



DEPARTMENT OF
ECOLOGY
State of Washington

STATEMENT OF BASIS

**Proposed Permit Modification of the
*Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous
Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of
Dangerous Waste,*
Part III, Operating Unit Group 10, Waste Treatment and Immobilization Plant,
WA7890008967**

December 2015

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Dangerous Waste,*
Part III, Operating Unit Group 10, Waste Treatment and Immobilization Plant,
WA7890008967**

Permittees

United States Department of Energy
Office of River Protection
PO Box 450
Richland, Washington 99352

Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

The Washington State Department of Ecology (Ecology) developed this Statement of Basis to fulfill the requirements of Washington Administrative Code [\(WAC\) 173-303-840\(2\)\(f\)\(iv\)](#).

The Statement of Basis provides information on Ecology's decision to modify the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*, Part III, Operating Unit Group 10, Waste Treatment and Immobilization Plant (WTP), hereafter called the "WTP Permit."

This modification includes supporting technical information and engineering drawings for construction on the regulated portions of the WTP:

- Pretreatment Facility (PTF)
- Low-Activity Waste (LAW) Facility
- High-Level Waste (HLW) Facility
- Laboratory (LAB) Facility
- Balance of Facilities (BOF)

This modification also incorporates format changes to the WTP Permit appendices and changes to supporting information. Ecology chose to prepare a Statement of Basis as described in [WAC 173-303-840\(2\)\(f\)\(iv\)](#), rather than a Fact Sheet.

We prepared a Statement of Basis for previous major WTP Permit modifications. This process will be followed for all permit modifications that incorporate similar design package information and other changes to the WTP Permit Conditions.

This Statement of Basis is divided into four sections:

- 1.0 Hanford Facility Resource Conservation and Recovery Act Permit (Site-wide Permit).
- 2.0 The WTP Permitting Process.
- 3.0 Procedures for Reaching a Final Decision on the Draft WTP Permit Modification.
- 4.0 Proposed Modifications to the WTP Permit.

Also included at the end of the Statement of Basis are tables, provided by the Permittees, listing the design documents and drawings they submitted for incorporation into the WTP Permit.

1.0 HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT PERMIT (SITE-WIDE PERMIT)

Ecology first issued the Site-wide Permit in 1994. The Site-wide 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 treatment, storage, and disposal (TSD) units at Hanford. Approximately 40 TSD units are operating or closing under Resource Conservation and Recovery Act final status standards.

Conditions of the Site-wide Permit are presented in six parts:

- Part I Standard Conditions.
- Part II General Facility Conditions.
- Part III Unit-Specific Conditions for Final Status Operating Units.
- Part IV Corrective Action for Past Practice Units.
- Part V Unit-Specific Conditions for Units Undergoing Closure.
- Part VI Unit-Specific Conditions for Units in Post-Closure.

The WTP TSD Unit was added to Part III of the Site-wide Permit on September 25, 2002. The WTP Permit portion was effective on October 25, 2002. The WTP TSD Unit is currently being constructed under final permit status standards.

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.

The WTP Permit is modified as needed, typically one or more times a year, to incorporate Class 1, ¹1, 2, and 3 modifications; Agency-Initiated modifications; and minor changes in grammar, consistency, and presentation.

2.0 THE WTP PERMITTING PROCESS

We are using a phased (or stepped) approach to permit the WTP TSD Unit. The first phase was completed on September 25, 2002, with issuance of a final Dangerous Waste Permit allowing construction of the LAW, PTF, HLW, LAB, and BOF facilities to start.

A WTP Interim Compliance Schedule for the United States Department of Energy provides Ecology additional detailed information addressing the submittal of design documents necessary to support construction of the rest of the WTP TSD Unit, and its eventual operation.

This second phase of permitting is included in the compliance schedule, and requires the Permittees to submit design and other information for Ecology approval before regulated portions of the WTP TSD Unit are constructed.

The third phase of permitting is implementation of the last portion of the compliance schedule. This requires updating portions of the Dangerous Waste Permit Application and then modifying the WTP Permit prior to facility start-up operations. These portions (for example, Contingency Plan, Closure Plan, and Training Plan) of the WTP Permit are operational in nature and cannot be completed before the design is nearly complete.

When the three phases of permitting are completed, the WTP TSD Unit will comply with all the applicable requirements of [WAC 173-303](#). Then, after receiving written permission from Ecology, the Permittees can begin treatment and storage of dangerous and mixed waste at the WTP.

The design submittals (second permitting phase) were structured to allow the Permittees to provide design information in roughly the same order as the WTP facilities are constructed.

The design packages start at the lowest level of the facilities (below-grade levels) and are submitted for regulated areas of each level before construction begins. This process was adjusted for some design packages. When the facility process systems are installed on more than one level, the design packages will address the associated components for each level. This prevents confusion caused by one process system description being segmented into multiple design packages.

The WTP Permit organizes design packages into three general groups by the type of regulated equipment:

1. Primary containment (for example, tanks, miscellaneous units [evaporators and melters], and containment buildings).
2. Secondary containment.
3. Other associated regulated equipment (for example, ancillary equipment, equipment associated with miscellaneous units, and instrumentation).

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 each facility (for example, the floor slope, and sump locations).

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 WTP Permit before installation. The tank package would contain, for example, 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 (for example, piping, pumps, process instrumentation, and electrical equipment). Therefore, the ancillary equipment package provides details for the equipment on that level that will be included in the WTP Permit before installation. Information in the package would include, for example, materials of construction, and pump types and their operating limits.

Because each WTP facility consists of multiple levels, many design packages are required. Of the estimated 180 design packages, approximately 40 remain to be incorporated in the WTP Permit.

The primary containment, secondary containment, and the other associated regulated equipment design packages for different levels require repetitive information submittals in each package. Using tank systems as an example, most tanks will use the same construction specifications.

The WTP Permit allows the Permittees to reference the previously submitted design information, so some design packages consist mostly of references to information already provided.

3.0 PROCEDURES FOR REACHING A FINAL DECISION ON THE DRAFT WTP PERMIT MODIFICATION

The Washington State Hazardous Waste Management Act ([Chapter 70.105, Revised Code of Washington](#)) and the rules declared in [WAC Chapter 173-303](#) regulate the management of dangerous waste in Washington State. [WAC 173-303-800](#) requires facilities that treat, store, and/or dispose of dangerous waste to obtain a permit for these activities.

Regulatory requirements for public notice and involvement on permit modifications are described in [WAC 173-303-840](#)(3) and (4). As required by [WAC 173-303-840](#)(3)(d), draft modifications to the WTP Permit will have at least a 45-day public comment period. The public comment period for this proposed permit modification begins on December 28, 2015, and ends on February 13, 2016.

Comments must be post-marked, received by e-mail, or hand-delivered no later than close of business (5:00 p.m. PST) February 13, 2016. Direct all written comments to:

Dieter Bohrmann
Washington State Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354
E-mail address: hanford@ecy.wa.gov

In accordance with [WAC 173-303-840](#)(10)(c), when a permit is modified, only the conditions subject to modification are open for comment. All other aspects of the existing Permit remain in effect for the duration of the modification.

Ecology will consider and respond to all written comments on this permit modification 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 to all who commented. If the final decision includes substantial changes to the WTP Permit because of public comment, we will initiate a new public comment period.

Ecology will provide a Response to Comments document and a notification of the final permit decision to the Permittees and all others who commented. The final permit decision may be appealed within 30 days after issuance of that decision.

Copies of the WTP Permit, including the proposed permit modifications, are available for review at the Hanford Public Information Repositories. For additional information, call the Hanford Cleanup Hotline toll-free at 800-321-2008 or email hanford@ecy.wa.gov.

Hanford Public Information Repositories

Richland

United States Department of Ecology
Nuclear Waste Program Resource Center
3100 Port of Benton Boulevard
Richland, Washington 99354
Contact: Valarie Peery (509) 372-7950

United States Department of Energy
Administrative Record
2440 Stevens Drive
Richland, Washington 99354
Contact: Heather Childers (509) 376-2530

United States Department of Energy
Reading Room
2770 Crimson Way, Room 101L
Richland, Washington 99354
Contact: Janice Parthree (509) 375-3308

Portland

Portland State University
Branford Price Millar Library
1875 Southwest Park Avenue
Portland, Oregon 97207
Contact: Claudia Weston (503) 725-4542

Seattle

University of Washington
Suzzallo Library
PO Box 352900
Seattle, Washington 98195
Contact: Hilary Reinert (206) 543-5597

Spokane

Gonzaga University
Foley Center
502 East Boone Avenue
Spokane, Washington 99258
Contact: John Spencer (509) 313-6110

This Statement of Basis and Public Notice for the proposed permit modification is also available online at <http://www.ecy.wa.gov/programs/nwp/commentperiods.htm>. If special accommodations are needed for public comment, contact Dieter Bohrmann, Ecology, at 800-321-2008.

4.0 PROPOSED MODIFICATIONS TO THE WTP PERMIT

This proposed permit modification contains the following packages. New or revised documents submitted with the packages are listed below. See [Tables 1](#) through [3](#) at the end of this document for the entire list of package documents.

In late August 2015, Ecology received information about a draft LAW Design and Operability Review Report that was released to the media. We have read the report, and identified portions of the report that directly relate to the equipment that is included in design packages for this proposed modification. Ecology has requested that the Permittees provide sufficient detail to address our concerns on the issues identified. We will thoroughly review and evaluate the information they provide prior to making a final decision regarding this proposed modification.

Design Package No. LAW-026A, Rev. 0, for Miscellaneous Unit Subsystems for LAW Facility LVP System (HEPA Preheaters LVP-HTR-00001A/B & -00003A/B)

The LAW-026A permit design package addresses the design and installation of the high-efficiency particulate air (HEPA) preheaters, which are part of the secondary offgas/vessel vent process (LVP) system at the 48 ft. elevation.

In the LVP system, melter offgas is combined with the vessel vent offgas which is heated in the HEPA preheaters to raise the offgas temperature above the dew point. The heated offgas is then dry enough to pass through HEPA filters, which remove particulates, before the offgas passes through the rest of the LVP system.

The LAW-026A design package was submitted for a 45-day public comment period from September 2 through October 20, 2014. As a result of public comments received during the public comment period, technical issues were raised. Ecology withdrew this design package pending resolution of the unresolved issues and resulting corrective actions. The Permittee has addressed the outstanding technical issues and has revised and resubmitted the LAW-026A permit design package for a second public review period.

Design package LAW-026A, Rev. 1 consists of:

- An assessment report signed by an Independent, Qualified, Registered, Professional Engineer (IQRPE) certifying the LVP HEPA Preheater Design.
- Vendor mechanical drawing of the LVP HEPA Preheaters.
- Vendor mechanical data sheet for the LVP HEPA Preheaters.
- Corrosion evaluation for the LVP HEPA Preheaters.

The complete list of documents included in the package is indicated by a “Y” in the “Included Column” on [Table 1](#).

Design Package No. LAW-025, Rev. 0, for Miscellaneous Unit Subsystems for LAW Facility LVP System (Thermal Catalytic Oxidizer, Selective Catalytic Reducer, Electric Heater, and Heat Exchanger located on LVP-SKID-00002)

The LAW-025 permit design package addresses design and installation of the thermal catalytic oxidizer, selective catalytic reducer, electric heater, and heat exchanger equipment which are part

of the LAW LVP system. The equipment components are assembled into a single unit called a skid, which is located on the 48 ft. elevation of the LAW facility.

In the LVP system, once the offgas passes through the HEPA filters, the filtered offgas is passed through activated carbon adsorption units which remove mercury, iodine, and acid gasses from the offgas stream, before being directed into the thermal catalytic oxidizer skid.

The catalytic oxidizer skid is made up of a heat exchanger, electric heater, thermal catalytic oxidizer, and selective catalytic reducer components. The catalytic oxidizer skid removes volatile organic compounds, carbon monoxide, and nitrogen oxides from the offgas stream. The offgas first passes through the heat exchanger to raise the temperature of the offgas. The electric heater is used next to supplement the heat exchanger during start-up, and when the system is operating with low nitrogen oxide concentrations. The heated offgas then passes through the thermal catalytic oxidizer to convert volatile organic compounds and carbon monoxide into carbon dioxide and water vapor. The selective catalytic reducer converts oxides of nitrogen into nitrogen and water using ammonia. This final reaction significantly increases the temperature of the offgas, so it is passed again through the heat exchanger, this time to cool the offgas, before it moves through the rest of the LVP system.

Design package LAW-025, Rev. 0, includes:

- An assessment report signed by an IQRPE certifying that the thermal catalytic oxidizer/selective catalytic reducer is adequately designed and will not collapse, rupture, or fail as provided in [WAC-173-303-640\(2\)\(c\)](#).
- General Arrangement Plan.
- Piping and Instrumentation Diagram.
- Mechanical drawings for the thermal catalytic oxidizer/reducer with heat exchanger and electric heater.
- Engineering specification for the thermal catalytic oxidizers/reducer with heat exchanger and electric heater.
- Engineering specification for pressure vessel design and fabrication.
- Mechanical data sheet for the LAW thermal catalytic oxidizer/selective catalytic reducer (with heat exchanger and electric heater).
- Corrosion evaluations for the:
 - Catalytic oxidizer heat recovery exchanger.
 - Catalytic oxidizer electric heater.
 - Thermal catalytic oxidizer.
 - NOx selective catalytic reducer.

The complete list of documents included in the package is indicated by a “Y” in the “Included Column” on [Table 2](#).

**Design Package No. LAW-028, Rev. 0, for the LAW Facility LVP System
Miscellaneous Unit (LAW Melter Offgas Caustic Scrubber)**

The LAW-028 permit design package addresses the design and installation of the caustic scrubber which is part of the LAW LVP system, located at the 48 ft. elevation of the LAW facility.

In the LVP system, once melter offgas has passed through the thermal oxidizer skid, it is directed through the caustic scrubber, which removes residual acid gasses (primarily sulfur oxides and carbon dioxide) and provides further cooling of the offgas. Liquid effluent from the caustic scrubber is recirculated through a caustic collection tank. The treated offgas is then discharged to the atmosphere through the LAW stacks. Exhausters provide the motive force for the offgas.

Design Package LAW-028, Rev. 0 includes:

- An assessment report signed by an IQRPE certifying the LAW melter offgas caustic scrubber design.
- Mechanical data sheet for the LAW melter offgas caustic scrubber.
- Vendor mechanical drawing for the LAW melter offgas caustic scrubber.
- Corrosion evaluation for the LAW melter offgas caustic scrubber.
- Engineering specification for the LAW melter offgas caustic scrubber.
- Engineering specification for Positive Material Identification for Shop Fabrication.

The complete list of documents included in the package is indicated by a “Y” in the “Included Column” on [Table 3](#).

4.1 Incorporation of Class 1 and Class ¹1 Permit Modifications (PCNs) and Permit Equivalency Notices (PENs)

Previously approved Class 1 and Class ¹1 PCNs and PENs are incorporated through the Quarterly Modifications. There will be no PCNs or PENs incorporated through this proposed modification.

4.2 Supplemental Design Information

[Tables 1](#) through [3](#) list the design information included in this proposed permit modification and the proposed location in the WTP Permit. At issuance of the final WTP Permit, Ecology will specify where each drawing or report resides in the WTP Permit.

Paper copies of the page changes to the WTP Permit that result from this modification will be placed in the Administrative Record.

The letter issuing the final WTP Permit decision to the Permittees and Hanford contractors will include the current WTP Permit with the modifications on a DVD.

4.3 Identifying Changes in this Proposed Permit Modification

As the WTP TSD Unit is constructed, Ecology will modify the WTP Permit for many reasons, including to clarify text, add new conditions, delete existing conditions, correct errors, or add information. To communicate the changes, proposed permit modifications will include page changes showing all significant proposed changes to the WTP Permit. The text to be deleted will

be struck-out with a single red line, and the new text will be in red and underlined. Only the text being changed in the current modification will be indicated by redlines 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 redline/strikeout text in the affected appendix drawing lists.

When a WTP Permit modification is issued, “clean” pages incorporating permit modifications will be issued to the Permittees and placed in the Administrative Record. All redlines and strikeouts will be removed. Documents and drawings listed in the appendices will not be redlined and will be incorporated by reference only.

Ecology publication number 07-05-006, *Responsiveness Summary* (September 27, 2007), explains the reason for replacing permit version documents with source documents to which the WTP is constructed. 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.

The Permittees use Document Change Notices to track changes not yet incorporated into source documents. In some cases, Document Change Notices 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 WTP Permit for review. Source documents have been replacing permit version documents since September 2007.

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Table 1 – Design Information Submitted by Permittees

***Design Package No. LAW-026A, Rev. 0
for the LAW Facility LVP System Miscellaneous Unit
(HEPA Preheaters LVP-HTR-00001A/B & 00003A/B)***

For Incorporation into the WTP Permit

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Engineering Document Title	Document Number	Revision	Permit Conditions	Included	Remarks
IQRPE Independent Assessment Report	24590-CM-HC4-HXYG-00240-02-00010	00A	III.10.H.5.c.i	Y	Incorporate IQRPE report into Appendix 9.11
Permit Drawings					
General Arrangement Plan	24590-LAW-P1-P01T-00005	6	III.10.H.5.c.ii	N	In Appendix 9.4, Revision 6 included in LAW-025
Drawing Change Notice for 24590-LAW-P1-P01T-00005	24590-LAW-P1N-P01T-00070			N	Provided to Ecology in CCN 261726
Drawing Change Notice for 24590-LAW-P1-P01T-00005	24590-LAW-P1N-P01T-00073			N	Provided to Ecology in CCN 261729
Process Flow Diagram	24590-LAW-M5-V17T-00010	4	III.10.H.5.c.ii	N	In Appendix 9.1
Drawing Change Notice for 24590-LAW-M5-V17T-00010	24590-LAW-M5N-V17T-00030			N	Provided to Ecology in CCN 261722
Piping & Instrumentation Diagram	24590-LAW-M6-LVP-00001002	0	III.10.H.5.c.ii	N	In Appendix 9.2
Drawing Change Notice for 24590-LAW-M6-LVP-00002002	24590-LAW-M6N-LVP-00130			N	Provided to Ecology in CCN 276881
Mechanical Drawing					
Vendor – Mechanical Drawing for the LAW HEPA Filter Preheater	24590-CD-POA-MEE0-00003-03-00004 24590-CD-POA-MEE0-00003-03-00005	00I 00J	III.10.H.5.c.ii III.10.H.5.c.vi	Y	For incorporation into Appendix 9.6

Engineering Document Title	Document Number	Revision	Permit Conditions	Included	Remarks
Mechanical Data Sheets					
Mechanical Systems Data Sheet – LVP Off-Gas HEPA Pre-heaters	24590-LAW-MED-LVP-00006	1	III.10.H.5.c.ii	Y	For incorporation in Appendix 9.6
Engineering Specifications					
Pressure Vessel Design and Fabrication	24590-WTP-3PS-MV00-T0001	5	III.10.H.5.c.ii III.10.H.5.c.iii	N	In Appendix 7.7 (In LAW-025)
Seismic Qualification Criteria for Pressure Vessels	24590-WTP-3PS-MV00-T0002	3	III.10.H.5.c.ii III.10.H.5.c.iii	N	In Appendix 7.7
Positive Material Identification (PMI) for Shop Fabrication	24590-WTP-3PS-G000-T0002	9		N	In Appendix 7.7
Secondary Containment Design	24590-WTP-PER-CSA-02-001	10	III.10.H.5.c.ii III.10.H.5.c.iii	N	In Appendix 7.5
Underground Pipe Protection	Not applicable	-	III.10.H.5.c.iv	N/A	There are no underground pipes in the LAW facility El. 3 ft. and above
Corrosion Evaluation – HEPA Filter Preheater	24590-LAW-N1D-LVP-00009	2	III.10.H.5.c.iii III.10.H.5.c.v	Y	Incorporate in Appendix 9.9
LAW Vitrification Offgas System Bypass Analysis	24590-LAW-PER-PR-03-001	2	III.10.H.5.c.ix	N	In Appendix 9.18
Installation for Tank Systems and Miscellaneous Treatment Unit Systems	24590-WTP-PER-CON-02-001	6	III.10.H.5.c.x	N	In Appendix 7.12

For Incorporation into the Administrative Record

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Engineering Document Title	Document Number	Revision	Permit Condition	Included	Remarks
Structural Support Calculations for Off Spec, Non-Standard or Field Fabricated Miscellaneous Treatment Subsystems	Not Applicable - See Remarks	-	III.10.H.5.c.iii	N	There are no Off Spec, Non-Standard, or Field Fabricated Miscellaneous Unit Subsystems in the LAW Facility (Preheaters are vendor fabricated.)
System Description for LOP and LVP: LAW Melter Offgas	24590-LAW-3YD-LOP-00001	3	III.10.H.5.c.vii	N	In Administrative Record (CCN 261065)
System Description Change Notice against the LAW Primary Offgas (LOP) and Secondary Offgas/Vessel Vent (LFP) Systems	24590-LAW-3YN-LOP-00011	N/A	III.10.H.5.c.vii	N	Provided to Ecology in CCN 233560
	24590-LAW-3YN-LOP-00012				Provided to Ecology in CCN 241650
	24590-LAW-3YN-LOP-00013				Provided to Ecology in CCN 241672
	24590-LAW-3YN-LOP-00015				Provided to Ecology in CCN 261722
Mass and Energy Balance					
Flowsheet Bases, Assumptions, and Requirements	24590-WTP-RPT-PT-02-005	7	III.10.H.5.c.viii	N	In Administrative Record (CCN 277127)
2010 WTP Material Balance and Steady State Flowsheet Assessment, Deliverable 2.7	24590-WTP-RPT-PET-10-022	0			In Administrative Record (CCN 241137)
Steady State (AES) Model Run Report for 2010 Material Balance and Process Flowsheet Analysis Assessment Report	24590-WTP-MRR-PET-10-010	0			In Administrative Record (241137)
Control of Toxic Vapors and Emissions from WTP Tank Systems and Miscellaneous Treatment Unit Systems	24590-WTP-PER-PR-03-002	3	III.10.H.5.c.xi	N	In Administrative Record (CCN 161097)
Prevention of Hydrogen Accumulation in WTP Tank Systems and Miscellaneous Treatment Unit Systems	LAW Miscellaneous Treatment Unit Hydrogen Accumulation Document for the DWP Administrative Record (CCN 280210)		III.10.H.5.c.xii	N	In Administrative Record (CCN 277127)

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Table 2– Design Information Submitted by Permittees

**Design Package No. LAW-025, Rev. 0
for Miscellaneous Unit for LAW Facility LVP System
(Thermal Catalytic Oxidizer, Selective Catalytic Reducer, Electric Heater, and Heat Exchanger Skid)**

For Incorporation into the WTP Permit**Table of Contents**

Engineering Document Title	Document Number	Revision	Permit Conditions	Included	Remarks
IQRPE Independent Assessment Report	24590-CM-HC4-HXYG-00240-02-00012	00A	III.10.H.5.c.i	Y	Incorporate into Appendix 9.11
Permit Drawings					
LAW Vitrification Building General Arrangement Plan at El. 48 ft – 0 in.	24590-LAW-P1-P01T-00005	6	III.10.H.5.c.ii	Y	Incorporate into Appendix 9.4
Process Flow Diagram – LAW Vitrification Secondary Offgas Treatment (System LVP)	24590-LAW-M5-V17T-00011	5	III.10.H.5.c.ii	N	In Appendix 9.1
PFD Drawing Change Notices	24590-LAW-M5N-V17T-00012		III.10.H.5.c.ii	N	In Appendix 9.1
	24590-LAW-M5N-V17T-00019				
	24590-LAW-M5N-V17T-00023				
	24590-LAW-M5N-V17T-00029				
Piping & Instrumentation Diagram P&ID – LAW – LAW Secondary Offgas/Vessel Vent Process System SCO/SCR Skid	24590-LAW-M6-LVP-00005002	3	III.10.H.5.c.ii	Y	Incorporate into Appendix 9.2
Mechanical Drawing					
Vendor – LAW Thermal Catalytic Oxidizer – TCO General Arrangement	24590-CD-POC-MBT0-00007-01-00353, Sheet 1 of 4	00E	III.10.H.5.c.ii III.10.H.5.c.vi	Y	Incorporate into Appendix 9.6
	24590-CD-POC-MBT0-00007-01-00353, Sheet 2 of 4	00E			

Engineering Document Title	Document Number	Revision	Permit Conditions	Included	Remarks
	24590-CD-POC-MBT0-00007-01-00353, Sheet 3 of 4	00E			
	24590-CD-POC-MBT0-00007-01-00353, Sheet 4 of 4	00E			
Mechanical Data Sheet and Other Permit Documentation					
Mechanical Data Sheet – LAW Catalytic Oxidizer/Reducer	24590-LAW-MKD-LVP-00012	15	III.10.H.5.c.ii III.10.H.5.c.iii	Y	Incorporate into Appendix 9.6
Secondary Containment Design	24590-WTP-PER-CSA-02-001	10	III.10.H.5.c.ii III.10.H.5.c.iii	N	In Appendix 7.5
Underground Pipe Protection	Not applicable	-	III.10.H.5.c.iv	N	There are no underground pipes in the LAW facility El. 3 ft and above
Engineering Specifications					
Engineering Specification for LAW Thermal Catalytic Oxidizers/Reducers (with Heat Exchanger and Electric Heater)	24590-LAW-3PS-MBTV-T0001	5	III.10.H.5.c.ii III.10.H.5.c.iii	Y	Incorporate into Appendix 9.7
SDDR for code year reference for ASME Section VIII B & PVC listed in Engineering Specification for LAW TCO/SCR	24590-WTP-SDDR-MS-15-00017		III.10.H.5.c.ii III.10.H.5.c.iii	N	Provided to Ecology in CCN 275838
SDDR for thermowell testing for the LAW TCO/SCR	24590-WTP-SDDR-MS-15-00030		III.10.H.5.c.ii III.10.H.5.c.iii	N	Provided to Ecology in CCN 275847
Pressure Vessel Design and Fabrication	24590-WTP-3PS-MV00-T0001	5	III.10.H.5.c.ii III.10.H.5.c.iii	Y	Incorporate into Appendix 7.7
Seismic Qualification Criteria for Pressure Vessels	24590-WTP-3PS-MV00-T0002	3	III.10.H.5.c.ii III.10.H.5.c.iii	N	In Appendix 7.7
Positive Material Identification (PMI) for Shop Fabrication	24590-WTP-3PS-G000-T0002	9		N	In Appendix 7.7

Engineering Document Title	Document Number	Revision	Permit Conditions	Included	Remarks
Corrosion Evaluations and other Permit Documentation					
LVP-HX-00001 – Catalytic Oxidizer Heat Recovery Exchanger	24590-LAW-N1D-LVP-00005	3	III.10.H.5.c.v	Y	Incorporate into Appendix 9.9
LVP-HTR-00002 – Catalytic Oxidizer Electric Heater	24590-LAW-N1D-LVP-00006	3	III.10.H.5.c.v	Y	Incorporate into Appendix 9.9
LVP-SCO-00001 – Thermal Catalytic Oxidizer	24590-LAW-N1D-LVP-00007	4	III.10.H.5.c.v	Y	Incorporate into Appendix 9.9
LVP-SCR-00001 – NOx Selective Catalytic Oxidizer	24590-LAW-N1D-LVP-00008	3	III.10.H.5.c.v	Y	Incorporate in Appendix 9.9
LAW Vitrification Offgas System Bypass Analysis	24590-LAW-PER-PR-03-001	2	III.10.H.5.c.ix	N	In Appendix 9.18
Installation for Tank Systems and Miscellaneous Treatment Unit Systems	24590-WTP-PER-CON-02-001	6	III.10.H.5.c.x	N	In Appendix 7.12

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Engineering Document Title	Document Number	Revision	Permit Condition	Included	Remarks
Structural Support Calculations for Off Spec, Non-Standard or Field Fabricated Miscellaneous Treatment Subsystems	Not Applicable - See Remarks	-	III.10.H.5.c.iii	N	There are no Off Spec, Non-Standard, or Field Fabricated Miscellaneous Unit Subsystems in the LAW Facility
System Description for LAW Primary Offgas (LOP) and Secondary Offgas/Vessel Vent (LVP) Systems	24590-LAW-3YD-LOP-00001	3	III.10.H.5.c.vii	N	In Administrative Record
System Description Change Notice against the LAW Primary Offgas (LOP) and Secondary Offgas/Vessel Vent (LFP) Systems	24590-LAW-3YN-LOP-00011	N/A	III.10.H.5.c.vii	N	Provided to Ecology in CCN 233560
	24590-LAW-3YN-LOP-00012				Provided to Ecology in CCN 241650
	24590-LAW-3YN-LOP-00013				Provided to Ecology in CCN 241672
	24590-LAW-3YN-LOP-00015				Provided to Ecology in CCN 261722
Mass and Energy Balance					
Flowsheet Bases, Assumptions, and Requirements	24590-WTP-RPT-PT-02-005	7	III.10.H.5.c.viii	Y	Incorporate into Administrative Record
2010 WTP Material Balance and Steady State Flowsheet Assessment, Deliverable 2.7	24590-WTP-RPT-PET-10-022	0		N	In Administrative Record (CCN 241137)
Steady State (AES) Model Run Report for 2010 Material Balance and Process Flowsheet Analysis Assessment Report	24590-WTP-MRR-PET-10-010	0		N	In Administrative Record (CCN 241137)
Control of Toxic Vapors and Emissions from WTP Tank Systems and Miscellaneous Treatment Unit Systems	24590-WTP-PER-PR-03-002	3	III.10.H.5.c.xi	N	In Administrative Record (CCN 161097)
Prevention of Hydrogen Accumulation in WTP Tank Systems and Miscellaneous Treatment Unit Systems	LAW Miscellaneous Treatment Unit Hydrogen Accumulation Document for the DWP Administrative Record (CCN 280210)		III.10.H.5.c.xii	Y	Incorporate into Administrative Record

Table 3– Design Information Submitted by Permittees

***Design Package No. LAW-028, Rev. 0
for the LAW Facility LVP System Miscellaneous Unit
(LAW Melter Offgas Caustic Scrubber)***

For Incorporation into the WTP Permit

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Engineering Document Title	Document Number	Revision	Permit Conditions	Included	Remarks
IQRPE Independent Assessment Report	24590-CM-HC4-HXYG-00240-02-00013	00A	III.10.H.5.c.i	Y	Incorporate IQRPE report into Appendix 9.11
Permit Drawings					
General Arrangement Plan at El. 48 ft.	24590-LAW-P1-P01T-00005	6	III.10.H.5.c.ii	N	In Appendix 9.4, Revision 5 included in LAW-025
Process Flow Diagram – LAW Vitrification Secondary Offgas Treatment (System LVP)	24590-LAW-M5-V17T-00011	5	III.10.H.5.c.ii	N	In Appendix 9.1
PFD Drawing Change Notices	24590-LAW-M5N-V17T-00012		III.10.H.5.c.ii		In Appendix 9.1
	24590-LAW-M5N-V17T-00019				
	24590-LAW-M5N-V17T-00023				
	24590-LAW-M5N-V17T-00029				
Piping & Instrumentation Diagram	24590-LAW-M6-LVP-00002002	0	III.10.H.5.c.ii	N	In Appendix 9.2
Drawing Change Notice for 24590-LAW-M6-LVP-00002002	24590-LAW-M6N-LVP-00092		III.10.H.5.c.ii	N	Provided to Ecology in CCN 254078
Mechanical Drawing					
Vendor – Mechanical Drawing for the LAW Melter Offgas Caustic Scrubber	24590-QL-POA-MKAS-00003-04-00050	00E	III.10.H.5.c.ii	Y	Incorporate into Appendix 9.6
	24590-QL-POA-MKAS-00003-04-00051	00E	III.10.H.5.c.vi		
	24590-QL-POA-MKAS-00003-04-00052	00E			

Engineering Document Title	Document Number	Revision	Permit Conditions	Included	Remarks
Mechanical Data Sheet and Other Permit Documentation					
Mechanical Data Sheet for the LAW Melter Offgas Caustic Scrubber	24590-LAW-MKD-LVP-00011	6	III.10.H.5.c.ii III.10.H.5.c.vi	Y	Incorporate into Appendix 9.6
Corrosion Evaluations and other Permit Documentation					
LVP-SCB-00001 – Corrosion Evaluation LAW Melter Offgas Caustic Scrubbers	24590-LAW-N1D-LVP-00001	7	III.10.H.5.c.iii III.10.H.5.c.v	Y	Incorporate into Appendix 9.9
Engineering Specifications					
Engineering Specification for LAW Melter Offgas Caustic Scrubber	24590-LAW-3PS-MKAS-T0001	2	III.10.H.5.c.ii III.10.H.5.c.iii III.10.H.5.c.vi	Y	Incorporate into Appendix 9.7
Technical Change Notice (TCN) to Engineering Specification for LAW Melter Offgas Caustic Scrubber	24590-QL-MRA-MKAS-00003-T0009			N	Provided to Ecology in CCN 267882
Technical Change Notice (TCN) to Engineering Specification for LAW Melter Offgas Caustic Scrubber	24590-QL-MRA-MKAS-00003-T0010			N	Provided to Ecology in CCN 267882
Technical Change Notice (TCN) to Engineering Specification for LAW Melter Offgas Caustic Scrubber	24590-QL-MRA-MKAS-00003-T0011			N	Provided to Ecology in CCN 267882
Specification Change Notices LAW Add Technical Notes From Material Requisition Into Specification	24590-LAW-3PN-MKAS-00003			N	Provided to Ecology in CCN 267877
Supplier Deviation Disposition Request – LAW Melter Offgas Caustic Scrubber	24590-WTP-SDDR-MS-14-00067			N	Provided to Ecology in CCN 267878
Supplier Deviation Disposition Request – LAW Melter Offgas Caustic Scrubber	24590-WTP-SDDR-MS-14-00070			N	Provided to Ecology in CCN 267882

Engineering Document Title	Document Number	Revision	Permit Conditions	Included	Remarks
Supplier Deviation Disposition Request – LAW Melter Offgas Caustic Scrubber	24590-WTP-SDDR-MS-14-00082			N	Provided to Ecology in CCN 267888
Supplier Deviation Disposition Request – LAW Melter Offgas Caustic Scrubber	24590-WTP-SDDR-MS-14-00085			N	Provided to Ecology in CCN 267884
Supplier Deviation Disposition Request – LAW Melter Offgas Caustic Scrubber	24590-WTP-SDDR-MS-15-00002			N	Provided to Ecology in CCN 267886
Supplier Deviation Disposition Request – LAW Melter Offgas Caustic Scrubber	24590-WTP-SDDR-MS-15-00003			N	Provided to Ecology in CCN 267886
Supplier Deviation Disposition Request – LAW Melter Offgas Caustic Scrubber	24590-WTP-SDDR-MS-15-00007			N	Provided to Ecology in CCN 275843
Engineering Specification for Pressure Vessel Design and Fabrication	24590-WTP-3PS-MV00-T0001	5	III.10.H.5.c.ii III.10.H.5.c.iii III.10.H.5.c.vi	N	In Appendix 7.7 (In LAW-025 package)
Engineering Specification for Seismic Qualification Criteria for Pressure Vessels	24590-WTP-3PS-MV00-T0002	3	III.10.H.5.c.ii III.10.H.5.c.iii III.10.H.5.c.vi	N	In Appendix 7.7
Engineering Specification for Positive Material Identification (PMI) for Shop Fabrication	24590-WTP-3PS-G000-T0002	9	III.10.H.5.c.ii III.10.H.5.c.iii III.10.H.5.c.vi	Y	Incorporate into Appendix 7.7
Engineering Specification for Pressure Vessel Fatigue Analysis	24590-WTP-3PS-MV00-T0003	3	III.10.H.5.c.ii III.10.H.5.c.iii III.10.H.5.c.vi	N	In Appendix 7.7
Secondary Containment Design	24590-WTP-PER-CSA-02-001	10	III.10.H.5.c.ii III.10.H.5.c.iii	N	In Appendix 7.5
Underground Pipe Protection	Not applicable	-	III.10.H.5.c.iv	N	There are no underground pipes in the LAW facility El. 3 ft and above
LAW Vitrification Offgas System Bypass Analysis	24590-LAW-PER-PR-03-001	2	III.10.H.5.c.ix	N	In Appendix 9.18
Installation for Tank Systems and Miscellaneous Unit Systems	24590-WTP-PER-CON-02-001	6	III.10.H.5.c.x	N	In Appendix 7.12

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Engineering Document Title	Document Number	Revision	Permit Condition	Included	Remarks
Structural Support Calculations for Off Spec, Non-Standard or Field Fabricated Miscellaneous Treatment Subsystems	Not Applicable - See Remarks	-	III.10.H.5.c.iii	N/A	There are no Off Spec, Non-Standard, or Field Fabricated Miscellaneous Unit Subsystems in the LAW Facility
System Description for LAW Primary Offgas (LOP) and Secondary Offgas/Vessel Vent (LVP) Systems	24590-LAW-3YD-LOP-00001	3	III.10.H.5.c.vii	N	In Administrative Record CCN 240034
Mass and Energy Balance Documents					
Flowsheet Bases, Assumptions, and Requirements	24590-WTP-RPT-PT-02-005	7	III.10.H.5.c.viii	N	In Administrative Record (In LAW-025)
2010 WTP Material Balance and Steady State Flowsheet Assessment, Deliverable 2.7	24590-WTP-RPT-PET-10-022	0		N	In Administrative Record (CCN 241137)
Steady State (AES) Model Run Report for 2010 Material Balance and Process Flowsheet Analysis Assessment Report	24590-WTP-MRR-PET-10-010	0		N	In Administrative Record (CCN 241137)
Toxic Vapors and Emissions					
Control of Toxic Vapors and Emissions from WTP Tank Systems and Miscellaneous Treatment Unit Systems	24590-WTP-PER-PR-03-002	3	III.10.H.5.c.xi	N	In Administrative Record (CCN 178564)
Prevention of Hydrogen Accumulation					
Prevention of Hydrogen Accumulation in WTP Tank Systems and Miscellaneous Treatment Unit Systems	LAW Miscellaneous Treatment Unit Hydrogen Accumulation Document for the DWP Administrative Record (CCN 280210)		III.10.H.5.c.xii	N	In Administrative Record (LAW-025)