



Statement of Basis

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

April, 2009

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

Permittees

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

Bechtel National, Inc.
(Co-Operator)
2535 Stevens Center Place
Richland, Washington 99354

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

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

This Statement of Basis is divided into four sections:

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

4.0 Proposed Modifications to the Hanford Facility Permit

1.0 Hanford Facility Permit Background

Ecology initially issued the Permit for the Hanford Facility in 1994. The Permit provides standard and general facility conditions, as well as unit-specific conditions for the operation, closure, and post-closure care 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 final status standards.

Conditions of the Permit are presented in six parts:

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

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

2.0 The WTP Permitting Process

The permitting of the WTP Unit is using a phased (or stepped) approach. The first phase was completed on September 25, 2002, with issuance of a final Permit allowing construction of the WTP LAW, PT, and HLW Buildings to commence, and a compliance schedule to provide additional detailed information to Ecology. The compliance schedule addresses submittal of information necessary for construction of the rest of the WTP Unit, and eventual operation.

The second phase of permitting is implementation of the compliance schedule, which requires design and other information be submitted for Ecology approval before regulated portions of the WTP Unit are constructed. The third phase of permitting is implementation of the last portion of the compliance schedule, which requires updating portions of the Dangerous Waste Permit Application prior to facility start of operations. These portions of the Permit are administrative in nature, and cannot be completed before the design is nearly complete (e.g., Contingency Plan, Closure Plan, and Training Plan). At the completion of the three phases, the WTP Unit will comply with all the applicable requirements of WAC 173-303, and after receiving written permission from Ecology, can begin treatment and/or storage of dangerous and/or mixed waste. For more details on the WTP permitting process, see the September 25, 2002, Fact Sheet (Ecology Publication Number 01-05-006).

The design submittals (second phase described above) have been structured to allow the Permittees to provide design information in roughly the same order as the buildings are constructed. Therefore, the packages start at the lowest level of the building (i.e., below-grade levels) and are submitted for regulated areas of each level of the building before construction begins. This process has been adjusted for some design packages. If the process system in the design package is located on more than one level in a WTP Building, the design package can address components on more than one building level. This will prevent the confusion caused by one process system description being segmented into multiple design packages.

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

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

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

Ecology is authorized, pursuant to WAC 173-303-830(4)(e), to grant temporary authorizations for the Permittees to start construction on a design package after Ecology approval, but before the draft permit modification process is complete. A Permittee is allowed to request a Temporary Authorization (TA) to implement a modification prior to public notice and comment, pursuant to WAC 173-303-830(4)(e)(ii)(A). To issue a TA, Ecology must find it meets the criteria as described in WAC 173-303-830(4)(e)(ii)(A) and -830(4)(e)(iii). The term of a TA is limited to 180 days with the potential for Ecology approval of two terms, with a maximum combined duration of 360 days, provided that the modification could be classified as a Class 2 or 3 for the activity covered in the TA (WAC 173-303-830(4)(e)(iv)). The purpose of a TA is to allow the timely implementation of a permit modification. Construction that takes place under a TA is at the Permittees' risk because public comment may require the Permittees to modify

something they have already built. The submittal schedule developed by the Permittees will allow most design packages to undergo public comment and be incorporated into the Permit prior to construction of those areas.

3.0 Procedures for Reaching a Final Decision on the Draft Permit Modification

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

As required by WAC 173-303-840(3)(d) draft permit modifications to Part III, Operating Unit 10, WTP, of the Permit will have a 45-day public comment period. The public comment period for this permit modification begins on April 20, 2009, and ends on June 5, 2009. All comments received during the public comment period will be considered and responded to before final decisions are made on the proposed modifications. Regulatory requirements for public notice and involvement (for this Permit modification) are described in WAC 173-303-840(3) and (4). Comments must be post-marked or received by e-mail no later than close of business June 5, 2009. Comments hand-delivered by June 5, 2009, to the address below will be accepted. Direct all written comments to:

Ms. Annette Carlson
Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354
E-mail address: anca461@ecy.wa.gov

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

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

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

HANFORD PUBLIC INFORMATION REPOSITORIES

Portland

Portland State University
Branford Price Millar Library
1875 SW Park Ave
Portland, Oregon 97201-3220
(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: readingroom@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) 543-4664

This Statement of Basis for the proposed draft Permit modification is also available on the internet at <http://www.ecy.wa.gov/programs/nwp/>.

If special accommodations are needed for public comment, please contact Annette Carlson, Department of Ecology, Nuclear Waste Program, at (509) 372-7897 (voice), or (360) 407-6006 (TDD).

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

This draft permit modification contains the following design packages (see Table 1 for the entire list of documents):

- Low-Activity Waste Design Package LAW-018 addresses ancillary equipment for the LAW melter process system such as piping and instrumentation for the melters.
- Pretreatment Facility Design Package PTF-095 addresses the Pretreatment In-Cell Handling System decontamination soak tank and its jet pump and sparger. This allows failed equipment to be decontaminated for repair or replacement.

The following additional items are also included in this draft modification (see Table 1 for the entire list of documents):

- The document *Leak Detection Capability in the LAW Facility* describes how the leak detection system will 1) detect the failure of primary containment structures and subsequent release of dangerous or mixed waste within twenty-four hours, and 2) detect accumulated liquids within twenty-four hours.
- The document *Waste Removal Capability for the LAW Vitrification Facility* describes how spilled or leaked waste and accumulated liquids will be removed from the secondary containment systems within twenty-four hours of detection.

- The document *Pipe Stress Design Criteria Including “Pipe Stress Criteria” and “Span Method Criteria”* provides design criteria for piping throughout the WTP.
- Diagrams and data sheets for seven mechanical handling systems in the HLW building and for two mechanical handling systems in the LAW building. The mechanical handling systems are used for securing, lifting, manipulating, transferring, and in decontamination processes for containers of HLW and LAW glass.
- Piping and instrumentation diagrams for the HLW melter system film cooler utilities and mechanical drawings for the HLW melter assemblies.
- Instruments identified in the document *System Logic Description for Low-Activity Waste Facility Melter Process (LMP) System* were added to Permit Table III.10.H.C.

4.1 Incorporation of several Class 1 and Class ¹1 Permit Modifications

This draft permit modification incorporates the Class 1 and Class ¹1 Permit modifications shown below. These were previously approved by Ecology in accordance with WAC 173-303-830(4)(a), and are listed here as a courtesy.

- 24590-HLW-PCN-ENV-06-005 Class ¹1 Modification: Updates the process flow diagram (24590-HLW-M5-V17T-P0006, Rev 3) for the HLW Canister Decontamination Handling System in Appendix 10.1.
- 24590-HLW-PCN-ENV-06-012 Class 1 Modification: Updates eighteen piping and instrumentation diagrams for the HLW Offgas System for Melters 1 and 2 in Appendix 10.2.
- 24590-HLW-PCN-ENV-06-013 Class ¹1 Modification: Updates the piping and instrumentation diagrams (24590-HLW-M6-HDH-P0001, Rev 2, 24590-HLW-M6-HDH-P0002, Rev 2, and 24590-HLW-M6-HDH-P20001, Rev 2) for the HLW Facility Canister Decontamination Handling System vessels (HDH-VSL-00001/00002/00003/00004) in Appendix 10.2.
- 24590-HLW-PCN-ENV-06-014 Class 1 Modification: Updates the process flow diagram for the HLW Receipt and Feed Preparation Systems (24590-HLW-M5-V17T-P0001, Rev 4) in Appendix 10.1.
- 24590-HLW-PCN-ENV-06-015 Class ¹1 Modification: Updates fourteen piping and instrumentation diagrams for the HLW Facility Radioactive Liquid Waste Disposal System in Appendix 10.2.
- 24590-HLW-PCN-ENV-06-017 Class 1 Modification: Updates the HLW vitrification building piping and instrumentation diagrams (24590-HLW-M6-HFP -P0001, Rev 2, -P0002, Rev 2, -P0007, Rev 1, -P0008, Rev 1, -P20001, Rev 2, -P20002, Rev 2, -P20007, Rev 1, -P20008, Rev 1) for HLW Melter Feed Process System Vessels (HFP-VSL-00001/2/5/6) in Appendix 10.2.

- 24590-HLW-PCN-ENV-06-018 Class 1 Modification: Updates the piping and instrumentation diagrams (24590-HLW-M6-PJV-00001, Rev 4 and 24590-HLW-M6-PJV-00002, Rev 4) for the HLW Pulse Jet Ventilation System in Appendix 10.2.
- 24590-HLW-PCN-ENV-06-019 Class 1 Modification: Updates piping and instrumentation diagrams for the HLW Process Vessel Vent Exhaust System (24590-HLW-M6-PVV-00001, Rev 4, and -20001, Rev 2) in Appendix 10.2.
- 24590-HLW-PCN-ENV-06-020 Class 1 Modification : Updates the HLW Facility general arrangement plan and section drawings (24590-HLW-P1-P01T -00001, Rev 7, -00002, Rev 6, -00004, Rev 6, -00005, Rev 5, -00008, Rev 11, -00009, Rev 11, -00010, Rev 11, -00011, Rev 11) in Appendix 10.4.
- 24590-HLW-PCN-ENV-06-026 Class 1 Modification : Updates the HLW Facility design by adding two new piping and instrumentation diagrams (P&IDs) (24590-HLW-M6-HSH -P0004, Rev 0, and -P20004, Rev 0) showing the HLW Facility Decontamination Tanks (HSH-TK-00001 and HSH-TK-00002) previously shown on the Radioactive Liquid Waste Disposal System P&IDs (24590-HLW-M6-RLD-P0003 and 24590-HLW-M6-RLD-P20003). The updated P&IDs are in Appendix 10.2.
- 24590-HLW-PCN-ENV-07-003 Class 1 Modification: Updates the Leak Detection Capability in the HLW Facility (24590-HLW-PER-M-04-002, Rev 3) in Appendix 10.18.
- 24590-HLW-PCN-ENV-07-004 Class 1 Modification: Updates the mechanical systems data sheets (24590-HLW-MKD-HOP-00014 Rev 6, and 24590-HLW-MKD-HOP-00017 Rev 6) for the Silver Mordenite Columns in Appendix 10.6.
- 24590-HLW-PCN-ENV-08-001 Class 1 Modification: Updates the equipment assembly drawing for the HLW Offgas Drains Collection Vessel (24590-HLW-MV-RLD-00002, Rev 2) in Appendix 10.6.
- 24590-HLW-PCN-ENV-08-002 Class 1 Modification: Updates two piping and instrumentation diagrams (24590-HLW-M6-HCP -P0001 Rev 3, and -P0002 Rev 3) for the HLW Concentrate Receipt Process System Transfer Piping in Appendix 10.2.
- 24590-HLW-PCN-ENV-08-006 Class 1 Modification: Provides mechanical data sheet 24590-HLW-MVD-HOP-00007 for the HLW High Efficiency Mist Eliminators (HOP-HEME-00001 A/B and HOP-HEME-00002 A/B) in Appendix 10.6
- 24590-HLW-PCN-ENV-08-007 Class 1 Modification: Updates eighteen piping and instrumentation diagrams for the HLW Melter Process System in Appendix 10.2.
- 24590-LAW-PCN-ENV-06-008 Class 1 Modification: Updates the structural integrity assessment (CCN 139510 / AREVA-IA-103) of LAW Primary Offgas Process System Plant Items (LOP-VSL-00001/2, LOP-SCB-00001/2, and LOP-WESP-00001/2) in Appendix 9.11.
- 24590-LAW-PCN-ENV-06-010 Class ¹ Modification: Updates the integrity assessment (CCN 139509 / AREVA-IA-102, Rev 0) for the LAW Concentrate Receipt Process

System Concentrate Receipt Vessels (LCP-VSL-00001 and LCP-VSL-00002) in Appendix 9.11.

- 24590-LAW-PCN-ENV-06-015 Class 1 Modification: Updates LAW vitrification building piping and instrumentation diagrams for the LAW Radioactive Liquid Waste Disposal System (24590-LAW-M6-RLD-P0001, Rev 3, 24590-LAW-M6-RLD-P0002, Rev 3, and 24590-LAW-M6-RLD-P0003, Rev 3) in Appendix 9.2.
- 24590-LAW-PCN-ENV-07-004 Class 1 Modification: Updates the LAW vitrification building piping and instrumentation diagrams (24590-LAW-M6-LVP-P000,1 Rev 1, -P0002, Rev 3, -P0003, Rev 1, -P0004, Rev 1, and -P0005, Rev 1) for the LAW Secondary Offgas/Vessel Vent Process System in Appendix 9.2.
- 24590-LAW-PCN-ENV-07-006 Class 1 Modification: Updates the integrity assessment (CCN 139508 / AREVA-IA-101, Rev 0) for the LAW Secondary Offgas/Vessel Vent Process System, Caustic Collection Tank (LVP-TK-00001) in Appendix 9.11.
- 24590-LAW-PCN-ENV-07-009 Class ¹1 Modification: Updates the independent, qualified, registered professional engineer integrity assessment (AREVA-IA-105, Rev 1) for the Low Activity Waste Primary Offgas System ancillary equipment in Appendix 9.11.
- 24590-LAW-PCN-ENV-07-014 Class 1 Modification: Updates the LAW vitrification building process flow diagram for the LAW Liquid Effluent (RLD) System (24590-LAW-M5-V17T-P0014, Rev 2) in Appendix 9.1.
- 24590-LAW-PCN-ENV-08-001 Class 1 Modification: Updates the LAW *Facility Sump Data* document (24590-LAW-PER-M-02-001, Rev 5) in Appendix 9.5.
- 24590-PTF-PCN-ENV-05-006 Class 1 Modification: Updates *Engineering Specification for PTF Hot Cell Slurry Pumps to Meet Requirements of API Standard 610, Eighth Edition* (24590-PTF-3PS-MPC0-T0001, Rev 1) in Appendix 8.7.
- 24590-PTF-PCN-ENV-05-015 Class 1 Modification: Updates *Engineering Specification for Cesium Nitric Acid Recovery Forced Circulation Vacuum Evaporator System* (24590-PTF-3PS-MEVV-T0002, Rev 4) in Appendix 8.7.
- 24590-PTF-PCN-ENV-07-001 Class ¹1 Modification: Updates *PTF General Arrangement Plan for the 56'-0" Elevation* (24590-PTF-P1-P01T-00003, Rev 3) in Appendix 8.4.
- 24590-PTF-PCN-ENV-07-013 Class 1 Modification: Updates *Mechanical Systems Data Sheet for the PTF Treated LAW Evaporator Condensate Vessel* (24590-PTF-MVD-TLP-00004, Rev 1) in Appendix 8.6.
- 24590-PTF-PCN-ENV-07-015 Class 1 Modification: Updates *Plant Item Material Selection Data Sheet for the Spent Resin Dewatering Moisture Separation Vessel* (24590-PTF-N1D-RDP-00002, Rev 3) in Appendix 8.9.

- 24590-PTF-PCN-ENV-08-001 Class ¹1 Modification: Updates the nine piping and instrumentation diagrams for the Waste Feed Receipt Process System in Appendix 8.2.
- 24590-PTF-PCN-ENV-08-002 Class ¹1 Modification: Updates the piping and instrumentation diagrams (24590-PTF-M6-RDP-00001, Rev 3, 24590-PTF-M6-RDP-00002, Rev 4, 24590-PTF-M6-RDP-00006, Rev 3) for the Ion Exchange Resin Collection & Dewatering Process system in Appendix 8.2.
- 24590-PTF-PCN-ENV-08-003 Class ¹1 Modification: Updates the *Engineering Specification for the PTF Forced Circulation Vacuum Evaporator System* (24590-PTF-3PS-MEVV-T0001, Rev 2) in Appendix 8.7.
- 24590-PTF-PCN-ENV-08-016 Class 1 Modification: Updates the PTF material selection data sheet (24590-PTF-N1D-RDP-00001, Rev 6) for the Spent Resin Slurry Vessels (RDP-VSL-00002 A/B/C) in Appendix 8.9.
- 24590-WTP-PCN-ENV-05-013 Class 1 Modification: Updates the *Engineering Specification for Activated Carbon Bed Adsorbers* (24590-WTP-3PS-MWK0-T0001, Rev 3) in Appendix 7.7.
- 24590-WTP-PCN-ENV-05-014 Class 1 Modification: Updates the *WTP Engineering Specification for Pressure Vessel Design and Fabrication* (24590-WTP-3PS-MV00-T0001, Rev 3) in Appendix 7.7.
- 24590-WTP-PCN-ENV-05-015 Class ¹1 Modification: Updates the *Engineering Specification for Process Bulge Design and Fabrication* (24590-WTP-3PS-MX00-T0001, Rev 6) in Appendix 7.7.
- 24590-WTP-PCN-ENV-06-001 Class 1 Modification: Updates the *Piping and Instrumentation Diagram Symbols and Legend* (24590-WTP-M6-50-P0001 through P0006, Rev 2) and adds two new drawings (24590-WTP-M6-50-P0007 and P0008, Rev 0) in Appendix 7.2.
- 24590-WTP-PCN-ENV-06-002 Class 1 Modification: *Engineering Specification for Sealless Centrifugal Pumps To Meet Requirements Of API Standard 685, First Edition, For Quality Level Q* (24590-WTP-3PS-MPC0-T0003, Rev 2). This specification is found in Appendix 7.7.
- 24590-WTP-PCN-ENV-06-008 Class 1 Modification: Updates the *Engineering Specification for the Vessel-Mounted Vertical Transfer Pumps – Low Activity Waste Facility* (24590-WTP-3PS-MPC0-T0008, Rev 1) in Appendix 7.7.
- 24590-WTP-PCN-ENV-06-009 Class 1 Modification: Updates the *Engineering Specification General Centrifugal Pump Specification Requirements of ASME B73.1M-2001 and ASME B73.2M-2003 for Commercial Components* (24590-WTP-3PS-MPC0-T0002, Rev 3) in Appendix 7.7.
- 24590-WTP-PCN-ENV-06-011 Class 1 Modification: Updates the *Engineering Specification for Field-Erected Tanks Design and Fabrication* (24590-WTP-3PS-MTF5-T0001, Rev 0) in Appendix 7.7.

- 24590-WTP-PCN-ENV-06-015 Class 1 Modification: Updates the *Engineering Specification for Maintenance Decontamination Equipment* (24590-WTP-3PS-HD00-T0001, Rev 3) in Appendix 7.7.
- 24590-WTP-PCN-ENV-07-004 Class 1 Modification: Updates *Engineering Specification for Nuclear Grade High Efficiency Particulate Air (HEPA) Filters (ASME AG-1 Section FK Filters)* (24590-WTP-3PS-MKH0-T0002, Rev 2) in Appendix 7.7.
- 24590-WTP-PCN-ENV-08-002 Class ¹1 Modification: Replaces *Engineering Specification for Centrifugal Pumps to Meet Requirements of American Petroleum Institute Standard 610, Eighth Edition, and for Quality Level QL-1 and QL-2* with four new pump specifications: 24590-WTP-3PS-MPPD-T0001, Rev 3, in Appendix 7.7; 24590-LAW-3PS-RLD-T0001, Rev 1, in Appendix 9.7; 24590-QL-HC4-W000-00011-04-00266, Rev 00B, in Appendix 10.7; and 24590-QL-HC4-W000-00011-03-00590, Rev 00A, in Appendix 9.7.
- 24590-WTP-PCN-ENV-08-008 Class ¹1 Modification: Updates the Part A Permit Application to Rev 2, found in Addendum A.

4.2 Supplemental Design Information

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

4.3 Identifying Changes in this Modification

As the WTP Unit is constructed, Ecology will modify the Permit, for many reasons including: to clarify text, add new conditions, delete existing conditions, to correct errors or add additional information. To communicate the changes in the review package, the proposed permit modification will include page changes showing all significant proposed changes to the Permit. The text to be deleted will be struck-out with a single line and the new text will be double-underlined. Only the text being changed in the current modification will be indicated by double-underlines and strikeouts.

Newly added documents and drawings are provided for review in this proposed permit modification. New document and drawing numbers and titles are shown in bold text in the affected appendix drawing lists.

At issuance of the permit modification, ‘clean’ pages incorporating permit modifications will be issued to the Permittees and Administrative Record. All double-underlines and strikeouts will be removed. Documents and drawings listed in the appendices will not be bolded and will be incorporated by reference only.

In Ecology publication number 07-05-006, *Responsiveness Summary* (September 27, 2007), Ecology explained the reason for replacing permit version documents with source documents that the WTP is constructed to. Since 2007, source documents began replacing permit version documents. Source documents are in a state of constant revision as design details are finalized and additional information is added to provide clarity and to correct typographical errors. Changes not yet incorporated into source documents are tracked by the Permittees using Document Change Notices (DCNs). In some cases, DCNs are issued at the time of Ecology's review. These are not provided for public comment, but will appear in the next revision of the document for review.

Design Package LAW-018 contains seven documents that are classified as confidential business information. These documents were submitted for consideration according to the criteria of the Revised Code of Washington 43.21A.160 and were found to meet the corresponding regulations in Washington Administrative Code Chapter 173-303-810(15). The documents are listed in Table 1, but are not included for public distribution or comment.

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Table 1 - Design Information Submitted by Permittees

| PACKAGE LAW-018, Rev 0, Miscellaneous Unit Subsystem Equipment for LAW Facility LMP System | | | |
|---|--|-----------------|------------------------|
| For incorporation into the Permit. | | | |
| DOCUMENT/DRAWING NUMBER | TITLE | REPLACES | PERMIT LOCATION |
| CCN 190557 / IA-3001246-001 | IQRPE Structural Integrity Assessment Report of LAW LMP Ancillary Equipment | N/A | 9.11 |
| 24590-LAW-M5-V17T-00004, Rev 4 | Process Flow Diagram LAW Vitrification Melter 1 (System LMP & LOP) | N/A | 9.1 |
| 24590-LAW-M5-V17T-00005, Rev 4 | Process Flow Diagram LAW Vitrification Melter 2 (System LMP & LOP) | N/A | 9.1 |
| 24590-LAW-M6-LMP-00001, Rev 2 | P&ID – LAW Melter Process System Melter 1 Agitation – Zone 1 & Zone 2 <i>Confidential Business Information</i> | N/A | 9.2 |
| 24590-LAW-M6-LMP-00002, Rev 2 | P&ID –LAW Melter Process System Melter 1 Agitation Zone 3 & Level Detection System <i>Confidential Business Information</i> | N/A | 9.2 |
| 24590-LAW-M6-LMP-00003, Rev 4 | P&ID –LAW Melter Process System Melter 1 Walls and Floor Panels Cooling System | N/A | 9.2 |
| 24590-LAW-M6-LMP-00005, Rev 2 | P&ID –LAW Melter Process System Melter 1 Electrode Extension Cooling & Glass/Plenum Temperatures <i>Confidential Business Information</i> | N/A | 9.2 |
| 24590-LAW-M6-LMP-00007, Rev 3 | P&ID –LAW Melter Process System Melter 1 Glass Pouring and Monitoring Instrumentation | N/A | 9.2 |
| 24590-LAW-M6-LMP-00008, Rev 3 | P&ID –LAW Melter Process System Melter 1 Discharge Heaters, Power Controls (1-4) & Air Lift - Eastside | N/A | 9.2 |
| 24590-LAW-M6-LMP-00010, Rev 3 | P&ID –LAW Melter Process System Melter 1 Discharge Heaters, Power Controls (1-4) & Air Lift - Westside | N/A | 9.2 |

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| 24590-LAW-M6-LMP-00012, Rev 5 | P&ID –LAW Melter Process System Melter 1 Feed Nozzles Cooling System and Feed Nozzles | N/A | 9.2 |
| 24590-LAW-M6-LMP-00013, Rev 5 | P&ID –LAW Melter Process System Melter 1 Lid, Plenum and Offgas Ports Cooling System | N/A | 9.2 |
| 24590-LAW-M6-LMP-00031, Rev 2 | P&ID –LAW Melter Process System Melter 2 Agitations – Zone 1 & Zone 2 Confidential Business Information | N/A | 9.2 |
| 24590-LAW-M6-LMP-00032, Rev 2 | P&ID –LAW Melter Process System Melter 2 Agitations Zone 3 & Level Detection System Confidential Business Information | N/A | 9.2 |
| 24590-LAW-M6-LMP-00033, Rev 4 | P&ID –LAW Melter Process System Melter 2 Walls and Floor Panels Cooling System | N/A | 9.2 |
| 24590-LAW-M6-LMP-00035, Rev 2 | P&ID –LAW Melter Process System Melter 2 Electrode Extension Cooling & Glass/Plenum Temperatures Confidential Business Information | N/A | 9.2 |
| 24590-LAW-M6-LMP-00037, Rev 3 | P&ID –LAW Melter Process System Melter 2 Glass Pouring and Monitoring Instrumentation | N/A | 9.2 |
| 24590-LAW-M6-LMP-00038, Rev 3 | P&ID –LAW Melter Process System Melter 2 Discharge Heaters, Power Controls (1-4) & Air Lift - Eastside | N/A | 9.2 |
| 24590-LAW-M6-LMP-00040, Rev 3 | P&ID –LAW Melter Process System Melter 2 Discharge Heaters, Power Controls (1-4) & Air Lift - Westside | N/A | 9.2 |
| 24590-LAW-M6-LMP-00042, Rev 5 | P&ID –LAW Melter Process System Melter 2 Feed Nozzles Cooling System and Feed Nozzles | N/A | 9.2 |
| 24590-LAW-M6-LMP-00043, Rev 5 | P&ID –LAW Melter Process System Melter 2 Lid, Plenum Cooling System Ports Cooling System | N/A | 9.2 |
| 24590-LAW-M6-LOP-00004, Rev 4 | P&ID –LAW Primary Offgas Process System Melter 1 Offgas Film Coolers | N/A | 9.2 |
| 24590-LAW-M6-LOP-00005, Rev 4 | P&ID –LAW Primary Offgas Process System Melter 2 Offgas Film Coolers | N/A | 9.2 |

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| 24590-LAW-PER-J-07-0001, Rev 0 | System Logic Description for the Low-Activity Waste LAW Melter Process System (LMP) | N/A | 9.13 |
| 24590-WTP-PER-CSA-02-001, Rev 8 | Secondary Containment Design | 24590-WTP-PER-CSA-02-001, Rev 7 | 7.5 |
| For incorporation into the Administrative Record. | | | |
| DOCUMENT/DRAWING NUMBER | TITLE | REPLACES | LOCATION |
| 24590-LAW-3YD-LMP-00001, Rev 2 | System Description for the Low Activity Waste Melter <i>Confidential Business Information</i> | N/A | Administrative Record |
| 24590-LAW-3YN-LMP-00003 | System Description Change Notice – System LMP, System Description for the Low Activity Waste Melter | N/A | Administrative Record |
| 24590-3YD-LOP-00001, Rev 2 | System Description for LAW Primary Offgas Process (LOP) and LAW Secondary Offgas/Vessel Vent Process (LVP) Systems | N/A | Administrative Record |
| PACKAGE PTF-095, Revision 0, PIH Tank System | | | |
| For incorporation into the Permit. | | | |
| DOCUMENT/DRAWING NUMBER | TITLE | REPLACES | PERMIT LOCATION |
| 24590-PTF-M6-PIH-P0001, Rev 0 | P&ID – PTF Mechanical Handling, Hot Cell Maintenance Cave P-0123A Utilities, System PIH | N/A | 8.2 |
| 24590-PTF-M0D-PIH-P0015, Rev 1 | Mechanical Data Sheet – Pretreatment Decontamination Tank | N/A | 8.6 |
| 24590-PTF-M0-PIH-P0019001, Rev 0 | PTF Vitrification System PIH Design Proposal Drawing Decon Tank Assembly | N/A | 8.6 |
| 24590-PTF-M0-PIH-P0019002, Rev 0 | PTF Vitrification System PIH Design Proposal Drawing Decon Tank Details | N/A | 8.6 |
| 24590-PTF-PER-M-04-0007, Rev 0 | Flooding Volume for Room P-0123A in the PT Facility | N/A | 8.8 |

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| 24590-PTF-N1D-PIH-P0001, Rev 0 | Material Selection Data Sheet – PIH-TK-00001 (PTF) Pretreatment Decontamination Tank Decon Soak Tank | N/A | 8.9 |
| CCN 139506 / AREVA-IA-085, Rev 0 | IQRPE Integrity Assessment Report for PIH-TK-00001 | N/A | 8.11 |
| For incorporation into the Administrative Record. | | | |
| DOCUMENT/DRAWING NUMBER | TITLE | REPLACES | LOCATION |
| 24590-PTF-3YD-PIH-00001, Rev 0 | System Description for PIH System | N/A | Administrative Record |
| Additional Items | | | |
| For incorporation into the Permit. | | | |
| DOCUMENT/DRAWING NUMBER | TITLE | REPLACES | PERMIT LOCATION |
| 24590-LAW-PER-M-05-002, Rev 2 | Leak Detection Capability in the LAW Facility | N/A | 9.18 |
| 24590-LAW-PER-M-05-001, Rev 0 | Waste Removal Capability for the LAW Vitrification Facility | N/A | 9.18 |
| 24590-WTP-DC-PS-01-001, Rev 6 | Pipe Stress Design Criteria Including “Pipe Stress Criteria” and “Span Method Criteria” | N/A | 7.5 |
| 24590-HLW-MOD-HDH-00021, Rev 3 | 24590-HLW-MJ-HDH-CRN-00005 - Decontamination Swabbing and Monitoring Crane | N/A | 10.6 |
| 24590-HLW-MOD-HEH-00021, Rev 5 | 24590-HLW-MJ-HEH-CRN-00001 - Cask Handling Crane | N/A | 10.6 |
| 24590-HLW-MOD-HEH-00025, Rev 4 | 24590-HLW-MJ-HEH-CRN-00003 - Canister Storage Crane | N/A | 10.6 |
| 24590-HLW-MOD-HPH-00063, Rev 3 | 24590-HLW-MJ-HPH-CRN-00002 - Canister Handling Crane (Upper) | N/A | 10.6 |
| 24590-HLW-MOD-HPH-00064, Rev 3 | 24590-HLW-MJ-HPH-CRN-00001 - Canister Handling Crane (Lower) | N/A | 10.6 |
| 24590-HLW-MOD-HSH-00013, Rev 4 | 24590-HLW-MJ-HSH-CRN-00001 - Melter 1 Cave Crane | N/A | 10.6 |

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| 24590-HLW-M0D-HSH-00181, Rev 4 | 24590-HLW-MJ-HSH-CRN-00014 - Melter 2 Cave Main Crane | N/A | 10.6 |
| 24590-HLW-M7-HDH-00001005, Rev 2 | HLW Vitrification System HDH Mechanical Handling Diagram Canister Decontamination Handling System | N/A | 10.6 |
| 24590-HLW-M7-HEH-00001004, Rev 2 | HLW Vitrification System HEH Mechanical Handling Diagram Canister Export Handling System | N/A | 10.6 |
| 24590-HLW-M7-HEH-00001005, Rev 2 | HLW Vitrification System HEH Mechanical Handling Diagram Canister Export Handling System | N/A | 10.6 |
| 24590-HLW-M7-HPH-00001001, Rev 1 | HLW Vitrification System HPH Mechanical Handling Diagram Canister Pour Handling Canister Handling Cave | N/A | 10.6 |
| 24590-HLW-M7-HPH-00001002, Rev 1 | HLW Vitrification System HPH Mechanical Handling Diagram Canister Pour Handling Canister Handling Cave | N/A | 10.6 |
| 24590-HLW-M7-HSH-00001002, Rev 1 | HLW Vitrification System HSH Mechanical Handling Diagram Melter Cave Support Handling Melter Cave 1 | N/A | 10.6 |
| 24590-HLW-M7-HSH-00002002, Rev 0 | HLW Vitrification System HSH Mechanical Handling Diagram Melter Cave Support Handling Melter Cave 2 | N/A | 10.6 |
| 24590-LAW-M0D-LEH-00014, Rev 7 | 24590-LAW-MJ-LEH-CRN-00003 - LEH Crane Export High Bay With Recovery, 10 Ton | N/A | 9.6 |
| 24590-LAW-M0D-LPH-00003, Rev 5 | 24590-LAW-MJ-LPH-CRN-00002 - Top Running, Double Girder | N/A | 9.6 |
| 24590-LAW-M7-LEH-00002002, Rev 1 | LAW Vitrification System LEH Mechanical Handling Diagram Container Export Handling System | N/A | 9.6 |
| 24590-LAW-M7-LPH-00001004, Rev 2 | LAW Vitrification System LPH Mechanical Handling Diagram Container Pour Handling System | N/A | 9.6 |
| 24590-HLW-M6-HMP-00012, Rev 4 | HLW Melter 1 System Film Cooler Utilities | N / A | 10.2 |
| 24590-HLW-M6-HMP-20012, Rev 5 | HLW Melter 2 System Film Cooler Utilities | N / A | 10.2 |
| 24590-HLW-MF-HMP-00001, Rev 0 | HLW Melter Assembly HLW-MLTR-00001/00002 Isometric View | N / A | 10.2 |

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| 24590-HLW-MF-HMP-00002, Rev 0 | HLW Melter Assembly HLW-MLTR-00001/00002 Plan View, West and North Elevation Drawing | N /A | 10.2 |
| 24590-HLW-MF-HMP-00003, Rev 0 | HLW Melter Assembly HLW-MLTR-00001/00002 Section A-A | N /A | 10.2 |
| For incorporation into the Administrative Record. | | | |
| DOCUMENT/DRAWING NUMBER | TITLE | REPLACES | LOCATION |
| 24590-WTP-PER-PR-03-002, Rev 3 | Toxic Vapors and Emissions from Waste Treatment and Immobilization Plant Tank Systems and Miscellaneous Unit Systems | N/A | Administrative Record |
| 24590-PTF-3YD-PFH-00001, Rev 1 | System Description for the Pretreatment Filter Cave Handling System (PFH) | N/A | Administrative Record |
| 24590-PTF-3YD-PIH-00001, Rev 0 | System Description for the Pretreatment In-Cell Handling System | N/A | Administrative Record |
| 24590-LAW-3YD-LSH-00001, Rev 0 | System Description for System LSH Melter Equipment Support Handling System | N/A | Administrative Record |
| 24590-LAW-3YD-LPH-00001, Rev 0 | System Description for LAW System LPH Container Pour Handling | N/A | Administrative Record |
| 24590-LAW-3YD-LFH-00001, Rev 0 | System Description for LFH - LAW Container Finishing Handling System | N/A | Administrative Record |
| 24590-LAW-3YD-LMH-00001, Rev 0 | System Description for LAW System LMH Melter Handling | N/A | Administrative Record |
| 24590-LAW-3YD-LEH-00001, Rev 0 | System Description for the LEH LAW Container Export Handling System | N/A | Administrative Record |
| 24590-HLW-3YD-HSH-00001, Rev 0 | System Description for the System HSH - HLW Melter Cave Support Handling | N/A | Administrative Record |
| 24590-HLW-3YD-HEH-00001, Rev 1 | System Description for the HLW System HEH Canister Export Handling | N/A | Administrative Record |
| 24590-HLW-3YD-HFH-00001, Rev 2 | System Description for HLW System HFH, Filter Cave Handling | N/A | Administrative Record |
| 24590-HLW-3YD-HPH-00001, Rev 1 | System Description for the HLW System HPH Canister Pour Handling | N/A | Administrative Record |

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| 24590-HLW-3YD-HDH-00002, Rev 2 | System Description for the HLW System HDH Canister Decontamination Handling | N/A | Administrative Record |
| 24590-HLW-3YD-HMH-00001, Rev 1 | System Description for System HMH HLW Melter Transport | N/A | Administrative Record |
| 24590-WTP-3YD-RWH-00001, Rev 1 | System Description for the WTP System RWH Radioactive Solid Waste Handling | N/A | Administrative Record |
| NOTES: | | | |
| CNP = Cesium Nitric Acid Recovery Process System CXP = Cesium Ion Exchange Process System FEP = Feed Evaporation Process System FRP = Waste Feed Receipt Process System HCP = HLW Condensate Receipt Process System HDH = HLW Canister Decontamination Handling System HEH = HLW Canister Export Handling System HFH = HLW Filter Cave Handling System HLP = HLW Lag Storage and Feed Blending Process System HLW = High Level Waste HMH = HLW Melter Handling System HOP = HLW Vit Primary Offgas Treatment System HPH = HLW Canister Pour Handling System HSH = HLW Melter Cave Support Handling System IQRPE = Independent, Qualified, Registered Professional Engineer LAB = WTP Laboratory Building LAW = Low Activity Waste LCP = LAW Concentrate Receipt Process System LEH = LAW Container Export Handling System LFP = LAW Melter Feed Process System LMH = LAW Melter Handling System | | LOP = LAW Melter Offgas System LPH = LAW Container Pour Handling System LSH = LAW Melter Equipment Support Handling System LSM = Locally Shielded Melter LVP = LAW Secondary Offgas/Vessel Vent Process System MTU = Miscellaneous Treatment Units PFH = Pretreatment Filter Cave Handling System PIH = Pretreatment In-Cell Handling System PJV = Pulse Jet Mixer Ventilation System PTF = Pretreatment Building PVP = Pretreatment Vessel Vent Process System PVV = Process Vessel Vent System PWD = Plant Wash and Disposal System RDP = PTF Spent Resin and Dewatering Process System RLD = Radioactive Liquid Waste Disposal System RWH = Radioactive Solid Waste Handling System SBS = Submerged Bed Scrubber TCP = Treated LAW Concentrate Storage Process System TLP = Treated LAW Evaporation Process System UFP = Ultrafiltration Process System WESP = Wet Electrostatic Precipitator | |

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