and III.10.G.B, as specified in Attachment 51, Appendices 8.2, 8.4 through 8.14 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.b., III.10.G.10.c., and III.10.G.10.d.

III.10.G.2.c. Modifications to approved design, plans, and specifications in Attachment 51 of this Permit for the Pretreatment Plant Miscellaneous Unit Systems shall be allowed only in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d., e., and h.

III.10.G.3 Miscellaneous Unit System Installation and Certification [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-340].

III.10.G.3.a. The Permittees must ensure that proper handling procedures are adhered to in order to prevent damage to Pretreatment Plant Miscellaneous Unit Systems during installation. Prior to covering, enclosing, or placing a new Pretreatment Plant Miscellaneous Unit System(s) or component(s) in use, an independent, qualified, installation inspector or an independent, qualified, registered professional engineer, either of whom is trained and experienced in the proper installation of similar systems or components, must inspect the system for the presence of any of the following items:

i. Weld breaks;

ii Punctures;

iii. Scrapes of protective coatings;

iv. Cracks;

v. Corrosion;

vi. Other structural damage or inadequate construction/installation;

vii. All discrepancies must be remedied before the Pretreatment Plant Miscellaneous Unit Systems are covered, enclosed, or placed in use [WAC 173-303-640(3)(c) in accordance with WAC 173-303-680(2) and (3)].

III.10.G.3.b. For Pretreatment Plant Miscellaneous Unit Systems or components that are placed underground and that are back-filled, the Permittees must provide a backfill material that is a non-corrosive, porous, homogeneous substance. The backfill must be installed so that it is placed completely around the miscellaneous unit and compacted to ensure that the miscellaneous unit and piping are fully and uniformly supported [WAC 173-303-640(3)(d), in accordance with WAC 173-303-680(2) and (3)].

III.10.G.3.c. The Permittees must test for tightness all new Pretreatment Plant miscellaneous units and equipment, prior to being covered, enclosed, or placed into use. If the Pretreatment Plant Miscellaneous Unit Systems are found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the Pretreatment Plant Miscellaneous Units Systems being covered, enclosed, or placed in use [WAC 173-303-640(3)(e), in accordance with WAC 173-303-680(2) and (3)].

III.10.G.3.d. The Permittees must ensure Pretreatment Plant Miscellaneous Unit Systems equipment is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction [WAC 173-303-640(3)(f), in accordance with WAC 173-303-680(2) and (3)].

III.10.G.3.e. The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Attachment 51, Appendices 8.9 and 8.11 as approved pursuant to Permit Conditions III.10.G.10.b.i., III.10.G.10.b.i.v., III.10.G.10.b.v., III.10.G.10.c.i., III.10.G.10.c.i.v., III.10.G.10.c.v., and III.10.G.10.d.i., III.10.G.10.d.iv. III.10.G.10.d.v., or other corrosion protection if Ecology believes other corrosion protection is necessary to ensure the integrity of the Pretreatment Plant Miscellaneous Unit Systems during use of the Pretreatment Plant Miscellaneous Unit Systems. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation [WAC 173-303-640(3)(g), in accordance with WAC 173-303-680(2) and (3)].

III.10.G.3.f. Prior to initial receipt of dangerous and/or mixed wastes in the WTP Facility, the Permittees shall obtain, and keep on file in the WTP Facility operating record, written statements by those persons required to certify the design of the Pretreatment Plant Miscellaneous Unit Systems and supervise the installation of the Pretreatment Plant Miscellaneous Unit Systems, as specified in WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC 173-303-680, attesting that each Pretreatment Plant Miscellaneous Unit System and corresponding containment system listed in Permit Tables III.10.G.A and III.10.G.B, as approved/modified pursuant to Permit Condition III.10.G.10., were properly designed and installed, and that repairs, in accordance with WAC 173-303-640(3)(c) and (e), were performed [WAC 173-303-640(3)(a), WAC 173-303-640(3)(h), in accordance with WAC 173-303-680(3)].

III.10.G.3.g. The independent Pretreatment Plant Miscellaneous Unit System installation inspection and subsequent written statements shall be certified in accordance with WAC 173-303-810(13)(a) as modified pursuant to Permit Condition III.10.G.1.d., comply with all requirements of WAC 173-303-640(3)(h), in accordance with WAC 173-303-680, and shall consider, but not be limited to, the following miscellaneous unit system installation documentation:

i. Field installation report with date of installation;

ii. Approved welding procedures;

iii. Welder qualifications and certification;

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

v. Tester credentials;

vi. Field inspector credentials;

vii. Field inspector reports;

viii. Field waiver reports; and

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

III.10.G.4 Integrity Assessments [WAC 173-303-340 and WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3)].

III.10.G.4.a. The Permittees shall ensure periodic integrity assessments are conducted on the Pretreatment Plant Miscellaneous Unit Systems listed in Permit Table III.10.G.A, as approved/modified pursuant to Permit Condition III.10.G.10., over the term of this Permit in accordance with WAC173-303-680(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.G.10.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP Facility operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

III.10.G.4.b. The Permittees shall address problems detected during Pretreatment Plant Miscellaneous Unit Systems integrity assessments specified in Permit Condition III.10.G.4.a. following the integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.e.i. and III.10.C.5.c.

III.10.G.4.c. The Permittees must immediately and safely remove from service any Pretreatment Plant Miscellaneous Unit System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Condition III.10.G.5.j.i. through iv., and vi. The affected Pretreatment Plant Miscellaneous Unit or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.G.5.j.v. [WAC 173-303-640(7)(e) and (f) and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

III.10.G.5 Miscellaneous Unit Management Practices

III.10.G.5.a. No dangerous and/or mixed wastes shall be managed in the Pretreatment Plant Miscellaneous Unit Systems unless the operating conditions, specified under Permit Condition III.10.G.5, are complied with.

III.10.G.5.b. The Permittees shall install and test all process monitoring/instrumentation, as specified in Permit Table III.10.G.C, as approved/modified pursuant to Permit Condition III.10.G.10, in accordance with Attachment 51, Appendix 8.14 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.b.vii. and III.10.G.10.d.x.

III.10.G.5.c. The Permittees shall not place dangerous and/or mixed wastes, treatment reagents, or other materials in the Pretreatment Plant Miscellaneous Unit Systems if these substances could cause the systems to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)].

III.10.G.5.d. The Permittees shall operate the Pretreatment Plant Miscellaneous Unit Systems to prevent spills and overflows using the description of controls and practices, as required under WAC 173-303-640(5)(b), described in Permit Condition III.10.C.5, and Attachment 51, Appendix 8.15 of this Permit, as approved pursuant to Permit Condition III.10.G.10.e.iv. [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-806(4)(c)(ix)].

III.10.G.5.e. For routinely non-accessible Pretreatment Plant Miscellaneous Unit Systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.G.10.e.vi., the Permittees shall mark all routinely non-accessible Pretreatment Plant Miscellaneous Unit System access points with labels or signs to identify the waste contained in the units. The label, or sign, must be legible at a distance of at least fifty (50) feet and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the miscellaneous unit system(s). For the purposes of this Permit condition, "routinely non-accessible" means personnel are unable to enter

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

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

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

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

i. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

ii. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed wastes could migrate from the system; and

iii. The coating must be compatible with the dangerous and mixed wastes, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-806(4)(i)(i)(A)].

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

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

i. Immediately and safely stop the flow of dangerous and/or mixed wastes into the miscellaneous unit system or secondary containment system;

ii. Determine the source of the dangerous and/or mixed wastes;

iii. Remove the wastes from the containment area in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed wastes removed from containment areas of miscellaneous unit systems shall be, as a minimum, managed as dangerous and/or mixed wastes;

iv. If the cause of the release was a spill that has not damaged the integrity of the miscellaneous unit system, the Permittees may return the miscellaneous unit system to service in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such a case, the Permittees shall take action to ensure the incident that caused liquid to enter the containment system will not reoccur [WAC 173-303-320(3)];

v. If the source of the dangerous and/or mixed wastes is determined to be a leak from a the primary Pretreatment Plant Miscellaneous Unit System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees must comply with the requirements of WAC 173-303-640(7), and take the following actions:

A Close the miscellaneous unit following procedures in WAC 173-303-640(7)(e)(i) and in accordance with WAC 173-303-680, and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or

B. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.G.1.d.) the Pretreatment Plant Miscellaneous Unit System in accordance with Attachment 51, Appendix 8.15 of this Permit, as approved pursuant to Permit Condition III.10.G.10.e.v. before the Pretreatment Plant Miscellaneous Unit System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

vi. The Permittees shall document, in the operating record, actions/procedures taken to comply with i. through v. above, as specified in WAC 173-303-640(6)(d) and in accordance with WAC 173-303-680(2) and (3).

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

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

A. Reasons for delayed removal;

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

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

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

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

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

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

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

III.10.G.6 Air Emissions

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

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

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

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

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

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

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

III.10.G.8 Recordkeeping

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

III.10.G.9 Closure

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

III.10.G.10 Compliance Schedule

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

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

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

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

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

iii. The Permittees shall provide the design criteria (codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the secondary containment system. This information shall demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Secondary containment/foundation and leak detection systems materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials), as applicable [WAC 173-303-806(4)(i)(i)(A) through (B)];

vi. Detailed description of how the secondary containment for each miscellaneous unit system will be installed in compliance with WAC 173-303-640(3)(c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B);

vii. Submit Permit Table III.10.G.B. completed to provide for all secondary containment sumps and floor drains, the information as specified in each column heading, consistent with information to be provided in i. through vi. above;

viii. Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

ix. A detailed description of how miscellaneous unit design provides access for conducting future miscellaneous unit integrity assessments [WAC 173-303-640(3)(b) and WAC 173-303-806(4)(i)(i)(B)].

III.10.G.10.c. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to installation of each Pretreatment Plant Miscellaneous Unit System as identified in Permit Tables III.10.G.A and III.10.G.B, engineering information as specified below, for incorporation into Attachment 51, Appendix 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 and in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

i. IQRPE Reports (specific to miscellaneous unit) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 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 separately provided in ii.-xiii. below and the IQRPE Report specified in Permit Condition III.10.G.10.b.i. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

ii. Design drawings (General Arrangement Drawings in plan and cross sections, Process Flow Diagrams, Piping and Instrumentation Diagrams (including pressure control systems), and Mechanical Drawings) and specifications, and other information specific to miscellaneous units (to show location and physical attributes of each miscellaneous unit), [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

iii. Miscellaneous unit design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the miscellaneous unit(s). Structural support calculations specific to off-specification, non-standard, and field fabricated miscellaneous units shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Miscellaneous unit materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

vi. Miscellaneous unit vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

vii. System Description (process) related to miscellaneous units shall be submitted for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)].

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

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 8.1through 8.14 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

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

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

viii. System Descriptions (process) related to equipment for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

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

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

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

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

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

i. Integrity assessment program and schedule for the Pretreatment Plant Miscellaneous Unit Systems shall address the conducting of periodic integrity assessments on the Pretreatment Plant Miscellaneous Unit Systems over the life of the systems, as specified in Permit Condition III.10.G.10.b.ix. and WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

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

accordance with WAC 173-303-680, WAC 173-303-640(4)(c)(iii), and WAC 173-303-806(4)(i)(i)(B)];

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

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

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

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

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

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

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

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

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

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

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

E. Under column 5, update and complete maximum capacity for each miscellaneous unit, as applicable.

F. Permit Table III.10.G.A.i., amended as follows:

1. Under column 1, update and complete list of plant items that comprise the Pretreatment Plant Vessel Vent System (listed by item number).

2. Under column 2, update and complete designations.

3. Under column 3, replace the 'Reserved' with the Attachment 51, Appendix

8.0, subsections (e.g., 9.1, 9.2, etc.) specific to systems as listed in column 1.

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

x. Permit Table III.10.G.C. shall be completed for Pretreatment Plant Miscellaneous Unit System process monitors and instruments (to include, but not be limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emissions) to provide the information as specified in each column heading. Process monitors and instruments for critical systems as specified in Attachment 51, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b.and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii. shall be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

xi. Supporting documentation for operating trips and expected operating range as specified in Permit Table III.10.G.C., as approved pursuant to Permit Condition III.10.G.10.e.x. [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(B), WAC 173-303-806(4)(i)(iv), and WAC 173-303-806(4)(i)(v)];

xii. Documentation of process instruments and monitors (as listed in Permit Table III.10.G.C.) for the Pretreatment Plant Miscellaneous Unit Systems to include, but not be limited to, the following [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)]:

A. Procurement Specifications

B. Location used

C. Range, precision, and accuracy

D. Detailed descriptions of calibration/functionality test procedures (e.g., method number [ASTM]) or provide a copy of manufacturer's recommended calibration procedures.

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.)

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

Table III.10.G.A – Pretreatment Plant Miscellaneous Unit Systems

Miscellaneous Unit System Description[a]	Miscellaneous Unit System Designation	Description Drawings	Narrative Description, Tables, & Figures	Maximum Capacity (gallons)
Waste Feed Evaporation Process System (Comprised of the following miscellaneous units and equipment: Evaporator Feed Vessels V11001A-B[b], Waste Feed Evaporator Separator Vessels V11002A-B, Evaporator Process Condensate Pot V11005[b], Reboilers, Primary Condensers, Intercondensers, After condensers, Demisters, and Pumps and associated equipment)	FEP	RESERVED	Section 4.1.2.2.; Figure 4A-1, 4A-2, and 4A-6 of Attachment 51, Chapter 4 of this Permit.	V11002A = 21,240 V11002B = 21,240
Cesium Nitric Acid Recovery Process System (Comprised of the following miscellaneous units and equipment: Cs Evaporator (ID RESERVED), Cs Concentrate Reboiler, Eluant Contingency Storage Vessel V13073[b], Recovered Nitric Acid Vessel V13028[b], Cesium Concentrate Lute Pot V13030[b], Cs Rectifier Column, Rectifier Overhead Primary Condenser, After (Secondary) condenser, and Ejectors and associated equipment)	CNP	RESERVED	Section 4.1.2.6.; Figure 4A-1, 4A-2, and 4A-10 of Attachment 51, Chapter 4 of this Permit	Cs Evaporator = RESERVED
Technetium Eluant Recovery Process System (Comprised of the following miscellaneous units and equipment: Technetium Eluant Recovery Evaporator V43069, Tc Concentrate Reboiler, Recovered Tc Eluant Vessel V43071[b], Tc Concentrate Lute Pot V43072[b], Tc Rectifier Column, Rectifier Overhead Condenser, Aftercondenser, Vacuum Ejectors and associated equipment)	TEP	RESERVED	Section 4.1.2.9.; Figure 4A-1, 4A-2, and 4A-13 of Attachment 51, Chapter 4 of this Permit	V43069 = 4,300
Treated LAW Evaporation Process System (Comprised of the following miscellaneous units and equipment: LAW Evaporator Separator Vessel V41011, Plant Wash Vessels A-B V45009A& V45009B[b], Reboiler, Primary Condenser, Intercondenser, Aftercondenser, Demister, Pumps and associated equipment)	TLP	RESERVED	Section 4.1.2.11; Figure 4A-1, 4A-2, and 4A-16 of Attachment 51, Chapter 4 of this Permit	V41011 = 21,240

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

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

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

Description	Designation	Description Drawings	Narrative Description, Tables & Figures
Pretreatment Vessel Vent Process System (Comprised of the following: Vessel Vent Header Collection Vessel V15052[b], Condensate Collection Vessel V15038[b], Caustic scrubber, High Efficiency Mist Eliminators (HEME), HEME Drain Collection Vessels V15326 & V15327[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	RESERVED	Section 4.1.2.17; Figure 4A-1, 4A-2, and 4A-19 of Attachment 51, Chapter 4 of this Permit

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

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

Table III.10.G.B. – Pretreatment Plant Miscellaneous Unit 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	Description Drawings#	Leak Detection Type
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.G.C. – Pretreatment Plant Miscellaneous Unit System Instrument and Process Parameters

Miscellaneous Unit System Locator and Name (including P&ID)	Control Parameter	Type of Measuring Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Failure State	Expected Range	Instrument Accuracy	Operating Trips (Description & Numerical Limits)	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.G.D. – Pretreatment Plant Miscellaneous Unit Systems Estimated Emission Rates

Chemicals	CAS Number	Emission Rates (grams /second)
RESERVED	RESERVED	RESERVED

III.10.H LAW Vitrification System – Short Term Miscellaneous Thermal Treatment Unit-Shakedown, Demonstration Test, and Post Demonstration Test

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

III.10.H.1. General Conditions During Shakedown, Demonstration Test, and Post-Demonstration Test for LAW Vitrification System

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

i. The Permittees shall construct the LAW Vitrification System (listed in Permit Tables III.10.H.A and B., as approved/modified pursuant to Permit Condition III.10.H.5.) as specified in Permit Condition III.10.H.1. and Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 9.1 through 9.15 and 9.17 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.a. through d., and III.10.H.5.f.

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

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

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

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

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

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

A. Weld breaks;

B. Punctures;

C. Scrapes of protective coatings;

D. Cracks;

E. Corrosion;

F. Other structural damage or inadequate construction/installation.

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

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

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

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

viii. The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Attachment 51, Appendices 9.9 and 9.11 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.b.i., III.10.H.5.b.iv., III.10.H.5.b.v., III.10.H.5.c.i., III.10.H.5.c.iv., III.10.H.5.c.v., III.10.H.5.d.i., III.10.H.5.d.iv., and III.10.H.5.d.v., or other corrosion protection if Ecology believes other corrosion protection is necessary to ensure the integrity of the LAW Vitrification System during use of the LAW Vitrification System. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation [WAC 173-303-640(3)(g), in accordance with WAC 173-303-680(2) and (3)].

ix. Prior to initial receipt of dangerous and/or mixed wastes in the WTP Facility, the Permittees shall obtain and keep on file in the WTP Facility operating record, written statements by those persons required to certify the design of the LAW Vitrification System and supervise the installation of the LAW Vitrification System, as specified in WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC 173-303-680, attesting that the LAW Vitrification System and corresponding containment system listed in Permit Tables III.10.H.A and III.10.H.B, as approved/modified pursuant to Permit Condition III.10.H.5., were properly designed and installed, and that repairs, in accordance with WAC 173-303-640(3)(c) and (e) were performed [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(h), in accordance with WAC 173-303-680(3)].

x. The independent LAW Vitrification System installation inspection and subsequent written statements shall be certified in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.H.1.a.iii., comply with all requirements of WAC 173-303-640(3)(h) in accordance with WAC 173-303-680, and shall consider, but not be limited to, the following LAW Vitrification System installation documentation:

A. Field installation report with date of installation;

B. Approved welding procedures;

C. Welder qualification and certifications;

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

E. Tester credentials;

F. Field inspector credentials;

G. Field inspector reports;

H. Field waiver reports; and

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

xi. The Permittees shall ensure periodic integrity assessments are conducted on the LAW Vitrification System, listed in Permit Table III.10.H.A, as approved/modified pursuant to Permit Condition III.10.H.5., over the term of this Permit in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP Facility 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 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 9.14 and 9.15 of this Permit, as approved pursuant to Permit Conditions III.10.H.d.x. and III.10.H.5.f.xvi.

xv. No dangerous and/or mixed wastes 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 wastes, 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 description of 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)].

xviii. For routinely non-accessible LAW Vitrification System sub-systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi., the Permittees shall mark all routinely non-accessible LAW Vitrification System sub-systems access points with labels, or signs, to identify the waste contained in each LAW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems. For the purposes of this permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xix. For all LAW Vitrification System sub-systems not addressed in Permit Condition III.10.H.1.a.xviii., the Permittees shall mark all these LAW Vitrification System sub-systems holding dangerous and/or mixed wastes with labels, or signs, to identify the waste contained in the LAW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xx. The Permittees shall ensure that the secondary containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.H.A. and III.10.H.B, as approved/modified pursuant to Permit Condition III.10.H.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed wastes or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during use of the LAW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems shall be investigated and repaired in accordance with Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v. [WAC 173-303–640(4)(b)(i), WAC 173-303–640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

xxi. The Permittees must immediately, and safely, remove from service any LAW Vitrification System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Conditions III.10.H.1.a.xxiii.A. through D., and F. The affected LAW Vitrification System or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.H.1.a.xxiii.E. [WAC 173-303-640(7)(e) and (f), WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

xxii. An impermeable coating, as specified in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.9, 9.11, and 9.12 of this Permit, as approved pursuant to Permit Condition III.10.H.5.b.v. shall be maintained for all concrete containment systems and concrete portions of containment systems for each LAW Vitrification System sub-systems listed in Permit

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

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed wastes could migrate from the system; and

C. The coating must be compatible with the dangerous and mixed wastes, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(i)(i)(A)].

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

A. Immediately, and safely, stop the flow of dangerous and/or mixed wastes into the LAW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed wastes.

C. Remove the dangerous and/or mixed wastes from the containment area in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed wastes removed from containment areas of the LAW Vitrification System sub-systems shall be, as a minimum, managed as mixed waste.

D. If the cause of the release was a spill that has not damaged the integrity of the LAW Vitrification System sub-system, the Permittees may return the LAW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees shall take action to insure the incident that caused the dangerous and/or mixed wastes to enter the containment system will not reoccur [WAC 173-303-320(3)].

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

1. Close the LAW Vitrification System sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8., or

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.H.1.a.iii.) the LAW Vitrification System, in accordance with Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v., before the LAW Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

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

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

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

A. Reasons for delayed removal;

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

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

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

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

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

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

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

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

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

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

DRE=[1-(Wout/Win)] x 100%

Where:

Win=mass feed-rate of one principal organic dangerous constituent (PODC) in a waste feedstream; and

Wout=mass emission rate of the same POHC present in exhaust emissions prior to release to the atmosphere.

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

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

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

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

vi. Lead and cadmium emissions from the LAW Vitrification System shall not exceed 120 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)].

vii. Arsenic, beryllium, and chromium emissions from the LAW Vitrification System shall not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)].

viii. Carbon monoxide (CO) emission from the LAW Vitrification System shall not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system), dry basis [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2)].

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

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

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

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

xii. Compliance with the operating conditions specified in Permit Condition III.10.H.1.c., shall be regarded as compliance with the required performance standards identified in Permit Conditions III.10.H.1.b.i. through x. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in Permit Condition III.10.H.1.c. is not sufficient to ensure compliance with the performance standards specified in Permit Conditions III.10.H.1.b.i. through x., the Permit may be

modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g.

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

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

i. The Permittees shall operate the LAW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.H.C and III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5., within the set-points specified in Permit Table III.10.H.F.

ii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5., to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the LAW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.H.F.

iii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5., to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the LAW Vitrification System when all instruments specified on Permit Table III.10.H.F for measuring the monitored parameter fail or exceed its span value.

iv. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5., to automatically cut-off and/or lock out the dangerous and/ormixed waste feed to the LAW Vitrification System when any portion of the LAW Vitrification System is bypassed. The terms "bypassed" and "bypass event" as used in Permit Sections III.10.H and III.10.I shall mean if any portion of the LAW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5., the Permittees shall immediately, manually cut-off the dangerous and mixed waste feed to the LAW Vitrification System. The Permittees shall not restart the dangerous and/or mixed wastes feed until the problem causing the malfunction has been identified and corrected.

vi. The Permittees shall manually cut-off the dangerous and mixed waste feed to the LAW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.H.1.c.i., unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.H.1.c.ii., III.10.H.1.c.iii., and/or III.10.H.1.c.iv.

vii. If greater than thirty (30) dangerous and mixed waste feed cut-off, combined, to the LAW Vitrification System occur due to deviations from Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5., within a sixty (60) day period, the Permittees shall submit a written report to Ecology within five (5) calendar days of the thirty-first exceedance including the information specified below. These dangerous and mixed waste feed cut-offs to the LAW Vitrification System, whether automatically or manually activated, are counted if the specified set points are deviated from while dangerous waste, mixed waste, and waste residues continue to be processed in the LAW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.H.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.H.F;

B. The magnitude, dates, and duration of the deviations;

C. Results of the investigation of the cause of the deviations; and

D. Corrective measures taken to minimize future occurrences of the deviations.

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

A. Investigate the cause of the bypass event;

B. Take appropriate corrective measures to minimize future bypasses;

C. Record the investigation findings and corrective measures in the operating record; and

D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

ix. The Permittees shall control fugitive emissions from the LAW Vitrification System by maintaining the melters under negative pressure.

x. Compliance with the operating conditions specified in Permit Condition III.10.H.1.c. shall be regarded as compliance with the required performance standards identified in Permit Condition III.10.H.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, shall justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g.

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

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

ii. The inspection data for LAW Vitrification System shall be recorded, and the records shall be placed in the WTP Facility operating record for the LAW Vitrification System, in accordance with Permit Condition III.10.C.4.

iii. The Permittees shall comply with the inspection requirements specified in Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., and as modified by Permit Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., and III.10.H.4.

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

i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling and analysis of the dangerous and mixed waste and exhaust emissions to verify that the operating requirements established in the Permit achieve the performance standards delineated in this Permit.

ii. The Permittees shall comply with the monitoring requirements specified in Attachment 51, Appendices 9.2, 9.3, 9.7, 9.13, 9.15 and 9.18 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.c., III.10.H.5.d., III.10.H.5.e., and III.10.H.5.f., as modified by Permit Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., and III.10.H.4.

iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and hydrocarbon continuous emission monitors (CEM) specified in this Permit in accordance with Performance Specification 4B and 8A of 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51 Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., and as modified by Permit Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., and III.10.H.4.

iv. The Permittees shall operate, calibrate, and maintain the instruments specified on Permit Tables III.10.H.C, and F, as approved/modified pursuant to Permit Condition III.10.H.5., in accordance with Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., and as modified by Permit Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., and III.10.H.4.

III.10.H.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

i. The Permittees shall record and maintain in the WTP Facility operating record for the LAW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4. and III.10.C.5., as modified by Permit Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., and III.10.H.4.

ii. The Permittees shall record in the WTP Facility operating record the date, time, and duration of all automatic waste feed cutoffs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees shall also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

iii. The Permittees shall submit to Ecology a report semi-annually the first calendar year, and annually thereafter each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and mixed waste feed processing time for the LAW Vitrification System;

B. Date/Time of all LAW Vitrification System startups and shutdowns;

C. Date/Time/Duration/Cause/Corrective Action taken for all LAW Vitrification System shutdowns caused by malfunction of either process or control equipment; and

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

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

III.10.H.1.g. Closure

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

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

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

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

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

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

Shakedown Phase 1: 720 hours

Shakedown Phase 2: 720 hours

iii. Shakedown Phase 2 shall not be commenced until documentation has been submitted to Ecology verifying that the LAW Vitrification System has operated at a minimum of

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

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

i. The Permittees may feed the dangerous waste specified for the LAW Vitrification System on the Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for those wastes outside the waste acceptance criteria specified in the WAP, Attachment 1, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., except Permit Conditions III.10.H.2.c.ii. through v. also apply.

ii. The Permittees shall not feed the following wastes to the LAW Vitrification System during Shakedown Phase 1:

A. Acutely toxic dangerous wastes listed in WAC 173-303-081(a)(2)(a)(i).

B. Mixed wastes

iii. The Permittees shall not feed the following wastes to the LAW Vitrification System during Shakedown Phase 2:

A. Mixed wastes

iv. The feed-rates to the LAW Vitrification System shall not exceed the limits in Permit Tables III.10.H.D and III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5.

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

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

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

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

ii. Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., shall be resubmitted to Ecology for approval by the Permittees as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f. at least one hundred and eighty (180) days prior to the start date of the demonstration test. The revised Demonstration Test Plan shall include applicable EPA promulgated test methods and procedures in effect at the time of the re-submittal and projected commencement and completion dates for the Demonstration Test.

iii. The Permittees shall not commence the demonstration test period until documentation has been submitted to Ecology verifying that the LAW Vitrification System has operated at a minimum of 90% of the demonstration test period feed-rate limit for a minimum of an eight (8) consecutive hours period on two (2) consecutive days.

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

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

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

i. The Permittees may feed the dangerous waste specified for the LAW Vitrification System in Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for those wastes outside the waste acceptance criteria specified in the WAP, Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., except Permit Conditions III.10.H.3.c.ii. through iv. also apply.

ii. The Permittees shall not feed mixed wastes to the LAW Vitrification System.

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

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

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

i. The Permittees shall submit a summary of data collected as required by the Demonstration Test Plan to Ecology upon completion of the Demonstration Test. The Permittees shall submit to Ecology a complete demonstration test report within one-hundred twenty (120) calendar days of completion of the Demonstration Test including all data collected during the Demonstration Test and updated Permit Tables III.10.I.D, III.10.I.E and III.10.I.F.

ii. The Permittees must submit to Ecology a certification that the Demonstration Test has been carried out in accordance with the approved Demonstration Test Plan and approved modifications within thirty (30) days of the completion of the Demonstration Test [WAC 173-303-807(8)].

iii. After successful completion of the Demonstration Test, the Permittees shall be authorized to commence feed of dangerous wastes and mixed waste to the LAW Vitrification System – up to one melter at maximum feed-rates for the post-demonstration test period indicated in Permit Tables III.10.H.D and F, as approved/modified pursuant to Permit Condition III.10.H.5., in compliance with the operating requirements specified in Permit Condition III.10.H.1.c.

iv. After successful completion of the Demonstration Test, Permittees submittal of the following to Ecology, and the Permittees' receipt of Ecology approval of the following, in writing, the Permittees shall be authorized to commence dangerous wastes and mixed wastes to the LAW Vitrification System – up to two melters at maximum feed-rates for the post-demonstration test period indicated in Permit Tables III.10.H.D and F, as approved/modified pursuant to Permit Condition III.10.H.5., in compliance with the operating requirements specified in Permit Condition III.10.H.1.c.:

A. Calculations and analytical data showing compliance with the performance standard specified in Permit Condition III.10.H.1.b.i.

v. After successful completion of the Demonstration Test, Permittees submittal of the following to Ecology and the Permittees receipt of approval of the following in writing, the Permittees shall be authorized to feed dangerous wastes and mixed wastes to the LAW Vitrification System pursuant to Permit Section III.10.I.

A. A complete Demonstration Test Report for the LAW Vitrification System and updated Permit Tables III.10.I.D, III.10.I.E, and III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.C.11.c or III.10.C.11.d. The test report shall be certified in accordance with WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

B. A Final Risk Assessment Report completed pursuant to Permit Conditions III.10.C.11.c. or III.10.C.11.d.

vi. If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.H.1.b., with the exception of Permit Condition III.10.H.1.b.x., for the LAW Vitrification System were not met during the Demonstration Test, the Permittees shall perform the following actions:

A. Immediately stop dangerous and mixed waste feed to the LAW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

B. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s) as specified in Permit Condition I.E.21.

C. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

D. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s), documentation supporting a mode of operation where all performance standards listed in Permit Condition III.10.H.1.b., with the exception of Permit Condition III.10.H.1.b.x., for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

E. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.H.3.d.vi.A through D above, and any additional information, Ecology may submit in writing, direction to the Permittees to stop dangerous and/or mixed wastes feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of a compliance schedule and/or revised Demonstration Test Plan pursuant to Permit Conditions III.10.H.3.d.vi.F and G.

F. If the performance standard listed in Permit Condition III.10.H.1.b.i. was not met during the Demonstration Test, the Permittees shall submit within one hundred and twenty (120) days of discovery of not meeting the performance standard, a revised Demonstration Test Plan (if appropriate), and a compliance schedule for Ecology

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

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

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

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

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

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

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

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

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

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

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

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

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

III.10.H.5. Compliance Schedules

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

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

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

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

iii. 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 secondary containment system. This information shall demonstrate the foundation will be capable of providing

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

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Secondary containment/foundation, and leak detection system, materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials) as applicable [WAC 173-303-806(4)(i)(i)(A) through (B)];

vi. Detailed description of how the secondary containment for the LAW Vitrification System will be installed in compliance with WAC 173-303-640(3)(c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B);

vii. Submit Permit Tables III.10.H.B and III.10.I.B completed to provide for all secondary containment sumps and floor drains the information as specified in each column heading consistent with information to be provided in i. through vi., above;

viii. Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

ix. A detailed description of how LAW Vitrification System design provides access for conducting future LAW Vitrification System integrity assessments [WAC 173-303-640(3)(b) and WAC 173-303-806(4)(i)(i)(B)].

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

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

ii. Design drawings [General Arrangement Drawings in plan and cross section, Process Flow Diagrams, Piping and Instrumentation Diagrams (including pressure control systems), Mechanical Drawings, and specifications, and other information specific to subsystems (to show location and physical attributes of each subsystem)] [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

iii. Sub-system design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details to support the subsystems. Structural support calculations specific to off-specification, non-standard and field fabricated subsystems shall be submitted for incorporation into the Administrative Record. Documentation shall include but not limited to, supporting specifications, test data, treatment effectiveness report, etc. supporting projected operational capability (e.g., WESP projected removal efficiency for individual metals, halogens, particulates, etc.) and compliance with performance standards specified in Permit Condition III.10.H.1.b [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Sub-system materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

vi. Sub-system vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

vii. System descriptions (process) related to sub-system units shall be submitted for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

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

ix. Detailed description of all potential LAW Vitrification System bypass events including:

A. A report which includes an analysis of credible potential bypass events and recommendations for prevention/minimization of the potential, impact, and frequency of the bypass event to include at a minimum:

1. Operating procedures

2. Maintenance procedures
3. Redundant equipment
4. Redundant instrumentation
5. Alternate equipment
6. Alternate materials of construction

x. A detailed description of how the sub-systems will be installed in compliance with WAC 173-303-640(3)(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.H.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.H.A and III.10.H.B, not addressed in Permit Conditions III.10.H.5.b, or III.10.H.5.c., engineering information as specified below, for incorporation into Attachment 51, Appendices 9.1 through 9.14 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

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 9.0 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. below and the IQRPE Reports specified in Permit Conditions III.10.H.5.b. and III.10.H.5.c. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

ii. Design drawings [Process Flow Diagrams, Piping and Instrumentation Diagrams (including pressure control systems), specifications and other information specific to equipment (these drawings should include all equipment such as pipes, valves, fittings, pumps, instruments, etc.)] [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

iii. 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 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 for each sub-system (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

vi. Vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, for sub-system equipment shall be submitted for incorporation into the Administrative Record. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(iv)];

vii. Sub-system and sub-system equipment instrument control logic narrative description (e.g., software requirements specifications, descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)].

viii. System description (process) related to sub-system equipment for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

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

x. For process monitoring and control instrumentation for the LAW Vitrification System as identified in Permit Tables III.10.H.C. and III.10.H. F., a detailed description of how the process monitoring and control instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-303-806(4)(i)(i)(B)];

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

xii. Documentation that sub-systems equipment are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

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

i. Integrity assessment program and schedule for the LAW Vitrification System shall address the conducting of periodic integrity assessments on the LAW Vitrification System over the life of the system, as specified in Permit Condition III.10.H.5.b.ix. and WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)].

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

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

iv. Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from the LAW Vitrification System or containment systems in compliance with WAC 173-303-640(5)(b)(i) through (iii), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

v. Description of procedures for investigation and repair of the LAW Vitrification System [WAC 173-303–640(6) and WAC 173-303-640(7)(e) and (f), in accordance with WAC 173-303-680, WAC 173-303-320, WAC 173-303-806(4)(a)(iv), and WAC 173-303-806(4)(a)(ii)(B)].

vi. Updated Chapter 4.0, Narrative Description, Tables and Figures as identified in Permit Tables III.10.H.A and III.10.H.B, as modified pursuant to Permit Condition III.10.H.5.e.x. and updated to identify routinely non-accessible LAW Vitrification sub-systems.

vii. Description of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed wastes as specified in WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B).

viii. A description of the tracking system used to track dangerous and/or mixed wastes generated throughout the LAW Vitrification system, pursuant to WAC 173-303-380.

ix. Permit Table III.10.H.C. shall be completed for LAW Vitrification System process monitors and instruments (to include, but not be limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emissions) to provide the information as specified in each column heading. Process monitors and instruments for critical systems as specified in Attachment 51, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b.and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii. shall be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

x. Permit Tables III.10.H.A and III.10.I.A amended as follows [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)]:

A. Under column 1, update and complete list of dangerous and mixed waste LAW Vitrification System sub-systems, including plant items that comprise each system (listed by item number).

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

C. Under column 3, replace the 'Reserved' with Attachment 51, Appendix 9.0 subsections (e.g., 9.1, 9.2, etc.) designated in Permit Conditions III.10.H.5.b., c., and d. specific to LAW Vitrification System sub-system as listed in column 1.

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

III.10.H.5.f. One hundred and eighty (180) days prior to initial receipt of dangerous and/or mixed wastes in the WTP Facility, the Permittees shall submit for review and receive approval for incorporation into Attachment 51, Appendix 9.15 of this Permit, a Demonstration Test Plan for the LAW Vitrification System to demonstrate that the LAW Vitrification Systems meets the performance standards specified in Permit Condition III.10.H.1.b. In order to incorporate the Demonstration Test Plan for the LAW Vitrification System into Attachment 51, Appendix 9.15, Permit Condition III.10.C.2.g. process will be followed. The Demonstration Test Plan shall include, but not be limited to, the following information. The Demonstration Test Plan shall also be consistent with the information provided pursuant to Permit Conditions III.10.H.5.b., c., d., and e., III.10.C.3.e.v., and III.10.C.11.b., as approved by Ecology and consistent with the schedule described in Attachment 51, Appendix 1.0 of this Permit: The documentation required pursuant to Permit Condition III.10.H.5.f.x.vi., in addition to being incorporated into Attachment 51, Appendix 9.15, shall be incorporated by reference in Attachment 51, Chapter 6.0 of this Permit.

Notes: (1) The following should be consulted to prepare this Demonstration Test Plan: "Guidance on Setting Permit Conditions and Reporting Trial Burn Results Volume II of the Hazardous Waste Incineration Guidance Series," (EPA/625/6-89/019) and Risk Burn

Guidance For Hazardous Waste Combustion Facilities," (EPA-R-01-001, July 2001), WAC 173-303-807(2), WAC 173-303-670(5), WAC-173-303-670(6), 40 CFR §63.1207(f)(2), 40 CFR §63.1209, and Appendix to 40 CFR Part 63 EEE.

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

i. Analysis of each feed-stream to be fed during the demonstration test, including dangerous wastes, glass formers and reductants, process streams (e.g., volumes of air leakage including; control air, process air, steam, sparge bubbler air, air in-leakage from melter cave, and gases from LAW Vitrification Vessel Ventilation System, process water, etc.) that includes:

   A. Levels of ash, metals, total chlorine (organic and inorganic), other halogens and radionuclide surrogates;

   B. Description of the physical form of the feed-streams;

   C. An identification and quantification of organics that are present in the feed-stream, including constituents proposed for DRE demonstration;

   A comparison of the proposed demonstration test feed streams to the mixed waste feed envelopes to be processed in the melters must be provided that documents that the proposed demonstration test feed streams will serve as worst case surrogates for organic destruction, formation of products of incomplete oxidation, and metals, total chlorine (organic and inorganic), other halogens, particulate formation, and radionuclides.

ii. Specification of trial principal organic dangerous constituents (PODCs) for which destruction and removal efficiencies are proposed to be calculated during the demonstration test and for inclusion in Permit Conditions III.10.H.1.b.i. and III.10.I.1.b.i. These trial PODCs shall be specified based on destructibility, concentration or mass in the waste and the dangerous waste constituents or constituents in WAC 173-303-9905;

iii. A description of the blending procedures, prior to introducing the feed-streams into the melter, including analysis of the materials prior to blending, and blending ratios;

iv. A description of how the surrogate feeds are to be introduced for the demonstration. This description should clearly identify the differences and justify how any of differences would impact the surrogate feed introduction as representative of how mixed waste feeds will be introduced;

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

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

   B. Design capacity of each sub-system including documentation (engineering calculations, manufacturer/vendor specifications, operating data, etc.) supporting projected operational efficiencies (e.g., WESP projected removal efficiency for

individual metals, halogens, and particulates) and compliance with performance standards specified in Permit Condition III.10.H.1.b.;

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

D. Process Engineering Descriptions;

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

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

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

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

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

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

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

vi. Detailed description of sampling and monitoring procedures including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis including, but not limited to:

A. A short summary narrative description of each stack sample method should be included within the main body of the demonstration test plan, which references an appendix to the plan that would include for each sampling train: (1) detailed sample method procedures, (2) sampling train configuration schematic, (3) sampling recovery flow sheet, (4) detailed analytical method procedures, and (5) sampling preparation and analysis flow sheet. The detailed procedures should clearly flag

where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, enhancements to train to accommodate high moisture content in stack gas, etc.) and what is being proposed along with the basis for the decision.

B. A short summary narrative description of the feed and residue sampling methods should be included within the main body of the demonstration test plan, which references an appendix that would include for each sample type: (1) detailed sample method procedures, (2) sampling recovery/compositing procedures, and (3) detailed analytical method procedures. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, etc.) and what is being proposed along with the basis for the decision

vii. A detailed test schedule for each condition for which the demonstration test is planned, including projected date(s), duration, quantity of dangerous waste to be fed, and other relevant factors;

viii. A detailed test protocol including, for each test condition, the ranges of feed-rate for each feed system, and all other relevant parameters that may affect the ability of the LAW Vitrification System to meet performance standards specified in Permit Condition III.10.H.1.b.;

ix. A detailed description of planned operating conditions for each demonstration test condition, including operating conditions for shakedown, demonstration test, post-demonstration test and normal operations. This information shall also include submittal of Permit Tables III.10.H.D, III.10.H.F, III.10.I.D, and III.10.I.F completed with the information as specified in each column heading for each LAW Vitrification System waste feed cutoff parameter and submittal of supporting documentation for Permit Tables III.10.H.D, III.10.H.F, III.10.I.D, and III.10.I.F set-point values;

x. The test conditions proposed must demonstrate meeting the performance standards specified in Permit Condition III.10.H.1.b. with the simultaneous operation of all three (3) melters at capacity and input from the LAW Vitrification Vessel Ventilation System at capacity to simulate maximum loading to the LAW Vitrification System off-gas treatment system and to establish the corresponding operating parameter ranges. To the extent that operation of one (1) melter or two (2) melters can not be sustained within the operating parameter range established at this maximum load, additional demonstration test conditions must be included in the plan and performed to establish operating parameter ranges for each proposed operating mode while demonstrating meeting the performance standards specified in Permit Condition III.10.H.1.b.;

xi. Detailed description of procedures for start-up and shutdown of waste feed and controlling emissions in the event of an equipment malfunction, including off-normal and emergency shutdown procedures;

xii. A calculation of waste residence time;

xiii. Any request to extrapolate metal feed-rate limits from Demonstration Test levels must include:

A. A description of the extrapolation methodology and rationale for how the approach ensures compliance with the performance standards as specified in Permit Condition III.10.H.1.b.

B. Documentation of the historical range of normal metal feed-rates for each feedstream.

C. Documentation that the level of spiking recommended during the demonstration test will mask sampling and analysis imprecision and inaccuracy to the extent that extrapolation of feed-rates and emission rates from the Demonstration Test data will be as accurate and precise as if full spiking were used.

xiv. Documentation of the expected levels of constituents in LAW Vitrification System input streams including, but not limited to, waste feed, glass former and reactants, control air, process air, steam, sparge bubbler air, air in-Leakage from melter cave, gases from LAW Vitrification Vessel Ventilation System, and process water.

xv. Documentation justifying the duration of the conditioning required to ensure the LAW Vitrification System had achieved steady-state operations under Demonstration Test operating conditions.

xvi. Documentation of LAW Vitrification System process instruments and monitors as listed on Permit Tables III.10.H.C, III.10.H.F, III.10.I.C, and III.10.I.F to include:

A. Procurement specifications;

B. Location used;

C. Range, precision, and accuracy;

D. Calibration/functionality test procedures (either method number ASTM) or provide a copy of manufacturer's recommended calibration procedures;

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.);

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

xvii. Outline of demonstration test report.

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

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

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

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

1 **Table III.10.H.B - LAW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains**

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

2

3 **Table III.10.H.C - LAW Vitrification System Instrument and Process Parameters**

Sub-system Locator and Name (including P&ID)	Control Parameter	Type of Measuring Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Failure State	Expected Range	Instrument Accuracy	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

4

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

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

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

Chemicals	CAS Number	Emission Rates (grams /second)

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

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

* A continuous monitoring system shall be used as defined in Permit Section III.10.C.1.
[1] Maximum Feed-rate shall be set based on not exceeding any of the constituent (e.g., ash, metals, and chlorine/chloride) feed limits specified on Table III.10.H.D. of this Permit

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

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

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

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

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

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

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

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

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

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

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

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

v. The Permittees shall ensure periodic integrity assessments are conducted on the LAW Vitrification System listed in Permit Table III.10.I. A, as approved/modified pursuant to Permit Condition III.10.H.5, over the term of this Permit in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in 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

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

vi. The Permittees shall address problems detected during the LAW Vitrification System integrity assessments specified in Permit Condition III.10.I.1.a.v. following the description of the integrity assessment program in 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.

vii. All process monitors/instruments as specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., shall be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.I.F.

viii. The Permittees shall install and test all process monitors/instruments, as specified in Permit Tables III.10.I.C and III.10.I.F, as approved/modified pursuant to Permit Condition III.10.H.5 and III.10.H.3.d.v., in accordance with Attachment 51, Appendices 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.

ix. No dangerous and/or mixed wastes shall be treated in the LAW Vitrification System unless the operating conditions, specified under Permit Condition III.10.I.1.c. are complied with.

x. The Permittees shall not place dangerous and/or mixed wastes, treatment reagents, or other materials in the LAW Vitrification System if these substances could cause the sub-system, sub-system equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of LAW Vitrification System sub-system or sub-system equipment that are expected to be replaced as part of normal operations (e.g., melters).

xi. The Permittees shall operate the LAW Vitrification System to prevent spills and overflows using description of controls and practices as required under WAC 173-303-640(5)(b), described in Permit Condition III.10.C.5 and 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)].

xii. For routinely non-accessible LAW Vitrification System sub-systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi., the Permittees shall mark all routinely non-accessible LAW Vitrification System sub-systems access points with labels or signs to identify the waste contained in each LAW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems. For the purposes of this permit condition, "routinely non-accessible" means personnel are unable to enter these areas

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

xiii. For the LAW Vitrification System sub-systems not addressed in Permit Condition III.10.I.1.a.xii., the Permittees shall mark these LAW Vitrification System sub-systems holding dangerous and/or mixed wastes with labels or signs to identify the waste contained in the LAW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xiv. The Permittees shall ensure that the secondary containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as approved/modified pursuant to Permit Condition III.10.H.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed wastes or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during use of the LAW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems shall be investigated and repaired in accordance with Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v. [WAC 173-303–640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

xv. The Permittees must immediately, and safely, remove from service any LAW Vitrification System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Condition III.10.I.1.a.xvii. A through D, and F. The affected LAW Vitrification System or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.I.1.a.xvii.E [WAC 173-303-640(7)(e) and (f) and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

xvi. An impermeable coating, as specified in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.9, 9.11, and 9.12 of this Permit, as approved pursuant to Permit Condition III.10.H.5.b.v., shall be maintained for all concrete containment systems and concrete portions of containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as approved/modified pursuant to Permit Condition III.10.H.5 (concrete containment systems that do not have a liner, pursuant to WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, shall meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2). The coating shall prevent migration of any dangerous and/or mixed wastes into the concrete. All coatings shall meet the following performance standards:

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed wastes could migrate from the system; and

C. The coating must be compatible with the dangerous and/or mixed wastes, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-806(4)(i)(i)(A)].

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

A. Immediately, and safely, stop the flow of dangerous and/or mixed wastes into the LAW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed wastes.

C. Remove the wastes from the containment area in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(b). The wastes removed from containment areas of the LAW Vitrification System sub-systems shall be, as a minimum, managed as dangerous and/or mixed wastes.

D. If the cause of the release was a spill that has not damaged the integrity of the LAW Vitrification System sub-system, the Permittees may return the LAW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees shall take action to ensure the incident that caused the dangerous and/or mixed wastes to enter the containment system will not reoccur.

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

1. Close the LAW Vitrification System sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.I.1.a.iii.) the LAW Vitrification

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

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

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

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

A. Reasons for delayed removal;

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

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

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

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

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

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

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

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

RESERVED

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

DRE=[1-(Wout/Win)] x 100%

Where:

Win=mass feedrate of one principal organic dangerous constituent (PODC) in a waste feedstream; and

Wout=mass emission rate of the same POHC present in exhaust emissions prior to release to the atmosphere.

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

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

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

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

vi. Lead and cadmium emissions from the LAW Vitrification System shall not exceed 24 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)];

vii. Arsenic, beryllium, and chromium emissions from the LAW Vitrification System shall not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)];

viii. Carbon monoxide (CO) emission from the LAW Vitrification System shall not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system), dry basis [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2) and (3)];

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

x. If the emissions from the LAW Vitrification System exceed the emission rates listed in Permit Table III.10.I.E, as approved pursuant to Permit Condition III.10.C.11.c. or d., the Permittees shall perform the following actions [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)]:

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

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

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

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

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

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

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

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

i. The Permittees shall operate the LAW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.I.C and III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., within the set-points specified in Permit Table III.10.I.F.

ii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed wastes feed to LAW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.I.F.

iii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed wastes feed to LAW Vitrification System when all instruments specified in Permit Table III.10.H.F for measuring the monitored parameters fails or exceeds its span value.

iv. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., to automatically cut-off and/or lock out the dangerous waste and/or mixed wastes feed to the LAW Vitrification System when any portion of the LAW Vitrification System is bypassed. The terms "bypassed" and "bypass event," as used in Permit Sections III.10.H and III.10.I, shall mean if any portion of the LAW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., the Permittees shall immediately, manually cut-off the dangerous and/or mixed wastes feed to the LAW Vitrification System. The Permittees shall not restart the dangerous and/or mixed wastes feed until the problem causing the malfunction has been identified and corrected.

vi. The Permittees shall manually cut-off the dangerous and/or mixed wastes feed to the LAW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.I.1.c.i., unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.I.1.c.ii., iii., and/or iv.

vii. If greater than thirty (30) dangerous and/or mixed wastes feed cut-off, combined, to the LAW Vitrification System occur due to deviations from Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., within a sixty (60) day period, the Permittees shall submit a written report to Ecology within

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

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.I.F;

B. The magnitude, dates, and duration of the deviations;

C. Results of the investigation of the cause of the deviations; and

D. Corrective measures taken to minimize future occurrences of the deviations.

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

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

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

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

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

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

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

A. Investigate the cause of the bypass event;

B. Take appropriate corrective measures to minimize future bypasses;

C. Record the investigation findings and corrective measures in the WTP Facility operating record; and

D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

x. The Permittees shall control fugitive emissions from the LAW Vitrification System by maintaining the melters under negative pressure.

xi. Compliance with the operating conditions specified in Permit Condition III.10.I.1.c. shall be regarded as compliance with the required performance standards identified in Permit Condition III.10.I.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, shall justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g.

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

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

ii. The inspection data for LAW Vitrification System shall be recorded, and the records shall be placed in the WTP Facility operating record for LAW Vitrification System, in accordance with Permit Condition III.10.C.4.

iii. The Permittees shall comply with the inspection requirements specified in Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f. and as modified by Permit Conditions III.10.H.3, III.10.I.1.b.x., III.10.I.1.b.xii., and III.10.I.1.h.

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

i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling and analysis of the dangerous and/or mixed wastes and exhaust emissions to verify that the operating requirements established in the Permit achieve the performance standards delineated in this Permit.

ii. The Permittees shall comply with the monitoring requirements specified in the Attachment 51, Appendices 9.2, 9.3, 9.7, 9.13, 9.15 and 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5, and as modified by Permit Conditions III.10.H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.

iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and hydrocarbon continuous emission monitors (CEM) specified in this Permit in accordance with Performance Specifications 4B and 8A of 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51 Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f.,

and as modified by Permit Conditions III.10. H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.

iv. The Permittees shall operate, calibrate, and maintain the instruments specified in Permit Tables III.10.I.C and F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., in accordance with Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., and as modified by Permit Conditions III.10.H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.

III.10.I.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

i. The Permittees shall record and maintain in the WTP Facility operating record for the LAW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and 5, as modified by Permit Conditions III.10.H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.

ii. The Permittees shall record in the WTP Facility operating record the date, time, and duration of all automatic waste feed cutoffs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees shall also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

iii. The Permittees shall submit to Ecology an annual report each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and/or mixed wastes feed processing time for the LAW Vitrification System;

B. Date/Time of all LAW Vitrification System startups and shutdowns;

C. Date/Time/Duration/Cause/Corrective Action taken for all LAW Vitrification System shutdowns caused by malfunction of either process or control equipment; and

D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous and/or mixed wastes feed cut-off due to deviations from Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v.

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

III.10.I.1.g. Closure

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

III.10.I.1.h. Periodic Emission Re-testing Requirements [WAC 173-303-670(5), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]

i. Dioxin and Furan Emission Testing

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

1. Carbon monoxide emissions (or hydrocarbons), dangerous and/or mixed wastes feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.I.F (as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v.), that were established to maintain compliance with Permit Condition III.10.I.1.b.iv. as specified in Attachment 51, Appendix 9.15 of this Permit (as approved pursuant to Permit Condition III.10.H.3.d., and in accordance with III.10.I.1.b.xii. and III.10.I.1.c.xi.), are held within the range of the average value over the previous twelve (12) months and the set-point value specified in Permit Table III.10.I.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed wastes; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.I.D (as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v.). Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous and/or mixed wastes.

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

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

C. The Permittees shall resubmit the DFETP, approved pursuant to Permit Condition III.10.I.1.h.i.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f. at twenty-four (24) months from the implementation date of the testing required pursuant to Permit Condition III.10.I.1.h.i.A and at reoccurring eighteen (18) month intervals from the implementation date of the previously approved DFETP. The Permittees shall implement these newly approved revised DFETPs, every thirty-one (31) months from the previous approved DFETP implementation date or within sixty (60) days of the newly Ecology approved revised DFETP, whichever is later, for the duration of this Permit.

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

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

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

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit Condition I.E.21.;

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s);

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated;

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.I.1.h.i.E.1 through 4 above, and any additional information, Ecology may submit in writing, direction to the Permittees to

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

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

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

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

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

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed wastes feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and III.10.I.F.

ii. Non-organic Emission Testing

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

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

1. Carbon monoxide emissions (or hydrocarbons), dangerous and/or mixed wastes feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d., that were established to maintain compliance with Permit Conditions III.10.I.1.b.ii., iii., v., vi., and vii., and non-organic emissions, as specified in Permit Table III.10.I.E, as specified in Attachment 51, Appendix 9.15 of this Permit (as approved pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d.), are held within the range of the average value over the previous twelve (12) months and the set-point value specified in Permit Table III.10.I.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous or mixed waste; and

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

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

B. Within sixty (60) days of Ecology's approval of the RDTP, or within sixty (60) months of commencing operation pursuant to Permit Section III.10.I, whichever is later, the Permittees shall implement the RDTP approved pursuant to Permit Condition III.10.I.1.h.ii.A.

C. The Permittees shall resubmit the RDTP, approved pursuant to Permit Condition III.10.I.1.h.ii.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. at forty-eight (48) months from the implementation date of the testing required pursuant to Permit Condition III.10.I.1.h.ii.A and at reoccurring forty-eight (48) month intervals from the implementation date of the previously approved RDTP. The Permittees shall implement these newly approved revised RDTP, every sixty (60) months from the

previous approved RDTP implementation date or within sixty (60) days of the newly Ecology approved revised RDTP, whichever is later, for the duration of this Permit.

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

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

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s), as specified in Permit condition I.E.21.;

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

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed wastes feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and III.10.I.F.

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

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

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit condition I.E.21.;

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s);

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated;

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.I.1.h.ii.F.1 through 4 above, and any additional information, Ecology may submit in writing, direction to the Permittees to stop dangerous and/or mixed wastes feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10.I.1.h.ii.F.6; and

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

iii. Other Emission Testing

A. Within seventy-eight (78) months of commencing operation pursuant to Permit Section III.10.I, the Permittees shall resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e, and f. The revised Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected commencement and completion dates for emission testing to demonstrate performance standards as specified in Permit Conditions III.10.I.1.b.viii. and ix., and emissions as specified in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d., not addressed under Permit Conditions III.10.I.1.h.i. or ii. under "Normal Operating Conditions." "Normal Operating Conditions" shall be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions (or hydrocarbons), dangerous and/or mixed wastes feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Condition

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

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

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

B. Within sixty (60) days of Ecology's approval of the RDTP, or within ninety-one (91) months of commencing operation pursuant to Permit Section III.10.I, whichever is later, the Permittees shall implement the RDTP approved pursuant to Permit Condition III.10.I.1.h.iii.A.

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

D. If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were not met during the emission test, the Permittees shall perform the following actions:

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

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit Condition I.E.21.;

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s);

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated;

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.I.1.h.iii.D.1 through 4 above, and any additional information, Ecology may submit in writing, direction to the Permittees to stop dangerous and/or mixed wastes feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan, pursuant to Permit Condition III.10. I.h.1.iii.D.6.; and

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

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

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

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a

report of the investigation findings to Ecology within fifteen (15) days of the discovery of the exceedance of the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed wastes feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and F.

1 **Table III.10.I.A - LAW Vitrificatin System Description**

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

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

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

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

Table III.10.I.C - LAW Vitrification Systems Instruments and Process Parameters

Sub-system Locator and Name (including P&ID)	Control Parameter	Type of Measuring 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

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

Description of Waste	Normal Operation
Dangerous and/or Mixed Waste Feed Rate	
Ash Feed Rate	
Total Chlorine/Chloride Feed Rate	
Total Metal Feedrates	

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

Chemicals	CAS Number	Emission Rates (grams /second)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

G. Weld breaks;

H. Punctures;

I. Scrapes of protective coatings;

J. Cracks;

K. Corrosion;

L. Other structural damage or inadequate construction/installation.

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

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

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

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

viii. The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Attachment 51, Appendices 10.9 and 10.11 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.b.i., III.10.J.5.b.iv., III.10.J.5.b.v., III.10.J.5.c.i., III.10.J.5.c.iv., III.10.J.5.c.v., III.10.J.5.d.i., III.10.J.5.d.iv., and III.10.J.5.d.v., or other corrosion protection if Ecology believes other corrosion protection is necessary to ensure the integrity of the HLW Vitrification System during use of the HLW Vitrification System. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper

installation [WAC 173-303-640(3)(g), in accordance with WAC 173-303-680(2) and (3)].

ix. Prior to initial receipt of dangerous and/or mixed wastes in the WTP Facility, the Permittees shall obtain and keep on file in the WTP Facility operating record, written statements by those persons required to certify the design of the HLW Vitrification System and supervise the installation of the HLW Vitrification System, as specified in WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC 173-303-680, attesting that the HLW Vitrification system and corresponding containment system listed in Permit Tables III.10.J.A and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5., were properly designed and installed, and that repairs, in accordance with WAC 173-303-640(3)(c) and (e), were performed [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(h), in accordance with WAC 173-303-680(3)].

x. The independent HLW Vitrification System installation inspection and subsequent written statements shall be certified in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.J.1.a.iii., comply with all requirements of WAC 173-303-640(3)(h) in accordance with WAC 173-303-680, and shall consider, but not be limited to, the following LAW Vitrification System installation documentation:

A. Field installation report with date of installation;

B. Approved welding procedures;

C. Welder qualification and certifications;

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

E. Tester credentials;

F. Field inspector credentials;

G. Field inspector reports;

H. Field waiver reports; and

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

xi. The Permittees shall ensure periodic integrity assessments are conducted on the HLW Vitrification System, listed in Permit Table III.10.J.A, as approved/modified pursuant to Permit Condition III.10.J.5., over the term of this Permit, in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP

Facility 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 HLW Vitrification System integrity assessments specified in Permit Condition III.10.J.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.J.5.e.i. and III.10.C.5.c.

xiii. All process monitors/instruments as specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., shall be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.J.F.

xiv. The Permittees shall install and test all process monitors/instrumentation as specified in Permit Tables III.10.J.C and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5, in accordance with Attachment 51, Appendices 10.14 and 10.15 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.d.x. and III.10.J.5.f.xvi.

xv. No dangerous and/or mixed wastes shall be treated in the HLW Vitrification System unless the operating conditions, specified under Permit Condition III.10.J.1.c. are complied with.

xvi. The Permittees shall not place dangerous and/or mixed wastes, treatment reagents, or other materials in the HLW Vitrification System if these substances could cause the subsystem, subsystem equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of HLW Vitrification System sub-system and sub-system equipment that are expected to be replaced as part of normal operations (e.g., melters).

xvii. The Permittees shall operate the HLW Vitrification System to prevent spills and overflows using description of controls and practices as required under WAC 173-303-640(5)(b) described in Permit Condition III.10.C.5, and Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e. [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(c)(ix)].

xviii. For routinely non-accessible HLW Vitrification System sub-systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi., the Permittees shall mark all routinely non-accessible HLW Vitrification System sub-systems access points with labels or signs to identify the waste contained in each HLW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems. For the purposes of this permit condition, "routinely non-accessible" means personnel are

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

xix. For all HLW Vitrification System sub-systems not addressed in Permit Condition III.10.J.1.a.xviii., the Permittees shall mark all these HLW Vitrification System sub-systems holding dangerous and/or mixed wastes with labels or signs to identify the waste contained in the HLW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xx. The Permittees shall ensure that the containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.J.A. and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed wastes or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during use of the HLW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems shall be investigated and repaired in accordance with Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v. [WAC 173-303–640(4)(b)(i), WAC 173-303–640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

xxi. The Permittees must immediately, and safely, remove from service any HLW Vitrification System or secondary containment system which, through an integrity assessment, is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Conditions III.10.J.1.a.xxiii.A. through D., and F. The affected HLW Vitrification System, or secondary containment system, must be either repaired or closed in accordance with Permit Condition III.10.J.1.a.xxiii.E. [WAC 173-303-640(7)(e) and (f), and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

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

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate, are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed wastes could migrate from the system; and

C. The coating must be compatible with the dangerous and mixed wastes, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(i)(i)(A)].

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

A. Immediately, and safely, stop the flow of dangerous and/or mixed wastes into the HLW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed wastes.

C. Remove the dangerous and/or mixed wastes from the containment area in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed wastes removed from containment areas of the HLW Vitrification System sub-systems shall be, as a minimum, managed as mixed waste.

D. If the cause of the release was a spill has not damaged the integrity of the HLW Vitrification System sub-system, the Permittees may return the HLW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees shall take action to ensure the incident that caused the dangerous and/or mixed wastes to enter the containment system will not re-occur [WAC 173-303-320(3)].

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

1. Close the HLW Vitrification System Sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and

Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8., or

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.J.1.a.iii.) the HLW Vitrification System in accordance with Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v., before the HLW Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

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

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

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

1. Reasons for delayed removal;

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

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

xxv. All air pollution control devices and capture systems in the HLW Vitrification System shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the air pollution control devices and capture systems in the HLW Vitrification System are properly operated and maintained so as to minimize the emission of air contaminants and process upsets shall be established.

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

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

xxviii. For any portion of the HLW Vitrification System that has the potential for formation and accumulation of hydrogen gases, the Permittees shall operate the portion to

maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

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

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

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

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

DRE=[1-(Wout/Win)] x 100%

Where:

Win=mass feedrate of one principal organic dangerous constituent (PODC) in a waste feedstream; and

Wout=mass emission rate of the same POHC present in exhaust emissions prior to release to the atmosphere.

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

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

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

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

vi. Lead and cadmium emissions from the HLW Vitrification System shall not exceed 120 μg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)].

vii. Arsenic, beryllium, and chromium emissions from the HLW Vitrification System shall not exceed 97 μg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)].

viii. Carbon monoxide (CO) emission from the HLW Vitrification System shall not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system), dry [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2)].

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

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

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

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

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

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

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

i. The Permittees shall operate the HLW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.J.C and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., within the set-points specified in Permit Table III.10.J.F.

ii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the HLW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.J.F.

iii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the HLW Vitrification System when all instruments specified on Permit Table III.10.H.F for measuring the monitored parameters fails or exceeds its span value

iv. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., to automatically cut-off and/or lock out the dangerous and/ormixed waste feed to the HLW Vitrification System when any portion of the HLW Vitrification System is bypassed. The terms "bypassed" and "bypass event" as used in Permit Sections III.10.J and III.10.K shall mean if any portion of the HLW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., the Permittees shall immediately, manually cut-off the dangerous and mixed waste feed to the HLW Vitrification System. The Permittees shall not restart the dangerous and/or mixed wastes feed until the problem causing the malfunction has been identified and corrected.

vi. The Permittees shall manually cut-off the dangerous and mixed waste feed to the HLW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.J.1.c.i., unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.J.1.c.ii., III.10.J.1.c.iii., and/or III.10.J.1.c.iv.

vii. If greater than thirty (30) dangerous and mixed waste feed cut-off, combined, to the HLW Vitrification System occur due to deviations from Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., within a sixty (60) day period, the Permittees shall submit a written report to Ecology within five (5) calendar days of the thirty-first exceedance including the information specified below. These dangerous and mixed waste feed cut-offs to the HLW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous waste, mixed waste, and waste residues continue to be processed in the HLW Vitrification System. A cascade event is counted at a frequency of one (1)

towards the first waste feed cut-off parameter, specified on Permit Table III.10.J.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.J.F;

B. The magnitude, dates, and duration of the deviations;

C. Results of the investigation of the cause of the deviations; and,

D. Corrective measures taken to minimize future occurrences of the deviations.

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

A. Investigate the cause of the bypass event;

B. Take appropriate corrective measures to minimize future bypasses;

C. Record the investigation findings and corrective measures in the operating record; and

D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

ix. The Permittees shall control fugitive emissions from the HLW Vitrification System by maintaining the melter under negative pressure.

x. Compliance with the operating conditions specified in Permit Condition III.10.J.1.c. shall be regarded as compliance with the required performance standards identified in Permit Condition III.10.J.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, shall justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g.

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

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

ii. The inspection data for HLW Vitrification System shall be recorded, and the records shall be placed in the WTP Facility operating record for the HLW Vitrification System, in accordance with Permit Condition III.10.C.4.

iii. The Permittees shall comply with the inspection requirements specified in Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

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

i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling and analysis of the dangerous and mixed waste and exhaust emissions to verify that the operating requirements established in the Permit achieve the performance standards delineated in this Permit.

ii. The Permittees shall comply with the monitoring requirements specified in Attachment 51, Appendices 10.2, 10.3, 10.7, 10.13, 10.15, and 10.18 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.c., III.10.J.5.d., III.10.J.5.e., and III.10.J.5.f., as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and oxygen, and hydrocarbon continuous emission monitors (CEM) specified in this Permit in accordance with Performance Specification 4B and 8A of 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51 Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

iv. The Permittees shall operate, calibrate, and maintain the instruments specified on Permit Tables III.10.J.C and F, as approved/modified pursuant to Permit Condition III.10.J.5., in accordance with Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

III.10.J.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

i. The Permittees shall record and maintain in the WTP Facility operating record for the HLW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4. and III.10.C.5., as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

ii. The Permittees shall record in the WTP Facility operating record the date, time, and duration of all automatic waste feed cut-offs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees shall also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

iii. The Permittees shall submit to Ecology a report semi-annually the first calendar year, and annually thereafter each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and mixed waste feed processing time for the HLW Vitrification System;

B. Date/Time of all HLW Vitrification System startups and shutdowns;

C. Date/Time/Duration/Cause/Corrective Action taken for all HLW Vitrification System shutdowns caused by malfunction of either process or control equipment; and

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

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

III.10.J.1.g. Closure

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

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

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

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

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

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

Shakedown Phase 1: 720 hours

Shakedown Phase 2: 720 hours

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

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

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

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

A. Acutely toxic dangerous wastes listed in WAC 173-303-081(a)(2)(a)(i).

B. Mixed wastes

iii. The Permittees shall not feed the following wastes to the HLW Vitrification System during Shakedown Phase 2:

A. Mixed wastes

iv. The feed-rates to the HLW Vitrification System shall not exceed the limits in Permit Tables III.10.J.D and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5.

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

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

III.10.J.3.a. Demonstration Test Period

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

ii. Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., shall be re-submitted to Ecology for approval by the Permittees as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f. at least one hundred and eighty (180) days prior to the start date of the demonstration test. The revised Demonstration Test Plan shall include applicable EPA promulgated test methods and procedures in effect at the time of the re-submittal and projected commencement and completion dates for the Demonstration Test.

iii. The Permittees shall not commence the demonstration test period until documentation has been submitted to Ecology verifying that the HLW Vitrification System has operated at a minimum of 90% of the demonstration test period feed-rate limit for a minimum of an eight (8) consecutive hours period on two (2) consecutive days.

III.10.J.3.b. Performance Standards

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

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

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

ii. The Permittees shall not feed mixed wastes to the HLW Vitrification System.

iv. The dangerous waste feed-rates to the HLW Vitrification System shall not exceed the limits in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit Condition III.10.J.5.

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

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

i. The Permittees shall submit a summary of data collected as required during the Demonstration Test to Ecology upon completion of the Demonstration Test. The Permittees shall submit to Ecology a complete demonstration test report within one hundred and twenty (120) calendar days of completion of the Demonstration Test including all data collected during the Demonstration Test and updated Permit Tables III.10.K.D, III.10.K.E, and III.10.K.F.

ii. The Permittees must submit to Ecology a certification that the Demonstration Test has been carried out in accordance with the approved Demonstration Test Plan and approved modifications within thirty (30) days of the completion of the Demonstration Test [WAC 173-303-807(8)].

iii. After successful completion of the Demonstration Test, the Permittees shall be authorized to commence feed of dangerous wastes and mixed waste to the HLW Vitrification System - up to 50% of the maximum feed-rates for the post-demonstration test period indicated in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit Condition III.10.J.5., in compliance with the operating requirements specified in Permit Condition III.10.J.1.c.

iv. After successful completion of the Demonstration Test, Permittees submittal of the following to Ecology, and the Permittees receipt of Ecology approval of the following in writing, the Permittees shall be authorized to commence dangerous wastes and mixed wastes to the HLW Vitrification System up to 75% of the maximum feed-rates for the post-demonstration test period indicated in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit Condition III.10.J.5., in compliance with the operating requirements specified in Permit Condition III.10.J.1.c.:

A. Calculations and analytical data showing compliance with the performance standard specified in Permit Condition III.10.J.1.b.i.

v. After successful completion of the Demonstration Test, Permittees submittal of the following to Ecology, and Permittees receipt of Ecology approval of the following in writing, the Permittees shall be authorized to feed dangerous wastes and mixed wastes to the HLW Vitrification System pursuant to Permit Section III.10.K.

A. A complete Demonstration Test Report for the HLW Vitrification System and updated Permit Tables III.10.K.D, III.10.K.E, and III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.C.11.c. or

III.10.C.11.d., the test report shall be certified in accordance with WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

B. A Final Risk Assessment Report completed pursuant to Permit Conditions III.10.C.11.c. or III.10.C.11.d.

vi. If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.J.1.b., with the exception of Permit Condition III.10.J.1.b.x., for the HLW Vitrification System were not met during the Demonstration Test, the Permittees shall perform the following actions:

A. Immediately stop dangerous and mixed waste feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

B. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s) as specified in Permit Condition I.E.21.

C. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

D. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s), documentation supporting a mode of operation where all performance standards listed in Permit Condition III.10.J.1.b., with the exception of Permit Condition III.10.J.1.b.x., for the HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

E. Based on the information provided to Ecology by the Permittees, pursuant to Permit Conditions III.10.J.3.d.vi.A through D above, and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed wastes feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of a compliance schedule and/or revised Demonstration Test Plan, pursuant to Permit Conditions III.10.J.3.d.vi.F and G.

F. If the performance standard listed in Permit Condition III.10.J.1.b.i. was not met during the Demonstration Test, the Permittees shall submit within one hundred and twenty (120) days of discovery of not meeting the performance standard, a revised Demonstration Test Plan (if appropriate) and a compliance schedule for Ecology approval to address this deficiency. If a revised Demonstration Test Plan is submitted, it shall be accompanied by a request for approval to retest as a permit modification pursuant to Permit Conditions II.10.C.2.e. and III.10.C.2.f. The revised Demonstration Test Plan (if submitted) must include substantive changes to prevent failure from reoccurring.

G. If any of the performance standards listed in Permit Condition III.10.J.1.b., with the exception of Permit Conditions III.10.J.1.b.i. or III.10.J.1.b.x., were not met during the Demonstration Test, the Permittees shall submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance

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

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

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

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

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

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

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

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

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

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

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

III.10.J.5. Compliance Schedules

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

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

i. IQRPE Reports (specific to foundation, secondary containment, and leak detection system) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 10.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. IQRPE Reports shall be consistent with the information separately provided in ii. through ix. below [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

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

iii. 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 secondary containment system. This information shall demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Secondary containment/foundation, and leak detection system, materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials), as applicable [WAC 173-303-806(4)(i)(i)(A) through (B)];

vi Detailed description of how the secondary containment for the HLW Vitrification System will be installed in compliance with WAC 173-303-640(3)(c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B);

vii. Submit Permit Tables III.10.J.B and III.10.K.B completed to provide for all secondary containment sumps and floor drains the information, as specified in each column heading consistent with information to be provided in i. through vi., above;

viii. Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

ix. A detailed description of how HLW Vitrification System design provides access for conducting future HLW Vitrification System integrity assessments [WAC 173-303-640(3)(b) and WAC 173-303-806(4)(i)(i)(B)].

III.10.J.5.c. The Permittees shall submit to Ecology pursuant to Permit Condition III.10.C.9.f., prior to installation of each sub-system as identified in Permit Table III.10.J.A, engineering information as specified below, for incorporation into Attachment 51, Appendices 10.1 through through 10.14 and 10.17 of this Permit. At a minimum, engineering information specified below will show the following, as required pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

i. IQRPE Reports (specific to sub-system) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 10.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall be consistent with the information separately provided in ii. through xii. below and the IQRPE Report specified in Permit Condition III.10.J.5.b. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

ii. Design drawings [General Arrangement Drawings in plan and cross section, Process Flow Diagrams, Piping and Instrumentation Diagrams, (including pressure control systems), Mechanical Drawings, and specifications, and other information specific to subsystems (to show location and physical attributes of each subsystem specific to miscellaneous units)] [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

iii. Sub-system design criteria (references to codes and, standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details to support the sub-systems. Structural support calculations

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

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Sub-system materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

vi. Sub-system vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

vii. System descriptions (process) related to sub-system units shall be submitted for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

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

ix. Detailed description of all potential HLW Vitrification System bypass events including:

A. A report which includes an analysis of credible potential bypass events and recommendations for prevention/minimization of the potential, impact, and frequency of the bypass event to include at a minimum:

1. Operating procedures
2. Maintenance procedures
3. Redundant equipment
4. Redundant instrumentation
5. Alternate equipment
6. Alternate materials of construction

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. 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

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 for each sub-system (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

vi. Vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, for sub-system equipment shall for equipment shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(iv)];

vii. Sub-system and sub-system equipment instrument control logic narrative description (e.g., software requirements specifications, descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

viii. System description (process) related to sub-system equipment for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

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

x. For process monitoring and control instrumentation for the HLW Vitrification System as identified in Permit Tables III.10.J.C. and III.10.J. F., a detailed description of how the process monitoring and control instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-303-806(4)(i)(i)(B)];

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

xii. Documentation that sub-systems equipment are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)] [WAC 173-303-815(2)(b)(ii)];

III.10.J.5.e. Prior to initial receipt of dangerous and/or mixed wastes in the WTP Facility, the Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., the following as specified below for incorporation into Attachment 51, Appendix 10.18 of this Permit, except Permit Condition III.10.J.5.e.i., which will be incorporated into Attachment 51, Chapter 6.0 of this Permit. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.J.5.b., c., d., e., and f., III.10.C.3.e.v., and III.10.C.11.b., as approved by Ecology:

i. Integrity assessment program and schedule for the HLW Vitrification System shall address the conducting of periodic integrity assessments on the LAW Vitrification System over the life of the system, as specified in Permit Condition III.10.J.5.b.ix. and as specified in WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

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

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

iv. Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from the HLW Vitrification System or containment systems in compliance with WAC 173-303-640(5)(b)(i) through (iii), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

v. Description of procedures for investigation and repair of the HLW Vitrification System [WAC 173-303-640(6) and WAC 173-303-640(7)(e) and (f), in accordance with WAC 173-303-680, WAC 173-303-320, WAC 173-303-806(4)(ia)(iv), and WAC 173-303-806(4)(a)(ii)(B)];

vi. Updated Chapter 4.0, Narrative Description, Tables and Figures as identified in Permit Tables III.10.J.A and III.10.J.B, as modified pursuant to Permit Condition III.10.H.5.e.x. and updated to identify routinely non-accessible LAW Vitrification sub-systems.

vii. Description of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed wastes as specified in accordance with WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B).

viii. A description of the tracking system used to track dangerous and/or mixed wastes generated throughout the HLW Vitrification System, pursuant to WAC 173-303-380.

ix. Permit Table III.10.J.C. shall be completed for HLW Vitrification System process monitors and instruments (to include, but not be limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity,

and emissions) to provide the information as specified in each column heading. Process monitors and instruments for critical systems, as specified in Attachment 51, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b.and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii., shall be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

x. Permit Tables III.10.J.A and III.10.K.A amended as follows [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)]:

A. Under column 1, update and complete list of dangerous and mixed waste HLW Vitrification System sub-systems, including plant items that comprise each system (listed by item number).

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

C. Under column 3, replace the 'Reserved' with Attachment 51, Appendix 10.0 sub-sections (e.g., 10.1, 10.2, etc.) designated in Permit Conditions III.10.J.5.b., c., and d. specific to HLW Vitrification System sub-system, as listed in column 1.

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

III.10.J.5.f. One hundred and eighty (180) days prior to initial receipt of dangerous and/or mixed wastes in the WTP Facility, the Permittees shall submit for review and receive approval for incorporation into Attachment 51, Appendix 10.15 of this Permit, a Demonstration Test Plan for the HLW Vitrification System to demonstrate that the HLW Vitrification Systems meets the performance standards specified in Permit Condition III.10.J.1.b. In order to incorporate the Demonstration Test Plan for the HLW Vitrification System into Attachment 51, Appendix 10.15, Permit Condition III.10.C.2.g. process will be followed. The Demonstration Test Plan shall include, but not be limited to, the following information. The Demonstration Test Plan shall also be consistent with the information provided pursuant to Permit Conditions III.10.J.5.b., c., d. and e., III.10.C.3.e.v. and III.10.C.11.b., as approved by Ecology and consistent with the schedule described in Attachment 51, Appendix 1.0 of this Permit. The documentation required pursuant to Permit Condition III.10.J.5.f.xvi., in addition to being incorporated into Attachment 51, Appendix 10.15, shall be incorporated by reference in Attachment 51, Chapter 6.0 of this Permit.

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

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

i. Analysis of each feed-stream to be fed during the demonstration test, including dangerous wastes, glass formers and reductants, process streams (e.g., control air, process air, steam, sparge bubbler air, air in-leakage from melter cave, and gases from HLW Vitrification Vessel Ventilation System, process water, etc.) that includes:

   A. Levels of ash, levels of metals, total chlorine (organic and inorganic), other halogens and radionuclide surrogates.

   B. Description of the physical form of the feed-streams;

   C. An identification and quantification of organics that are present in the feed-stream, including constituents proposed for DRE demonstration;

   A comparison of the proposed demonstration test feed streams to the mixed waste feed envelopes to be processed in the melter must be provided that documents that the proposed demonstration test feed streams will serve as worst case surrogates for organic destruction, formation of products of incomplete oxidation, and metals, total chlorine (organic and inorganic), other halogens, particulate formation, and radionuclides;

ii. Specification of trial principal organic dangerous constituents (PODCs) for which destruction and removal efficiencies are proposed to be calculated during the demonstration test and for inclusion in Permit Conditions III.10.J.1.b.i. and III.10.K.1.b.i. These trial PODCs shall be specified based on destructibility, concentration or mass in the waste and the dangerous waste constituents or constituents in WAC 173-303-9905;

iii. A description of the blending procedures, prior to introducing the feed-streams into the melter, including analysis of the materials prior to blending, and blending ratios;

iv. A description of how the surrogate feeds are to be introduced for the demonstration. This description should clearly identify the differences and justify how any of differences would impact the surrogate feed introduction as representative of how mixed waste feeds will be introduced;

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

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

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

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

D. Process Engineering Descriptions;

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

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

G. Detailed Description of Automatic Waste Feed Cut-off System addressing critical operating parameters for all performance standards specified in Permit Condition III.10.J.1.b.

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

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

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

K. Documentation based on current WTP Facility design either confirming the Permittees' demonstration that it is not technically appropriate to correct standards listed in Permit Conditions III.J.1.b.ii. through III.J.1.b.ix. to seven percent (7%) oxygen,. or a request, pursuant to Permit Conditions III.10.C.9.e. and II.10.C.9.f., to update Permit Conditions III.J.1.b.ii. through III.J.1.b.ix., III.K.b.ii. through III.K.b.ix., III.K.e.iii., and III.J.1.e.iii., Permit Tables III.10.J.C, III.10.J.F, III.10.K.C., III.10.K.F.and Attachment 51, Appendix 10.0 to reflect the addition of an oxygen monitor and the correction of the standards to seven percent (7%) oxygen.

vi. Detailed description of sampling and monitoring procedures including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis including, but not limited to:

A. A short summary narrative description of each stack sample method should be included within the main body of the demonstration test plan, which references an appendix to the plan that would include for each sampling train: (1) detailed sample method procedures, (2) sampling train configuration schematic, (3) sampling recovery flow sheet, (4) detailed analytical method procedures, and (5) sampling preparation and analysis flow sheet. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, enhancements to train to

accommodate high moisture content in stack gas, etc.) and what is being proposed along with the basis for the decision.

B. A short summary narrative description of the feed and residue sampling methods should be included within the main body of the demonstration test plan, which references an appendix that would include for each sample type: (1) detailed sample method procedures, (2) sampling recovery/compositing procedures, and (3) detailed analytical method procedures. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, etc.) and what is being proposed along with the basis for the decision.

vii. A detailed test schedule for each condition for which the demonstration test is planned, including projected date(s), duration, quantity of dangerous waste to be fed, and other relevant factors;

viii. A detailed test protocol including, for each test condition, the ranges of feed-rate for each feed system, and all other relevant parameters that may affect the ability of the HLW Vitrification System to meet performance standards specified in Permit Condition III.10.J.1.b.;

ix. A detailed description of planned operating conditions for each demonstration test condition, including operating conditions for shakedown, demonstration test, post-demonstration test and normal operations. This information shall also include submittal of Permit Tables III.10.J.D, III.10.J.F, III.10.K.D, and III.10.K.F completed with the information as specified in each column heading for each HLW Vitrification System waste feed cut-off parameter and submittal of supporting documentation for Permit Tables III.10.J.D, III.10.J.F, III.10.K.D, and III.10.K.F set-point values.

x. The test conditions proposed must demonstrate meeting the performance standards specified in Permit Condition III.10.J.1.b. with the simultaneous operation of the melter at capacity and input from the HLW Vitrification Vessel Ventilation System at capacity to simulate maximum loading to the HLW Vitrification System off-gas treatment system and to establish the corresponding operating parameter ranges.

xi. A detailed description of procedures for start-up and shutdown of waste feed and controlling emissions in the event of an equipment malfunction, including off-normal and emergency shutdown procedures;

xii. A calculation of waste residence time;

xiii. Any request to extrapolate metal feed-rate limits from Demonstration Test levels must include:

A. A description of the extrapolation methodology and rationale for how the approach ensures compliance with the performance standards, as specified in Permit Condition III.10.J.1.b.

B. Documentation of the historical range of normal metal feed-rates for each feedstream.

C. Documentation that the level of spiking recommended during the demonstration test will mask sampling and analysis imprecision and inaccuracy to the extent that extrapolation of feed-rates and emission rates from the Demonstration Test data will be as accurate and precise as if full spiking were used.

xiv. Documentation of the expected levels of constituents in HLW Vitrification System input streams, including, but not limited to, waste feed, glass former and reactants, control air, process air, steam, sparge bubbler air, air in-leakage from melter cave, gases from HLW Vitrification Vessel Ventilation System, and process water.

xv. Documentation justifying the duration of the conditioning required to ensure the HLW Vitrification System had achieved steady-state operations under Demonstration Test operating conditions.

xvi. Documentation of HLW Vitrification System process instruments and monitors as listed on Permit Tables III.10.J.C, III.10.J.F, III.10.K.C, and III.10.K.F to include:

A. Procurement specifications

B. Location used

C. Range, precision, and accuracy

D. Calibration/functionality test procedures (either method number ASTM) or provide a copy of manufacturer's recommended calibration procedures

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.).

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

xvii. Outline of demonstration test report.

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

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

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

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

Table III.10.J.B. - HLW Vitrification Systems Secondary Containment Systems Including Sumps and Floor Drains

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

Table III.10.J.C. - .HLW Vitrification System Instrumentation and Process Parameters

Sub-system Locator and Name (including P&ID)	Control Parameter	Type of Measuring Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Expected Range	Fail States	Instrument Accuracy	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

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

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

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

Chemicals	CAS Number	Emission Rates (grams /second)

Table III.10.J.F. - HLW Vitrification System Waste Feed Cut-off Parameters* (RESERVED)

Subsystem Designation	Instrument Tag Number	Parameter Description	Setpoints During Shakedown 1 and Post Demonstration Test	Setpoints During Shakedown 2 and Demonstration Test

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

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

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

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

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

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

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

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

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

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

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

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

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

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

v. The Permittees shall ensure periodic integrity assessments are conducted on the HLW Vitrification System listed in Permit Table III.10.I.A, as approved/modified pursuant to Permit Condition III.10.J.5, over the term of this Permit, in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(3)(b) following the description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP Facility operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

vi. The Permittees shall address problems detected during the HLW Vitrification System integrity assessments specified in Permit Condition III.10.K.1.a.v. following the description of the integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c.

vii. All process monitors/instruments as specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Condition III.10.J.5 and III.10.J.3.d.v., shall be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.K.F.

viii. The Permittees shall install and test all process monitors/instruments, as specified in Permit Tables III.10.K.C and III.10.K.F, as approved/modified pursuant to Permit Condition III.10.J.5 and III.10.J.3.d.v., in accordance with Attachment 51, Appendices 10.14 and 10.15 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.d.x. and III.10.J.5.f.xvi.

ix. No dangerous and/or mixed wastes shall be treated in the HLW Vitrification System unless the operating conditions, specified under Permit Condition III.10.K.1.c. are complied with.

x. The Permittees shall not place dangerous and/or mixed wastes, treatment reagents, or other materials in the HLW Vitrification System if these substances could cause the sub-system, sub-system equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of HLW Vitrification System sub-system or sub-system equipment that are expected to be replaced as part of normal operations (e.g., melter).

xi. The Permittees shall operate the HLW Vitrification System to prevent spills and overflows using the description of controls and practices as required under WAC 173-303-640(5)(b), described in Permit Condition III.10.C.5, and Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e. [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), WAC-173-303-806(4)(c)(ix)].

xii. For routinely non-accessible HLW Vitrification System sub-systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi., the Permittees shall mark all routinely non-accessible HLW Vitrification System sub-systems access points with labels or signs to identify the waste contained in each HLW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems. For the purposes of this permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xiii. For all the HLW Vitrification System sub-systems not addressed in Permit Condition III.10.K.1.a.xii., the Permittees shall mark all these HLW Vitrification System sub-systems holding dangerous and/or mixed wastes with labels or signs to identify the waste contained in the HLW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xiv. The Permittees shall ensure that the secondary containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.K.A and III.10.K.B, as approved/modified pursuant to Permit Condition III.10.J.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed wastes or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during the use of the HLW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems shall be investigated and repaired in accordance with Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v. [WAC 173-303–640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

xv. The Permittees must immediately and safely remove from service any HLW Vitrification System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Condition III.10.K.1.a.xvii.A through D, and F. The affected HLW Vitrification System or secondary containment system must be either repaired or closed

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

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

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and/or mixed wastes could migrate from the system; and

C. The coating must be compatible with the dangerous and/or mixed wastes, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(i)(i)(A)].

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

A. Immediately, and safely, stop the flow of dangerous and/or mixed wastes into the HLW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed wastes.

C. Remove the dangerous and/or mixed wastes from the containment area in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed wastes removed from containment areas of the HLW Vitrification System shall be, at a minimum, managed as mixed waste.

D. If the cause of the release was a spill that has not damaged the integrity of the HLW Vitrification System sub-system, the Permittees may return the HLW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees shall take action to ensure the incident that caused the dangerous and/or mixed wastes to enter the containment system will not reoccur.

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

1. Close the HLW Vitrification System sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680, and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.K.1.a.iii.) the HLW Vitrification System, in accordance with Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v., before the HLW Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

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

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

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

D. Reasons for delayed removal;

E. Measures implemented to ensure continued protection of human health and the environment;

F. Current actions being taken to remove liquids from secondary containment.

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

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

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

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

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

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

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

DRE=[1-(Wout/Win)] x 100%

Where:

Win=mass feed-rate of one principal organic dangerous constituent (PODC) in a waste feedstream; and

Wout=mass emission rate of the same POHC present in exhaust emissions prior to release to the atmosphere.

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

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

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

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

vi. Lead and cadmium emissions from the HLW Vitrification System shall not exceed 24 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)];

vii. Arsenic, beryllium, and chromium emissions from the HLW Vitrification System shall not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)];

viii. Carbon monoxide (CO) emission from the HLW Vitrification System shall not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system), dry basis [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2) and (3)];

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

x. If the emissions from the HLW Vitrification System exceed the emission rates listed in Permit Table III.10.K.E, as approved pursuant to Permit Condition III.10.C.11.c. or d., the Permittees shall perform the following actions [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)]:

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

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

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

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

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

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

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

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

i. The Permittees shall operate the HLW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.K.C and III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., within the set-points specified in Permit Table III.10.K.F.

ii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed wastes feed to HLW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.K.F.

iii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed wastes feed to HLW Vitrification System when all instruments specified on Permit Table III.10.I.F for measuring the monitored parameters fails or exceeds its span value.

iv. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., to automatically cut-off and/or lock out the dangerous and/or mixed wastes feed to the HLW Vitrification System when any portion of the HLW Vitrification

System is bypassed. The terms "bypassed" and "bypass event" as used in Permit Sections III.10.J and K shall mean if any portion of the HLW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., the Permittees shall immediately, manually, cut-off the dangerous and/or mixed wastes feed to the HLW Vitrification System. The Permittees shall not restart the dangerous and/or mixed wastes feed until the problem causing the malfunction has been identified and corrected.

vi. The Permittees shall manually cut-off the dangerous and/or mixed wastes feed to the HLW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.K.1.c.i., unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.K.1.c.ii., iii., and/or iv.

vii. If greater than thirty (30) dangerous and/or mixed wastes feed cut-off, combined, to the HLW Vitrification System occur due to deviations from Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., within a sixty (60) day period, the Permittees shall submit a written report to Ecology within five (5) calendar days of the thirty-first (31) exceedance including the information specified below. These dangerous and/or mixed wastes feed cut-offs to the HLW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous and/or mixed waste and waste residues continue to be processed in the HLW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.K.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.K.F;

B. The magnitude, dates, and duration of the deviations;

C. Results of the investigation of the cause of the deviations; and

D. Corrective measures taken to minimize future occurrences of the deviations.

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

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

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

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

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

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

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

A. Investigate the cause of the bypass event;

B. Take appropriate corrective measures to minimize future bypasses;

C. Record the investigation findings and corrective measures in the operating record; and

D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

x. The Permittees shall control fugitive emissions from the HLW Vitrification System by maintaining the melter under negative pressure.

xi. Compliance with the operating conditions specified in Permit Condition III.10.K.1.c. shall be regarded as compliance with the required performance standards identified in Permit Condition III.10.K.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, shall justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g.

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

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

ii. The inspection data for HLW Vitrification System shall be recorded, and the records shall be placed in the WTP Facility operating record for HLW Vitrification System, in accordance with Permit Condition III.10.C.4.

iii. The Permittees shall comply with the inspection requirements specified in Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.3, III.10.K.1.b.x., III.10.K.1.b.xii., and III.10.K.1.h.

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

i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling and analysis of the dangerous and/or mixed wastes and exhaust emissions to verify that the operating requirements established in the permit achieve the performance standards delineated in this Permit.

ii. The Permittees shall comply with the monitoring requirements specified in the Attachment 51, Appendices 10.2, 10.3, 10.7, 10.13, 10.15, and 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5, and as modified by Permit Conditions III.10.J.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.

iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and hydrocarbon continuous emission monitors (CEM) specified in this Permit in accordance with Performance Specifications 4B and 8A of 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51 Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.H.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.

iv. The Permittees shall operate, calibrate, and maintain the instruments specified on Permit Tables III.10.K.C and F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., in accordance with Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.

III.10.K.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

i. The Permittees shall record and maintain in the WTP Facility operating record for the HLW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and 5 as modified by Permit Conditions III.10.J.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.

ii. The Permittees shall record in the WTP Facility operating record the date, time, and duration of all automatic waste feed cut-offs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees shall also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

iii. The Permittees shall submit to Ecology an annual report each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and/or mixed wastes feed processing time for the HLW Vitrification System;

B. Date/Time of all HLW Vitrification System startups and shutdowns;

C. Date/Time/Duration/Cause/Corrective Action taken for all HLW Vitrification System shutdowns caused by malfunction of either process or control equipment; and

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

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

III.10.K.1.g. Closure

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

III.10.K.1.h. Periodic Emission Re-testing Requirements [WAC 173-303-670(5), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]

i. Dioxin and Furan Emission Testing

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

1. Carbon monoxide emissions (or hydrocarbons), dangerous and/or mixed wastes feed-rate, and automatic waste feed cut-off parameters specified on Permit Table III.10.K.F (as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.J.3.d.v), that were established to maintain compliance with Permit Condition III.10.K.1.b.iv., as specified in Attachment 51, Appendix 10.15 of this Permit (as approved pursuant to Permit Condition III.10.J.3.d. and in accordance with III.10.K.1.b.xii. and III.10.K.1.c.xi.), are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling

averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed wastes; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.D (as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.J.3.d.v). Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous and/or mixed wastes.

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

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

C. The Permittees shall resubmit the DFETP, approved pursuant to Permit Condition III.10.K.1.h.i.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. at twenty-four (24) months from the implementation date of the testing required pursuant to Permit Condition III.10.K.1.h.i.A and at reoccurring eighteen (18) month intervals from the implementation date of the previously approved DFETP. The Permittees shall implement these newly approved revised DFETPs every thirty-one (31) months from the previous approved DFETP implementation date or within sixty (60) days of the newly Ecology approved revised DFETP, whichever is later, for the duration of this Permit.

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

E. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.i.A and C show that one or more of the performance standards listed in Permit Condition III.10.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System

were not met during the emission test, the Permittees shall perform the following actions:

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

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

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21;
2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more

constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance and submit a report of the investigation findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed wastes feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

ii. Non-organic Emission Testing

A. Within forty-eight (48) months of commencing operation pursuant to Permit Section III.10.K, the Permittees shall resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected commencement and completion dates for emission testing to demonstrate performance standards specified in Permit Conditions III.10.K.1.b.ii., iii., v., vi., and vii., and non-organic emissions as specified in Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d., under "Normal Operating Conditions." "Normal Operating Conditions" shall be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions (or hydrocarbons), dangerous and/or mixed wastes feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d., that were established to maintain compliance with Permit Conditions III.10.K.1.b.ii., iii., v., vi., and vii., and non-organic emissions, as specified in Permit Table III.10.K.E, as specified in Attachment 51, Appendix 10.15 of this Permit (as approved pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d.), are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed wastes; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point

value specified on Permit Table III.10.K.D, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous and/or mixed wastes.

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

B. Within sixty (60) days of Ecology's approval of the RDTP, or within sixty (60) months of commencing operation pursuant to Permit Section III.10.K, whichever is later, the Permittees shall implement the RDTP approved pursuant to Permit Condition III.10.K.1.h.ii.A.

C. The Permittees shall resubmit the RDTP, approved pursuant to Permit Condition III.10.K.1.h.ii.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. at forty-eight (48) months from the implementation date of the testing required pursuant to Permit Condition III.10.K.1.h.ii.A and at reoccurring forty-eight (48) month intervals from the implementation date of the previously approved RDTP. The Permittees shall implement these newly approved revised RDTP, every sixty (60) months from the previous approved RDTP implementation date or within sixty (60) days of the newly Ecology approved revised RDTP, whichever is later, for the duration of this Permit.

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

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

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

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the

cause and impact of the exceedance and submit a report of the investigation findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed wastes feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and III.10.K.F.

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

1. Immediately stop dangerous and/or mixed wastes feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit Condition I.E.21.

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.K.1.h.ii.F.1 through 4 above, and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed wastes feed to the HLW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10.K.1.h.ii.F.6.

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan

requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

iii. Other Emission Testing

A. Within seventy-eight (78) months of commencing operation pursuant to Permit Section III.10.K, the Permittees shall resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected commencement and completion dates for emission testing to demonstrate performance standards as specified in Permit Conditions III.10.K.1.b.viii. and ix., and emissions as specified on Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d., not addressed under Permit Conditions III.10.K.1.h.i. or ii. under "Normal Operating Conditions." "Normal Operating Conditions" shall be defined for the purposes of this permit Condition as follows:

1. Carbon monoxide emissions (or hydrocarbons), dangerous and/or mixed wastes feed-rate, and automatic waste feed cut-off parameters specified on Permit Table III.10.K.F, as approved/modified pursuant to Permit Condition III.10.J.3.d. and III.10.C.11.c. or d., that were established to maintain compliance with Permit Conditions III.10.K.1.b.viii. and ix., and emissions as specified on Permit Table III.10.K.E, not addressed under Permit Conditions III.10.K.1.h.i. or ii. as specified in Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.3.d., and in accordance with Permit Conditions III.10.K.1.b.xii. and III.10.K.1.c.xi. are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.F. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed wastes; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.D, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d. Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided

by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous and/or mixed wastes.

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

B. Within sixty (60) days of Ecology's approval of the RDTP, or within ninety-one (91) months of commencing operation pursuant to Permit Section III.10.K, whichever is later, the Permittees shall implement the RDTP approved pursuant to Permit Condition III.10.K.1.h.iii.A.

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

D. If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System were not met during the emission test, the Permittees shall perform the following actions:

1. Immediately stop dangerous and/or mixed wastes feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified Permit Condition I.E.21.

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.10.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.K.1.h.iii.D.1 through 4 above, and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed wastes feed to the HLW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan, pursuant to Permit Condition III.10.K.1.h.iii.D.6.

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

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

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

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

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed wastes feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

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

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

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

Table III.10.K.B - HLW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains

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

Table III.10.K.C - HLW Vitrification System Instrument and Process Parameters

Sub-system Locator and Name (including P&ID)	Control Parameter	Type of Measuring 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

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

Description of Waste	Normal Operation
Dangerous and/or mixed wastes Feed Rate	
Ash Feed Rate	
Total Chlorine/Chloride Feed Rate	
Total Metal Feed-rates	

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

Chemicals	CAS Number	Emission Rates (grams /second)

TABLE III.10.K.F - HLW Vitrification System Waste Feed Cut-off Parameters* [1](RESERVED)

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

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

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

Chapter 1.0

Part A Permit Application, Revision 1 (December 6, 2001)

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CHAPTER 1.0
PART A PERMIT APPLICATION, REVISION 1 (DECEMBER 6, 2001)

Contents

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1.0 INTRODUCTION

PART A

The Part A, Dangerous Waste Permit Application (DWPA) Form 1, for the River Protection Project – Waste Treatment Plant (WTP) is included in the following pages. The form includes a figure showing the location of the WTP on the Hanford Site.

The Part A, DWPA Form 3, for the WTP is included immediately after Form 1.

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FORM 1	Washington State Dangerous Waste Permit General Information (Read "Form 1 Instructions" before starting)	1. EPA/State I.D. No. WA 7 8 9 0 0 8 9 6 7

II. NAME OF FACILITY

US Department of Energy - Hanford Facility

III. FACILITY CONTACT

A. Name and Title (last, first, & title)	B. Phone (area code & no.)
Klein, Keith A., Manager	(509) 376-7395

IV. FACILITY MAILING ADDRESS

A. Street or P.O. Box: PO Box 550

B. City or Town	C. State	D. Zip Code
Richland	WA	99352

V. FACILITY LOCATION (SEE FIGURE ON PAGE 4)

A. Street, Route No., or Other Specific Identifier: Hanford Site

B. County Name: Benton

C. City or Town	D. State	E. Zip Code	F. County Code (if known)
Richland	WA	99352	005

VI. SIC CODES *(4-digit, in order of priority)*

A. First		B. Second	
9999	(specify) Nonclassifiable	4953	Refuse Systems
A. Third		**B. Fourth**	
9511	(specify) Air and Water Resource and Solid Waste Management	8733	Research Noncommercial

VII. OPERATOR INFORMATION

A. Name	B. Is the name listed in Item VII-A also the owner?
Department of Energy * Owner/Operator Bechtel National, Inc. ** Co-operator for WTP	☒ YES* ☐ NO

C. Status of Operator *(Enter the appropriate letter into the answer box; if "Other," specify).*		D. Phone (area code & no.)
F = Federal M = Public (other than federal or state) P = State P = Private O = Other (specify)	(specify) F	(509) 376-7395* (509) 371-3500**

E. Street or P.O. Box: P.O. Box 550*
3000 George Washington Way**

F. City or Town	G. State	H. Zip	VIII. INDIAN LAND
Richland	WA	99352	Is the facility located on Indian lands? ☐ YES ☒ NO

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IX. MAP SEE WTP TOPOGRAPHIC MAPS, APPENDIX 2A
Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. This map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.
X. NATURE OF BUSINESS *(provide a brief description)*
Treatment by vitrification of radioactive dangerous waste.

XI. CERTIFICATION *(see instructions)*		
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsibility for obtaining the information contained in the application, I believe that the **information** *is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*		
A. Name & Official Title *(Type or print)*	**B. Signature**	**C. Date Signed**
See attached certification		

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Part A Form 1 Certification

XI. CERTIFICATION

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

Michael A. Schlender (for) — 11/28/01

Owner/Operator
Keith A. Klein, Manager
U.S. Department of Energy,
Richland Operations Office

Date

H L Boston — 11/28/01

Owner/Operator
Harry L. Boston, Manager
U.S. Department of Energy,
Office of River Protection

Date

R F Naventi — 28 Nov 01

Co-operator
R. F. Naventi, Project Manager
River Protection Project – Waste Treatment Plant
Bechtel National, Inc.

Date

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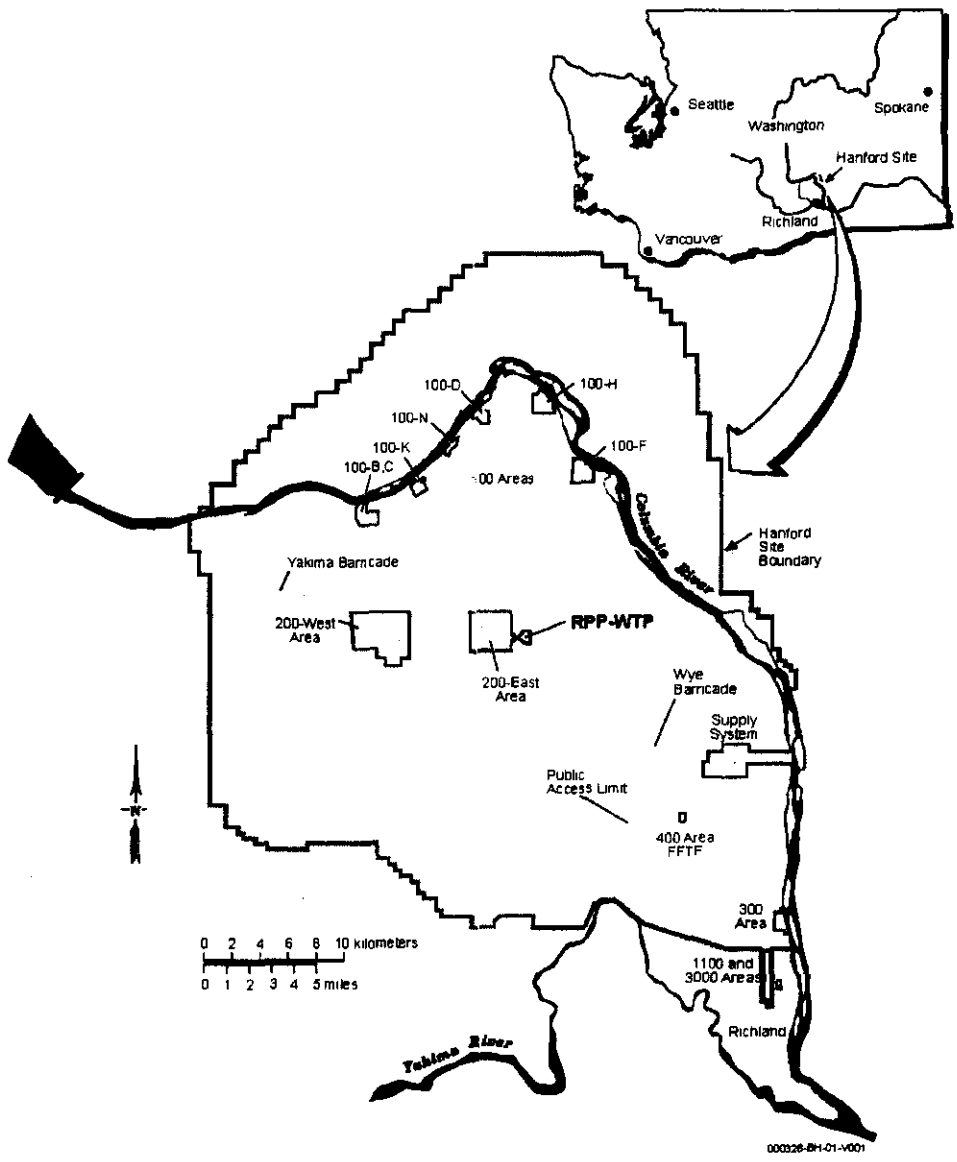
FIGURE LOCATION OF THE WTP ON THE HANFORD SITE



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FORM 3	Dangerous Waste Permit Application	1. EPA/State I.D. No.
		W A 7 8 9 0 0 0 8 9 6 7

FOR OFFICIAL USE ONLY

Application Approved	Date Received (month/day/year)	Comments

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA/STATE I.D. Number, or if this is a revised application, enter your facility's EPA/STATE I.D. Number in Section 1 below.

A. First Application (place an "X" below and provide the appropriate date)

☒ 1. **Existing Facility** (see instructions for definition of "existing" facility. Complete item below.)

MO	DAY	YR
0 3	2 2	1 9 4 3

For existing facilities, provide the date (mo/day/yr) operation began or the date construction commenced. (Use the boxes to the left.)

☐ 2. **New Facility** (complete item below.)

MO	DAY	YR

For new facilities, provide the date (mo/day/yr) operation began or is expected to begin.

B. Revised Application (place an "X" below and complete Section 1 above.)

☒ 1. **Facility has an Interim Status Permit** ☒ 2. **Facility has a Final Permit**

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. Process Code – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process (including its design capacity) in the space provided on the (Section III-C).

B. Process Design Capacity - for each code entered in column A, enter the capacity of the process.
1. Amount - Enter the amount.
2. Unit of Measures - For each amount entered in column B (1), enter the code from the list of unit measures codes below that describes the unit of measured used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
Container (barrel, drum, etc.)	S01	Gallons or liters
Tank	S02	Gallons or liters
Waste Pile	S03	Cubic yards or cubic meters
Surface Impoundment	S04	Gallons or liters
Disposal:		
Injection Well	D80	Gallons or liters
Landfill	D81	Acre-feet (the volume that would cover one acre to a depth of one foot) or hectare-meter
Land Application	D82	Acres or hectares
Ocean Disposal	D83	Gallons per day or liters per day
Surface Impoundment	D84	Gallons or liters
Treatment:		
Tank	T01	Gallons per day or liters per day
Surface Impoundment	T02	Gallons per day or liters per day
Incinerator	T03	Tons per hour or metric tons per hour; gallons per hour or liters per hour
Other (Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Section III-C)	T04	Gallons per day or liters per day

Units of Measure	Unit of Measure Code	Units of Measure	Unit of Measure Code	Units of Measure	Unit of Measure Code
Gallons	G	Liters Per Day	V	Acre-Feet	A
Liters	L	Tons Per Hour	D	Hectare-Meter	F
Cubic Yards	Y	Metric Tons Per Hour	W	Acres	B
Cubic Meters	C	Gallons Per Day	E	Hectares	Q
Gallons Per Day	U	Liters Per Hour	H		

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III. PROCESSES – CODES AND DESIGN CAPACITIES (continued)

Example for Completing Section III (shown in line numbers X-1 and X-2 below): A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

Line No.	A. Process Code (from list above)			B. Process Design Capacity 1. Amount (specify)	2. Unit of Measure (enter code)	For Official Use Only			
X-1	*S*	*0*	*2*	*600*	*G*				
X-2	*T*	*0*	*3*	*20*	*E*				
1	S	0	1	2,780,000	G				
2	S	0	2	4,735,000	G				
3	T	0	1	29,000	U				
4	T	0	4	Vit 15,000	U				
5	T	0	4	Containment Bldg. 16,000	U				
6									
7									
8									
9									
10									

C. Space for Additional process codes or for describing other process (code "T04"). For each process entered here include design capacity.

Line No. 4 – T04 = Treatment in miscellaneous units by vitrification.

Line No. 5 – T04 = Treatment in miscellaneous units, in containment buildings for vitrified waste and secondary waste.

IV. DESCRIPTION OF DANGEROUS WASTES

A. **Dangerous Waste Number** - Enter the digit number from Chapter 173-303 WAC for each listed dangerous waste you will handle.
If you handle dangerous wastes which are not listed in Chapter 173-303 WAC, enter the four-digit number(s) that describes the characteristics and/or the toxic contaminants of those dangerous wastes.

B. **Estimated Annual Quantity** - For each listed waste entered in Column A, estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A, estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

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IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

C. **Unit of Measure** – For each quantity entered in column B, enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
Pounds	P	Kilograms	K
Tone	T	Metric Tons	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. **PROCESSES**

1 Process Codes:
For listed dangerous waste: For each listed dangerous waste entered in column A, select the code(s) from the list of process codes contained in Section III to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed dangerous waste: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in Section III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed dangerous wastes that possess that characteristic or toxic contaminant.

Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D (1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2 Process Description: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

Note: Dangerous wastes described by more than one dangerous waste number - Dangerous wastes that can be described by more than one Waste Number shall be described on the form as follows:

1 Select one of the Dangerous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2 In column A of the next line, enter the other Dangerous Waste Number that can be used to describe the waste. In column D (2) on that line, enter "included with above" and make no other entries on that line.
3 Repeat step 2 for each other Dangerous Waste Number that can be used to describe the dangerous waste.

Example for completing Section IV (shown in line numbers X-1, X-2, X-3, and X-4 below) – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

Line No.	A. Dangerous Waste No. *(enter code)*				B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*			D. Processes				
									1. Process Codes *(enter)*				2. Process Description *(if a code is not entered in D(1))*
X-1	K	0	5	4	900		P		T03	D80			
X-2	D	0	0	2	400		P		T03	D80			
X-3	D	0	0	1	100		P		T03	D80			
X-4	D	0	0	2					T03	D80			included with above

Photocopy this page before completing if you have more than 26 wastes to list.

ID Number (enter from page 1)
WA 7 8 9 0 0 0 8 9 6 7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes 1. Process Codes *(enter)*				D. Processes 2. Process Description *(if a code is not entered in D(1))*
1	D001	51,000	T	S02				
2	D003			S02				Included with above
3	D002			T01	S02			Included with above
4	D004			T01	S02			Included with above
5	D005			T01	S02			Included with above
6	D006			T01	S02			Included with above
7	D007			T01	S02			Included with above
8	D008			T01	S02			Included with above
9	D009			T01	S02			Included with above
10	D010			T01	S02			Included with above
11	D011			T01	S02			Included with above
12	D018			T01	S02			Included with above
13	D019			T01	S02			Included with above
14	D022			T01	S02			Included with above
15	D028			T01	S02			Included with above
16	D029			T01	S02			Included with above
17	D030			T01	S02			Included with above
18	D033			T01	S02			Included with above
19	D034			T01	S02			Included with above
20	D035			T01	S02			Included with above
21	D036			T01	S02			Included with above
22	D038			T01	S02			Included with above
23	D039			T01	S02			Included with above
24	D040			T01	S02			Included with above
25	D041			T01	S02			Included with above
26	D043			T01	S02			Included with above

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1

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ID Number (enter from page 1)
WA 7 8 9 0 0 0 8 9 6 7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes 1. Process Codes *(enter)*				D. Processes 2. Process Description *(if a code is not entered in D(1))*
1	WT01			T01	S02			Included with above
2	WT02			T01	S02			Included with above
3	WP01			T01	S02			Included with above
4	WP02			T01	S02			Included with above
5	F001			T01	S02			Included with above
6	F002			T01	S02			Included with above
7	F003			T01	S02			Included with above
8	F004			T01	S02			Included with above
9	F005			T01	S02			Included with above
10	F039[a]			T01	S02			Included with above
11								
12								
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25								
26								

Photocopy this page before completing if you have more than 26 wastes to list.

ID Number (enter from page 1)
WA7890008967

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes 1. Process Codes *(enter)*				2. Process Description *(If a code is not entered in D(1))*
1	D002	33,500	T	T04	S01			Vitrification treatment process and storage of ILAW and IHLW
2	D004			T04	S01			Included with above
3	D005			T04	S01			Included with above
4	D006			T04	S01			Included with above
5	D007			T04	S01			Included with above
6	D008			T04	S01			Included with above
7	D009			T04	S01			Included with above
8	D010			T04	S01			Included with above
9	D011			T04	S01			Included with above
10	D018			T04	S01			Included with above
11	D019			T04	S01			Included with above
12	D022			T04	S01			Included with above
13	D028			T04	S01			Included with above
14	D029			T04	S01			Included with above
15	D030			T04	S01			Included with above
16	D033			T04	S01			Included with above
17	D034			T04	S01			Included with above
18	D035			T04	S01			Included with above
19	D036			T04	S01			Included with above
20	D038			T04	S01			Included with above
21	D039			T04	S01			Included with above
22	D040			T04	S01			Included with above
23	D041			T04	S01			Included with above
24	D043			T04	S01			Included with above
25	WT01			T04	S01			Included with above
26	WT02			T04	S01			Included with above

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ID Number (enter from page 1)

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

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes	
				1. Process Codes *(enter)*	2. Process Description *(if a code is not entered in D(1))*
1	WP01			T04 S01	Included with above
2	WP02			T04 S01	Included with above
3	F001			T04 S01	Included with above
4	F002			T04 S01	Included with above
5	F003			T04 S01	Included with above
6	F004			T04 S01	Included with above
7	F005			T04 S01	Included with above
8	F039[a]			T04 S02	Included with above
9					
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26					

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1

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ID Number (enter from page 1)
WA 7 8 9 0 0 0 8 9 6 7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes 1. Process Codes *(enter)*				D. Processes 2. Process Description *(if a code is not entered in D(1))*
1	D002	1,800	T	T04	S01			Treatment and storage in containment buildings
2	D004			T04	S01			Included with above
3	D005			T01	S01			Included with above
4	D006			T04	S01			Included with above
5	D007			T04	S01			Included with above
6	D008			T04	S01			Included with above
7	D009			T04	S01			Included with above
8	D010			T04	S01			Included with above
9	D011			T04	S01			Included with above
10	D018			T04	S01			Included with above
11	D019			T04	S01			Included with above
12	D022			T04	S01			Included with above
13	D028			T04	S01			Included with above
14	D029			T04	S01			Included with above
15	D030			T04	S01			Included with above
16	D033			T04	S01			Included with above
17	D034			T04	S01			Included with above
18	D035			T04	S01			Included with above
19	D036			T04	S01			Included with above
20	D038			T04	S01			Included with above
21	D039			T04	S01			Included with above
22	D040			T04	S01			Included with above
23	D041			T04	S01			Included with above
24	D043			T04	S01			Included with above
25	WT01			T04	S01			Included with above
26	WT02			T04	S01			Included with above

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1

Photocopy this page before completing if you have more than 26 wastes to list.

ID Number (enter from page 1)
W A 7 8 9 0 0 0 8 9 6 7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes 1. Process Codes *(enter)*				D. Processes 2. Process Description *(if a code is not entered in D(1))*
1	WP01			T04	S01			Included with above
2	WP02			T04	S01			Included with above
3	F001			T01	S01			Included with above
4	F002			T04	S01			Included with above
5	F003			T04	S01			Included with above
6	F004			T04	S01			Included with above
7	F005			T04	S01			Included with above
8	F039[a]			T04	S01			Included with above
9								
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1

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

E. Use this space to list additional process codes from Section D(1)

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

V. FACILITY DRAWING

See facility drawing, including all existing facilities, on page 6.

VI. PHOTOGRAPHS

See facility photograph on page 7

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE (degrees, minutes, & seconds)			Longitude (degrees, minutes, & seconds		
46	33	07	119	30	23

VIII. FACILITY OWNER

A. If the facility owner is also the facility operator as listed in Section VII on Form 1, "General Information," place an "X" in the box to the left and skip to section IX below.

[X]

B. If the facility owner is not the facility operator as listed in Section VII on Form 1, complete the following:

1. Name of Facility's Legal Owner		B. Phone Number *(area code & no.)*	
See Form 1 page			
3. Street or P.O. Box	4. City or Town	5. State	6. Zip Code

IX. OWNER CERTIFICATION

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

Name (print or type)	Signature	Date Signed
See attached certification		

X. OPERATOR CERTIFICATION

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

Name (print or type)	Signature	Date Signed
See attached certification		

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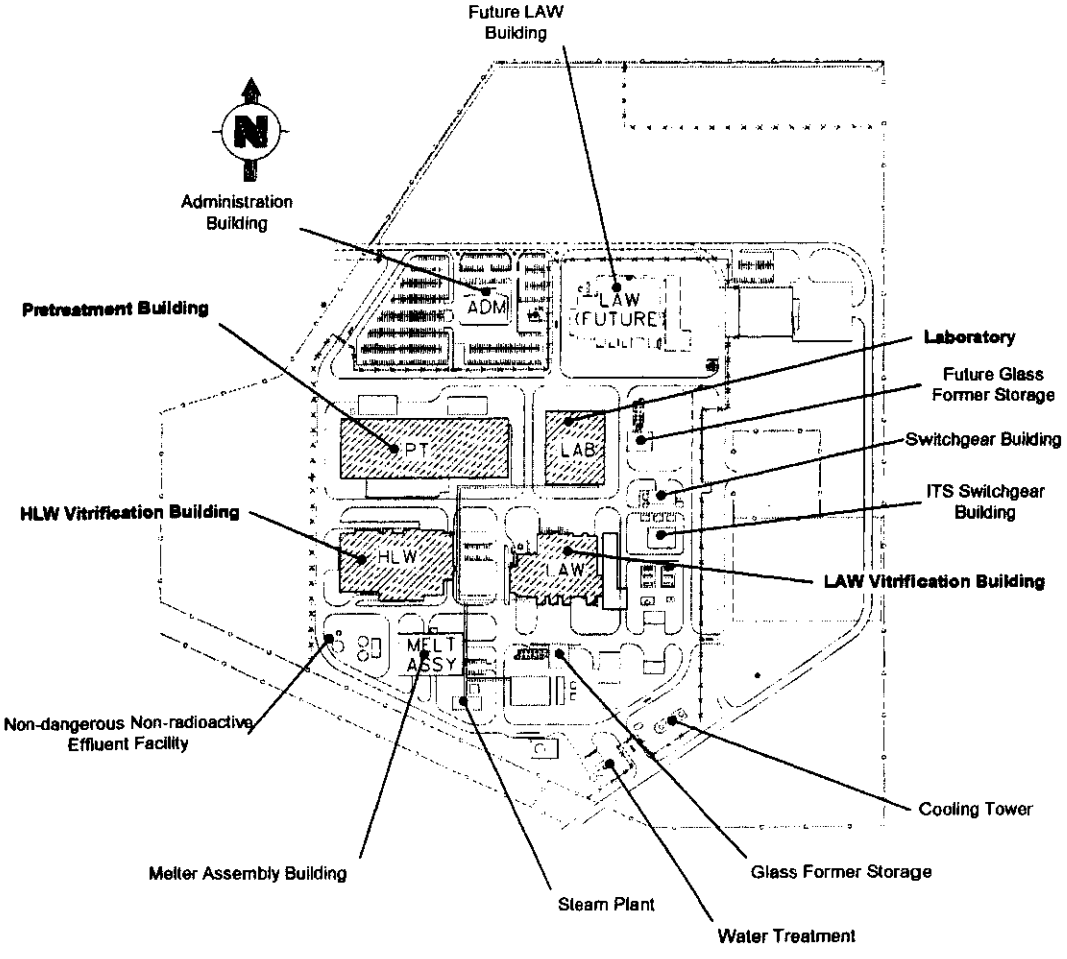
1

V. FACILITY DRAWING



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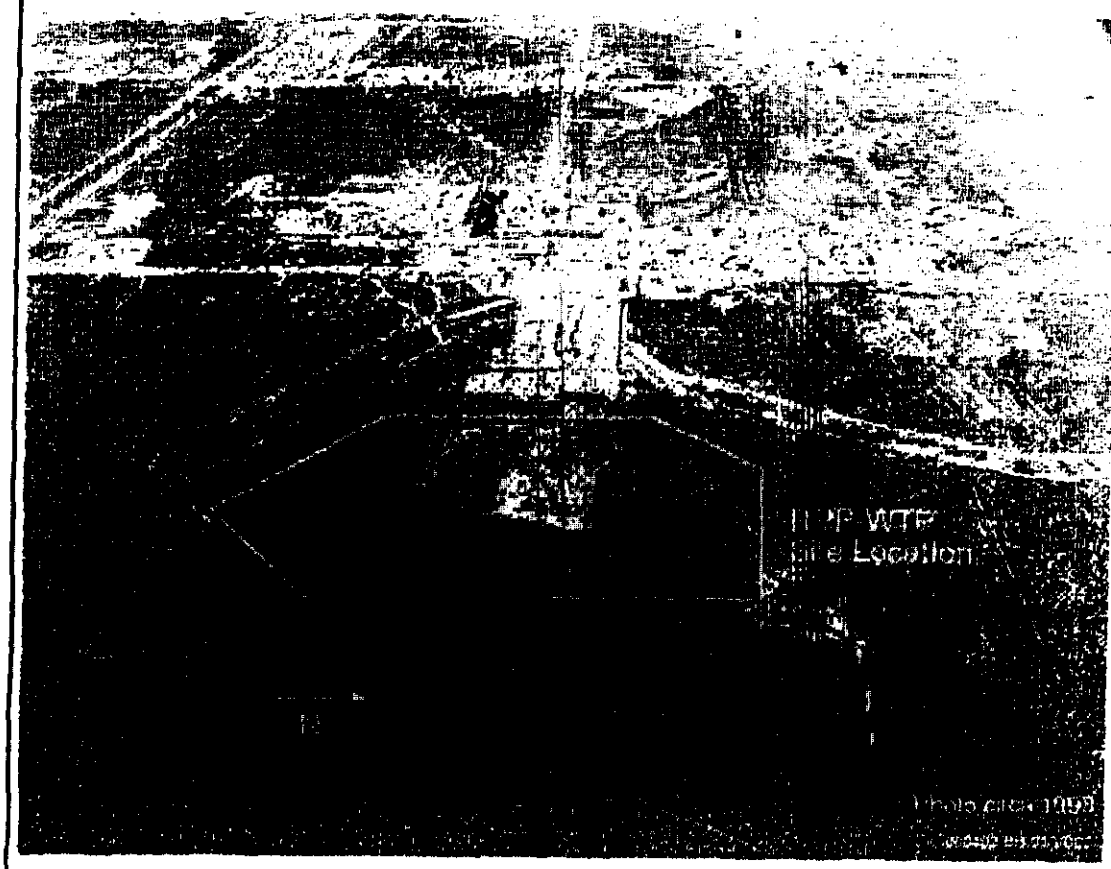
1

VL PHOTOGRAPH



Part A Form 3 Certification

IX AND X. OWNER AND OPERATOR CERTIFICATIONS

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

Michael A. Falkenberg (for) — 11/28/01
Owner/Operator — Date
Keith A. Klein, Manager
U.S. Department of Energy,
Richland Operations Office

H L Boston — 11/28/01
Owner/Operator — Date
Harry L. Boston, Manager
U.S. Department of Energy,
Office of River Protection

R F Naventi — 28 Nov 01
Co-operator — Date
R. F. Naventi, Project Manager
River Protection Project – Waste Treatment Plant
Bechtel National, Inc.

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Chapter 2.0

Topographic Map

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CHAPTER 2.0
TOPOGRAPHIC MAP

Contents

Appendix

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2.0 TOPOGRAPHIC MAP [B-2]

This chapter contains the three Waste Treatment Plant maps, referred to as Figures 2A-1, 2A-2, and 2A-3, that collectively meet the River Protection Project-Waste Treatment Plant Dangerous Waste Permit Application requirements for maps.

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Citing national security concerns, the US Department of Energy requested that topographic maps and site plot plans not be distributed in electronic form. They are available for viewing at the following public information repositories.

Public Information Repositories

Portland
Portland State University
Branford Price Millar Library
934 SW Harrison and Park
Portland, Oregon 97207
(503) 725-3690
E-mail: bowman@lib.pdx.edu

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

Spokane
Gonzaga University
Foley Center
East 502 Boone
Spokane, Washington 99258
(509) 323-3839

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

Administrative Record

Richland
Public Access Room
2440 Stevens Center, Room 1101
P.O. Box 950, Mail Stop H6-08
Richland, WA 99352
(509) 376-2530
Debra_A_Debbi_Isom@rl.gov

Appendix 2A

WTP Site Plot Plans

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Citing national security concerns, the US Department of Energy requested that topographic maps and site plot plans not be distributed in electronic form. They are available for viewing at the following public information repositories.

Public Information Repositories

Portland
Portland State University
Branford Price Millar Library
934 SW Harrison and Park
Portland, Oregon 97207
(503) 725-3690
E-mail: bowman@lib.pdx.edu

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

Spokane
Gonzaga University
Foley Center
East 502 Boone
Spokane, Washington 99258
(509) 323-3839

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

Administrative Record

Richland
Public Access Room
2440 Stevens Center, Room 1101
P.O. Box 950, Mail Stop H6-08
Richland, WA 99352
(509) 376-2530
Debra_A_Debbi_Isom@rl.gov

Chapter 3.0

Waste Analysis Plan

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CHAPTER 3.0
WASTE ANALYSIS PLAN

Contents

Appendices

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3.0 WASTE ANALYSIS PLAN

The River Protection Project – Waste Treatment Plant Waste Analysis Plan addresses sampling and analysis activities necessary for compliance with the Washington State Dangerous Waste Regulations contained in Washington Administrative Code (WAC), Chapter 173-303.

The Waste Treatment Plant Waste Analysis Plan is provided in Appendix 3A.

The Quality Assurance Project Plan for the Waste Analysis Plan is provided in Appendix 3B.

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Appendix 3A

Waste Treatment Plant Waste Analysis Plan

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APPENDIX 3A
WASTE TREATMENT PLANT WASTE ANALYSIS PLAN

Contents

Tables

Figures

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Acronyms

ALARA	as low as reasonably achievable
ASTM	American Society for Testing and Materials
BNI	Bechtel National, Inc.
CFR	*Code of Federal Regulations*
DOE	United States Department of Energy
DOE-RL	United States Department of Energy, Richland Operations Office
DST	double-shell tank
DWPA	*Dangerous Waste Permit Application for the River Protection Project – Waste Treatment Plant*
Regulatory DQO	*Regulatory Data Quality Objectives Supporting Tank Waste Remediation System Privatization Project*
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
ETF	Effluent Treatment Facility
HEME	high-efficiency mist eliminator
HEPA	high-efficiency particulate air (filter)
HLVIT	high-level vitrification
HLW	high-level waste
HSSWAC	*Hanford Site Solid Waste Acceptance Criteria*
HSLWAC	*Hanford Site Liquid Waste Acceptance Criteria*
ICN	integrated control network
ID	identification
IHLW	immobilized high-level waste
ILAW	immobilized low-activity waste
LAW	low-activity waste
LDR	Land Disposal Restrictions
LERF	Liquid Effluent Retention Facility
LIMS	laboratory information management system

LSM	locally-shielded melter
MSDS	material safety data sheet
NRC	Nuclear Regulatory Commission
PCB	Polychlorinated Biphenyl
PIN	plant information network
QA	quality assurance
QAPjP	*Quality Assurance Project Plan for the Waste Analysis Plan*
QC	quality control
RCRA	Resource Conservation and Recovery Act of 1976
TOC	total organic carbon
TRU	transuranic elements
TSD	treatment, storage, or disposal (facility)
WAC	*Washington Administrative Code*
WAP	waste analysis plan
WTIS	waste tracking and inventory system
WTP	River Protection Project – Waste Treatment Plant

Glossary

This waste analysis plan (WAP) relies on the definitions of terms as contained in Appendix 2B of the Hanford Facility Dangerous Waste Permit Application, General Information Portion (DOE-RL 1998) and the Dangerous Waste Permit Application for the River Protection Project – Waste Treatment Plant (DWPA), except as supplemented or amended below.

Batch	Waste staged in a single double-shell tank (DST) designated as mixed waste for transfer to the Waste Treatment Plant (WTP) for treatment.
Feed verification	The activities the WTP will perform to verify that the staged waste feed meets the WTP acceptance criteria.
Feed confirmation	The activities the WTP will perform after receiving the waste feed, to confirm that the waste feed received is the same as the waste feed accepted for delivery.
Immobilization	The act or process of reducing the mobility of waste constituents to limit their potential for long-term transport in the biosphere and subsequent exposure to humans, animals, and plants. Vitrification is an example of an immobilization process.

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