



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

## **Response to Comments**

**Modification of the *Hanford Facility*  
*Resource Conservation and Recovery Act*  
*Permit for the Treatment, Storage, and*  
*Disposal of Dangerous Waste, Part III,*  
**Operating Unit Group 10 (WA7890008967)**  
**Waste Treatment and Immobilization Plant**  
**October 15 – December 20, 2013****

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*Summary of a public comment period and responses to comments*

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For more information contact:

Dan McDonald, Tank Waste Disposal Project Manager  
Nuclear Waste Program  
3100 Port of Benton Boulevard  
Richland, WA 99354

Phone: 509-372-7950  
Hanford Cleanup Line: 800-321-2008  
Email: [Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)

Washington State Department of Ecology - [www.ecy.wa.gov](http://www.ecy.wa.gov)

- Headquarters, Lacey 360-407-6000
- Northwest Regional Office, Bellevue 425-649-7000
- Southwest Regional Office, Lacey 360-407-6300
- Central Regional Office, Yakima 509-575-2490
- Eastern Regional Office, Spokane 509-329-3400

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# **Response to Public Comments**

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**Modification of the *Hanford Facility Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit Group 10 (WA7890008967)* Waste Treatment and Immobilization Plant  
October 15 – December 20, 2013**

Department of Ecology  
Nuclear Waste Program  
3100 Port of Benton Boulevard  
Richland, Washington 99354

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## INTRODUCTION

The Washington State Department of Ecology's Nuclear Waste Program (NWP) manages dangerous waste within the State by writing permits to regulate its treatment, storage, and disposal. When a new permit or a significant modification to an existing permit is proposed, the NWP holds a public comment period to allow the public to review the change and provide formal feedback. (See [Washington Administrative Code \[WAC\] 173-303-830](#) for types of permit changes and requirements for making changes.)

The response to comments is the last step before issuing the final permit, and its purpose is to:

- Specify which provisions, if any, of a permit will become effective upon issuance of the final permit, providing reasons for those changes.
- Describe and document public involvement actions.
- List and respond to all significant comments received during the public comment period and any related public hearings.

### **This Response to Comments is prepared for:**

Comment period: Waste Treatment Plant Design Changes,  
October 15 – December 20, 2013

Permit: *Hanford Facility Resource Conservation and Recovery Act (RCRA)  
Permit for the Treatment, Storage, and Disposal of Dangerous Waste,  
Part III, Operating Unit Group 10 (WA7890008967), Waste Treatment  
and Immobilization Plant*

Original issuance date: September 27, 1994

Draft effective date: April 16, 2014

For more information related to the Hanford Site and nuclear waste in Washington, visit our website: [www.ecy.wa.gov/programs/nwp](http://www.ecy.wa.gov/programs/nwp).

## REASON FOR ISSUING THE PERMIT

The NWP prepared a draft permit modification that incorporates new and modified design information for the *Hanford Facility RCRA Permit, Revision 8C, for the Treatment and Disposal of Dangerous Waste, Part III, Operating Unit Group 10, Waste Treatment and Immobilization Plant (WTP)*, hereafter called the "WTP Permit".

The proposed changes included two design packages, two other documents, and a change to the Permit Conditions.

- The design packages allowed new construction on the Low-Activity Waste (LAW) Facility and provide additional details necessary for the future construction of the Failed Melter Storage Facility.
- The two documents are a structural integrity assessment for LAW Facility equipment, and an engineering specification for equipment in the High-Level Waste (HLW) and Pretreatment (PT) Facilities.
- The change to the Permit Conditions details an exception to the leak detection rate for

specific penetration seals in the LAW Facility walls and floors to satisfy fire code requirements.

### **Design Packages included in Permit Modification**

#### ***Design Package No. LAW-026C, Rev. 0, Miscellaneous Unit Subsystems for LAW Facility LVP System (LVP Exhausters)***

This design package addresses the installation of Offgas/Vessel Vent Process (LVP) System miscellaneous unit subsystems in the LAW Facility at the +48-foot elevation. The purpose of the LVP system is to remove gases and particulates from the combined primary offgas and vessel vent streams. The LVP system consists of preheaters, high-efficiency particulate air (HEPA) filters, exhausters, mercury adsorbers, a catalytic oxidizer/reducer, a caustic scrubber, and a caustic collection tank. This permit package only addresses the exhausters.

There are three multistage exhausters (LVP-EXHR-00001A/B/C) with adjustable speed drives that are located downstream of the caustic scrubber. This location maintains the offgas at a negative pressure through all of the abatement processes. These exhausters will be high integrity multi-stage fans with double mechanical seals with purge to ensure that any seal leakage that may develop will be infiltration versus exfiltration.

The exhausters provide the motive force for discharging treated offgas to the atmosphere through the LAW stack. Normally, two exhausters will be running at a time, with the third exhauster in standby. If one exhauster fails, the standby exhauster automatically starts. If the standby exhauster fails to start, the single remaining online exhauster is adequately sized to maintain negative pressure in the melters.

This design package consists of:

- A final assessment report signed by an Independent, Qualified, Registered, Professional Engineer (IQRPE) certifying the LVP Exhauster Design.
- Two Process Flow Diagrams (PFDs) and associated change documents to replace permitted LVP PFDs.
- A mechanical data sheet for the exhausters.
- An engineering specification for exhausters and hoses.
- A technical change notice to the exhauster specification.
- A supplier deviation disposition request to the exhauster specification.
- A corrosion evaluation for melter offgas exhausters.

#### ***Permit Package No. BOF-001, Rev. 0, Container Storage Area for the Balance of Facilities (Failed Melter Storage Facility)***

This permit package addresses the Container Storage Area located in the Failed Melter Storage Facility (Building 32) at the southeast corner of the WTP Facility. This container storage area is further described in Chapter 4.0, Section 4.2.1.4.2 of the WTP Permit.

This permit package includes the General Arrangement Drawing, update of WTP Permit Tables III.10.D.A and III.10.D.B, and vendor cut sheets describing a typical commercially available waste

container management building and drum spill collection pallet. Container Storage Area packages do not require an IQRPE report.

The Failed Melter Storage Facility will be used primarily to store HLW Melters that have completed their service life. These units will be received in carbon-steel overpack containers allowing limited hands-on contact. These overpacks will not be opened while the waste melters are located in this storage facility. The facility is capable of storing up to three overpacked waste melters at any given time. The spent HLW Melters will not be stacked.

The Failed Melter Storage Facility may also receive containerized miscellaneous mixed waste from WTP operations. These waste containers will be sealed prior to transport to the Failed Melter Storage Facility. The containers will not be opened while at this storage facility. Waste containers will not be stacked more than two containers high. If wastes containing liquids, or exhibiting the characteristics of ignitability or reactivity are generated, then portable secondary containment that meets the requirements of WAC 173-303-630(7) or WAC 173-303-630(8) will be provided.

The Failed Melter Storage Facility described in this submittal is subject to the following outstanding questions:

- Preliminary estimates of HLW melter waste concentrations indicate that alterations to this facility may be required.
- Depending on future waste characterization data, the design and location of the facility described in this submittal may require alterations. For example, additional radionuclide shielding may be required to reduce personnel exposure levels, which may impact the final design, dimensions, or location of the building.
- Alternatively, future long-term storage decisions for HLW Melters that have completed their useful service life may identify another facility suitable for melter storage as a more acceptable alternative to this facility, in which case the WTP Failed Melter Storage Facility would not need to be constructed.

Submittal of this package fulfills the requirements of Compliance Schedule Item 10. However, due to the outstanding uncertainties remaining, Ecology added a new Compliance Schedule Item 46 that requires submittal of final design information associated with the Failed Melter Storage Facility (Building 32) pending resolution of these uncertainties.

### **Documents included in the Permit Modification**

#### ***IQRPE Structural Integrity Assessment Report for the LAW Facility Secondary Containment Bulge Enclosures (LCP/LFP/LOP/RLD)***

This IQRPE report was included in permit modification request 24590-LAW-PCN-ENV-12-001. It describes the design and structural integrity of the installed LAW Facility bulges. A bulge is a metal box located outside of a hard-to-reach cell. The bulges provide secondary containment for hands-on operation and maintenance of process equipment such as pumps, valves, instruments and associated equipment. Bulges provide secondary containment for dangerous waste processing ancillary equipment inside the bulge. A more complete description of bulges is provided in Section 4.2.2.2.2 in Chapter 4.0 of the WTP Permit.

The bulges were previously addressed in four separate LAW ancillary equipment IQRPE integrity assessment reports listed below, which are located in Appendix 9.11 of the WTP Permit:

- IQRPE Structural Integrity Assessment Report for LAW LCP Ancillary Equipment, IA-3001932-000
- Structural Integrity Assessment of the Low-Activity Waste (LAW) Melter Feed Process System (LFP) Elev. 3'0" Ancillary Equipment, COGEMA-IA-055
- IQRPE Structural Integrity Assessment Report for LAW LOP Ancillary Equipment, IA-3002314-000
- IQRPE Structural Integrity Assessment Report for LAW RLD Ancillary Equipment, IA-3001885-000

Combining the LAW bulge design into a single IQRPE structural integrity assessment report more clearly describes the design and structural integrity of the bulges as secondary containment structures. A single report also helps to clearly demonstrate compliance with WAC secondary containment requirements.

This bulge IQRPE report does not describe any changes to the design of the bulges, nor does it replace any of the existing IQRPE reports listed. The report addresses the existing structures as secondary containment, which requires a different set of assessment criteria than the previously approved ancillary equipment IQRPE reports listed. The new report also references the final design documents used to construct and install the LAW bulges.

Ecology is providing the opportunity to review and comment on this IQRPE report because it is being submitted as a new report in Appendix 9.11 of the WTP Permit and because of the significant changes between the ancillary equipment and the secondary containment IQRPE reports.

***Engineering Specification for Plate and Frame Heat Exchangers, 24590-WTP-3PS-MEP0-T0001, Revision 0***

This is a supplement to *Engineering Specification for Pressure Vessel Design and Fabrication, 24590-WTP-3PS-MV00-T0001*, which is included in the WTP Permit and is applicable to plate and frame type heat exchangers in both the PT (for example, PTF-PVP-HX-00002) and HLW (for example, HLW-HOP-HX-00002 and HLW-HOP-HX-00004) facilities.

This Engineering Specification and associated applicable change documentation will be placed in Appendix 7.7 of the WTP Permit.

**Change to Permit Conditions**

***Leak Detection Rate Exception for 63 Penetration Seals in the LAW Facility***

There are 253 dangerous waste processing lines that penetrate a floor or wall in the LAW Facility. Pipe sleeves are incorporated in these penetrations, where required, to divert a potential leak of dangerous waste into secondary containment and associated leak detection device, or allow a leak to drain from the sleeve to support the daily visual inspection required by the WAC and Dangerous Waste Permit. However, under fire protection regulations, a number of these penetrations must be sealed to provide a fire stop, which could impact the ability to detect a leak within regulatory leak detection requirements if a leak should occur within one of those segments.

Of the 253 total pipe penetrations, an evaluation identified 63 penetration seals that could affect leak detection capability within the required timeframe set forth in WTP Permit Condition III.10.E.9.e.ii. Ecology is granting an exception to the required leak detection timeframe for these

63 penetration seals. Permit Condition III.10.E.9.e.ii and III.10.H.5.e.ii have been modified accordingly, and *Table III.10.E.Q Tank System Penetration Seal Locations* and *Table III.10.H.G LAW Plant Penetration Seal Locations* have been incorporated to document the specific penetrations seals that are exempt from the required leak detection rate.

## **PUBLIC INVOLVEMENT ACTIONS**

The NWP encouraged public comment on the draft WTP Permit modification during a 45-day public comment period held October 15 through December 20, 2013.

A public notice announcing the comment period was mailed to 759 interested members of the public. A public announcement legal classified advertisement was placed in the *Tri-City Herald* on Sunday, October 13, 2013. A notice announcing the start of the comment period was sent to the [Hanford-Info email list](#), which has 1,251 recipients. The comment period was also posted as an event on Ecology's [Hanford Education & Outreach Facebook page](#).

The Hanford information repositories located in Richland, Spokane, and Seattle, Washington, and Portland, Oregon, received the following documents for public review. The documents were also available on [NWP's public comment periods web page](#):

- Public notice.
- Transmittal letter.
- Statement of Basis for the proposed WTP Permit modification.
- Draft WTP Permit modification.

On November 22, 2013, Hanford Challenge requested NWP extend the end of the comment period from December 3 to December 20. NWP granted this request and shared the new end date for the comment period through the Hanford-Info email list, Ecology's website, and the Hanford Education & Outreach Facebook page. The total comment period timeframe was 67 days.

The following public notices for this comment period are in Appendix A of this document:

1. Statement of Basis.
2. Public notice (focus sheet).
3. Classified advertisement in the *Tri-City Herald*.
4. Notice sent to the Hanford-Info email list.
5. Event posted on Ecology's Hanford Education & Outreach Facebook page.
6. Notice of comment period extension sent to the Hanford-Info email list.
7. Posting on Ecology's web page about the comment period.
8. Status update about the comment period extension on Ecology's Hanford Education & Outreach Facebook page.
9. LAW Facility photo album on Ecology's Hanford Education & Outreach

Ecology's letter to the United States Department of Energy (USDOE) documenting the final permit modification decision is in Appendix C of this document.

## RESPONSE TO COMMENTS

The NWP accepted comments on the draft WTP Permit from October 15 until December 20, 2013. This section provides verbatim comments that we received during the public comment period and our responses, as required by RCW 34.05.325(6)(a)(iii).

Comments are grouped by individual, and each comment is addressed separately. The NWP's responses directly follow each comment in *italic font*.

### **Comment from Anonymous, dated October 20, 2013**

The following comment is in response to the announcement on October 15, 2013, that the Department of Ecology is proposing a modification to the Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste for the Waste Treatment and Immobilization Plant (WTP).

The proposed changes would allow new construction in the Low-Activity Waste (LAW) Facility; specifically including installation of LVP system exhaust fans.

Installation of exhaust fans or other equipment at this time appears to be premature.

The LAW Melter Off-Gas system, according to the Chapter 4 Process Information, includes:

- Film Coolers
- Submerged Bed Scrubbers and collection tanks
- Wet Electrostatic Precipitators
- LAW Caustic Collection Tank
- Melter Offgas HEPA Preheaters
- Melter Offgas HEPA Filters
- Offgas Mercury Adsorbers
- Catalytic Oxidizer Electric Heater
- Thermal Catalytic Oxidizer
- NOx Selective Catalytic Reduction Unit and Ammonia Supply
- Catalytic Oxidizer Heat Recovery Unit
- Melter Offgas Caustic Scrubber
- Melter Offgas Exhausters (LVP-EXHR-00001A/B/C)

According to Chapter 4 of the Permit, melter off-gas is generated from the vitrification of LAW feed. The rate of generation of gases in the melter varies. Off-gas constituents include: nitrogen oxides (NOx) from decomposition of metal nitrates in the melter feed, chloride, fluoride, and sulfur as oxides, acid gases, and salts, particulates and aerosols, entrained feed material and glass, and mercury.

The exhaust fans pull the off-gas through all of the upstream equipment. The fans are exposed to the chemical components that were not removed by treatment. The fans are also used to maintain a vacuum so that any leakage would be of clean air inward to the process stream.

Changes to the upstream equipment to correct quality, safety, maintenance, or operability issues can affect the flow rate, temperature, pressure, and chemical environment seen by the exhaust fans.

**Comment:** A long-term failure of corrective actions to resolve safety, quality, and technical issues exists at WTP. Repeated recommendations that work be stopped – for HLW and Pretreatment, and for all facilities, have been made. Please see the list of examples in the previous reports, below.

In light of the recurring findings regarding quality and safety, can you please verify that the designs of the equipment at LAW, up to and including the exhaust fans, will perform as needed and are free of errors that could affect the selection, operability and safety of the fans and the treatment train?

Please consider conducting a review of the chemical basis for the off-gas composition and properties, since the calculations underpinning the process corrosion data sheet predate the most recent set of quality findings. In addition, DOE has published a “framework document” that states that feed direct from the tank farms to LAW is being considered. If this option is implemented, it will be important to verify that the LAW design basis off-gas compositions encompass the complete range of feeds to LAW, which at present may or may not include the case when there is minimal dilution during pretreatment and no recycles (as at startup). The LVP system handles toxic gases, and increases in nitrate concentration in the feed, for example, should be verified to be compatible with system capacities.

Selection of materials of construction should similarly be verified for the off-gas system. The process corrosion data sheet in the modification package includes vaguely stated criteria that appear to need clarification.

Please also consider conducting a complete review by a qualified organization that is not beholden to DOE or the WTP Contractors. The scope should systematically re-verify the upstream equipment and the exhausters at LAW, including calculations, specifications, materials selection, equipment data sheets, safety basis, and open and closed project issues. This review should evaluate and track to defensible closure all technical, operability, maintenance, and safety issues/alignment with the safety basis. Previously closed issues should be included to ensure that a defensible and documented basis for closure is present.

This review is needed so that the integrated system will have minimal rework affecting the eventual flow, temperature, pressure, and chemical/radioactive environment. Ecology released letter 13-NWP-092 on August 30, 2013, indicating the need to evaluate system documentation to determine which documents are in question and which remain valid. Ecology indicated that administrative holds may need to be placed on portions of the permit, which would preclude continued construction. Ecology’s perspective is just as applicable to LAW off-gas systems as it is to the examples listed in letter 13-NWP-092. The letter is available at:

<http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=1309041584>

***Ecology Response to Anonymous:***

*Ecology intends to proceed with permitting on systems that do not have open technical issues. We share your concerns about safety and quality issues at the WTP. As a result of those concerns, Ecology is undertaking several quality determination measures for equipment or systems that have already been constructed, as well as for components that have not yet been installed. Ecology is requesting that the Permittee provide documentation on open technical issues related to the specific system or component under review.*

*For systems that are already in place, Ecology will attend the upcoming system-by-system design review for the LAW Facility. Our attendance in the design reviews will provide us the information needed to verify that the design of the equipment at LAW will perform as needed.*

*In parallel with ongoing design review work at the facility, Ecology is conducting our own assessment of the validity of documentation in the current WTP permit which may be impacted by known technical issues and Level 1 Findings, as well as issues brought forth during the facility design review. Systems or components that could be impacted may be placed on hold and subject to a permit modification by Ecology so that neither permitting nor construction can continue until the Permittee can demonstrate they have resolved technical and safety issues specific to that component or system.*

*For systems or components that have yet to be installed for the LAW LVP system, Ecology requires the Permittee to submit equipment or component design information for our review and approval prior to installation.*

*As required by Permit Condition III.10.H.5.c.i, the LAW Facility exhauster design package (LAW-026C) contains an integrity assessment report, which is certified by an IQRPE. The IQRPE reviewed design drawings, calculations, and other relevant information to make the determination that the LAW Facility exhausters meet applicable codes and standards.*

*Whether waste enters the LAW Facility via the Pretreatment Facility, or in a direct-feed configuration, the waste will have to be treated to remove cesium, and will also have to meet the waste acceptance criteria established for waste entering the WTP, before it can be treated by the LAW Facility. Ecology does not expect that the concentrations of constituents in the waste will differ much from the operational limits on which the current design is based.*

*The exhausters are located at the end of the secondary offgas treatment system, so offgas passing through the exhauster fans will be directly discharged through the exhaust stacks. The offgas should therefore meet discharge criteria. The exhausters provide the motive force to pull melter offgas through the secondary offgas system and create a vacuum to ensure the system operates under negative pressure.*

*Three exhausters will be installed, but only two will be operating at any given time. The third exhauster will be on standby should one of the other operating exhausters fail. Each exhauster's design capacity is such that if only one exhauster is operating, it would be able to provide the motive force necessary to keep the secondary offgas treatment system operational.*

*Ecology accepted a corrosion evaluation from the Permittee, recognizing it does not contain the most recent process corrosion data. We did this because the secondary offgas system is a dry offgas system, and because we expect contaminant concentrations through the exhausters to meet discharge criteria. A dry system has lower relative humidity, resulting in less potential for corrosion.*

*Ecology has since reviewed the updated process corrosion data, which was released on July 15, 2013, and believes that the materials selected for the LAW exhauster fans are appropriate for the composition of the waste they will contact. Ecology anticipates that in the coming year the Permittee will submit a Permit Change Notice, for Ecology review and approval, to update the corrosion evaluation.*

*Based on our review of the system design, updated process corrosion data, ongoing open issues, and certification by the IQRPE, Ecology does not have concerns and we believe we have enough information to be able to approve installation of the exhausters at this time.*

*Moving forward, Ecology will carefully consider new design information we may receive for other system equipment or components of the LAW facility. We will require from the Permittee demonstration that safety, quality, and technical issues have been resolved before we will accept a design package for incorporation into a future permit modification.*

### **Comment # 1 from Tom Carpenter, Hanford Challenge, dated December 19, 2013**

Hanford Challenge joins the Yakama Nation ERWM program request that Washington State Department of Ecology “deny incorporation of the Permit modification package #BOF-001, Rev 0, Container Storage Area for the Balance of Facilities (Failed Melter Storage Facility), and edit the new Compliance Schedule to read as follows: Submit BOF-001 permit package final design for the Failed Melter Storage Building (Building 32).” Our comments go beyond this request, however.

Hanford Challenge advocates that the Department of Ecology order a stop to all ongoing work at the Waste Treatment Plant unless and until the Department of Energy is able to demonstrate that safety and quality assurance legal requirements *can be met* in order for the facility to operate.

Our reasons for this request are documented below.

The Hanford Waste Treatment Plant was originally scheduled to open in 2011, at a cost of \$4.6 billion. Mismanagement and technical failures have contributed to project delays and the cost of the facility has ballooned to over \$13 billion. The current opening date of 2019 is in serious doubt. The DOE is admitting that elements of the design are unsafe and that redesign is likely, especially in the Pre-Treatment Plant and the High-Level Waste Melter. New facilities and processes are being proposed that have not been designed, budgeted, or even thought through. It is clear to many of us that DOE is desperately throwing ideas against the wall to see what might stick. Instead of preparing to commission and test the facility, and with 13 years and billions of dollars spent, DOE is back to Conceptual Design Phase 1....the drawing board.

There are numerous technical questions and issues, listed below, that have been brought to light by various organizations including the U.S. Department of Energy—Office of River Protection (ORP), Department of Energy Office of Inspector General, and the Defense Nuclear Facilities Safety Board as well as internal technical experts such as the Manager for Nuclear Safety, the former Chief Engineer for WTP, a Senior ORP Scientist assigned to WTP, and the former Manager for Research and Technology.

The Office of River Protection has recently issued a completed Quality Assurance audit of BNI and cited two level one findings; one that states NQA-1 (nuclear quality) has not been properly implemented (not fully effective) by Bechtel on the WTP project and the other is related to an ineffective corrective action process. These findings substantiate **stopping all work** until a fully effective nuclear safety design and corrective action process is established to prevent further departures from the realization of a safely designed and operating facility. It should be noted that DOE in the very same audit stated that the BNI implementation of quality assurance was “adequate,” which casts further doubt on the Department’s ability to properly exercise the role of design and safety oversight for the WTP project.

The DOE Inspector General (IG) issued a report in September 2013 stating that Bechtel repeatedly made design changes to plant equipment without a proper safety review, a problem the IG called “systemic.” The fact that the IG used the term “systemic” to describe the failure to implement safety into the design can be viewed to mean that the plant and facility design was not done to nuclear standards which therefore compromises the very systems, structures and components that should protect the collocated worker, public and environment. This information directly substantiates the December 19, 2012 stop work letter issued by DOE’s Chief Engineer specifically related to indeterminate quality and an ineffective corrective action process.

Why would anyone continue with the design when their very process lacks fidelity and produces an indeterminate design with resultant indeterminate procurements?

Listed below are a number of technical issues that are currently under scrutiny. Because these issues concern systems regulated under the WTP Permit, they raise questions about the validity of the system documentation contained in the permit.

- Breakdown in the quality assurance/quality control function at the WTP, including design deficiencies, failure of the corrective action program, failure of Bechtel to submit nuclear safety-related design documents for nuclear safety review, and much more.
- Vessel corrosion and erosion on vessels and associated equipment.
- Vessel margin calculations.
- Metallurgy of vessels and associated ancillary equipment and miscellaneous units.
- Vessel mixing issues and subsequent changes in design.
- Removal or redesign of vessels and ancillary equipment from the facility due to change in the system design.
- Structural issues and subsequent changes in design of vessels and their internal components.

A review of the Administrative Record reveals an [August 30, 2013 letter](#) from Ecology’s Nuclear Waste Program to the Manager of the DOE’s Office of River Protection and to Bechtel, regarding concerns about the accuracy of the current version of the WTP Permit. Ecology listed most of the concerns listed above, and stated that “we question the validity of the system documentation in the WTP Permit.” Ecology requested that DOE and Bechtel determine which documents “may be in question and which remain valid. The intent of this review is to assure that the WTP Permit is accurate and represents the actual status of the WTP Project.”

DOE’s response, contained in the letter, was that DOE was not going to conduct the review requested by Ecology “because it is not practical or resource effective.”

This stark refusal by DOE to take the time to validate and update its own records in response to the regulator’s request about the validated technical issues related to the WTP speaks volumes about the trouble we are facing. DOE’s unwillingness to face reality or conduct a safe and effective response to the safety and quality concerns raised by numerous entities about the WTP is the same attitude that led to the development of the safety and technical issues in the first place.

It was gratifying to see Ecology’s response to the DOE snub, which was that Ecology would conduct its own review and “place administrative holds on portions of the WTP Permit that may be in question.” The result of placing that hold means that Bechtel “may not proceed with construction of that portion of the WTP facility.”

Hanford Challenge supports this approach, and urges Ecology to *not* proceed with the Permit Modifications and instead place the Administrative Holds and effectively stop work until the documentation is validated, and the technical issues resolved.

### DOE Chief Engineer Raises Safety and Quality Concerns, Calls for Stop Work

An August 23, 2012 [memorandum](#) from the DOE's Chief Engineer for the Waste Treatment Plant, Mr. Gary Brunson, documented "34 instances and technical issues in which Bechtel National Inc. acting as Design Authority for the Waste Treatment and Immobilization Plan (WTP) has provided design solutions and technical advice to the Department of Energy which either was determined to be factually incorrect, provided a design solution that was not technically defensible, technically viable, or was technically flawed considering identified requirements." Memorandum, G. Brunson, WTP Engineering Director, to S. Samuelson, Manager, Office of River Protection, DOE, GEB 12-WTP-0274, August 23, 2012. (Brunson Memo).

The memo stated that Bechtel had provided a design solution that was not safe for the WTP operators, or designs that did not comply with the safety basis. The Chief Engineer stated that Bechtel had provided an installed equipment system that did not meet safety requirements or was not adequately inspected following installation even when defects became known. Brunson Memo.

The technical issues documented by Brunson demonstrate consistent non-compliance between requirements and selected designs implemented in the field, and between design of and realization of a safe operating facility. Repair and rework of these non-compliant designs are leading to significant project cost and schedule impacts. It has been separately disclosed that the Pretreatment and HLW Vitrification facility designs are not in compliance with the Authorization Basis. Brunson wrote in his memorandum,

"The number and significance of these issues indicate that Bechtel National Inc. is not competent to complete their role as the Design Authority for the WTP, and it is questionable that BNI can provide a contract-compliant design as Design Agent." Brunson Memo at p. 3.

Brunson went further with his concerns in December 2012 when he wrote to the Secretary of Energy advocating that the DOE stop all work at the facility. [Stop Work Memorandum](#), G. Brunson, WTP Chief Engineer, DOE ORP, to S. Chu, Secretary of Energy, GEB 12-WTP-0399, December 19, 2012. (Brunson Stop Work Memo).

The Stop Work memorandum cited a list of seven "Priority Level 1 Findings" which remain unresolved with an undetermined path forward. The memo stated:

The Level 1 Findings are objective evidence of a condition of Indeterminate Quality. The Office of River Protection Quality Assurance Program Description includes among our basic beliefs: "Work suspension is appropriate when continued work would be unsafe, would be likely to be creating rework, and when safety or quality is indeterminate." (MGT-PM-PL-04, Rev 2).

...

This memorandum recommends, based upon a compelling body of objective evidence demonstrating Indeterminate Quality throughout the WTP facilities, that all activities affecting engineering design, nuclear safety, and construction and installation of all

Structures, Systems and Components be stopped to avoid further nuclear safety compromises and substantial rework within WTP. In addition, a full 100% systematic extent of condition is warranted related to all the findings which should also be reviewed for fidelity by an independent agency. Brunson Stop Work Memo at p. 1.

In an attachment to the memo, Brunson outlined some of the deficiencies cited in the Priority 1 findings:

1. A total of ten (10) WTP process vessels were found to have anticipated, maximum operating temperatures in excess of the corrosion related limiting temperature identified in corrosion literature for the selected materials of construction.
2. Overarching programmatic noncompliance finding based on major Quality Assurance Manual (QAM) non-compliances with respect to BNI QAM, Design Control, and Test Controls requirements.
3. BNI presumed the materials selection process utilized design inputs were conservative; however, during material confirmation, it was determined not conservative because it did not account for major changes in PreTreatment Facility processing raised by DOE's Review of Design Oversight of Black Cell Adequacy,' a Blue Ribbon Panel Review, and a recent DOE surveillance.
4. Contrary to the requirements of DOE Order 413.3A. BNI did not establish a margin management strategy/program that establishes and maintains design margins, implemented through the Project Execution and Risk Management Plans. Contrary to the commitment made in the Declaration of Readiness, BNI did not manage design margin with a level of importance commensurate with a design-build project and with required documentation in calculations.
5. Contrary to DOE Order 420.1B Chapter V. BNI did not include design and safety margin management in the WTP Configuration Management Plan, as integral to the System Engineer Program.
6. Contrary to the BNI Safety Requirements Document, BNI did not implement the required use of conservative design margins and for establishing and verifying adequate safety margin through the operating life. This adverse condition is a Priority Level 1 finding because it is a systemic breakdown that has impact on quality, worker health or safety, the public, the environment, facility operations, and regulatory compliance.
7. Several recent DOE oversight activities have resulted in the identification of significant performance issues. These issues, combined with a number of less important, but still representative, examples of less than adequate performance, indicates a systemic integrated management performance concern.
8. Twenty vendor related procurement oversight findings, described in assessment report S-12-RPPWTP-004, demonstrate a lack of compliance with contract requirements and collectively are considered a Procurement Related Management Concern.
9. Thirty six examples from twenty seven calculations did not comply with quality assurance requirements for correct selection of design inputs, or for providing appropriate technical justification within the calculation. The set of six findings above from a small sampling of calculation content is a cumulative indication of a systemic breakdown in quality.

### Brunson Stop Work Memo Attachment.

Other prominent officials who have gone on record with serious concerns about the safety and effectiveness of the facility include Dr. Walter Tamosaitis, who was removed from his position working on the WTP after he raised numerous safety and technical concerns in 2010 and terminated by URS in October 2013; Donna Busche, the Manager for Environmental and Nuclear Safety for the WTP; and Dr. Donald Alexander, the DOE's chief Scientist who was responsible for reviewing the design of the WTP. The Defense Nuclear Facilities Safety Board (DNFSB), an agency charged by Congress to oversee DOE nuclear safety, has also issued many critical reports and findings against the DOE over WTP activities.

### DOE Inspector General

In September 2013, the DOE's Office of Inspector General released an [audit report](#) of the Waste Treatment Plant which validated that Quality Assurance problems remain problematic. (See, DOE OIG Audit Report, "Department of Energy Quality Assurance: Design Control for the Waste Treatment and Immobilization Plant at the Hanford Site," DOE/IG-0894 September 2013)(Attachment 3). (DOE/IG-0894 Audit Report).

The Inspector General report found:

Our review revealed significant shortcomings in the Department's process for managing the design and fabrication changes of waste processing equipment procured for the WTP. Specifically, the Department had not ensured that Bechtel:

- Subjected design changes requested by suppliers to the required review and approval by Bechtel's Environmental & Nuclear Safety Group (Nuclear Safety), the organization responsible for ensuring that design changes do not impact facility safety.
- Early in our review, in September 2012, we brought several instances in which design changes requested by suppliers had not received required safety reviews to the attention of the Department and Bechtel. Bechtel confirmed the issue and performed an "extent of condition" review of certain design changes to determine the scope of the problem. In its review of a sample of 235 of 4,028 supplier design documents spanning a 3-year period, Bechtel discovered that more than a third of the changes made to supplier design documents had not received the required Nuclear Safety review and approval, and, that the problems were systemic.
- Properly verified that deviations from design requirements that could affect nuclear safety were implemented. Bechtel could not demonstrate that it had verified suppliers' actions to address deviations from design. For example, we identified that Bechtel approved action to repair a Low-Activity Waste melter lid that did not meet design specifications. Bechtel was unable to provide evidence that: (1) the supplier had made the necessary repairs to the lid; and (2) it had reexamined the repair to ensure that it met requirements. Neither Bechtel nor the Department could confirm that the design changes were actually completed and met safety related design requirements. In this regard, the absence of affirmation that the changes were completed as required carried with it potentially serious implications. In short, quality reviewers were unable to determine, with certainty, whether the Low-Activity Waste melter lid would successfully perform its safety

function to confine harmful byproducts (nitrogen oxide gases) produced during the waste vitrification process.

DOE/IG-0894 Audit Report at Pp. 1-2.

The Inspector General criticized Bechtel over “not effectively implemented its own quality assurance procedures. The exclusion of Nuclear Safety from the design change process can be traced to poor implementation of existing procedures. According to Bechtel officials, procedures governing Nuclear Safety review provided ‘opportunities for interpretation’ that led to ‘incorrect assumptions’ by its engineers. These assumptions led Bechtel's engineering group to incorrectly conclude that design changes would not affect the Authorization Basis and, as such, that it was appropriate to bypass Nuclear Safety.” DOE/IG-0894 Audit Report at p.2.

The Inspector General also documented that Bechtel did not have quality control procedures or processes “to ensure that deviations from design or specifications were documented to support product fabrication and delivery. Furthermore, Bechtel did not require suppliers to submit reports detailing actions taken to address needed deviations, documents that would have provided additional confidence that needed design changes and/or repairs were properly completed.” DOE/IG-0894 Audit Report at p.2.

Collectively, these problems led to the creation of major design vulnerabilities. We found that Bechtel did not always comply with internal Bechtel procedures and failed to adequately and consistently document supplier initiated design changes. Proper design control is essential to ensure that critical equipment is properly fabricated to specifications and will perform its safety function. *The lack of a robust design control process makes it difficult to ascertain whether all necessary safety-related design activities are adequate and that workers, members of the public, and the environment are adequately protected.* Without improvements to design control, confidence that procured equipment meets requirements for the safe operation of the WTP will erode.

DOE/IG-0894 Audit Report at p.3 (emphasis added).

The Inspector General’s September 2013 report was not the first time the OIG found problems with the WTP’s Quality Assurance program. An April 12, 2012 DOE Inspector General [report](#), DOE/IG-0863, entitled, “Audit Report on "The Department of Energy's \$12.2 Billion Waste Treatment and Immobilization Plant – Quality Assurance Issues – Black Cell Vessels," found:

- “[T]he Department had procured and installed vessels in WTP that did not always meet quality assurance and/or contract requirements...we identified multiple instances where quality assurance records were either missing or were not traceable to the specific area or part of the vessel.”
- “We also found that the Department paid the WTP contractor a \$15 million incentive fee for production of a vessel that was later determined to be defective. Although the Department demanded return of the fee, it did not follow up on the matter and the fee was never reimbursed. Weaknesses in quality assurance records associated with black cell and hard-to-reach processing vessels occurred because of deficiencies in Bechtel's implementation of its quality assurance program and a lack of Department oversight.”
- “The importance of black cells and hard-to-reach components cannot be overstated.

Premature failure of these components could potentially impact safety, contaminate large portions of a multi-billion dollar facility and interrupt waste processing for an unknown period of time. For these reasons, we have made several recommendations designed to strengthen quality assurance controls at WTP. We have also recommended a more intense effort to recover contractor fee for the nonconforming vessel.”

DOE/IG-0863 Audit Report Memorandum to the Secretary at Pp. 1-2.

### Conclusion

Rather than issue a Permit Modification for continuing work on the Waste Treatment Plant, the State of Washington’s Department of Ecology should focus instead on determining whether the WTP, at this stage, can possibly meet safety and quality requirements given that the WTP physical infrastructure is over 65% complete and design 90% complete. DOE cannot recover from a “quality indeterminate” facility – it cannot hope to “inspect in” quality and safety at this late date. Either the components, equipment and materials are quality-verified and validated, complete with required documentation, or not. If the answer is that they are not, which seems to be the clear consensus from the various official findings above, then an emergency Plan B will be necessary in order to complete a viable, safe and effective treatment system for Hanford’s high-level waste.

#### ***Ecology Response to Tom Carpenter, Hanford Challenge, Comment # 1:***

*Ecology uses a phased permitting approach for the WTP Permit, which allows the Permittee to submit design information to incorporate into the Permit before a complete design is available, subject to Ecology’s review and approval authority over future, more detailed design submittals. This permitting process is described in the “Fact Sheet for the Hanford Facility Resource Conservation and Recovery Act Draft Permit for the Treatment, Storage, and Disposal of Dangerous Waste” (Fact Sheet). (Ecology publication 01-05-005, dated September 2002.)*

*The BOF-001 permit package, which submits preliminary design information for the Failed Melter Storage Building (Building 32) has been reviewed and incorporated into this permit modification, consistent with that permitting approach. As the interim compliance date approached, Ecology required the Permittee to submit any available documentation on the design of the facility by the interim compliance date.*

*Permit Condition III.10.D.10.b (including III.10.D.10.b.i through III.10.D.10.b.iv) details the information required to be submitted for Ecology review and approval for container storage areas prior to their construction. Compliance Schedule Item 46 was also added, requiring the Permittee submit final design information prior to construction.*

*Ecology shares your concerns about safety and quality issues at the WTP. As a result of those concerns, we are undertaking several quality determination measures, both for equipment or systems that have already been constructed, and for components that have not yet been installed. Ecology is committed to requiring the Permittee to demonstrate that safety, technical, and quality issues have been resolved. We will continue to permit systems that are not impacted by known technical issues.*

*For systems that are already in place, Ecology is performing an independent system-by-system design review for the Waste Treatment Plant. We will also be involved, as an independent observer, with the technical design reviews that DOE is conducting on the WTP.*

*As noted in your comment, Ecology is conducting our own assessment of the validity of documentation in the current WTP Permit which may be impacted by known technical issues and Level 1 Findings, as well as issues brought forth during facility design reviews. Systems or components that could be impacted may be placed on hold and subject to a permit modification, so that neither permitting nor construction can continue until the Permittee can demonstrate they have resolved technical and safety issues.*

*For systems or components that have yet to be installed, Ecology requires the Permittee to submit equipment or component design information for our review and approval prior to installation. Ecology is requesting the Permittee provide information about open issues for each component being permitted.*

*The LAW Facility exhausters design package is the only documentation included in this permit modification that has to do with equipment installation. Design documentation for the LAW Facility exhausters was submitted as the LAW-026C design package, which was also available for public review during this permit modification.*

*As required by Permit Condition III.10.H.5.c.i, the LAW Facility exhauster design package (LAW-026C), included an integrity assessment report, which is certified by an IQRPE. The IQRPE reviewed design drawings, calculations, and other relevant information to make the determination that the LAW Facility exhausters meet applicable codes and standards.*

*The exhausters are located at the end of the secondary offgas treatment system, so offgas passing through the exhauster fans will be directly discharged through the exhaust stacks. The offgas should therefore meet discharge criteria. The exhausters provide the motive force to pull melter offgas through the secondary offgas system and create a vacuum to ensure the system operates under negative pressure.*

*Three exhausters will be installed, but only two will be operating at any given time. The third exhauster will be on standby should one of the other operating exhausters fail. Each exhauster's design capacity is such that if only one exhauster remains operating, it would be able to provide the motive force necessary to keep the secondary offgas treatment system operational.*

*Based on our review of the system design and certification by the IQRPE, Ecology does not have concerns, and we believe we have enough information to be able to approve installation of the exhausters at this time.*

**Comment # 2 from Tom Carpenter, Hanford Challenge, dated December 20, 2013**

**Tank Closure: Alternative 2B was Selected -**

**Comments:**

1. This alternative states that technetium-99 will be removed in the WTP pretreatment process. They do not state how this will be done. The process needs to be defined and the effectiveness defined. Currently there is no way to remove 99-Tc from the liquid LAW pretreatment stream. To state that it will be removed in pretreatment is a leap of faith and requires a new technology to be developed. If an ion exchange process is defined, the disposal method for the ion exchange material must also be defined. If the ion exchange material is proposed to be disposed of in the melter, a mass balance is required as 99-Tc is very volatile and will go over head, i.e., vaporized. The amount of 99-Tc which goes overhead is also proportional to the amount of cesium in the stream, thus adding more

emphasis for the 99-Tc mass balance. If the 99-Tc is proposed to be sent to the effluent treatment plant, again, the removal process should be specified as 99-Tc is very water soluble. After the process is defined, the time and cost to develop and demonstrate it, along with the cost and schedule to implement the actual process needs to be provided. The removal of 99-Tc applies to any process regardless of whether it is in the tank farm or the WTP.

2. If the mass balance shows that 99-Tc is left in the tank heels, a 500 year barrier is insufficient. Hanford Challenge is opposed to a barrier approach, and insists that DOE and Ecology follow the law and remove, treat and dispose of all HLW in the waste tanks for disposal in a licensed geological repository.
3. Also, removing waste to a 99% criteria means 1% or about 500,000 gallons of waste, or half of a waste tank will be left to migrate into the ground water. Grout will not be effective as a retardant as it is porous and will break down with age. No liner proposed to be used is known to last 500 years.

**Conclusion-**

Without the 99-Tc removal process being defined. Along with the cost and schedule, Alternative 2B is not viewed as acceptable.

**FFTF: Alternative 2 was Selected -**

**Comments-**

1. No comments are made on whether waste reclassifications are needed to move waste to Idaho for treatment. This should be defined as a reclassification may take years and not be obtainable. Is a waste reclassification needed?
2. No comments or information is provided on how much sodium will be left in the FFTF and whether or not it contains any radioactive elements. What is the composition of the sodium to be left in the FFTF?
3. How will the sodium be converted to caustic? In prior studies at the Savannah River Site, recovery of the caustic was considered but not deemed cost effective. Selling the caustic to commercial markets was not deemed feasible due to the minor contamination concentrations it might contain. How will it be converted to caustic, how "pure" will it be, and how much will it cost?

**Conclusion-**

The selection of this alternative sounds more like a proposal than a firm down select. The amount of sodium left in the FFTF, its composition, and the process to convert sodium to useable caustic needs to be defined.

**Waste Management: Alternative 2 was Selected-**

**Comments-**

1. What waste is planned to be shipped to WIPP? If this includes tank farm waste, it requires reclassification of the waste, a procedure that DOE cannot legally perform. What waste is included?
2. Hanford Challenge opposes any attempt to send Hanford high-level waste for burial at WIPP, for many reasons.

***Ecology Response to Tom Carpenter, Hanford Challenge, Comment # 2:***

***Tank Closure Comment Response:***

*Although not part of this permit modification, the removal of the Tc-99 in the Pretreatment Facility refers to the agreement between the DOE and Ecology to delete the technetium removal from the WTP Permit on October 15, 2008. This agreement is discussed in Appendix E.1.2.3.10, “Technetium-99 Removal” of the Final Tank Closure and Waste Management Environmental Impact Statement (Final TC&WM EIS).*

*The statement in the Final Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington Record of Decision (ROD), dated December 6, 2013, reflects the existing WTP Permit. It does not refer to tank residuals or tank retrieval as discussed in items 2 and 3 of your Tank Closure comment above.*

***FFTF Comment Response:***

*Although not part of this permit modification, information on the amount of sodium left in place, how it will be converted, and the facilities to do that are described in the FFTF alternatives in Chapter 2 of the Final TC&WM EIS. More detail is provided in EIS Appendix E.2.3, “Summary Description of FFTF Decommissioning Alternatives.”*

***Waste Management Comment Response:***

*Although not part of this permit modification, the ROD does not currently address a potential TRU tank waste decision. Please see statement below from the ROD.*

*“Initiating retrieval of tank waste for disposition as mixed TRU waste would be contingent on, among other things, DOE’s obtaining the applicable and necessary permits, ensuring that the WIPP Waste Acceptance Criteria and all other applicable regulatory requirements are met, and making a determination that the waste is properly classified as mixed TRU waste. DOE is not deciding to implement its preferred or any other alternative associated with this matter in this ROD.”*

*The proper classification of tank waste going to WIPP as (1) not high-level waste sourced, and (2) meeting TRU criteria, would be essential, when and if a decision is made.*

**Comment from Michael Kovalenko, dated December 20, 2013**

As the regulatory authority of the Waste Treatment Plant (WTP), the Washington State Department of Ecology should immediately issue a comprehensive “stop all work” order to Bechtel National, Inc. (Bechtel), including the U.S. Department of Energy (DOE), in order to signal that the WTP procurement process has failed in its current form.

By stopping all work and promoting an authoritative assessment that the WTP’s legally required safety and quality assurance directives can be met, the Department of Ecology can publicly acknowledge the morass of problems at the plant to date and signal the need for a major corrective action the WTP. This radical but necessary action would re-affirm the goal of a truly functioning radioactive waste treatment facility that can endure for decades as intended. The WTP is supposed to reduce risks to environmental and public safety, but its current form only exacerbates risk and fuels low- or no confidence among a long list of experts who understand how and why this project is likely to fail.

Indeed, Bechtel must go. Reports like the US DOE Inspector General's Audit Report from April 25, 2012, reveal that, after a process that started way back in June of 2010, Bechtel does not act in good faith deserving of financial incentives. Distressingly, the report "substantiated the allegation" — among several areas of concern — that "quality assurance records for critically important 'black cell' waste processing vessels were not traceable to work performed." This kind of willful disregard for safety is only one example among many that this lead contractor does not act in good faith regarding critical areas of public trust and nuclear safety. Why should Bechtel be rewarded with tens of millions of dollars in incentives if it misrepresents facts about critical design and safety issues for the WTP? Why does is [*sic*] Bechtel not held to account for refusing to reimburse the DOE when those financial incentives are proven to not be justified? The public is keenly aware that the \$4.6 billion dollar price tag has rocketed to over \$13 billion, yet the project is no where near to being completed and not one drop of waste has transformed into glass. This is not a contractor worth keeping.

Worst of all, Bechtel has shown that it is more focused on money than learning as it goes and doing the job right, or doing the right thing. Bechtel chooses instead to suppress and punish expert witnesses from coming forward to identify critical design flaws or failures in its "safety culture." This retaliation against its own employees and sub-contractors exemplifies bad faith for the overall goals involved when it could, by contrast, encourage these expert witnesses to help refine and correct any flaws or assumptions in the design, process, or culture. Bechtel's pattern of suppression and abuse, and other similarly shocking examples of contractor misbehavior in related companies, support the unfortunate reality that the WTP project is doomed in its current trajectory because of mismanagement by the prime contractor. It's time for a shakeup, and only the Washington State Department of Ecology can act with this authority.

Finally, the DOE is unfortunately part of the problem with the WTP in its current form. As the lead agency for the WTP, the DOE must step aside as a relic of the nuclear war effort from 1943-1989 and facilitate another agency's fresh perspective in what should be a public and open process that includes all stakeholders and especially the Yakama Nation and other communities downwind and downstream. Secrecy should immediately give-way to transparency, and the fastest way to do that is to interrupt the dysfunctional and protected relationship between the DOE and Bechtel.

A proper cleanup at Hanford can only happen after a "stop all work" order, a change of contractor, and a new, responsible assessment of the safety requirements going forward.

***Ecology Response to Michael Kovalenko:***

*Ecology shares your concern over the ongoing safety and technical issues at the WTP, and we are undertaking several quality determination measures to follow these issues to resolution. Ecology intends to continue permitting work on those portions of the WTP that are not impacted by ongoing safety and technical issues. For those systems or components that are impacted by these issues, Ecology will require the Permittee to demonstrate they have resolved safety and technical issues prior to permitting. For more detail on this issue, see Ecology's response to Tom Carpenter of Hanford Challenge, Comment #1.*

*Ecology recognizes that the long duration and high cost of construction at the WTP is a concern to many members of the public. Ecology provides regulatory oversight of construction at the WTP. Any discussion regarding contractual negotiations would occur between the DOE and their contractors. Ecology's expectation is that the DOE and its contractor will design and*

*construct the WTP in an effective and efficient manner to ensure protection of human health and the environment.*

**Comment from Michael Harding, dated December 20, 2013**

As a WA resident, I am writing to advocate that the Department of Ecology order a stop to all ongoing work at the Waste Treatment Plant unless and until the Department of Energy is able to demonstrate that safety and quality assurance legal requirements can be met in order for the facility to operate.

The Hanford Waste Treatment Plant was originally scheduled to open in 2011, at a cost of \$4.6 billion. Mismanagement and technical failures have contributed to project delays and the cost of the facility has ballooned to over \$13 billion. The current opening date of 2019 is in serious doubt. The DOE is admitting that elements of the design are unsafe and that redesign is likely, especially in the Pre-Treatment Plant and the High-Level Waste Melter.

There are numerous technical questions and issues that have been brought to light by various organizations including the U.S. Department of Energy—Office of River Protection (ORP), Department of Energy Office of Inspector General, and the Defense Nuclear Facilities Safety Board as well as internal technical experts such as the Manager for Nuclear Safety, the former Chief Engineer for WTP, a Senior ORP Scientist assigned to WTP, and the former Manager for Research and Technology.

Rather than issue a Permit Modification for continuing work on the Waste Treatment Plant, the State of Washington's Department of Ecology should focus instead on determining whether the WTP, at this stage, can possibly meet safety and quality requirements given that the WTP physical infrastructure is over 65% complete and design 90% complete. DOE cannot recover from a "quality indeterminate" facility. It cannot hope to "inspect in" quality and safety at this late date. Either the components, equipment and materials are quality verified and validated, complete with required documentation, or not. If the answer is "not," which seems to be the clear consensus from the various official findings, then an emergency Plan B will be necessary in order to complete a viable, safe and effective treatment system for Hanford's high level waste.

***Ecology Response to Michael Harding:***

*Ecology agrees with your concerns regarding the potential compromises to safety and quality at the WTP. We will continue to permit those systems and components of the WTP facility that are not impacted by ongoing safety and technical issues. For those portions of the facility that may be impacted, Ecology will require that the Permittee demonstrate resolution of issues before we proceed with permitting. For more detail on this issue, see Ecology's response to Tom Carpenter of Hanford Challenge, Comment #1.*

*Ecology recognizes that the public is concerned about the long duration and high cost of construction at the WTP. Ecology provides regulatory oversight of construction at the WTP. Any contractual negotiations would occur between the DOE and their contractors. Ecology's expectation is that the DOE and its contractor will design and construct the WTP to safely and effectively treat tank waste to ensure protection of human health and the environment.*

**Comment from Maris Abelson, dated December 20, 2013**

Work should not be allowed to continue on the Waste Treatment Plant until Washington's Department of Ecology can determine if all safety and quality requirements can be met. As of now, it has been clear from mismanagement and technical failures, that the construction has been replete with major safety problems. The consequences of completing the project with subpar standards are dire. (Please refer to comments submitted by Hanford Challenge for a detailed summary of technical and safety problems at Hanford.)

***Ecology Response to Maris Abelson:***

*Ecology intends to continue permitting work on those portions of the WTP that are not impacted by technical or quality/safety issues. If Ecology has to hold permitting work through a permit modification for systems or components that are impacted by ongoing issues, we will require the Permittee to demonstrate that issues are resolved before we proceed with permitting.*

*Ecology is committed to ensuring that the WTP is constructed in a safe and timely manner, to facilitate treatment and disposal of tank waste at the Hanford site. For more detail on this issue, see Ecology's response to Tom Carpenter of Hanford Challenge, Comment #1.*

**Comment from Jacinta Ritchie, dated December 1, 2013**

To Whom It May Concern:

As a concerned citizen of Washington State, I write to you today to comment on the proposed modification to the Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit. I am concerned specifically with the Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste for the Waste Treatment and Immobilization Plant (WTP). As the Tri-Parties, along with the co-permittees, U.S. Department of Energy Office of River Protection and Bechtel National, Inc. move forward, it is my hope that these entities take all the public comments into consideration, and respond to them with due diligence.

In the past my comments have not been addressed within the record. Due to the significance of all decisions related to the clean up of the Hanford site for the health and wellbeing of Washington residents their thoughtful comments should be addressed with the requisite level of care and attention. This consideration and response should be reflected in the record. Because of the importance of public participation within the decision making process, I hope you consider and implement this practice in the future.

The two permit design packages at issue allow new construction in the Low-Activity Waste (LAW) Facility and the Failed Melter Storage Building. The design changes are not entirely clear, especially to the average member of the public. The documents detailing the design changes to the Low-Activity Waste, High-Level Waste, and Pretreatment facilities are hardly intelligible to me, a person who has been studying the site for five years. Throughout my engagement with the Hanford Site and the Tri-Parties this has been a concern that has been voiced over and over by myself and many other stakeholders. Accessible information must be provided if you intend to get informed public participation. It is the department's duty to the people to enable them to participate in the processes that have huge impacts on their lives, and the lives of their children and loved ones. More accessible information must be provided by the agencies, it is not the sole responsibility of non-profit organizations seeking to engage the public.

From the documentation provided I do not feel that I can make an informed decision about the design changes being made. The Pretreatment Facilities are of the greatest concern due to the volatile nature of the high-level nuclear waste that would be processed within the facility. Design flaws within the vitrification process have been surfacing in the past years, flaws that would cause a criticality, seriously injuring unknown numbers of people, animals, and essential habitat if allowed to operate. Particularly the defective pump in vitrification pre-treatment which would have likely almost immediately failed. If this essential part of the plant was allowed to continue as planned, the machine would have failed to continue to mix the waste, thus causing a criticality which would destroy the plant and release unknown quantities of nuclear waste, and unknown chemicals from past plutonium processing.

What concerns me most is how the design defects have, or have not, been addressed by the responsible parties. Due to the perverse incentive system in place it seems that contractors are more concerned with meeting benchmarks for their bonuses, than ensuring that the plant is safe in the long-term. The incentive system must be altered to promote quality work that will be of the most benefit to Washington in the long-term. Contractors should not be rewarded for how fast they complete a project, but for how diligent they are with design, implementation, and maintenance of these important treatment facilities. The agencies must work together within the formal rulemaking process to ensure that decisions are being made with the upmost care, and rigorous deliberation. This is a fundamental procedural issue that must be addressed.

In regards to the permits at issue, I do not believe the Pretreatment Facility should continue construction until a finalized plan for the entire facility has been made, presented to the public and experts, commented upon, and those comments are addressed by the agencies. As you well know this is an extremely important project for not only Washington residents, but for the world at large, which will continue to be impacted by nuclear waste until we have an effective method of treatment and storage. Further research and development is needed and the processes must be explained in an accessible manner to all of those who may be impacted. We must not only pay lip service to public participation, we must enable it, and integrate it into rulemaking and decision making processes. We must all have an understanding of the state of the Hanford site, the plans to mitigate damages, and how these facilities will be maintained into the future.

Thank you very much for your time and consideration. The Washington State Department of Ecology, particularly my experience with Erika Holmes and John Price, have always been positive, and your institution has a history of above average responsiveness to the public, as well as have a commitment to stimulate public participation. As the regulatory leg of the Tri-Parties WSDOE is uniquely situated to make sure public participation, and proper decision-making procedures are followed.

***Ecology Response to Ritchie, Jacinta:***

*Ecology considers all comments made during the public comment period, and provides formal comment responses to each comment within a Response to Comments document, in accordance with WAC 173-303-840(9).*

*Ecology understands that the WTP Permit is complex. We strive to encourage public participation by providing information to the public that explains the complex technical design and construction of the WTP. The focus sheets that accompany each comment period are one way we provide information. Please see Appendix A, which includes copies of all public notice documentation issued with this permit modification.*

*Ecology is also concerned about the technical issues at the Pretreatment Facility. Most of the technical issues are associated with the Pretreatment and High Level Waste facilities. To date, the Low Activity Waste facility, which is the subject of this permit modification, has not experienced the same level of technical issues as the other facilities.*

*Ecology intends to continue permitting work for those portions of the WTP that are not impacted by technical or safety issues. Should Ecology become aware of issues, we will require that the Permittee demonstrate resolution of those issues prior to proceeding with the permitting of those systems or components. For more detail on this issue, see Ecology's response to Tom Carpenter of Hanford Challenge, Comment #1.*

*Ecology recognizes that the high cost of construction at the WTP is a fundamental concern to many members of the public. Ecology provides regulatory oversight of construction at the WTP. Any discussion regarding contractual negotiations would occur between the Department of Energy and their contractors. Ecology's expectation is that the DOE and its contractor will design and construct the WTP in an effective and efficient manner to ensure protection of human health and the environment.*

**Comment from Den Mark Wichar, dated December 2, 2013**

I do not trust anything that's proposed for Hanford, because the entire project has been & is out-of-control. The contactors obviously do not know what they are doing.

***Ecology Response to Den Mark Wichar:***

*We understand that the long duration of construction at the WTP is a significant concern to many members of the public, and we share that concern. Ecology's expectation is that the DOE and its contractor will design and construct the WTP in a safe and efficient manner to ensure protection of human health and the environment.*

**Comment from Rick Harlan, dated October 23, 2013**

Subject: wasting time on ultimate waste machine--

1st priority is getting the stuff into tanks that won't leak in the next few decades, while we wait apparently for sanity about what's likely to work or NOT on classification.

I'm not alone in this opinion! We have at least on [sic] plume headed toward Portland's drinking water, a river we thought it was smart to site Hanford on.....

***Ecology Response to Rick Harlan:***

*Ensuring that the WTP is designed, constructed, and operating in a timely manner will facilitate the proper treatment and disposal of tank waste. This is a top priority for Ecology.*

*The Columbia River is an extremely important resource for the Northwest. Groundwater is being actively cleaned up by a series of pump-and-treat systems in the 200 Area and along the river at Hanford. The Columbia River is monitored by multiple agencies, and it meets all regulatory drinking water standards.*

**Comment from Russell Jim, Yakama Nation, dated December 6, 2013**

Review of this portion of the RCRA Permit modification package is complicated by the acknowledged outstanding questions (e.g.s [sic], necessary adequate design details/ specifications) and compounded by the lack of information regarding the specific types of containerized miscellaneous mixed waste, where this waste will originate, etc, to support Ecology's acceptance and incorporation into the Permit at this time.

The YN ERWM program request Washington State Department of Ecology deny incorporation of the Permit modification package #BOF-001, Rev 0, Container Storage Area for the Balance of Facilities (Failed Melter Storage Facility), and edit the new Compliance Schedule to read as follows: *Submit BOF-001 permit package final design for the Failed Melter Storage Building (Building 32).*

Edit Chapter 4.0 Process Information to include only a placeholder only [sic]; delete proposed text.

Edit any WTP Permit conditions as necessary to reflect delay in incorporation of current modification package. Compliance date 6/30/2018 could remain unedited.

Additionally, it appears the current package incompletely complies with the following; please provide clarification:

- WAC 173-303-680(4)
- WAC 173-303-630
- WAC 173-303-610(8)
- WAC 173-303-692
- WAC 173-303-695 (40 CFR 264) Subpart DD)
- WAC 173-303-806(4) (b) or (i)

The Yakama Nation ERWM Program looks forward to dialog on these concerns and comments.

***Ecology Response to Russell Jim, Yakama Nation:***

*Ecology uses a phased permitting approach for the WTP Permit, which allows the Permittee to submit design information to incorporate into the Permit before a complete design is available. More detailed final design information can then be submitted later, subject to Ecology's review and approval authority prior to construction. This permitting process is described in the "Fact Sheet for the Hanford Facility Resource Conservation and Recovery Act Draft Permit for the Treatment, Storage, and Disposal of Dangerous Waste." (Ecology publication 01-05-005, dated September 2002.)*

*The BOF-001 permit package, which submits preliminary design information for the Failed Melter Storage Building (Building 32) has been reviewed and incorporated into this permit modification, consistent with that permitting approach. As the interim compliance date approached, Ecology required the Permittee to submit any available documentation on the design of the facility by the interim compliance date.*

*Permit Condition III.10.D.10.b (including III.10.D.10.b.i through III.10.D.10.b.iv) details the information required to be submitted for Ecology review and approval for container storage areas prior to their construction. An additional compliance schedule item (Item 46) was also added which documents the requirement for the Permittee to submit final design information prior to construction.*

*The Failed Melter Storage Facility (Building 32) does not have a final design, and cannot be constructed without Ecology review and approval. The WAC citations detailed in your comment are not applicable at this time because the facility is not yet operating, actively managing waste, or undergoing closure.*

*As described in the Fact Sheet, The Permittee will submit a Class 3 permit modification which updates portions of the Dangerous Waste Permit Application, and modifies the WTP Permit for facility start-up operations. After this Class 3 modification, all the information normally included in a permit application will have been submitted, reviewed, gone through the public comment process, and approved by Ecology. The Permit will then be considered in compliance with WAC 173-303.*

**Comment from M.G. McCullough, Bechtel National, Inc., and K. W. Smith, USDOE-ORP, dated November 27, 2013**

**Comment #1:**

**TOPIC:** Leak detection notification (new condition)  
**CONDITION No:** III.10.E.9.e.ii.D and III.10.H.5.e.ii.D  
**CONDITION TEXT:** **The permittee must notify Ecology at the earliest practical moment after any leak occurs as required in WAC 173-303-640(4)(c)(iii).**  
**COMMENT:** The Permittees request that Ecology delete this condition from the permit.  
**BASIS:**

1. No basis in regulation.
2. Vague and subjective language; requires interpretation; applicability unclear.
3. Unnecessary and redundant; Permit already requires notification and reporting.
4. Inaccurate regulatory citation.

  
**DISCUSSION:** No basis in regulation. This condition should be deleted, because no basis has been offered in the Permit, Statement of Basis, or other documents that supports the de facto use of omnibus authority. No basis for use of omnibus authority has been provided.

Although WAC 173-303-640(4)(c)(iii) was cited as a basis, it is not applicable, because this WAC requirement does not address notification. The State has failed to demonstrate that this condition is necessary to achieve compliance with the Hazardous Waste Management Act or that the condition is necessary “to protect human health and the environment.” The WAC 173-303-640(7)(d) requires a permittee to notify the State of a leak or release *to the environment*; there is no regulatory requirement to notify the agency of a leak into secondary containment. This condition is arbitrary and is not required by the cited regulation. In addition, other conditions address releases to secondary containment.

Washington law prohibits the arbitrary exercise of power by a state agency. Imposing requirements that exceed an agency's statutory or regulatory authority constitutes arbitrary action. To the extent that Ecology has imposed conditions under the permit that exceed Ecology's authority, it has acted in an arbitrary manner. Accordingly, those conditions which

have been arbitrarily imposed under the permit should be stricken as the product of impermissible and arbitrary agency action.

Vague and subjective; requires interpretation; applicability unclear. The words “any” and “earliest practical moment” are undefined and rely on individual judgment by both regulators and facility operators that creates a “compliance trap”.

Applicability of the condition is also unclear. The condition was added as part of new conditions *exempting* from leak detection criteria certain sealed penetrations (PEN seal) in the LAW facility only and presumably was intended to apply only to the LAW PEN seals listed in Tables III.10.E.Q and III.10.H.G. However, because this new condition is under the leak detection conditions for tanks and LAW miscellaneous units, the notification requirement arguably applies to all “leaks,” not just those from a PEN seal. As written, the condition would apply not only to LAW miscellaneous units, but also to all facilities’ tank systems regardless of PEN seals.

The State’s intent and applicability of this condition is unclear and confusing.

Unnecessary and redundant. The permit conditions III.10.E.5.j., III.10.F.3.d.i., III.10.G.5.k., III.10.H.1.a.xxiv., III.10.I.1.a.xviii., III.10.J.1.a.xxiv., and III.10.K.1.a.xviii. require that the Permittees notify Ecology in 24 hours *if* liquids in secondary containment cannot be removed within 24 hours after detection. The proposed condition that Permittees notify Ecology “at the earliest practical moment after any leak” adds an unnecessary administrative burden that is adequately addressed with existing conditions and fails to demonstrate any additional protection of human health or the environment.

The following existing permit conditions require that Permittees notify Ecology when liquids are in secondary containment and cannot be removed in 24 hours:

III.10.E.5.j for tank systems

*If liquids (e.g., dangerous and/or mixed waste 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 will provide the information in A, B and C listed below. The Permittees will 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.F.3.d.i. for containment buildings

*Upon detection of a condition that has led to the release of dangerous and/or mixed waste (e.g., upon detection of leakage from the primary barrier) the Permittees 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.*

III.10.G.5.k for Pretreatment Miscellaneous Units (MU)

*If liquids (e.g., dangerous and/or mixed waste 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 will provide the information in A, B and C listed below. The Permittees will 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), 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*

III.10.H.1.a.xxiv for LAW Vit/MU (short term)

*If liquids (e.g., dangerous and/or mixed waste 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 will provide the information in A, B and C listed below. The Permittees will 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), 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*

III.10.I.1.a.xviii for LAW Vit/MU (long term)

*If liquids (e.g., dangerous and/or mixed waste 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 will provide the information in A, B and C listed below. The Permittees will 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), 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*

III.10.J.1.a.xxiv for HLW Vit/MU (short term)

*If liquids (e.g., dangerous and/or mixed waste 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 will provide the information in A, B and C listed below. The Permittees will 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), 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*

III.10.K.1.a.xviii for HLW Vit/MU (long term)

*If liquids (e.g., dangerous and/or mixed waste 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 will provide the information in A, B and C listed below. The Permittees will 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), 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*

*Inaccurate regulatory citation.* *There are no notification requirements at WAC 173-303-640-(4)(c)(iii).*

**ALTERNATIVES:** No alternative language suggested; please delete condition in its entirety.  
**REFERENCE(S):** No WAC reference found that requires Permittees to notify Ecology of liquids in secondary containment.

***Ecology Response to M.G. McCullough, Bechtel National, Inc., and K. W. Smith, USDOE-ORP, Comment #1:***

*Ecology drafted and discussed WTP Permit conditions III.10.E.9.e.ii.D and III.10.H.5.e.ii.D with DOE and BNI on numerous occasions. The new conditions were included in this permit modification only after agreement from all parties.*

*The requirements of WAC 173-303-640(4)(c)(iii) are applicable to Tank Systems and are relevant to the WTP Permit as detailed in WTP Permit Condition III.10.E.9.e.ii. Ecology acknowledges that the reference to WAC 173-303-640(4)(c)(iii) is provided in WTP Permit conditions III.10.E.9.e.ii and III.10.H.5.e.ii, which also apply to the excepted sections of piping detailed in Tables III.10.E.Q and III.10.H.G. Therefore, we will delete the text in III.10.E.9.e.ii.D and III.10.H.5.e.ii.D.*

**Comment #2:**

**TOPIC:** Removal of Permit Conditions regarding the correction to 7% oxygen  
**CONDITION No:** III.10.H.5.f.v.K and III.10.J.5.f.v.K  
**CONDITION TEXT:** Documentation based on current WTP Unit design either confirming the Permittees' demonstration that it is not technically appropriate to correct standards listed in Permit Conditions III.10.H.1.b.ii through III.10.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.10.H.1.b.ii. through III.10.H.1.b.ix., III.10.I.b.ii. through III.10.I.b.ix., III.10.I.1.e.iii., and III.10.H.1.e.iii., Permit Table III.10.H.C, III.10.H.F, III.10.I.C., III.10.I.F. and Operating Unit Group 10, Appendix 9.0 to reflect the addition of an oxygen monitor and the correction of the standards to seven percent (7%) oxygen.

Documentation based on current WTP Unit design either confirming the Permittees' demonstration that it is not technically appropriate to correct standards listed in Permit Conditions III.10.J.b.ii. through III.10.J.b.ix. to seven percent (7%) oxygen, or a request, pursuant to Permit Conditions

III.10.C.9.e. and III.10.C.9.f., to update Permit Conditions III.10.J.b.ii. through III.10.J.b.ix., III.10.K.b.ii. through III.10.K.b.ix., III.10.K.e.iii., and III.10.J.1.e.iii., Permit Tables III.10.J.C., III.10.J.F., III.10.K.C., III.10.K.F, and Operating Unit Group 10, Appendix 10.0 to reflect the addition of an oxygen monitor and the correction of the standards to seven percent (7%) oxygen.

**COMMENT:**

The Permit Conditions requiring addition of an oxygen monitor and correcting to 7% oxygen need to be removed from the WTP DWP based on technical demonstration provided and previous agreement with Ecology in September 2002.

**BASIS:**

Permittees met the requirements for Permit Conditions III.10.H.5.f.v.K and III.10.J.5.f.v.K prior to the initial effective date of the WTP DWP in September 2002 by providing the required supplemental technical information in the letter dated May 8, 2002 (02-EMD-031 and CCN 33396), *Modification of Hanford Facility Dangerous Waste Permit for the River Protection Project Waste Treatment and Immobilization Plant, WTP Supplemental Information*. Ecology accepted the WTP provided justification for not applying the requirement for correction to 7% oxygen.

Ecology documented its decision in WTP DWP Fact Sheet 01-05-006 that was issued in September 2002 per Sections 3.5.6 and 3.5.7 (pg. 27), which states:

“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.”

**DISCUSSION:**

N/A

**ALTERNATIVES:**

N/A

**REFERENCE(S):**

Letter, Boston H.L. ORP, to Wilson M.A., Ecology, *Modification of Hanford Facility Dangerous Waste Permit for the River Protection Project Waste Treatment and Immobilization Plant, WTP Supplemental Information*, dated May 8, 2002 (02-EMD-031 and CCN 33396).

Ecology Publication Number 01-05-006, *Fact Sheet for the Hanford Facility Resource Conservation and Recovery Act Draft Permit for the Treatment, Storage, and Disposal of Dangerous Waste*” (CCN 42918).

**Ecology Response to M.G. McCullough, Bechtel National, Inc., and K. W. Smith, USDOE-ORP, Comment #2:**

*Although not part of this permit modification, all other references regarding the correction to 7% oxygen were previously removed from the Permit Conditions in agreement with the Fact Sheet for the Hanford Facility Resource Conservation and Recovery Act Draft Permit for the Treatment, Storage, and Disposal of Dangerous Waste. Permit Conditions III.10.H.5.f.v.K and III.10.J.5.f.v.K will also be deleted from the WTP Permit.*

**Comment #3:**

**GENERAL  
COMMENT:**

Since the WTP Permit was issued in September 2002, approximately 1300 detailed engineering drawings and documents have been provided, consistent with the Permit requirements. Ecology incorporates this technical information into the Permit, including updates as design changes are proposed and the Permit is modified. In addition to the technical information, the Permit contains 63 Tables that include summary of key design features for each permitted unit along with the equipment identification numbers, room locations, capacity, type, dimensions, materials of construction, etc.

Based on the Permit requirements, Permittees submit modifications to maintain the technical information and Permit Tables current with the approved design changes. As a result, the Permit Tables, Chapters, and Appendices are continuously being revised repeating the same changes in many places in the Permit. For example, each facility sump design information is addressed in several engineering documents (such as sump data, leak detection, waste removal, system logic description documents), drawings, and at least three to five Permit Tables, depending on the facility. We are concerned that the WTP Permit structure, where one has to repeat the same technical information for each permitted unit in several places, is not the most efficient or transparent format and creates the potential for errors and omissions making the Permit inconsistent with itself (see the comments listed below) which may raise compliance questions.

Permittees propose that Ecology re-structure or streamline the WTP Permit by consolidating all technical information currently contained in the Permit Chapters, Tables, and Appendices in one place within the WTP Permit.

**CORRECTION, ERRORS, AND OMISSIONS**

**ITEM (01):**

DWP Table III.10.E.A

Page 55 of 362 - Replace Piping and Instrumentation Diagram (P&ID) 24590-PTF-M6-FRP-00009, Rev 3, with 24590-PTF-M6-FRP-00009001, Rev 0, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-006.

**ITEM (02):**

DWP Table III.10.E.A

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Page 55 of 362 - Replace P&ID 24590-PTF-M6-FRP-00010, Rev 3, with 24590-PTF-M6-FRP-00010001, Rev 0, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-006.

**ITEM (03):**

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DWP Table III.10.E.A

Page 65 of 362 - Replace Rev 0 with Rev 1 for the following P&IDs in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-013:

--24590-PTF-M6-HLP-00001003  
--24590-PTF-M6-HLP-00002002  
--24590-PTF-M6-HLP-00003002  
--24590-PTF-M6-HLP-00003003

**ITEM (04):**

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DWP Table III.10.E.A

Page 65 of 362 - Replace Rev 0 with Rev 1 for the following P&IDs in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-013:

--24590-PTF-M6-HLP-00001003  
--24590-PTF-M6-HLP-00002002  
--24590-PTF-M6-HLP-00003002  
--24590-PTF-M6-HLP-00003003

**ITEM (05):**

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DWP Table III.10.E.A

Page 65 of 362 - Add P&ID 24590-PTF-M6-HLP-00001004, Rev 0, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-013.

**ITEM (06):**

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DWP Table III.10.E.A

Page 73 of 362 - Add P&ID 24590-PTF-M6-TCP-00001003, Rev 0, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-006.

**ITEM (07):**

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DWP Table III.10.E.A

Page 74 of 362 - Add P&ID 24590-PTF-M6-TLP-00006001, Rev 0, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-004.

**ITEM (08):**

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DWP Table III.10.E.A

Page 77 of 362 - Replace P&D 24590-PTF-M5-V17T-0002204, Rev 2, with Rev 3, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-013.

**ITEM (09):**

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DWP Table III.10.E.A

Page 83 of 362 - Delete P&ID 24590-PTF-M6-PVP-P0009, Rev 0, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-013.

**ITEM (10):**

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DWP Table III.10.E.A

Page 84 of 362 - Add Engineering Specification 24590-WTP-3PS-HD00-T0001,

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	Rev 4, located in Appendix 7.7, in accordance with the approved design package PTF-095 for PIH-TK-00001.
<b>ITEM (11):</b>	DWP Table III.10.E.B  Page 85 of 362 through 88 of 362 - Replace General Arrangement (GA) drawing 24590-LAW-PI-P0IT-00005, Rev 3, with Rev 4, in accordance with the approved permit modification 24590-LAW -PCN-ENV-11-008.
<b>ITEM (12):</b>	DWP Table III.10.E.B  Page 85 of 362 through 88 of 362 - In accordance with the approved permit modification 24590-LAW-PCN-ENV-12-002, replace the following GAs:  --24590-LAW-PI-P0IT-00002, Rev 5, with Rev 6 --24590-LAW-PI-P0IT-00004, Rev 3, with Rev 4.
<b>ITEM (13):</b>	DWP Table III.10.E.C  Page 96 of 362 - Add Engineering Specification 24590-WTP-3PS-HD00-T0001, Rev 4, located in Appendix 7.7, in accordance with the approved design package HLW-029 for HSH-TK-00001/2.
<b>ITEM (14):</b>	DWP Table III.10.E.D  Page 99 of 362 - Replace P&ID 24590-LAB-M6-RLD-00001001, Rev 0, with Rev 1, and P&ID 24590-LAB-M6-RLD-00002001, Rev 0 with Rev 1, in accordance with the approved permit modification 24590-LAB-PCN-ENV-11-001.
<b>ITEM (15):</b>	DWP Table III.10.E.J  Page 126 of 362- Replace P&ID 24590-PTF-M6-TCP-00001002, Rev 0, with Rev 1, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-006.
<b>ITEM (16):</b>	DWP Table III.10.G.A  Page 193 of 362 -Replace Mechanical Data Sheet 24590-PTF-MVD-CNP-00016, Rev 1, with 24590-PTF-MVD-CNP-00006, Rev 6, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-008.
<b>ITEM (17):</b>	DWP Table III.10.H.A  Pages 252 of 362 through 258 of 362 - Replace Process Flow Diagram (PFD) 24590-LAW-M5-V17T-P0010, Rev 2, with 24590-LAW-M5-V17T-00010, Rev 4 and 24590-LAW-M5-V17T-P0011, Rev 1, with 24590-LAW-M5-V17T-00011, Rev 5, in accordance with the submitted design package LAW-026c.
<b>ITEM (18):</b>	DWP Table III.10.J.A  Page 252 of 362 - Replace Corrosion Evaluation 24950-HLW-NID-HOP-P0005, Rev 1, with 24590-HLW-NID-HOP-00005, Rev 5, in accordance with the approved permit modification 24590-HLW-PCN-ENV-12-005.

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- ITEM (19):** DWP Appendix 8.2
- Correct the drawing title for P&ID 24590-PTF-M6-FRP-00010001, Rev 0, to read "P&ID - PTF Waste Receipt Process System Utility Services PWD-RK-00001" in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-006.
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- ITEM (20):** DWP Appendix 8.6
- In accordance with the approved permit modification 24590-PTF-PCN-ENV-12-008:
- |                                 |                                  |
|---------------------------------|----------------------------------|
| Replace:                        | With:                            |
| 24590-PTF-MVD-CNP-P0006, Rev. 0 | 24590-PTF-MVD-CNP-00006, Rev 6   |
| 24590-PTF-MVD-FEP-P0006, Rev. 3 | 24590-PTF-MVD-FEP-00006, Rev. 5  |
| 24590-PTF-MVD-FEP-P0007, Rev. 2 | 24590-PTF-MVD-FEP-00007, Rev. 5  |
| 24590-PTF-MVD-TLP-P0005, Rev. 2 | 24590-PTF-MVD-TLP-00005, Rev. 7. |
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- ITEM (21):** DWP Appendix 9.1
- Replace the following PFDs in accordance with the submitted design package LAW-026c:
- 24590-LAW-M5-V17T-P0010, Rev 2, with 24590-LAW-M5-V17T-00010, Rev 4  
--24590-LAW-M5-V17T-P0011, Rev 1, with 24590-LAW-M5-V17T-00011, Rev 5.
- 
- ITEM (22):** DWP Appendix 9.1
- Add the following documents in accordance with the submitted design package LAW-026c:
- 24590-LAW-M5N-V17T-00015  
--24590-LAW-M5N-V17T-00017.
- 
- ITEM (23):** DWP Appendix 9.4
- Delete GA 24590-LAW-P1-P01T-00008, Rev 7, in accordance with the approved permit modification 24590-WTP-PCN-ENV-11-009.
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- ITEM (24):** DWP Appendix 9.6
- Add Mechanical Data Sheet 24590-LAW-MAD-LVP-00006, Rev. 9, in accordance with the submitted design package LAW-026c.
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- ITEM (25):** DWP Appendix 9.7
- Add Engineering Specification 24590-LAW-3PS-MACS-T0001, Rev.2, and associated change documents:
- 24590-QL-MRA-MACS-00007-T0005  
--24590-WTP-SDDR-MS-12-00039
- in accordance with the submitted design package LAW-026c.
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**ITEM (26):**

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DWP Appendix 9.9

Add Corrosion Evaluation 24590-LAW-N1D-LVP-00003, Rev 3, in accordance with the submitted design package LAW-026c.

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**ITEM (27):**

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DWP Appendix 9.11

Add the Independent Qualified Registered Professional Engineer (IQRPE) report 24590-CM-HC4-HXYG-00240-02-00009, Rev 00A, in accordance with the submitted design package LAW-026c.

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**ITEM (28):**

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DWP Appendix 9.11

Replace the IQRPE report 24590-CM-HC4-HXYG-00240-02-00008, Rev 0, with Rev 00A, in accordance with the approved permit modification 24590-LAW-PCN-ENV-13-001.

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**ITEM (29):**

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DWP Appendix 10.4

Delete GAs 24590-HLW-P1-P01T-00010, Rev 11, and 24590-HLW-P1-P01T-00011, Rev 11, in accordance with the approved permit modification 24590-WTP-PCN-ENV-11-009.

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***Ecology Response to M.G. McCullough, Bechtel National, Inc., and K. W. Smith, USDOE-ORP, Comment #3:***

*Some of the corrections, errors, and omissions detailed in Items 1 through 29 were inaccurate. Ecology incorporated the comments as appropriate.*

*Although not part of this permit modification, Ecology does not agree that the WTP Permit needs to be restructured. The permit structure including chapters, tables, and appendices were agreed to by the Permittee (DOE/BNI) at the time of issuance in 2002. This level of technical detail is there for fundamentally different reasons and serves a purpose. It is essential to explain the complexity of the construction and future operation of the WTP Facility. The WTP Permit, as a result, is a robust permit with detailed design.*

*The example provided, sump and drain data documents, is being managed in a Class 1 Prime permit modification, and is undergoing comment resolution. Once resolution is reached, those changes will be incorporated into the Permit through the Permit Change Notice process.*

## LIST OF COMMENTERS

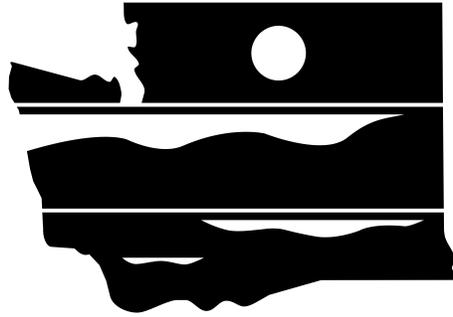
The table below lists the names of organizations or individuals who submitted a comment on the WTP Permit modification and where you can find Ecology's response to the comments.

Commenter	Organization	Page Number
Anonymous	Citizen	Pgs. 12-15
Tom Carpenter	Hanford Challenge	Pgs. 15-24
Michael Kovalenko	Citizen	Pgs. 24-25
Michael Harding	Citizen	Pgs. 25-26
Maris Abelson	Citizen	Pg. 26-27
Jacinta Ritchie	Citizen	Pgs. 27-29
Den Mark Wichar	Citizen	Pgs. 29
Rick Harlan	Citizen	Pgs. 29
Russell Jim	Yakama Nation	Pgs. 29-31
M.G. McCullough, and K. W. Smith	Bechtel National, Inc., and USDOE	Pgs. 31-41

## **APPENDIX A: COPIES OF ALL PUBLIC NOTICES**

Public notices for this comment period:

1. Statement of Basis.
2. Public notice (focus sheet).
3. Classified advertisement in the *Tri-City Herald*.
4. Notice sent to the Hanford-Info email list.
5. Event posted on Ecology's Hanford Education & Outreach Facebook page.
6. Notice of comment period extension sent to the Hanford-Info email list.
7. Posting on Ecology's web page about the comment period.
8. Status update about the comment period extension on Ecology's Hanford Education & Outreach Facebook page.
9. Low-Activity Waste Facility photo album on Ecology's Hanford Education & Outreach Facebook page.



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***

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## 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**

#### **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.
- 2.0 The WTP Permitting Process.
- 3.0 Procedures for Reaching a Final Decision on the Draft 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 IV).            |
| Part V   | Unit-Specific Conditions for Units Undergoing Closure (Part V). |
| Part VI  | Unit-Specific Conditions for Units in Post-Closure (Part VI).   |

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 newly permitted units. This includes Class 1, <sup>1</sup>1, 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 information necessary to support construction of the rest of the WTP TSD Unit and eventual operation.

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

At completion of the three phases of permitting, 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 (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 WTP Permit before installation (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 that provides details for equipment on that level will be included in the WTP Permit before installation (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 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 October 15, 2013, and ends on December 3, 2013.

Comments must be post-marked, received by e-mail, or hand-delivered no later than close of business (5:00 p.m. PST) December 3, 2013. Direct all written comments to:

Erika Holmes  
Washington State Department of Ecology  
3100 Port of Benton Blvd.  
Richland, Washington 99354  
E-mail address: [hanford@ecy.wa.gov](mailto:hanford@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 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](mailto: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  
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 Erika Holmes, Ecology, at (509) 412-2244 or (360) 407-6006 (TDD).

## **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 and 2 at the end of this document for the entire list of package documents.

### ***Design Package No. LAW-026C, Rev. 0, Miscellaneous Unit Subsystems for LAW Facility LVP System (LVP Exhausters)***

This design package addresses the installation of Offgas/Vessel Vent Process (LVP) System miscellaneous unit subsystems in the LAW Facility at the +48-foot elevation.

The purpose of the LVP system is to remove gases and particulates from the combined primary offgas and vessel vent streams. The LVP system consists of preheaters, high-efficiency particulate air (HEPA) filters, exhausters, mercury adsorbers, a catalytic oxidizer/reducer, a caustic scrubber, and a caustic collection tank. This permit package only addresses the exhausters.

There are three multistage exhausters (LVP-EXHR-00001A/B/C) with adjustable speed drives that are located downstream of the caustic scrubber. This location maintains the offgas at a negative pressure through all of the abatement processes. These exhausters will be high integrity multi-stage fans with double mechanical seals with purge to ensure that any seal leakage that may develop will be infiltration versus exfiltration.

The exhausters provide the motive force for discharging treated offgas to the atmosphere through the LAW stack. Normally, two exhausters will be running at a time, with the third exhauster in standby. If one exhauster fails, the standby exhauster automatically starts. If the standby exhauster fails to start, the single remaining online exhauster is adequately sized to maintain negative pressure in the melter.

This design package consists of a final assessment report signed by an Independent, Qualified, Registered, Professional Engineer (IQRPE) certifying the:

- LVP Exhauster Design.
- Two Process Flow Diagrams (PFDs) and associated change documents to replace permitted LVP PFDs.
- A mechanical data sheet for the exhausters.
- An engineering specification for exhausters and hoses.
- A technical change notice to the exhauster specification.
- A supplier deviation disposition request to the exhauster specification.
- A corrosion evaluation for melter offgas exhausters.

The complete list of documents is located in Table 1.

***Permit Package No. BOF-001, Rev. 0, Container Storage Area for the Balance of Facilities (Failed Melter Storage Facility)***

This permit package addresses the Container Storage Area located in the Failed Melter Storage Facility (Building 32) at the southeast corner of the WTP Facility. This container storage area is further described in Chapter 4, Section 4.2.1.4.2 of the WTP Permit.

This permit package includes the General Arrangement Drawing, update of WTP Permit Tables III.10.D.A and III.10.D.B, and vendor cut sheets describing a typical commercially available waste container management building and drum spill collection pallet. Container Storage Area packages do not require an IQRPE report.

The Failed Melter Storage Facility will be used primarily to store HLW Melter units that have completed their service life. These units will be received in carbon-steel overpack containers allowing limited hands-on contact. These overpacks will not be opened while the waste melter units are located in this storage facility. The facility is capable of storing up to three overpacked waste melter units at any given time. The spent HLW Melter units will not be stacked.

The Failed Melter Storage Facility may also receive containerized miscellaneous mixed waste. These waste containers will be sealed prior to transport to the Failed Melter Storage Facility. The containers will not be opened while at this storage facility. Waste containers will not be stacked more than two containers high. If wastes containing liquids, or exhibiting the characteristics of ignitability or reactivity are generated, then portable secondary containment that meets the requirements of WAC 173-303-630(7) or WAC 173-303-630(8) will be provided.

The Failed Melter Storage Facility (Building 32) described in this submittal is subject to the following outstanding questions:

- Preliminary estimates of HLW melter waste concentrations indicate that alterations to this facility may be required.
- Depending on future waste characterization data, the design and location of the facility described in this submittal may require alterations. For example, additional radionuclide shielding may be required to reduce personnel exposure levels, which may impact the final design, dimensions, or location of the building.
- Alternatively, future long-term storage decisions for HLW melters that have completed their useful service life may identify another facility suitable for melter storage as a more acceptable alternative to this facility, in which case the WTP Failed Melter Storage Facility would not need to be constructed.

Submittal of this package fulfills the requirements of Compliance Schedule Item 10. However, due to the outstanding uncertainties remaining, Ecology added a new Compliance Schedule Item 46 that requires submittal of final design information associated with the Failed Melter Storage Facility (Building 32) pending resolution of these uncertainties.

The complete list of documents is located in Table 2.

***IQRPE Structural Integrity Assessment Report for the LAW Facility Secondary Containment Bulge Enclosures (LCP/LFP/LOP/RLD)***

This IQRPE report was included in permit modification request 24590-LAW-PCN-ENV-12-001. It describes the design and structural integrity of the installed LAW Facility bulges. A bulge is a metal box located outside of a hard-to-reach cell. The bulges provide secondary containment for hands-on operation and maintenance of process equipment such as pumps, valves, instruments and associated equipment. Bulges provide secondary containment for dangerous waste processing ancillary equipment inside the bulge. A more complete description of bulges is provided in Section 4.2.2.2.2 in Chapter 4 of the WTP Permit.

The bulges were previously addressed in four separate LAW ancillary equipment IQRPE integrity assessment reports listed below, which are located in Appendix 9.11 of the WTP Permit:

- *IQRPE Structural Integrity Assessment Report for LAW LCP Ancillary Equipment, IA-3001932-000*
- *Structural Integrity Assessment of the Low-Activity Waste (LAW) Melter Feed Process System (LFP) Elev. 3'0" Ancillary Equipment, COGEMA-IA-055*

- *IQRPE Structural Integrity Assessment Report for LAW LOP Ancillary Equipment*, IA-3002314-000
- *IQRPE Structural Integrity Assessment Report for LAW RLD Ancillary Equipment*, IA-3001885-000

Combining the LAW bulge design into a single IQRPE structural integrity assessment report more clearly describes the design and structural integrity of the bulges as secondary containment structures. A single report also helps to clearly demonstrate compliance with WAC secondary containment requirements.

This bulge IQRPE report does not describe any changes to the design of the bulges, nor does it replace any of the existing IQRPE reports listed. The report addresses the existing structures as secondary containment, which requires a different set of assessment criteria than the previously approved ancillary equipment IQRPE reports listed. The new report also references the final design documents used to construct and install the LAW bulges.

Ecology is providing the opportunity to review and comment on this IQRPE report because it is being submitted as a new report in Appendix 9.11 of the WTP Permit and because of the significant changes between the ancillary equipment and the secondary containment IQRPE reports.

***Engineering Specification for Plate and Frame Heat Exchangers, 24590-WTP-3PS-MEP0-T0001, Revision 0***

This is a supplement to *Engineering Specification for Pressure Vessel Design and Fabrication*, 24590-WTP-3PS-MV00-T0001, which is included in the WTP Permit and is applicable to plate and frame type heat exchangers in both the PTF (for example, PTF-PVP-HX-00002) and HLW (for example, HLW-HOP-HX-00002 and HLW-HOP-HX-00004) facilities.

This Engineering Specification and associated applicable change documentation will be placed in Appendix 7.7 of the WTP Permit.

**Leak Detection Rate Exception for 63 Penetration Seals in the LAW Facility**

There are 253 dangerous waste processing lines that penetrate a floor or wall in the LAW Facility. Pipe sleeves are incorporated in these penetrations, where required, to divert a potential leak of dangerous waste into secondary containment and associated leak detection device, or allow a leak to drain from the sleeve to support the daily visual inspection required by the WAC and Dangerous Waste Permit. However, under fire protection regulations, a number of these penetrations must be sealed to provide a fire stop, which could impact the ability to detect a leak within regulatory leak detection requirements if a leak should occur within one of those segments.

Of the 253 total pipe penetrations, an evaluation identified 63 penetration seals that could affect leak detection capability within the required timeframe set forth in WTP Permit Condition III.10.E.9.e.ii. Ecology is granting an exception to the required leak detection timeframe for these 63 penetration seals. Permit Condition III.10.E.9.e.ii and III.10.H.5.e.ii have been modified accordingly, and *Table III.10.E.Q Tank System Penetration Seal Locations* and *Table III.10.H.G LAW Plant Penetration Seal Locations* have been incorporated to document the specific penetrations seals that are exempt from the required leak detection rate.

#### 4.1 Incorporation of Class 1 and Class <sup>1</sup> Permit Modifications and Permit Equivalency Notices (PENs)

This proposed permit modification incorporates the Class 1 and Class <sup>1</sup> permit modifications, and PENs listed 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-13-005, Class 1 Modification** provides updated Piping and Instrumentation Diagrams (P&IDs) for the HLW Waste Concentrate Receipt Process System in Appendix 10.2.
- **24590-LAB-PCN-ENV-12-002, Class 1 Modification** provides updated General Arrangement drawings for the Analytical Laboratory in Appendix 11.4.
- **24590-LAW-PCN-ENV-11-008, Class 1 Modification** provides an updated LAW Facility General Arrangement Drawing in Appendix 9.4.
- **24590-LAW-PCN-ENV-12-002, Class 1 Modification** provides updated General Arrangement Drawings for the LAW Facility in Appendix 9.4.
- **24590-LAW-PCN-ENV-12-003, Class 1 Modification** provides updates to *Table III.10.H.B - LAW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains* and *Table III.10.E.L - LAW Vitrification Plant Tank Systems Secondary Containment Systems, Including Sumps, Bulges, Autosamplers, and Floor Drains* in permit conditions; and *Table C-9 – WTP Sumps, Leak Detection Boxes, and Floor Drains/Lines* in Chapter 4.
- **24590-HLW-PCN-ENV-11-007, Class <sup>1</sup> Modification** provides the updated Corrosion Evaluation for HLW Canister Decon Vessels to replace the corresponding Material Selection Data Sheet in Appendix 10.9.
- **24590-HLW-PCN-ENV-11-009, Class <sup>1</sup> Modification** provides updated P&IDs for the HLW Melter Process System in Appendix 10.2.
- **24590-HLW-PCN-ENV-12-002, Class <sup>1</sup> Modification** provides updated P&IDs for the HLW Melter Offgas Treatment Process System in Appendix 10.2.
- **24590-HLW-PCN-ENV-12-005, Class <sup>1</sup> Modification** provides updated HLW Corrosion Evaluations to replace corresponding Material Selection Data Sheets in Appendix 10.9.
- **24590-LAB-PCN-ENV-12-001, Class <sup>1</sup> Modification** provides the updated *System Logic Description for the Analytical Laboratory Radioactive Liquid Waste System*, 24590-LAB-PER-J-03-001, Revision 2, in Appendix 11.13.
- **24590-LAW-PCN-ENV-07-007, Class <sup>1</sup> Modification** provides the updated *IQRPE Structural Integrity Assessment Report for LAW LFP Ancillary Equipment* in Appendix 9.11.
- **24590-LAW-PCN-ENV-13-001, Class <sup>1</sup> Modification** provides the updated *IQRPE Structural Integrity Assessment Report for LAW LVP HEPA Filter Housings (LVP-HEPA-00001A/2A/3A and -00001B/2B)* in Appendix 9.11.
- **24590-PTF-PCN-ENV-09-001, Class <sup>1</sup> Modification** provides updated Mechanical Data Sheets for the PTF Cesium Nitric Acid Recovery Process System and removes one Mechanical Data Sheet for the Pulse Jet Ventilation System in Appendix 8.6.

- **24590-PTF-PCN-ENV-10-035, Class <sup>1</sup>1 Modification** provides updated Mechanical Data Sheets and Equipment Assembly Drawings for the PTF Ultrafiltration Feed Vessels in Appendix 8.6.
- **24590-PTF-PCN-ENV-12-003, Class <sup>1</sup>1 Modification** provides updated P&IDs for the PTF Cesium Nitric Acid Recovery Process System Vessels and Transfer Ejectors, Utility Rack, and Pulse Jet Mixers; the PTF Pulse Jet Ventilation System Utility Services Plant Wash Rack; and for the PTF Vessel Vent Process System High Efficiency Mist Eliminators in Appendix 8.2.
- **24590-PTF-PCN-ENV-12-004, Class <sup>1</sup>1 Modification** provides updated P&IDs for the PTF Treated LAW Evaporation System vessels, condensers, separator, reboilers, utility racks, and vessel pulse jet mixers in Appendix 8.2.
- **24590-PTF-PCN-ENV-12-006, Class <sup>1</sup>1 Modification** provides updated P&IDs for the PTF Treated LAW Concentrate Storage Process System and Waste Feed Receipt Process System in Appendix 8.2.
- **24590-PTF-PCN-ENV-12-007, Class <sup>1</sup>1 Modification** provides updated P&IDs for the PTF Cesium Ion Exchange Process System Vessel and Waste Feed Evaporation Process (FEP) System Vessels, Evaporator Feed Pump (FEP-PMP-00007A), Feed Vessel Bubbler, and the FEP Reboilers, Utility Services Racks, Pulse Jet Mixers, and Utility Services Plant Wash Rack in Appendix 8.2.
- **24590-PTF-PCN-ENV-12-008, Class <sup>1</sup>1 Modification** provides updated Mechanical Systems Data Sheets for the PTF Cesium Nitric Acid Recovery Process, Waste Feed Evaporation Process, and Treated LAW Evaporation Process Systems in Appendix 8.8.
- **24590-PTF-PCN-ENV-12-009, Class <sup>1</sup>1 Modification** provides updated P&IDs for the PTF In-Cell Handling System, Spent Resin and Dewatering Process System, and the Radioactive Liquid Waste Disposal (RLD) System. This modification adds two new drawings for the RLD System in Appendix 8.2.
- **24590-PTF-PCN-ENV-12-011, Class <sup>1</sup>1 Modification** provides updated P&IDs for the PTF Ultrafiltration Process System Pulse Pots and Permeate Collection Vessels and removes one P&ID for a Steam Rack in Appendix 8.2.
- **24590-PTF-PCN-ENV-12-013, Class <sup>1</sup>1 Modification** updates one PFD for the PTF RLD System and removes one PFD for the Cesium Ion Exchange Process System in Appendix 8.1; and updates P&IDs for the HLW Storage and Feed Blending Process System and removes one P&ID for the PTF Vessel Vent Process System in Appendix 8.2.
- **24590-WTP-PCN-ENV-11-010, Class <sup>1</sup>1 Modification** provides updated text and figures for secondary containment design details for floor and wall coatings in Section 4.2.4.4. and Figure 4A-59 in Chapter 4.
- **24590-WTP-PCN-ENV-12-004, Class <sup>1</sup>1 Modification** provides the updated *River Protection Project – Waste Treatment Plant Engineering Specification for Maintenance Decontamination Equipment*, 24590-WTP-3PS-HD00-T0001, Revision 4, in Appendix 7.7.
- **24590-WTP-PCN-ENV-12-008, Class <sup>1</sup>1 Modification** provides the updated *Engineering Specification for Nuclear Grade High Efficiency Particulate Air Filters (ASME AG-1 Section FK Filters)* in Appendix 7.7.

- **24590-LAB-PEN-ENV-13-0001**, PEN provides a source drawing 24590-LAB-M5-V17T-00029 to replace the equivalent permit version drawing 24590-LAB-M5-V17T-P0029 in Appendix 11.1.
- **24590-LAW-PEN-ENV-12-0001**, PEN provides the *IQRPE Structural Integrity Assessment Report for LAW LVP Activated Carbon Bed Adsorbers (LVP-ADBR-00001A/B)* with an updated document number to replace the equivalent report in Appendix 9.11.

## 4.2 Supplemental Design Information

Tables 1 and 2 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 additional 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 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.

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 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.

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 (DCNs) to track changes not yet incorporated into source documents. 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 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-026C, Rev. 0  
Miscellaneous Unit Subsystems for LAW Facility LVP System  
(LVP Exhausters)***

**For Incorporation into the WTP Permit**

**Table of Contents**

Engineering Document Title	Document Number	Revision	Permit Conditions	Included	Remarks
IQRPE Independent Assessment Report	IA-3009093-000/24590-CM-HC4-HXYG-00240-02-00009	00A	III.10.H.5.c.i	Y	For incorporation in Appendix 9.11
<b>Permit Drawings</b>					
General Arrangement Plan	24590-LAW-P1-P01T-00005	4	III.10.H.5.c.ii	N	In Appendix 9.4 (24590-LAW-P1-P01T-00005, Revision 4 provided in 24590-LAW-PCN-ENV-11-008)
PFD	24590-LAW-M5-V17T-00010	4	III.10.H.5.c.ii	Y	For incorporation in Appendix 9.1
PFD Change Notices	24590-LAW-M5N-V17T-00012	5		N	In Appendix 9.1
	24590-LAW-M5N-V17T-00015			Y	For incorporation in Appendix 9.1
	24590-LAW-M5N-V17T-00017			Y	For incorporation in Appendix 9.1
24590-LAW-M5N-V17T-00029	N		In Appendix 9.1		
PFD	24590-LAW-M5-V17T-00011	5		Y	For incorporation in Appendix 9.1
PFD Change Notices	24590-LAW-M5N-V17T-00012		N	In Appendix 9.1	
	24590-LAW-M5N-V17T-00019		N	In Appendix 9.1	
	24590-LAW-M5N-V17T-00023		N	In Appendix 9.1	
	24590-LAW-M5N-V17T-00029		N	In Appendix 9.1	
P&IDs	24590-LAW-M6-LVP-00001004	0	III.10.H.5.c.ii	N	In Appendix 9.2
	24590-LAW-M6-LVP-00001005	0		N	
	24590-LAW-M6-LVP-00001006	0		N	
<b>Mechanical Drawing</b>					
Exhausters	See Remarks	N/A	III.10.H.5.c.ii III.10.H.5.c.vi	N (see remarks)	See P&IDs 24590-LAW-M6-LVP-00001004, 00001005, and 00001006, for physical attributes. In Appendix 9.2 Vendor drawings incorporated into administrative record

Engineering Document Title	Document Number	Revision	Permit Conditions	Included	Remarks
<b>Engineering Specifications</b>					
Exhausters and Hoses	24590-LAW-3PS-MACS-T0001	2	III.10.H.5.c.ii III.10.H.5.c.iii III.10.H.5.c.vi	Y	In Appendix 9.7
Technical Change Notice	24590-QL-MRA-MACS-00007-T0005	N/A		Y	Submittal requirements for Baldor Motors
Supplier Deviation Disposition Request	24590-WTP-SDDR-MS-12-00039	N/A		Y	Minor deviations to the motor specification and clarification for spare terminals
Pressure Vessel Design and Fabrication	24590-WTP-3PS-MV00-T0001	4		N	In Appendix 7.7
Seismic Qualification Criteria for Pressure Vessels	24590-WTP-3PS-MV00-T0002	3		N	In Appendix 7.7
Positive Material Identification for Shop Fabrication	24590-WTP-3PS-G000-T0002	8		N	In Appendix 7.7
<b>Mechanical Data Sheets</b>					
Exhauster	24590-LAW-MAD-LVP-00006	9	III.10.H.5.c.ii III.10.H.5.c.vi	Y	For incorporation in Appendix 9.6
Underground Pipe Protection	Not applicable	-	III.10.H.5.c.iv	N	There are no underground pipes in the LAW Facility El. 3 feet and above
Corrosion Evaluation					
Melter Offgas Exhauster	24590-LAW-N1D-LVP-00003	3	III.10.H.5.c.iii III.10.H.5.c.v	Y	For incorporation in Appendix 9.9
<b>PER Documents</b>					
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 of 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
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

**For Incorporation into the Administrative Record**

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 Treatment Subsystems in the LAW Facility
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 - Incorporated in LAW-027
Material and Energy Balance	24590-WTP-RPT-PT-02-005	6	III.10.H.5.c.xi	N	In Administrative Record Office of River Protection letter 11-ESQ-224 dated 10/25/11, Submittal of Mass and Energy Balance Information (CCN 241137)
	24590-WTP-RPT-PET-10-022	0			
	24590-WTP-MRR-PET-10-010	0			
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) Class <sup>1</sup> Modification to Administrative Record
Prevention of Hydrogen Accumulation in WTP Tank Systems and Miscellaneous Treatment Unit Systems	24590-WTP-PER-PR-03-001	1	III.10.H.5.c.xii	N	Previously provided with LAW-029, Revision 0 (CCN 067539) dated 8/26/2003, to document compliance with WTP Permit Condition. Note: Revisions to the WTP HPAV strategy are in progress and will require future re-submittal of this document.
Vendor Outline Dimensions of 42" Outlet Driven 4BOB	24590-QL-POA-MACS-00007-06-00008	00E	III.10.H.5.c.vi	Y	To be placed in Administrative Record  Incorporated in LAW-026C
Vendor Outline Dimensions of 42" Outlet Driven 4BOB	24590-QL-POA-MACS-00007-06-00018	00C	III.10.H.5.c.vi	Y	To be placed in Administrative Record  Incorporated in LAW-026C

**Table 2 – Design Information Submitted by Permittees**

***Permit Package No. BOF-001, Rev. 0  
Container Storage Area for Balance of Facilities  
(Failed Melter Storage Facility)***

**For Incorporation into the WTP Permit**

**Table of Contents**

<b>Engineering Document Title</b>	<b>Document Number</b>	<b>Revision</b>	<b>Permit Condition</b>	<b>Included</b>	<b>Remarks</b>
<b>Permit Design Drawings</b>					
General Arrangement Plan and Section	24590-BOF-P1-32-00001	2	III.10.D.10.b.i	Y	For incorporation in Appendix 12.4
Drawing Change Notice	24590-BOF-P1N-50-00009	N/A	III.10.D.10.b.i	Y	For incorporation in Appendix 12.4
Drawing Change Notice	24590-BOF-P1N-32-00001	N/A	III.10.D.10.b.i	Y	For incorporation in Appendix 12.4
Secondary Containment Design	24590-WTP-PER-CSA-02-001	10	III.10.D.10.b.i	N/A	The Failed Melter Facility is not designed with secondary containment. If liquids will be managed in the facility, they will be managed in portable spill containment buildings or spill pallets.
Material Selections for Building Secondary Containment/Leak Detection	24590-WTP-PER-M-02-001	3	III.10.D.10.b.i III.10.D.10.b.ii	N/A	The Failed Melter Facility is not designed with secondary containment. If liquids will be managed in the facility, they will be managed in portable spill containment buildings or spill pallets.
RPP-WTP Compliance with Uniform Building Code Seismic Design Requirements	24590-WTP-RPT-ST-01-001	2	III.10.D.10.b.i	N	Included in WTP Permit Chapter 4C - Supplement 1

Engineering Document Title	Document Number	Revision	Permit Condition	Included	Remarks
Ignitable or Reactive Waste Buffer Zone	N/A	-	III.10.D.10.b.iii	Y	<p>If ignitable or reactive secondary wastes are managed in the Failed Melter Storage Facility, secondary containment will be provided by portable secondary containment that meets the requirements of WAC 173-303-630.</p> <p>Design information provided on portable containment buildings provided in vendor cut sheets.</p>
Segregation of Incompatible Waste	N/A	-	III.10.D.10.b.iii	Y	<p>If incompatible secondary wastes are to be managed in the Failed Melter Storage Facility, separation will be provided by portable secondary containment that meets the requirements of WAC 173-303-630.</p> <p>Design information provided on portable spill pallet cut sheets.</p>
Update to Permit Table III.10.D.A, Container Storage/Containment Building Areas Description	N/A	-	III.10.C.2.e	Y	Update permit table provided for incorporation into the permit
Update to Permit Table III.10.D.B, Container Storage Area/Containment Building Systems	N/A	-	III.10.D.10.b.iv	Y	Update permit table provided for incorporation into the permit

## Waste Treatment Plant Design Changes

The [Washington State Department of Ecology](http://www.ecy.wa.gov) (Ecology) is proposing a change to the *Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Revision 8C*. This change affects the *Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste* for the Waste Treatment and Immobilization Plant (WTP Permit). The proposed changes are located in Part III, Operating Unit 10.

The permittees are:

[U.S. Department of Energy Office of River Protection](http://www.epa.gov)

P.O. Box 450  
Richland, Washington 99352

[Bechtel National, Inc.](http://www.bechtel.com)

2435 Stevens Center Place  
Richland, Washington 99354

This proposal is one of many changes to the original WTP Permit. Periodic updates allow the permittees to continue construction while designing other parts of WTP.

The proposed changes include:

- Two design packages, which will allow new construction on the Low-Activity Waste Facility and a building that will store failed equipment.
- A structural integrity assessment report, which assesses the integrity of equipment enclosures in the Low-Activity Waste Facility.
- An engineering specification, which outlines requirements for plate and frame heat exchangers in the High-Level Waste and Pretreatment facilities.

Ecology invites you to review, ask questions, and comment on this WTP Permit change. The comment period begins October 15, 2013, and ends December 3, 2013.

### WTP overview

WTP has three facilities that will separate and process Hanford's tank waste for long-term disposal:

### WHY IT MATTERS

The proposed permit changes affect the [Waste Treatment and Immobilization Plant](#) (WTP). WTP will immobilize in glass 56 million gallons of dangerous radioactive and chemical waste stored in 177 underground storage tanks at [Hanford](#). Some waste from the tanks has polluted groundwater that flows toward, and can seep into, the Columbia River. Safely treating tank waste is an important goal to help protect people and the environment.

### PUBLIC COMMENT PERIOD

October 15 – December 3, 2013

### To Submit Comments

Please send comments by email (preferred), U.S. mail, or hand deliver them to:

Erika Holmes  
3100 Port of Benton Blvd.  
Richland, WA 99354  
[Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)

### Public Hearing

A public hearing is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact:

Erika Holmes  
800-321-2008  
[Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)

*Please see page 5 for definitions of specialized terms used in this publication.*

- [Pretreatment](#) (PT).
- [Low-Activity Waste](#) (LAW) treatment.
- [High-Level Waste](#) (HLW) treatment.

At the heart of treatment is [vitrification](#), or immobilizing waste in solid glass. In the PT Facility, tank waste is separated into LAW and HLW. The waste is then sent to the appropriate vitrification facility, mixed with glass formers, and piped to large heating containers called melters.



*The Waste Treatment Plant, commonly called the vit plant, in September 2013 (photo courtesy of Bechtel).*

During vitrification, the melters will heat tank waste and silica glass formers to 2,100°F (1,150°C). Then, the molten liquid will be poured and sealed in stainless-steel disposal containers, where it will cool into solid glass logs.

In glass form, the waste is still radioactive. However, the solid waste will be extremely durable and waterproof, which will protect people and the environment for thousands of years as the radioactivity decays.

## **Two WTP design packages proposed**

The proposed changes to the WTP Permit include the following two design packages that will allow new construction in the LAW Facility and the Failed Melter Storage Building.

### **Miscellaneous Unit Subsystems for LAW Facility Offgas/Vessel Vent Process (LVP) System (LVP Exhausters), Package LAW-026C, Revision 0**

Design package LAW-026C addresses the installation of LVP system exhausters in the LAW Facility. The purpose of the LVP system is to remove and treat gases and solid particles from the offgas before it exits the facility through a stack.



Each LAW Facility exhaustor is made primarily of stainless steel and measures more than 13 feet long, 6 feet wide, and nearly 7 feet high (photo courtesy of Bechtel).

The design package includes plans for three exhaustors. The exhaustors push treated offgas to the atmosphere through the LAW stack. These exhaustors will contain any potential leaks from their seals. Under normal conditions, two exhaustors will be running at a time with the third exhaustor in standby. If one exhaustor should fail, the standby exhaustor is automatically started. If the standby exhaustor fails to start, then the single remaining exhaustor is sized to function properly alone.

This package includes an structural integrity assessment report signed by an independent, qualified, registered professional engineer certifying the LVP exhaustor design, two process flow diagrams, a mechanical data sheet for the exhaustors, an engineering specification for exhaustors and hoses, and a corrosion evaluation for melter offgas exhaustors.

### **Container Storage Area for the Failed Melter Storage Building, Package BOF-001, Revision 0**

Design package BOF-001 details the construction of the Failed Melter Storage Building. The Failed Melter Storage Building will mainly be used to store HLW melters that are no longer usable. The expected service life for WTP melters is five years.

Failed melters will be packed in carbon-steel containers to restrict hands-on contact. These containers will not be opened while the melters are stored. The building is capable of storing up to three melters side-by-side until they are taken to a deep geologic repository for disposal. The used HLW melters will not be stacked.

As needed, the Failed Melter Storage Building may also store various mixed waste created from treatment processes at WTP. This waste will be sealed in containers prior to transport to the Failed Melter Storage Facility. The containers will not be opened while in storage nor be stacked more than two containers high. If waste is liquid, flammable, or chemically reactive, portable secondary containment will be used.

Ecology has identified questions the permittees must answer about the Failed Melter Storage Building before any construction may begin:

- Estimates of how many failed HLW melters will need to be stored before a deep geologic repository is available show that the building may not be large enough.
- After radioactivity levels are known for waste stored in this building, the design and location of it may need to change. The potential changes would allow for more radiation shielding to reduce exposure to workers, which could alter the dimensions and location of the building.
- The co-permittees may also identify another facility for storing failed HLW melters. In which case, the Failed Melter Storage Building would not need to be constructed.

Package BOF-001 fulfills the requirements of Compliance Schedule Item 10 in the WTP Permit. However, due to the outstanding questions, Ecology added Compliance Schedule Item 46 that requires the permittees to submit a revised design package that resolves these uncertainties.

This permit design package includes a general arrangement drawing of the container storage area, updates to WTP Permit Tables III.10.D.A and III.10.D.B that list container storage areas and rooms, and vendor information describing typical commercially available waste container management buildings and drum spill collection pallets.

## **Two documents proposed**

The proposed changes to the WTP Permit also include two documents that detail new information and design changes to the LAW, HLW, and PT facilities.

### **Structural Integrity Assessment Report for LAW Secondary Containment Bulge Enclosures, Permit Change Notice 24590-LAW-PCN-ENV-12-001, Revision 0**

A bulge is a metal box located outside a hard-to-reach room where waste will be processed. They allow hands-on operation and maintenance of process equipment such as pumps, valves, instruments, and associated equipment.

Four previous reports signed by an independent, qualified, registered professional engineer addressed the integrity of the equipment in the bulges. Based on the prior assessments, which were incorporated during past permit changes, the bulges are already installed.

This new report addresses the integrity of the bulge enclosures as secondary containment for any leaks that may develop from the equipment inside them, which is important to Ecology. Because this is a new report that contains significant changes, the public may comment on this integrity assessment report.

### **Engineering Specification for Plate and Frame Exchangers, 24590-WTP-3PS-MEP0-T0001, Revision 0**

The engineering specification is for heat exchangers in the PT and HLW facilities. A heat exchanger is used to either heat or cool another fluid (liquid or gas). If a fluid needs to be cooled during processing, chilled water or a refrigerant may be used. The heat is transferred (“exchanged”), and the process fluid is cooled.

For example, in the HLW Facility, plate and frame heat exchangers are used to heat and cool offgas. In the PT Facility, this type of heat exchanger is used to cool process liquid. The engineering specification outlines requirements for these WTP heat exchangers.

## **View the full proposal**

This document is a summary of the proposed WTP permit changes. The full proposal is available beginning October 15, 2013, on [Ecology’s Nuclear Waste Program website \(www.ecy.wa.gov/programs/nwp/commentperiods.htm\)](http://www.ecy.wa.gov/programs/nwp/commentperiods.htm) or at Hanford’s public information repositories (see locations on page 5).

**Public Information Repositories**

Ecology Nuclear Waste Resource Center  
 3100 Port of Benton Blvd.  
 Richland, WA 99354  
 Contact: Valarie Peery 509-372-7950

Dept. of Energy Administrative Record  
 2440 Stevens Drive, Room 1101  
 Richland, WA 99354  
 Contact: Heather Childers 509-376-2530

Department of Energy Reading Room  
 2770 Crimson Way, Room 101L  
 Richland, WA 99354  
 Contact: Janice Parthree 509-375-3308

Portland State University  
 Branford Price Millar Library  
 1875 SW Park Avenue  
 Portland, OR 97207  
 Contact: Claudia Weston 503-725-4542

University of WA Suzzallo Library  
 P.O. Box 352900  
 Seattle, WA 98195  
 Contact: Hilary Reinert 206-543-5597

Gonzaga University Foley Center  
 502 E Boone Avenue  
 Spokane, WA 99258  
 Contact: John Spencer 509-313-6110

**TERMS TO KNOW**

**Dangerous Waste Permit:** A State-issued permit allowing facilities to store, treat, and/or dispose of dangerous waste.

**Deep geologic repository:** A long-term nuclear waste disposal site excavated underground, below 980 feet, in a stable geologic environment.

**High-level waste:** Results from reprocessing spent nuclear fuel. This includes liquid produced during reprocessing and solids derived from this liquid waste that contain fission products in sufficient concentrations and other highly radioactive material that, by law, requires permanent isolation.

**Low-activity waste:** Remains after as much radioactivity as is technically and economically practical has been separated from high-level waste. When vitrified, it may be disposed of as low-level radioactive waste in a near-surface facility at Hanford.

**Offgas:** A gaseous radioactive and hazardous byproduct of tank waste treatment.

**Resource Conservation & Recovery Act (RCRA):** Law authorizing the U.S. Environmental Protection Agency to manage hazardous waste, including the generation, transportation, treatment, storage, and disposal of hazardous and other solid waste and waste in underground tanks.

**Underground storage tank:** A tank that is entirely below the surface of and covered by the ground. At Hanford, two types of underground storage tanks have capacities ranging from 50,000 to one million gallons. The single-shell tanks have one steel liner encased in reinforced concrete, and do not comply with State environmental laws. The double-shell tanks have two steel liners in reinforced concrete and contain potential leaks, in compliance with the law.

**Vitrification:** Immobilizing waste by mixing it with glass formers and melting the mixture into a glass form that cools into a solid.

**Waste Treatment and Immobilization Plant:** Facility to thermally treat and vitrify tank waste at Hanford.



3100 Port of Benton Blvd.  
Richland, WA 99354

**Public Comment Period on  
Hanford's Waste Treatment Plant**

October 15 – December 3, 2013

Submit questions or comments to:

[Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)

(See page 1 for more options.)

**Special accommodations:** If you require special accommodations or need this document in a version for the visually impaired, call the Nuclear Waste Program at 509-372-7950.

Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.

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# Classified Legals

The Washington State Department of Ecology Announces a 45-Day Public Comment Period for Modifications to 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 10, Waste Treatment and Immobilization Plant (WTP Permit)*

October 15, 2013, through December 9, 2013

The Washington State Department of Ecology is proposing a modification to the WTP Permit.

The Permittees are:

United States  
Department of Energy  
Office of River Protection  
PO Box 550  
Richland, Washington  
99352

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

#### Why It Matters

The Waste Treatment and Immobilization Plant (WTP) will be capable of treating 56 million gallons of dangerous radioactive and chemical waste from the 177 underground storage tanks at the Hanford Site north of Richland, Washington. Treating the waste will reduce the risk to people and the environment. The proposed modifications affect facilities that are part of the WTP.

#### Two WTP Design Packages Proposed

The proposed changes include the following two design packages that will allow new construction in the Low Activity Waste (LAW) Facility and the Failed Melter Storage Building.

*Design Package No. LAW-026C, Rev. 0, Miscellaneous Unit Subsystem for LAW Facility LVP System (LVP Exhausters).* This design package addresses the installation of the LAW Secondary Offgas/Vessel Vent Process System (LVP system) exhausters in the LAW Facility. The purpose of the LVP system is to remove and treat gases and solid particles from the offgas before it exits the facility through a stack.

*Permit Package No. BOF-001, Rev. 0 Container Storage Area for Balance of Facilities (Failed Melter Storage Building).* This design package details the construction of the Failed Melter Storage Building. The Failed Melter Storage Building will mainly be used to store High Level Waste (HLW) melters that are no longer usable. The expected service life for WTP melters is five years.

#### Two Documents Proposed

The proposed changes also include the following two documents that detail new information and design changes to the LAW, HLW, and Pretreatment (PT) facilities:

*IGRPE Structural Integrity Assessment Report for LAW Secondary Containment Bulge Enclosures (LCP/LFP/LOP/RLD).*

A bulge is a metal box located outside a hard-to-reach room where waste will be processed. The bulges allow hands-on operation and maintenance of process equipment such as pumps, valves, instruments, and associated equipment.

Based on four prior assessments, which were incorporated during past public comment periods, the bulges are already installed. This report addresses the integrity of the bulge enclosures as secondary containment for any leaks that might occur.

*Engineering Specification for Plate and Frame Exchangers 24590-WTP-3PS-MEP0-T0001, Revision 0.* This engineering specification outlines requirements for heat exchangers in the PT and HLW facilities. A heat exchanger is used to either heat or cool another fluid (liquid or gas). If a fluid needs to be cooled during processing, chilled water or a refrigerant may be used. The heat is transferred ("exchanged"), and the process fluid is cooled.

This is a brief summary of the changes proposed for the WTP Permit. To review the proposed modification in detail beginning October 15, 2013, visit the Department of Ecology website at <http://www.ecy.wa.gov/programs/wtp/commentperiods.htm>.

You can also review the proposed modification at one of the Hanford Public Information Repositories:

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

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

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

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

United States Department of Energy Reading Room 2770 Crimson Way Richland, Washington 99354  
Contact: Janice Parthree  
509-372-7443

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

Your views and concerns are important to the Department of Ecology. For more information on the public comment period, please contact Erika Holmes at [hanford@ecy.wa.gov](mailto:hanford@ecy.wa.gov) or (800) 321-2008.  
#13-6199 10/13/2013

**From:** [Washington Department of Ecology](http://Washington.Department.of.Ecology)  
**To:** [HANFORD-INFO@LISTSERV.WA.GOV](mailto:HANFORD-INFO@LISTSERV.WA.GOV)  
**Subject:** 30-day Advance Notice of Hanford Waste Treatment Plant Public Comment Period  
**Date:** Friday, September 13, 2013 3:23:27 PM

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**The Washington State Department of Ecology Announces a  
45-Day Public Comment Period for Modifications to 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 10, Waste Treatment and Immobilization Plant  
(WTP Permit)**

October 15, 2013, through December 3, 2013

The [Washington State Department of Ecology](http://Washington.State.Department.of.Ecology) is proposing a modification to the WTP Permit.

The Permittees are:

[United States Department of Energy](http://United.States.Department.of.Energy)  
Office of River Protection  
PO Box 550  
Richland, Washington 99352

[Bechtel National, Inc.](http://Bechtel.National.Inc)  
2435 Stevens Center Place  
Richland, Washington 99354

### **Why It Matters**

The Waste Treatment and Immobilization Plant (WTP) will be capable of treating 56 million gallons of dangerous radioactive and chemical waste from the 177 underground storage tanks at the [Hanford Site north of Richland, Washington](http://Hanford.Site.north.of.Richland.Washington). Treating the waste will reduce the risk to people and the environment. The proposed modifications affect facilities that are part of the WTP.

### **Two WTP Design Packages Proposed**

The proposed changes include the following two design packages that will allow new construction in the Low-Activity Waste (LAW) Facility and the Failed Melter Storage Building.

- *Miscellaneous Unit Subsystem for LAW Facility LVP System (LVP Exhausters), Design Package No. LAW-026C, Rev. 0.* This design package addresses the installation of the LAW Secondary Offgas/Vessel Vent Process System (LVP system) exhausters in the LAW Facility. The purpose of the LVP system is to remove and treat gases and solid particles from the offgas before it exits the facility through a stack.
- *Container Storage Area for Balance of Facilities (Failed Melter Storage Building), Permit Package No. BOF-001, Rev. 0.* This design package details the construction of the Failed Melter Storage Building. The Failed Melter Storage Building will mainly be used to store High-Level Waste (HLW) melters that are no longer usable. The expected service life for WTP melters is five years.

### **Two Documents Proposed**

The proposed changes also include the following two documents that detail new information and

design changes to the LAW, HLW, and Pretreatment (PT) facilities.

- *IQRPE Structural Integrity Assessment Report for LAW Secondary Containment Bulge Enclosures, Permit Change Notice 24590-LAW-PCN-ENV-12-001, Rev. 0.* A bulge is a metal box located outside a hard-to-reach room where waste will be processed. The bulges allow hands-on operation and maintenance of process equipment such as pumps, valves, instruments, and associated equipment.

Based on four prior assessments, which were incorporated during past public comment periods, the bulges are already installed. This report addresses the integrity of the bulge enclosures as secondary containment for any leaks that might occur.

- *Engineering Specification for Plate and Frame Exchangers, 24590-WTP-3PS-MEPO-T0001, Revision 0.* This engineering specification outlines requirements for heat exchangers in the PT and HLW facilities. A heat exchanger is used to either heat or cool another fluid (liquid or gas). If a fluid needs to be cooled during processing, chilled water or a refrigerant may be used. The heat is transferred ("exchanged"), and the process fluid is cooled.

This is a brief summary of the changes proposed for the WTP Permit. To review the proposed modification in detail beginning October 15, 2013, visit the Department of Ecology website at <http://www.ecy.wa.gov/programs/nwp/commentperiods.htm>.

-

You can also review the proposed modification at one of the Hanford Public Information Repositories:

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

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

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

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

United States Department of Energy  
Reading Room  
2770 Crimson Way  
Richland, Washington 99354  
Contact: Janice Parthree 509-372-7443

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

Your views and concerns are important to the Department of Ecology. For more information on the public comment period, please contact Erika Holmes at [hanford@ecy.wa.gov](mailto:hanford@ecy.wa.gov) or (800) 321-2008.

## Public Comment Period: Hanford Waste Treatment Plant Design Changes

You are posting, commenting, and liking as Ecology's Hanford Education & Outreach Network — [Change to Erika Holmes](#)



### Public Comment Period: Hanford Waste Treatment Plant Design Changes

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October 15 at 8:00am until December 3 at 5:00pm

The Department of Ecology is proposing a modification to the Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste for the Waste Treatment and Immobilization Plant (WTP). The co-permittees are the U.S. Department of Energy Office of River Protection and Bechtel National, Inc.

The proposed changes include two permit design packages that will allow new construction in the Low-Activity Waste (LAW) Facility an... [See More](#)

**From:** [^TPA](#)  
**To:** [HANFORD-INFO@LISTSERV.WA.GOV](mailto:HANFORD-INFO@LISTSERV.WA.GOV)  
**Subject:** EXTENSION TO COMMENT PERIOD  
**Date:** Wednesday, November 27, 2013 9:36:10 AM

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## **45-Day Public Comment Period for Modifications to 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 10, Waste Treatment and Immobilization Plant (WTP Permit)**

**The Washington State Department of Ecology received a request and agreed to extend the comment period to December 20. The comment period originally was scheduled to end December 3.**

The Washington State Department of Ecology is proposing a modification to the WTP Permit. The Permittees are:

United States Department of Energy Office of River Protection  
PO Box 550  
Richland, Washington 99352  
Bechtel National, Inc.  
2435 Stevens Center Place  
Richland, Washington 99354

### **Why It Matters**

The Waste Treatment and Immobilization Plant (WTP) will be capable of treating 56 million gallons of dangerous radioactive and chemical waste from the 177 underground storage tanks at the Hanford Site north of Richland, Washington. Treating the waste will reduce the risk to people and the environment. The proposed modifications affect facilities that are part of WTP.

### **Two WTP Design Packages Proposed**

The proposed changes include the following two design packages that will allow new construction in the Low-Activity Waste (LAW) Facility and the Failed Melter Storage Building.

- *Miscellaneous Unit Subsystem for LAW Facility LVP System (LVP Exhausters), Design Package No. LAW-026C, Rev. 0.* This design package addresses the installation of the LAW Secondary Offgas/Vessel Vent Process System (LVP system) exhausters in the LAW Facility. The purpose of the LVP system is to remove and treat gases and solid particles from the offgas before it exits the facility through a stack.
- *Container Storage Area for Balance of Facilities (Failed Melter Storage Building), Permit Package No. BOF-001, Rev. 0.* This design package details the construction of the Failed Melter Storage Building. The Failed Melter Storage Building will mainly be used to store High-Level Waste (HLW) melters that are no longer usable. The expected service life for WTP melters is five years.

### **Two Documents Proposed**

The proposed changes also include the following two documents that detail new information and

design changes to the LAW, HLW, and Pretreatment (PT) facilities.

- *IQRPE Structural Integrity Assessment Report for LAW Secondary Containment Bulge Enclosures, Permit Change Notice 24590-LAW-PCN-ENV-12-001, Rev. 0.* A bulge is a metal box located outside a hard-to-reach room where waste will be processed. The bulges allow hands-on operation and maintenance of process equipment such as pumps, valves, instruments, and associated equipment. Based on four prior assessments, which were incorporated during past public comment periods, the bulges are already installed. This report addresses the integrity of the bulge enclosures as secondary containment for any leaks that might occur.
- *Engineering Specification for Plate and Frame Exchangers, 24590-WTP-3PS-MEPO-T0001, Revision 0.* This engineering specification outlines requirements for heat exchangers in the PT and HLW facilities. A heat exchanger is used to either heat or cool another fluid (liquid or gas). If a fluid needs to be cooled during processing, chilled water or a refrigerant may be used. The heat is transferred (“exchanged”), and the process fluid is cooled.

This is a brief summary of the changes proposed for the WTP Permit. To review the proposed modification in detail, visit the Department of Ecology website at <http://www.ecy.wa.gov/programs/nwp/commentperiods.htm>. You can also review the proposed modification at one of the Hanford Public Information Repositories:

Washington State 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  
Richland, Washington 99354  
Contact: Janice Parthree 509-372-7443

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

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

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

Your views and concerns are important to the Department of Ecology. For more information on the public comment period or to submit comments, please contact Erika Holmes at [hanford@ecy.wa.gov](mailto:hanford@ecy.wa.gov) or (800) 321-2008.

http://www.ecy.wa.gov/programs/nwp/PI/pages/closedcommentperiods.htm

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During the public comment period and until Ecology issues a revised permit, Hanford Site Title V Air Operating Permit, Number 00-05-006, Renewal 2, will remain in effect.

**Contact**

Philip Gent ([Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov))  
3100 Port of Benton Blvd.  
Richland, WA 99354

**More information**

Please visit Ecology's [Air Permit website](#) or one of the [Hanford Public Information Repositories](#) to review permit documents.

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**Hanford Waste Treatment Plant Permit Design Changes**

**October 15 to December 20, 2013 - CLOSED - Ecology is drafting a response to comments**

The Department of Ecology proposed a modification to the Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste for the Waste Treatment and Immobilization Plant (WTP). The co-permittees are the U.S. Department of Energy Office of River Protection and Bechtel National, Inc.

The proposed changes included two permit design packages that will allow new construction in the Low-Activity Waste (LAW) Facility and the Failed Melter Storage Building, and two other documents that detail new information and design changes to the Low-Activity Waste, High-Level Waste, and Pretreatment facilities.

**Contact**

Dan McDonald ([Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov))  
3100 Port of Benton Blvd.  
Richland, WA 99354

**More information**

Please visit Ecology's [WTP Permit website](#) or one of the [Hanford Public Information Repositories](#) to review documents.

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**Exhauster System Change for Hanford's 241-AY/AZ Tank Farms**

**November 10 to December 13, 2013 - CLOSED - Ecology is drafting a response to comments**

The Department of Ecology invited you to comment on a permit change for the exhauster system at the 241-AY/AZ tank farms. The tank farms (groups of tanks) are in Hanford's 200 East Area, which is near the center of the Hanford Site, and several miles from any agriculture or residence. The U.S. Department of Energy (USDOE) is seeking to increase the flow from the fan in the 241-AY/AZ exhauster system. The emission levels would still be below regulatory limits. There is no change in the estimated emissions as a result of the proposed change. The only change is to the dispersion factors, since the stack height and flow rate would increase.

**Contact**

Philip Gent ([Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov))  
3100 Port of Benton Blvd.  
Richland WA 99354

**More information**

12:34 PM  
1/31/2014



Ecology's Hanford Education & Outreach Network · 295

like this

December 2, 2013 at 3:51pm

Got thoughts about vit? Share them! At Hanford Challenge's request, we extended the vit plant comment period through 12/20 (was closing tomorrow). If you have questions that need answers before you can comment, post them here, @ecyhanford on Twitter, email Hanford@ecy.wa.gov, or call 800-321-2008.



Public Comment Period: Hanford Waste Treatment Plant Design Changes

Tuesday, October 15, 2013 at 8:00am

Ecology's Hanford Education & Outreach Network in Richland, Washington

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Mike Sauve Kind looks like satsop

Like · Reply · December 2, 2013 at 5:16pm via mobile

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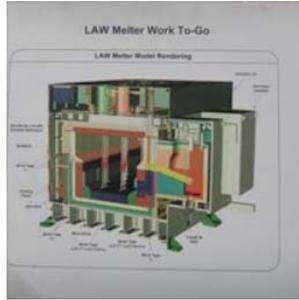
+ Create Album

### Ecology tours the Low-Activity Waste Facility, WTP

December 11, 2013 · Taken at Hanford Vit Plant

Members of Ecology's tank waste disposal project toured the Low-Activity Waste Facility of Hanford's Waste Treatment and Immobilization Plant (WTP). The goal of the tour was to see equipment included in the current public comment period for WTP that ends 12/20. For more information and instructions for commenting, please visit:

[http://www.ecy.wa.gov/programs/nwp/permitting/hdwp/Rev/8c/Draft/10\\_15\\_13/](http://www.ecy.wa.gov/programs/nwp/permitting/hdwp/Rev/8c/Draft/10_15_13/)



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Shannon Cram likes this.



Write a comment...



## **APPENDIX B: COPIES OF ALL WRITTEN COMMENTS**

October 20, 2013

RECEIVED

OCT 22 2013

DEPARTMENT OF ECOLOGY  
NWP - RICHLAND

Erika Holmes  
Washington Department of Ecology  
3100 Port of Benton Blvd. Richland, WA 99354

Dear Ms. Holmes:

The following comment is in response to the announcement on October 15, 2013, that the Department of Ecology is proposing a modification to the Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste for the Waste Treatment and Immobilization Plant (WTP).

The proposed changes would allow new construction in the Low-Activity Waste (LAW) Facility; specifically including installation of LVP system exhaust fans.

Installation of exhaust fans or other equipment at this time appears to be premature.

The LAW Melter Off-Gas system, according to the Chapter 4 Process Information, includes:

- Film Coolers
- Submerged Bed Scrubbers and collection tanks
- Wet Electrostatic Precipitators
- LAW Caustic Collection Tank
- Melter Offgas HEPA Preheaters
- Melter Offgas HEPA Filters
- Offgas Mercury Adsorbers
- Catalytic Oxidizer Electric Heater
- Thermal Catalytic Oxidizer
- NOx Selective Catalytic Reduction Unit and Ammonia Supply
- Catalytic Oxidizer Heat Recovery Unit
- Melter Offgas Caustic Scrubber
- Melter Offgas Exhausters (LVP-EXHR-00001A/B/C)

According to Chapter 4 of the Permit, melter off-gas is generated from the vitrification of LAW feed. The rate of generation of gases in the melter varies. Off-gas constituents include: nitrogen oxides (NOx) from decomposition of metal nitrates in the melter feed, chloride, fluoride, and sulfur as oxides, acid gases, and salts, particulates and aerosols, entrained feed material and glass, and mercury.

The exhaust fans pull the off-gas through all of the upstream equipment. The fans are exposed to the chemical components that were not removed by treatment. The fans are

also used to maintain a vacuum so that any leakage would be of clean air inward to the process stream.

Changes to the upstream equipment to correct quality, safety, maintenance, or operability issues can affect the flow rate, temperature, pressure, and chemical environment seen by the exhaust fans.

**Comment:** A long-term failure of corrective actions to resolve safety, quality, and technical issues exists at WTP. Repeated recommendations that work be stopped – for HLW and Pretreatment, and for all facilities, have been made. Please see the list of examples in the previous reports, below.

In light of the recurring findings regarding quality and safety, can you please verify that the designs of the equipment at LAW, up to and including the exhaust fans, will perform as needed and are free of errors that could affect the selection, operability and safety of the fans and the treatment train?

Please consider conducting a review of the chemical basis for the off-gas composition and properties, since the calculations underpinning the process corrosion data sheet predate the most recent set of quality findings. In addition, DOE has published a “framework document” that states that feed direct from the tank farms to LAW is being considered. If this option is implemented, it will be important to verify that the LAW design basis off-gas compositions encompass the complete range of feeds to LAW, which at present may or may not include the case when there is minimal dilution during pre-treatment and no recycles (as at startup). The LVP system handles toxic gases, and increases in nitrate concentration in the feed, for example, should be verified to be compatible with system capacities.

Selection of materials of construction should similarly be verified for the off-gas system. The process corrosion data sheet in the modification package includes vaguely stated criteria that appear to need clarification.

Please also consider conducting a complete review by a qualified organization that is not beholden to DOE or the WTP Contractors. The scope should systematically re-verify the upstream equipment and the exhausters at LAW, including calculations, specifications, materials selection, equipment data sheets, safety basis, and open and closed project issues. This review should evaluate and track to defensible closure all technical, operability, maintenance, and safety issues/alignment with the safety basis. Previously closed issues should be included to ensure that a defensible and documented basis for closure is present.

This review is needed so that the integrated system will have minimal rework affecting the eventual flow, temperature, pressure, and chemical/radioactive environment. Ecology released letter 13-NWP-092 on August 30, 2013, indicating the need to evaluate system documentation to determine which documents are in question and which remain valid. Ecology indicated that administrative holds may need to be placed on portions of the

permit, which would preclude continued construction. Ecology's perspective is just as applicable to LAW off-gas systems as it is to the examples listed in letter 13-NWP-092. The letter is available at:

<http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=1309041584>

### **Previous Reports**

Several reports have been published that document quality and safety issues at WTP. Of specific interest are:

**GAO-06-602T, *Contractor and DOE Management Problems Have Led to Higher Costs, Construction Delays, and Safety Concerns, April 6, 2006***, stated that the project had "taken steps to slow down or stop construction activities on some of the facilities to allow time to address technical and safety issues and to advance design activities farther ahead of construction activities; and strengthen both project management and project oversight activities." This report is available at: <http://www.gao.gov/products/GAO-06-602T>.

**DOE Office of Health, Safety, and Security Preliminary Investigation Report**, as described in the November 30, 2012, *Weapons Complex Monitor*. The article about this report indicated that it had identified a "significant number of potential non-compliances" with DOE's Quality Assurance and Safety Basis Requirements at WTP, with the issues collectively considered to be "collectively of high safety significance."

**GAO-13-38, *Hanford Waste Treatment Plant - DOE Needs to Take Action to Resolve Technical and Management Challenges, December 19, 2012***, stated "while DOE has taken actions to improve performance, the ongoing use of an accelerated approach to design and construction--an approach best suited for well-defined and less-complex projects--continues to result in cost and schedule problems, allowing construction and fabrication of components that may not work and may not meet nuclear safety standards." GAO recommended that DOE (1) not resume construction on WTP's pretreatment and high-level waste facilities until, among other things, the facilities' design has been completed to the level established by nuclear industry guidelines; (2) ensure the department's contractor performance evaluation process does not prematurely reward contractors for resolving technical issues later found to be unresolved; and (3) take appropriate steps to determine whether any incentive payments were made erroneously and, if so, take actions to recover them. According to this report, DOE generally agreed with the report and its recommendations. This report is available at: <http://www.gao.gov/products/GAO-13-38>.

**12-WTP-0399, *Stop Work Recommendation and Basis, December 19, 2012***, identified a condition of indeterminate quality at WTP. This letter recommended that all activities affecting engineering design, nuclear safety, and construction and installation of all structures, systems, and components be stopped to avoid further nuclear safety compromises and substantial rework. A full systematic extent of condition and independent review was recommended. This letter is available at: <http://www.hanfordchallenge.org/wp-content/uploads/2010/05/2012-12.19-Brunson-letter-Stop-Work.pdf>.

**DOE/IG-0894, *Department of Energy Quality Assurance: Design Control for the Waste Treatment and Immobilization Plant at the Hanford Site, September 30, 2013***, stated that the Office of Inspector General substantiated an allegation that the project was missing design control documentation for the WTP and as such, could not demonstrate that equipment was appropriately manufactured.

This report stated that it had revealed significant shortcomings in the Department's process for managing the design and fabrication changes of waste processing equipment procured for the WTP. While the report stated that management had committed to both completed and "planned" corrective actions, a complete extent of condition is absent, corrections are not complete, and past corrective actions have been ineffective. This report is available at: <http://energy.gov/ig/downloads/audit-report-ig-0894>

**From:** [Tom Carpenter](#)  
**To:** [Holmes, Erika \(ECY\)](#)  
**Subject:** FW: Final Comment of Hanford Challenge/Proposed Permit Modification of the Hanford WTP etc.  
**Date:** Thursday, December 19, 2013 2:53:04 PM  
**Attachments:** [Tom Carpenter.vcf](#)  
[2013 12 19 HC Comments on WTP RCRA mod.pdf](#)

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December 19, 2013

Erika Holmes.  
Washington State Department of Ecology  
3100 Port of Benton Blvd.  
Richland, WA 99354

Dear Erika,

Attached please find the Comments of Hanford Challenge on the Proposed Permit Modification of the Hanford Facility RCRA Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant, WA 7890008967.

Have a great holiday!

Tom



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December 19, 2013

Erika Holmes.  
Washington State Department of Ecology  
3100 Port of Benton Blvd.  
Richland, WA 99354

Re: Comments of Hanford Challenge on the Proposed Permit Modification of the Hanford Facility RCRA Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant, WA 7890008967

Hanford Challenge is an independent 501(c)(3) organization based in Seattle, WA whose purpose is to help create a future for Hanford that secures human health and safety, advances transparency and accountability, and promotes a sustainable environmental legacy. Hanford Challenge supports and empowers whistleblowers, collaborates with NW stakeholders, including the Hanford workforce, Tribes, Hanford Advisory Board members, community organizations and concerned citizens to advocate for safe and protective cleanup remedies.

Hanford Challenge joins the Yakama Nation ERWM program request that Washington State Department of Ecology “deny incorporation of the Permit modification package #BOF-001 , Rev 0, Container Storage Area for the Balance of Facilities (Failed Melter Storage Facility), and edit the new Compliance Schedule to read as follows: Submit BOF-001 permit package final design for the Failed Melter Storage Building (Building 32).” Our comments go beyond this request, however.

Hanford Challenge advocates that the Department of Ecology order a stop to all ongoing work at the Waste Treatment Plant unless and until the Department of Energy is able to demonstrate that safety and quality assurance legal requirements *can be met* in order for the facility to operate.

Our reasons for this request are documented below.

The Hanford Waste Treatment Plant was originally scheduled to open in 2011, at a cost of \$4.6 billion. Mismanagement and technical failures have contributed to project delays and the cost of the facility has ballooned to over \$13 billion. The current opening date of 2019 is in serious doubt. The DOE is admitting that elements of the design are unsafe and that redesign is likely, especially in the Pre-Treatment Plant and the High-Level Waste Melter. New facilities and processes are being proposed that have not been designed, budgeted, or even thought through. It is clear to many of us that DOE is desperately throwing ideas against the wall to see what might stick. Instead of preparing to commission and test the facility, and with 13 years and billions of dollars spent, DOE is back to Conceptual Design Phase 1....the drawing board.

There are numerous technical questions and issues, listed below, that have been brought to light by various organizations including the U.S. Department of Energy—Office of River Protection (ORP), Department of Energy Office of Inspector General, and the Defense Nuclear Facilities Safety Board as well as internal technical experts such as the Manager for Nuclear Safety, the former Chief Engineer for WTP, a Senior ORP Scientist assigned to WTP, and the former Manager for Research and Technology.

The Office of River Protection has recently issued a completed Quality Assurance audit of BNI and cited two level one findings; one that states NQA-1 (nuclear quality) has not been properly implemented (not fully effective) by Bechtel on the WTP project and the other is related to an ineffective corrective action process. These findings substantiate **stopping all work** until a fully effective nuclear safety design and corrective action process is established to prevent further departures from the realization of a safely designed and operating facility. It should be noted that DOE in the very same audit stated that the BNI implementation of quality assurance was “adequate,” which casts further doubt on the Department’s ability to properly exercise the role of design and safety oversight for the WTP project.

The DOE Inspector General (IG) issued a report in September 2013 stating that Bechtel repeatedly made design changes to plant equipment without a proper safety review, a problem the IG called “systemic.” The fact that the IG used the term “systemic” to describe the failure to implement safety into the design can be viewed to mean that the plant and facility design was not done to nuclear standards which therefore compromises the very systems, structures and components that should protect the collocated worker, public and environment. This information directly substantiates the December 19, 2012 stop work letter issued by DOE’s Chief Engineer specifically related to indeterminate quality and an ineffective corrective action process.

Why would anyone continue with the design when their very process lacks fidelity and produces an indeterminate design with resultant indeterminate procurements?

Listed below are a number of technical issues that are currently under scrutiny. Because these issues concern systems regulated under the WTP Permit, they raise questions about the validity of the system documentation contained in the permit.

- Breakdown in the quality assurance/quality control function at the WTP, including design deficiencies, failure of the corrective action program, failure of Bechtel to submit nuclear safety-related design documents for nuclear safety review, and much more.
- Vessel corrosion and erosion on vessels and associated equipment.
- Vessel margin calculations.
- Metallurgy of vessels and associated ancillary equipment and miscellaneous units.
- Vessel mixing issues and subsequent changes in design.
- Removal or redesign of vessels and ancillary equipment from the facility due to change in the system design.

- Structural issues and subsequent changes in design of vessels and their internal components.

A review of the Administrative Record reveals an [August 30, 2013 letter](#) from Ecology's Nuclear Waste Program to the Manager of the DOE's Office of River Protection and to Bechtel, regarding concerns about the accuracy of the current version of the WTP Permit. Ecology listed most of the concerns listed above, and stated that "we question the validity of the system documentation in the WTP Permit." Ecology requested that DOE and Bechtel determine which documents "may be in question and which remain valid. The intent of this review is to assure that the WTP Permit is accurate and represents the actual status of the WTP Project."

DOE's response, contained in the letter, was that DOE was not going to conduct the review requested by Ecology "because it is not practical or resource effective."

This stark refusal by DOE to take the time to validate and update its own records in response to the regulator's request about the validated technical issues related to the WTP speaks volumes about the trouble we are facing. DOE's unwillingness to face reality or conduct a safe and effective response to the safety and quality concerns raised by numerous entities about the WTP is the same attitude that led to the development of the safety and technical issues in the first place.

It was gratifying to see Ecology's response to the DOE snub, which was that Ecology would conduct its own review and "place administrative holds on portions of the WTP Permit that may be in question." The result of placing that hold means that Bechtel "may not proceed with construction of that portion of the WTP facility."

Hanford Challenge supports this approach, and urges Ecology to *not* proceed with the Permit Modifications and instead place the Administrative Holds and effectively stop work until the documentation is validated, and the technical issues resolved.

#### DOE Chief Engineer Raises Safety and Quality Concerns, Calls for Stop Work

An August 23, 2012 [memorandum](#) from the DOE's Chief Engineer for the Waste Treatment Plant, Mr. Gary Brunson, documented "34 instances and technical issues in which Bechtel National Inc. acting as Design Authority for the Waste Treatment and Immobilization Plan (WTP) has provided design solutions and technical advice to the Department of Energy which either was determined to be factually incorrect, provided a design solution that was not technically defensible, technically viable, or was technically flawed considering identified requirements." Memorandum, G. Brunson, WTP Engineering Director, to S. Samuelson, Manager, Office of River Protection, DOE, GEB 12-WTP-0274, August 23, 2012. (Brunson Memo).

The memo stated that Bechtel had provided a design solution that was not safe for the WTP operators, or designs that did not comply with the safety basis. The Chief Engineer stated that

Bechtel had provided an installed equipment system that did not meet safety requirements or was not adequately inspected following installation even when defects became known. Brunson Memo.

The technical issues documented by Brunson demonstrate consistent non-compliance between requirements and selected designs implemented in the field, and between design of and realization of a safe operating facility. Repair and rework of these non-compliant designs are leading to significant project cost and schedule impacts. It has been separately disclosed that the Pretreatment and HLW Vitrification facility designs are not in compliance with the Authorization Basis. Brunson wrote in his memorandum,

“The number and significance of these issues indicate that Bechtel National Inc. is not competent to complete their role as the Design Authority for the WTP, and it is questionable that BNI can provide a contract-compliant design as Design Agent.”  
Brunson Memo at p. 3.

Brunson went further with his concerns in December 2012 when he wrote to the Secretary of Energy advocating that the DOE stop all work at the facility. [Stop Work Memorandum](#), G. Brunson, WTP Chief Engineer, DOE ORP, to S. Chu, Secretary of Energy, GEB 12-WTP-0399, December 19, 2012. (Brunson Stop Work Memo).

The Stop Work memorandum cited a list of seven “Priority Level 1 Findings” which remain unresolved with an undetermined path forward. The memo stated:

The Level 1 Findings are objective evidence of a condition of Indeterminate Quality. The Office of River Protection Quality Assurance Program Description includes among our basic beliefs: "Work suspension is appropriate when continued work would be unsafe, would be likely to be creating rework, and when safety or quality is indeterminate." (MGT-PM-PL-04, Rev 2).

...

This memorandum recommends, based upon a compelling body of objective evidence demonstrating Indeterminate Quality throughout the WTP facilities, that all activities affecting engineering design, nuclear safety, and construction and installation of all Structures, Systems and Components be stopped to avoid further nuclear safety compromises and substantial rework within WTP. In addition, a full 100% systematic extent of condition is warranted related to all the findings which should also be reviewed for fidelity by an independent agency. Brunson Stop Work Memo at p. 1.

In an attachment to the memo, Brunson outlined some of the deficiencies cited in the Priority 1 findings:

1. A total of ten (10) WTP process vessels were found to have anticipated, maximum operating temperatures in excess of the corrosion related limiting temperature identified in corrosion literature for the selected materials of construction.

2. Overarching programmatic noncompliance finding based on major Quality Assurance Manual (QAM) non-compliances with respect to BNI QAM, Design Control, and Test Controls requirements.
3. BNI presumed the materials selection process utilized design inputs were conservative; however, during material confirmation, it was determined not conservative because it did not account for major changes in PreTreatment Facility processing raised by DOE's Review of Design Oversight of Black Cell Adequacy,' a Blue Ribbon Panel Review, and a recent DOE surveillance.
4. Contrary to the requirements of DOE Order 413.3A. BNI did not establish a margin management strategy/program that establishes and maintains design margins, implemented through the Project Execution and Risk Management Plans. Contrary to the commitment made in the Declaration of Readiness, BNI did not manage design margin with a level of importance commensurate with a design-build project and with required documentation in calculations.
5. Contrary to DOE Order 420.1B Chapter V. BNI did not include design and safety margin management in the WTP Configuration Management Plan, as integral to the System Engineer Program.
6. Contrary to the BNI Safety Requirements Document, BNI did not implement the required use of conservative design margins and for establishing and verifying adequate safety margin through the operating life. This adverse condition is a Priority Level 1 finding because it is a systemic breakdown that has impact on quality, worker health or safety, the public, the environment, facility operations, and regulatory compliance.
7. Several recent DOE oversight activities have resulted in the identification of significant performance issues. These issues, combined with a number of less important, but still representative, examples of less than adequate performance, indicates a systemic integrated management performance concern.
8. Twenty vendor related procurement oversight findings, described in assessment report S-12-RPPWTP-004, demonstrate a lack of compliance with contract requirements and collectively are considered a Procurement Related Management Concern.
9. Thirty six examples from twenty seven calculations did not comply with quality assurance requirements for correct selection of design inputs, or for providing appropriate technical justification within the calculation. The set of six findings above from a small sampling of calculation content is a cumulative indication of a systemic breakdown in quality.

Brunson Stop Work Memo Attachment.

Other prominent officials who have gone on record with serious concerns about the safety and effectiveness of the facility include Dr. Walter Tamosaitis, who was removed from his position working on the WTP after he raised numerous safety and technical concerns in 2010 and terminated by URS in October 2013; Donna Busche, the Manager for Environmental and Nuclear Safety for the WTP; and Dr. Donald Alexander, the DOE's chief Scientist who was responsible for reviewing the design of the WTP. The Defense Nuclear Facilities Safety Board (DNFSB), an agency charged by Congress to oversee DOE nuclear safety, has also issued many critical reports and findings against the DOE over WTP activities.

## DOE Inspector General

In September 2013, the DOE's Office of Inspector General released an [audit report](#) of the Waste Treatment Plant which validated that Quality Assurance problems remain problematic. (See, DOE OIG Audit Report, "Department of Energy Quality Assurance: Design Control for the Waste Treatment and Immobilization Plant at the Hanford Site," DOE/IG-0894 September 2013)(Attachment 3). (DOE/IG-0894 Audit Report).

The Inspector General report found:

Our review revealed significant shortcomings in the Department's process for managing the design and fabrication changes of waste processing equipment procured for the WTP. Specifically, the Department had not ensured that Bechtel:

- Subjected design changes requested by suppliers to the required review and approval by Bechtel's Environmental & Nuclear Safety Group (Nuclear Safety), the organization responsible for ensuring that design changes do not impact facility safety.
- Early in our review, in September 2012, we brought several instances in which design changes requested by suppliers had not received required safety reviews to the attention of the Department and Bechtel. Bechtel confirmed the issue and performed an "extent of condition" review of certain design changes to determine the scope of the problem. In its review of a sample of 235 of 4,028 supplier design documents spanning a 3-year period, Bechtel discovered that more than a third of the changes made to supplier design documents had not received the required Nuclear Safety review and approval, and, that the problems were systemic.
- Properly verified that deviations from design requirements that could affect nuclear safety were implemented. Bechtel could not demonstrate that it had verified suppliers' actions to address deviations from design. For example, we identified that Bechtel approved action to repair a Low-Activity Waste melter lid that did not meet design specifications. Bechtel was unable to provide evidence that: (1) the supplier had made the necessary repairs to the lid; and (2) it had reexamined the repair to ensure that it met requirements. Neither Bechtel nor the Department could confirm that the design changes were actually completed and met safety related design requirements. In this regard, the absence of affirmation that the changes were completed as required carried with it potentially serious implications. In short, quality reviewers were unable to determine, with certainty, whether the Low-Activity Waste melter lid would successfully perform its safety function to confine harmful byproducts (nitrogen oxide gases) produced during the waste vitrification process.

DOE/IG-0894 Audit Report at Pp. 1-2.

The Inspector General criticized Bechtel over “not effectively implemented its own quality assurance procedures. The exclusion of Nuclear Safety from the design change process can be traced to poor implementation of existing procedures. According to Bechtel officials, procedures governing Nuclear Safety review provided ‘opportunities for interpretation’ that led to ‘incorrect assumptions’ by its engineers. These assumptions led Bechtel’s engineering group to incorrectly conclude that design changes would not affect the Authorization Basis and, as such, that it was appropriate to bypass Nuclear Safety.” DOE/IG-0894 Audit Report at p.2.

The Inspector General also documented that Bechtel did not have quality control procedures or processes “to ensure that deviations from design or specifications were documented to support product fabrication and delivery. Furthermore, Bechtel did not require suppliers to submit reports detailing actions taken to address needed deviations, documents that would have provided additional confidence that needed design changes and/or repairs were properly completed.” DOE/IG-0894 Audit Report at p.2.

Collectively, these problems led to the creation of major design vulnerabilities. We found that Bechtel did not always comply with internal Bechtel procedures and failed to adequately and consistently document supplier initiated design changes. Proper design control is essential to ensure that critical equipment is properly fabricated to specifications and will perform its safety function. *The lack of a robust design control process makes it difficult to ascertain whether all necessary safety-related design activities are adequate and that workers, members of the public, and the environment are adequately protected.* Without improvements to design control, confidence that procured equipment meets requirements for the safe operation of the WTP will erode. DOE/IG-0894 Audit Report at p.3 (emphasis added).

The Inspector General’s September 2013 report was not the first time the OIG found problems with the WTP’s Quality Assurance program. An April 12, 2012 DOE Inspector General [report](#), DOE/IG-0863, entitled, “Audit Report on "The Department of Energy's \$12.2 Billion Waste Treatment and Immobilization Plant – Quality Assurance Issues – Black Cell Vessels," found:

- “[T]he Department had procured and installed vessels in WTP that did not always meet quality assurance and/or contract requirements . . .we identified multiple instances where quality assurance records were either missing or were not traceable to the specific area or part of the vessel.”
- “We also found that the Department paid the WTP contractor a \$15 million incentive fee for production of a vessel that was later determined to be defective. Although the Department demanded return of the fee, it did not follow up on the matter and the fee was never reimbursed. Weaknesses in quality assurance records associated with black cell and hard-to-reach processing vessels occurred because of deficiencies in Bechtel's implementation of its quality assurance program and a lack of Department oversight.”
- “The importance of black cells and hard-to-reach components cannot be over stated. Premature failure of these components could potentially impact safety, contaminate large

portions of a multi-billion dollar facility and interrupt waste processing for an unknown period of time. For these reasons, we have made several recommendations designed to strengthen quality assurance controls at WTP. We have also recommended a more intense effort to recover contractor fee for the nonconforming vessel.”

DOE/IG-0863 Audit Report Memorandum to the Secretary at Pp. 1-2.

### Conclusion

Rather than issue a Permit Modification for continuing work on the Waste Treatment Plant, the State of Washington’s Department of Ecology should focus instead on determining whether the WTP, at this stage, can possibly meet safety and quality requirements given that the WTP physical infrastructure is over 65% complete and design 90% complete. DOE cannot recover from a “quality indeterminate” facility – it cannot hope to “inspect in” quality and safety at this late date. Either the components, equipment and materials are quality-verified and validated, complete with required documentation, or not. If the answer is that they are not, which seems to be the clear consensus from the various official findings above, then an emergency Plan B will be necessary in order to complete a viable, safe and effective treatment system for Hanford’s high-level waste.

Respectfully submitted,

Tom Carpenter, Executive Director  
Hanford Challenge

cc: Dr. Ernest Moniz, Secretary, Department of Energy, Washington, DC  
Senator Patty Murray, U.S. Senate  
Senator Maria Cantwell, U.S. Senate  
Senator Ron Wyden, U.S. Senate  
Senator Jeff Merkley, U.S. Senate  
Governor Jay Inslee, State of Washington  
Matt McCormick, U.S. Department of Energy, Richland Office  
Kevin Smith, U.S. Department of Energy, Office of River Protection  
Stuart Harris, Confederated Tribes of the Umatilla Indian Reservation  
Russell Jim, Yakama Indian Nation  
Gabriel Bohnee, Nez Perce Tribe  
Ken Niles, Oregon Department of Energy  
Steve Hudson, Hanford Advisory Board

**From:** [Tom Carpenter](#)  
**To:** [Holmes, Erika \(ECY\)](#)  
**Cc:** [meredithc@hanfordchallenge.org](mailto:meredithc@hanfordchallenge.org); [lizm@hanfordchallenge.org](mailto:lizm@hanfordchallenge.org)  
**Subject:** supplementary comments on WTP RCRA Mod  
**Date:** Friday, December 20, 2013 4:21:33 PM  
**Attachments:** [2013 12 20 Supplementary HC Comments on WTP RCRA mod.pdf](#)

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December 20, 2013

Erika,

Please accept our supplementary comments on the **Proposed Permit Modification of the Hanford Facility RCRA Permit, Dangerous Waste Portion, Revision 8C**, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant, WA 7890008967.

Thanks,

Tom Carpenter



December 20, 2013

Erika Holmes.  
Washington State Department of Ecology  
3100 Port of Benton Blvd.  
Richland, WA 99354

Re: Supplementary Comments of Hanford Challenge on the Proposed Permit Modification of the Hanford Facility RCRA Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant, WA 7890008967

On December 19, 2013, Hanford Challenge submitted Comments on the Proposed Permit Modification referenced above. Today we file these Supplementary Comments.

### **COMMENTS ON DOWN-SELECT DECISIONS IN THE DOE ROD**

Three areas are discussed in detail. These include: tank closure, FFTF, and waste management. Several alternatives are proposed for each of these areas. Comments are shown below.

#### **Tank Closure: Alternative 2B was Selected -**

##### **Comments:**

- 1- This alternative states that technetium-99 will be removed in the WTP pretreatment process. They do not state how this will be done. The process needs to be defined and the effectiveness defined. Currently there is no way to remove 99-Tc from the liquid LAW pretreatment stream. To state that it will be removed in pretreatment is a leap of faith and requires a new technology to be developed. If an ion exchange process is defined, the disposal method for the ion exchange material must also be defined. If the ion exchange material is proposed to be disposed of in the melter, a mass balance is required as 99-Tc is very volatile and will go over head, i.e., vaporized. The amount of 99-Tc which goes overhead is also proportional to the amount of cesium in the stream, thus adding more emphasis for the 99-Tc mass balance. If the 99-Tc is proposed to be sent to the effluent treatment plant, again, the removal process should be specified as 99-Tc is very water soluble. After the process is defined, the time and cost to develop and demonstrate it, along with the cost and schedule to implement the actual process needs to be provided. The removal of 99-Tc applies to any process regardless of whether it is in the tank farm or the WTP.
- 2- If the mass balance shows that 99-Tc is left in the tank heels, a 500 year barrier is insufficient. Hanford Challenge is opposed to a barrier approach, and insists that DOE and Ecology follow the law and remove, treat and dispose of all HLW in the waste tanks for disposal in a licensed geological repository.

- 3- Also, removing waste to a 99% criteria means 1% or about 500,000 gallons of waste, or half of a waste tank will be left to migrate into the ground water. Grout will not be effective as a retardant as it is porous and will break down with age. No liner proposed to be used is known to last 500 years.

### **Conclusion-**

Without the 99-Tc removal process being defined. Along with the cost and schedule, Alternative 2B is not viewed as acceptable.

### **FFTF: Alternative 2 was Selected -**

#### **Comments-**

- 1- No comments are made on whether waste reclassifications are needed to move waste to Idaho for treatment. This should be defined as a reclassification may take years and not be obtainable. Is a waste reclassification needed?
- 2- No comments or information is provided on how much sodium will be left in the FFTF and whether or not it contains any radioactive elements. What is the composition of the sodium to be left in the FFTF?
- 3- How will the sodium be converted to caustic? In prior studies at the Savannah River Site, recovery of the caustic was considered but not deemed cost effective. Selling the caustic to commercial markets was not deemed feasible due to the minor contamination concentrations it might contain. How will it be converted to caustic, how "pure" will it be, and how much will it cost?

### **Conclusion-**

The selection of this alternative sounds more like a proposal than a firm down select. The amount of sodium left in the FFTF, its composition, and the process to convert sodium to useable caustic needs to be defined.

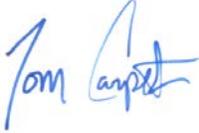
### **Waste Management: Alternative 2 was Selected-**

#### **Comments-**

- 1- What waste is planned to be shipped to WIPP? If this includes tank farm waste, it requires reclassification of the waste, a procedure that DOE cannot legally perform. What waste is included?

- 2- Hanford Challenge opposes any attempt to send Hanford high-level waste for burial at WIPP, for many reasons.

Respectfully submitted,



Tom Carpenter, Executive Director  
Hanford Challenge

cc: Dr. Ernest Moniz, Secretary, Department of Energy, Washington, DC  
Senator Patty Murray, U.S. Senate  
Senator Maria Cantwell, U.S. Senate  
Senator Ron Wyden, U.S. Senate  
Senator Jeff Merkley, U.S. Senate  
Governor Jay Inslee, State of Washington  
Matt McCormick, U.S. Department of Energy, Richland Office  
Kevin Smith, U.S. Department of Energy, Office of River Protection  
Stuart Harris, Confederated Tribes of the Umatilla Indian Reservation  
Russell Jim, Yakama Indian Nation  
Gabriel Bohnee, Nez Perce Tribe  
Ken Niles, Oregon Department of Energy  
Steve Hudson, Hanford Advisory Board

**From:** [Palomarez, Adam \(ECY\)](#)  
**To:** [Carlson, Annette \(ECY\)](#); [Chandran, Nitya \(ECY\)](#)  
**Subject:** FW: PUBLIC COMMENT regarding "Modifications to the Hanford Facility Resource Conservation and Recovery Act Permit..."  
**Date:** Tuesday, December 31, 2013 10:18:42 AM

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Hi Annette not sure if this was forwarded to you or not.

Adam Palomarez | Nuclear Waste Program | Systems Analyst  
Phone: 509-372-7969 | Email: [adam.palomarez@ecy.wa.gov](mailto:adam.palomarez@ecy.wa.gov)  
[www.ecy.wa.gov/programs/nwp](http://www.ecy.wa.gov/programs/nwp)

-----Original Message-----

**From:** Hanford (ECY)  
**Sent:** Friday, December 20, 2013 4:13 PM  
**To:** Palomarez, Adam (ECY); Holmes, Erika (ECY); Bohrmann, Dieter (ECY)  
**Subject:** FW: PUBLIC COMMENT regarding "Modifications to the Hanford Facility Resource Conservation and Recovery Act Permit..."

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**From:** Michael Kovalenko  
**Sent:** Friday, December 20, 2013 4:12:37 PM (UTC-08:00) Pacific Time (US & Canada)  
**To:** Hanford (ECY)  
**Subject:** PUBLIC COMMENT regarding "Modifications to the Hanford Facility Resource Conservation and Recovery Act Permit..."

Erika Holmes ([Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov))  
Washington State Department of Ecology  
3100 Port of Benton Blvd.  
Richland, WA 99354

RE: PUBLIC COMMENT regarding "Modifications to 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 10, Waste Treatment and Immobilization Plant (WTP Permit)"

As the regulatory authority of the Waste Treatment Plant (WTP), the Washington State Department of Ecology should immediately issue a comprehensive "stop all work" order to Bechtel National, Inc. (Bechtel), including the U.S. Department of Energy (DOE), in order to signal that the WTP procurement process has failed in its current form.

By stopping all work and promoting an authoritative assessment that the WTP's legally required safety and quality assurance directives can be met, the Department of Ecology can publicly acknowledge the morass of problems at the plant to date and signal the need for a major corrective action the WTP. This radical but necessary action would re-affirm the goal of a truly functioning radioactive waste treatment facility that can endure for decades as intended. The WTP is supposed to reduce risks to environmental and public safety, but its current form only exacerbates risk and fuels low- or no confidence among a long list of experts who understand how and why this project is likely to fail.

Indeed, Bechtel must go. Reports like the US DOE Inspector General's Audit Report from April 25, 2012, reveal that, after a process that started way back in June of 2010, Bechtel does not act in good faith deserving of financial incentives. Distressingly, the report "substantiated the allegation" — among several areas of concern — that "quality assurance records for critically important 'black cell' waste

processing vessels were not traceable to work performed." This kind of willful disregard for safety is only one example among many that this lead contractor does not act in good faith regarding critical areas of public trust and nuclear safety. Why should Bechtel be rewarded with tens of millions of dollars in incentives if it misrepresents facts about critical design and safety issues for the WTP? Why does is Bechtel not held to account for refusing to reimburse the DOE when those financial incentives are proven to not be justified? The public is keenly aware that the \$4.6 billion dollar price tag has rocketed to over \$13 billion, yet the project is no where near to being completed and not one drop of waste has transformed into glass. This is not a contractor worth keeping.

Worst of all, Bechtel has shown that it is more focused on money than learning as it goes and doing the job right, or doing the right thing. Bechtel chooses instead to suppress and punish expert witnesses from coming forward to identify critical design flaws or failures in its "safety culture." This retaliation against its own employees and sub-contractors exemplifies bad faith for the overall goals involved when it could, by contrast, encourage these expert witnesses to help refine and correct any flaws or assumptions in the design, process, or culture. Bechtel's pattern of suppression and abuse, and other similarly shocking examples of contractor misbehavior in related companies, support the unfortunate reality that the WTP project is doomed in its current trajectory because of mismanagement by the prime contractor. It's time for a shakeup, and only the Washington State Department of Ecology can act with this authority.

Finally, the DOE is unfortunately part of the problem with the WTP in its current form. As the lead agency for the WTP, the DOE must step aside as a relic of the nuclear war effort from 1943-1989 and facilitate another agency's fresh perspective in what should be a public and open process that includes all stakeholders and especially the Yakama Nation and other communities downwind and downstream. Secrecy should immediately give-way to transparency, and the fastest way to do that is to interrupt the dysfunctional and protected relationship between the DOE and Bechtel.

A proper cleanup at Hanford can only happen after a "stop all work" order, a change of contractor, and a new, responsible assessment of the safety requirements going forward.

Sincerely,

Michael Kovalenko  
Lake Forest Park, WA, 98155

**From:** [Hanford \(ECY\)](#)  
**To:** [Palomarez, Adam \(ECY\)](#); [Holmes, Erika \(ECY\)](#); [Bohrmann, Dieter \(ECY\)](#)  
**Subject:** FW: Waste Treatment Facility at Hanford  
**Date:** Friday, December 20, 2013 2:19:29 PM

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**From:** Michael Harding  
**Sent:** Friday, December 20, 2013 2:19:46 PM (UTC-08:00) Pacific Time (US & Canada)  
**To:** Hanford (ECY)  
**Subject:** Waste Treatment Facility at Hanford

Erika Holmes  
3100 Port of Benton Blvd.  
Richland, WA 99354

Dear Ms. Holmes,

As a WA resident, I advocate that the Department of Ecology order a stop to all ongoing work at the Hanford Waste Treatment Plant until the Department of Energy is able to demonstrate that safety and quality assurance requirements can be met. The Waste Treatment Facility should not be allowed to operate without these assurances. The DOE should operate at a far higher level of safety.

Sincerely,  
Michael  
Harding  
3639 46th Ave SW  
Seattle, WA, 98116-3721

[mikeandute@comcast.net](mailto:mikeandute@comcast.net)  
[mikescloud9@me.com](mailto:mikescloud9@me.com)

**From:** [Hanford \(ECY\)](#)  
**To:** [Palomarez, Adam \(ECY\)](#); [Holmes, Erika \(ECY\)](#); [Bohrmann, Dieter \(ECY\)](#)  
**Subject:** FW: Waste Treatment Facility at Hanford (further comments)  
**Date:** Friday, December 20, 2013 2:48:45 PM

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**From:** Michael Harding  
**Sent:** Friday, December 20, 2013 2:48:43 PM (UTC-08:00) Pacific Time (US & Canada)  
**To:** Hanford (ECY)  
**Subject:** Waste Treatment Facility at Hanford (further comments)

Erika Holmes  
Washington State Department of Ecology  
3100 Port of Benton Blvd.  
Richland, WA 99354  
[Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)

Re:  
Proposed Permit Modification of the Hanford Facility RCRA Permit, Dangerous Waste Portion, Revision8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant

As a WA resident, I am writing to advocate that the Department of Ecology order a stop to all ongoing work at the Waste Treatment Plant unless and until the Department of Energy is able to demonstrate that safety and quality assurance legal requirements can be met in order for the facility to operate.

The Hanford Waste Treatment Plant was originally scheduled to open in 2011, at a cost of \$4.6 billion. Mismanagement and technical failures have contributed to project delays and the cost of the facility has ballooned to over \$13 billion. The current opening date of 2019 is in serious doubt. The DOE is admitting that elements of the design are unsafe and that redesign is likely, especially in the Pre-Treatment Plant and the High-Level Waste Melter.

There are numerous technical questions and issues that have been brought to light by various organizations including the U.S. Department of Energy—Office of River Protection (ORP), Department of Energy Office of Inspector General, and the Defense Nuclear Facilities Safety Board as well as internal technical experts such as the Manager for Nuclear Safety, the former Chief Engineer for WTP, a Senior ORP Scientist assigned to WTP, and the former Manager for Research and Technology.

Rather than issue a Permit Modification for continuing work on the Waste Treatment Plant, the State of Washington's Department of Ecology should focus instead on determining whether the WTP, at this stage, can possibly meet safety and quality requirements given that the WTP physical infrastructure is over 65% complete and design 90% complete. DOE cannot recover from a "quality indeterminate" facility. It cannot hope to "inspect in" quality and safety at this late date. Either the components, equipment and materials are quality verified and validated, complete with required documentation, or not. If the answer is "not," which seems to be the clear consensus from the various official findings, then an emergency Plan B will be necessary in order to complete a viable, safe and effective treatment system for Hanford's high level waste.

Sincerely,

Michael  
Harding  
3639 46th Ave SW  
Seattle, WA, 98116-3721

[mikeandute@comcast.net](mailto:mikeandute@comcast.net)  
[mikescloud9@me.com](mailto:mikescloud9@me.com)

**From:** [Hanford \(ECY\)](#)  
**To:** [Palomarez, Adam \(ECY\)](#); [Holmes, Erika \(ECY\)](#); [Bohrmann, Dieter \(ECY\)](#)  
**Subject:** FW: Comments on Hanford Waste Treatment Plant Permit Design Changes  
**Date:** Friday, December 20, 2013 1:55:25 PM

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**From:** Maris Abelson  
**Sent:** Friday, December 20, 2013 1:55:23 PM (UTC-08:00) Pacific Time (US & Canada)  
**To:** Hanford (ECY)  
**Subject:** Comments on Hanford Waste Treatment Plant Permit Design Changes

December 20th, 2013

Erika Holmes  
Washington State Department of Ecology  
3100 Port of Benton Blvd.  
Richland, WA 99354

Re: Comments on the Proposed Permit Modification of the Hanford Facility RCRA Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant

Work should not be allowed to continue on the Waste Treatment Plant until Washington's Department of Ecology can determine if all safety and quality requirements can be met. As of now, it has been clear from mismanagement and technical failures, that the construction has been replete with major safety problems. The consequences of completing the project with subpar standards are dire. (Please refer to comments submitted by Hanford Challenge for a detailed summary of technical and safety problems at Hanford.)

Cordially,

Maris Abelson  
Former Coordinating Council Member, Green Party USA  
Washington resident

18741 40th PI NE  
Lake Forest Park, WA 98155

**From:** [Jacinta Ritchie](#)  
**To:** [Hanford \(ECY\)](#)  
**Subject:** Public Comment Hanford Waste Treatment Permit  
**Date:** Sunday, December 01, 2013 7:06:49 PM  
**Attachments:** [Jacinta Ritchie Public Comment Hanford Waste Treatment Permit.docx](#)

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Hello Erika,

Hope all is well back in Washington. I had an opportunity to write a public comment for an administrative law course I am taking, and of course I had to participate in the Hanford site decision-making process. I have been a bit out of the loop due to the fact I am going to law school in Vermont, but I am fully committed to long-term involvement with the site. Please let me know how I can continue to be involved from the east coast.

In case you do not remember me, I was a student of Dr. Holly Barker at the University of Washington. I am sure you have interacted with many of her students, but I hope you can keep me in mind whenever you need anything regarding the site.

Thank you,

Jacinta Ritchie  
Vermont Law School J.D. Candidate Class of 2015

To Whom It May Concern:

As a concerned citizen of Washington State, I write to you today to comment on the proposed modification to the Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit. I am concerned specifically with the Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste for the Waste Treatment and Immobilization Plant (WTP). As the Tri-Parties, along with the co-permittees, U.S. Department of Energy Office of River Protection and Bechtel National, Inc. move forward, it is my hope that these entities take all the public comments into consideration, and respond to them with due diligence.

In the past my comments have not been addressed within the record. Due to the significance of all decisions related to the clean up of the Hanford site for the health and wellbeing of Washington residents their thoughtful comments should be addressed with the requisite level of care and attention. This consideration and response should be reflected in the record. Because of the importance of public participation within the decision making process, I hope you consider and implement this practice in the future.

The two permit design packages at issue allow new construction in the Low-Activity Waste (LAW) Facility and the Failed Melter Storage Building. The design changes are not entirely clear, especially to the average member of the public. The documents detailing the design changes to the Low-Activity Waste, High-Level Waste, and Pretreatment facilities are hardly intelligible to me, a person who has been studying the site for five years. Throughout my engagement with the Hanford Site and the Tri-Parties this has been a concern that has been voiced over and over by myself and many other stakeholders. Accessible information must be provided if you intend to get

informed public participation. It is the department's duty to the people to enable them to participate in the processes that have huge impacts on their lives, and the lives of their children and loved ones. More accessible information must be provided by the agencies, it is not the sole responsibility of non-profit organizations seeking to engage the public.

From the documentation provided I do not feel that I can make an informed decision about the design changes being made. The Pretreatment Facilities are of the greatest concern due to the volatile nature of the high-level nuclear waste that would be processed within the facility. Design flaws within the vitrification process have been surfacing in the past years, flaws that would cause a criticality, seriously injuring unknown numbers of people, animals, and essential habitat if allowed to operate. Particularly the defective pump in vitrification pre-treatment which would have likely almost immediately failed. If this essential part of the plant was allowed to continue as planned, the machine would have failed to continue to mix the waste, thus causing a criticality which would destroy the plant and release unknown quantities of nuclear waste, and unknown chemicals from past plutonium processing.

What concerns me most is how the design defects have, or have not, been addressed by the responsible parties. Due to the perverse incentive system in place it seems that contractors are more concerned with meeting benchmarks for their bonuses, than ensuring that the plant is safe in the long-term. The incentive system must be altered to promote quality work that will be of the most benefit to Washington in the long-term. Contractors should not be rewarded for how fast they complete a project, but for how diligent they are with design, implementation, and maintenance of these important treatment facilities. The agencies must work together within the formal rulemaking

process to ensure that decisions are being made with the upmost care, and rigorous deliberation. This is a fundamental procedural issue that must be addressed.

In regards to the permits at issue, I do not believe the Pretreatment Facility should continue construction until a finalized plan for the entire facility has been made, presented to the public and experts, commented upon, and those comments are addressed by the agencies. As you well know this is an extremely important project for not only Washington residents, but for the world at large, which will continue to be impacted by nuclear waste until we have an effective method of treatment and storage. Further research and development is needed and the processes must be explained in an accessible manner to all of those who may be impacted. We must not only pay lip service to public participation, we must enable it, and integrate it into rulemaking and decision making processes. We must all have an understanding of the state of the Hanford site, the plans to mitigate damages, and how these facilities will be maintained into the future.

Thank you very much for your time and consideration. The Washington State Department of Ecology, particularly my experience with Erika Holmes and John Price, have always been positive, and your institution has a history of above average responsiveness to the public, as well as have a commitment to stimulate public participation. As the regulatory leg of the Tri-Parties WSDOE is uniquely situated to make sure public participation, and proper decision-making procedures are followed.

Respectfully,

Jacinta Ritchie

**From:** [Denis Markian Wichar](#)  
**To:** [Hanford \(ECY\)](#)  
**Subject:** Modifications to 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 10, Waste Treatment and Immobilization Plant  
**Date:** Monday, December 02, 2013 6:23:30 PM

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**RE: Modifications to 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 10, Waste Treatment and Immobilization Plant (WTP Permit)**

**I do not trust anything that's proposed for Hanford, because the entire project has been & is out-of-control. The contactors obviously do not know what they are doing.**

**Den Mark Wichar  
Vancouver WA 98660**

**From:** [Hanford \(ECY\)](#)  
**To:** [Palomarez, Adam \(ECY\)](#); [Holmes, Erika \(ECY\)](#); [Bohrmann, Dieter \(ECY\)](#)  
**Subject:** FW: wasting time on ultimate waste machine--  
**Date:** Wednesday, October 23, 2013 4:26:58 PM

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**From:** Rick Harlan  
**Sent:** Wednesday, October 23, 2013 4:26:53 PM (UTC-08:00) Pacific Time (US & Canada)  
**To:** Hanford (ECY)  
**Subject:** wasting time on ultimate waste machine--

1st priority is getting the stuff into tanks that won't leak in the next few decades, while we wait apparently for sanity about what's likely to work or NOT on classification.

I'm not alone in this opinion! We have at least one plume headed toward Portland's drinking water, a river we thought it was smart to site Hanford on.....

Rick Harlan  
[ricksongrick@gmail.com](mailto:ricksongrick@gmail.com)  
c/vm 206-271-8871



Confederated Tribes and Bands  
of the Yakama Nation ERWM

Established by the  
Treaty of June 9, 1855

Erika Holmes  
Washington State Department of Ecology  
3100 Port of Benton Blvd.  
Richland, WA 99354

December 6, 2013

Central Files \_\_\_\_\_  
File Name: \_\_\_\_\_  
Cross Reference: \_\_\_\_\_

RECEIVED  
DEC 09 2013  
DEPARTMENT OF ECOLOGY  
NWP - RICHLAND

Re: 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 10, Waste Treatment and Immobilization Plant, W A 7890008967 ; Permit Package No. BOF-001, Rev. 0, Container Storage Area for the Balance of Facilities (Failed Melter Storage Facility)

Review of this portion of the RCRA Permit modification package is complicated by the acknowledged outstanding questions (e.g.s, necessary adequate design details/ specifications) and compounded by the lack of information regarding the specific types of containerized miscellaneous mixed waste, where this waste will originate, etc, to support Ecology's acceptance and incorporation into the Permit at this time.

The YN ERWM program request Washington State Department of Ecology deny incorporation of the Permit modification package #BOF-001, Rev 0, Container Storage Area for the Balance of Facilities (Failed Melter Storage Facility), and edit the new Compliance Schedule to read as follows: *Submit BOF-001 permit package final design for the Failed Melter Storage Building (Building 32).*

Edit Chapter 4.0 Process Information to include only a placeholder only; delete proposed text. Edit any WTP Permit conditions as necessary to reflect delay in incorporation of current modification package. Compliance date 6/30/2018 could remain unedited.

Additionally, it appears the current package incompletely complies with the following; please provide clarification:

- WAC 173-303-680(4)
- ~~WAC 173-303-630~~
- WAC 173-303-610(8)
- WAC 173-303-692
- WAC 173-303-695 (40 CFR 264) Subpart DD)
- WAC 173-303-806(4) (b) or (i)

The Yakama Nation ERWM Program looks forward to dialog on these concerns and comments.

If you have any questions, please contact me at (509) 945-6741, or Jean Vanni (509) 945-1100.

Sincerely,

Russell Jim, Manager

Yakama Nation  
ER/WM Program

cc: Matt McCormick, U.S. Department of Energy, Richland Office  
Kevin Smith, U.S. Department of Energy, Office of River Protection  
Stuart Harris, Confederated Tribes of the Umatilla Indian Reservation  
~~Russell Jim, Yakama Indian Nation~~  
Gabriel Bohnee, Nez Perce Tribe  
Ken Niles, Oregon Department of Energy  
Steve Hudson, Hanford Advisory Board  
Marlene Shavehead, Yakama Nation ERWM  
Administrative Record



OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60  
Richland, Washington 99352

NOV 27 2013



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DEPARTMENT OF ECOLOGY  
MWP - RICHLAND

13-ECD-0086

CCN: 262101

Ms. Jane A. Hedges, Program Manager  
Nuclear Waste Program  
Washington State  
Department of Ecology  
3100 Port of Benton Blvd.  
Richland, Washington 99354

Ms. Hedges:

COMMENTS ON THE 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 10, WASTE TREATMENT AND IMMOBILIZATION PLANT, WA7890008967*

Reference: Ecology letter from J. Hedges to K. Smith, ORP, F. Armijo, MSA, M. McCormick, RL, M. Schlender, PNNL, P. McCullough, BNI, J. Fulton, CH2M HILL, C. Johnson, WCH, and D. Olson, WRPS, "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 10, Waste Treatment and Immobilization Plant, WA7890008967*," 13-NWP-104, dated October 9, 2013.

The U.S. Department of Energy, Office of River Protection and Bechtel National, Inc. appreciate the opportunity to comment on the proposed permit modification. Comments on the proposed permit modification are provided in Attachments 1, 2, and 3.

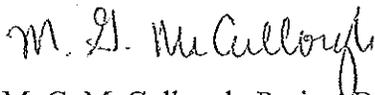
Ms. Jane A. Hedges  
13-ECD-0086

-2-

NOV 27 2013

CCN: 262101

If you have any questions, please contact Lori A. Huffman, Director, Environmental Compliance Division, ORP, (509) 376-0104, or Brad G. Erlandson, BNI, Environmental Manager (509) 371-2182.



M. G. McCullough, Project Director  
Bechtel National, Inc.



Kevin W. Smith, Manager  
Office of River Protection  
FOR

ECD:LAH

Attachments: (3)

cc w/attachs:

F. Beranek, BNI  
D.M. Busche, BNI  
B.L. Curn, BNI  
R.J. Landon, BNI  
G.W. Ryan, BNI  
Administrative Record (WTP H-0-8)  
BNI Correspondence  
Environmental Portal, LMSI

cc w/o attachs:

L.W. Baker, BNI  
S.S. Crawford, BNI  
J.H. Dunkirk, BNI  
S. Hajner, BNI  
K.D. Irwin, BNI  
M.G. McCullough, BNI  
W.S. Oxenford, BNI  
E.F. Sproat, III, BNI  
J.M. St. Julian, BNI

Attachment 1  
13-ECD-0086  
CCN: 262101  
(5 Pages)

Comments on Proposed Permit Modification  
Leak Detection Notification (new condition)

  
\_\_\_\_\_  
Gae M. Neath



HANFORD TANK WASTE  
TREATMENT AND  
IMMOBILIZATION PLANT  
(WTP)

**DANGEROUS WASTE PERMIT  
DRAFT PERMIT MODIFICATION OCTOBER 2013  
WTP Comments**

**TOPIC:** Leak detection notification (new condition)

**CONDITION NO:** III.10.E.9.e.ii.D and III.10.H.5.e.ii.D

**CONDITION TEXT:** **The permittee must notify Ecology at the earliest practical moment after any leak occurs as required in WAC 173-303-640(4)(c)(iii).**

**COMMENT:** The Permittees request that Ecology delete this condition from the permit.

**BASIS:**

1. No basis in regulation.
2. Vague and subjective language; requires interpretation; applicability unclear.
3. Unnecessary and redundant; Permit already requires notification and reporting.
4. Inaccurate regulatory citation.

**DISCUSSION:** No basis in regulation. This condition should be deleted, because no basis has been offered in the Permit, Statement of Basis, or other documents that supports the de facto use of omnibus authority. No basis for use of omnibus authority has been provided.

Although WAC 173-303-640(4)(c)(iii) was cited as a basis, it is not applicable, because this WAC requirement does not address notification. The State has failed to demonstrate that this condition is necessary to achieve compliance with the Hazardous Waste Management Act or that the condition is necessary "to protect human health and the environment." The WAC 173-303-640(7)(d) requires a permittee to notify the State of a leak or release *to the environment*; there is no regulatory requirement to notify the agency of a leak into secondary containment. This condition is arbitrary and is not required by the cited regulation. In addition, other conditions address releases to secondary containment.

Washington law prohibits the arbitrary exercise of power by a state agency. Imposing requirements that exceed an agency's statutory or regulatory authority constitutes arbitrary action. To the extent that Ecology has imposed conditions under the permit that exceed Ecology's authority, it has acted in an arbitrary manner. Accordingly, those conditions which have been arbitrarily imposed under the permit should be stricken as the product of impermissible and arbitrary agency action.

Vague and subjective; requires interpretation; applicability unclear. The words "any" and "earliest practical moment" are undefined and rely on individual judgment by both regulators and facility operators that creates a "compliance trap".

Applicability of the condition is also unclear. The condition was added as part of new conditions *exempting* from leak detection criteria certain sealed penetrations



(PEN seal) in the LAW facility only and presumably was intended to apply only to the LAW PEN seals listed in Tables III.10.E.Q and III.10.H.G. However, because this new condition is under the leak detection conditions for tanks and LAW miscellaneous units, the notification requirement arguably applies to all "leaks," not just those from a PEN seal. As written, the condition would apply not only to LAW miscellaneous units, but also to all facilities' tank systems regardless of PEN seals.

The State's intent and applicability of this condition is unclear and confusing.

Unnecessary and redundant. The permit conditions III.10.E.5.j., III.10.F.3.d.i., III.10.G.5.k., III.10.H.1.a.xxiv., III.10.I.1.a.xviii., III.10.J.1.a.xxiv., and III.10.K.1.a.xviii. require that the Permittees notify Ecology in 24 hours if liquids in secondary containment cannot be removed within 24 hours after detection. The proposed condition that Permittees notify Ecology "at the earliest practical moment after any leak" adds an unnecessary administrative burden that is adequately addressed with existing conditions and fails to demonstrate any additional protection of human health or the environment.

The following existing permit conditions require that Permittees notify Ecology when liquids are in secondary containment and cannot be removed in 24 hours:

#### III.10.E.5.j for tank systems

*If liquids (e.g., dangerous and/or mixed waste 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 will provide the information in A, B and C listed below. The Permittees will 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.F.3.d.i. for containment buildings

*Upon detection of a condition that has led to the release of dangerous and/or mixed waste (e.g., upon detection of leakage from the primary barrier) the Permittees 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.*

III.10.G.5.k for Pretreatment Miscellaneous Units (MU)

*If liquids (e.g., dangerous and/or mixed waste 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 will provide the information in A, B and C listed below. The Permittees will 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), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(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*

III.10.H.1.a.xxiv for LAW Vit/MU (short term)

*If liquids (e.g., dangerous and/or mixed waste 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 will provide the information in A, B and C, listed below. The Permittees will 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), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(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.*



III.10.I.1.a.xviii for LAW Vit/MU (long term)

*If liquids (e.g., dangerous and/or mixed waste 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 will provide the information in A, B and C listed below. The Permittees will 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), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(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.*

III.10.J.1.a.xxiv for HLW Vit/MU (short term)

*If liquids (e.g., dangerous and/or mixed waste 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 will provide the information in A, B and C listed below. The Permittees will 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), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(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.*

III.10.K.1.a.xviii for HLW Vit/MU (long term)

*If liquids (e.g., dangerous and/or mixed waste 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 will provide the information in A, B and C listed below. The Permittees will 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), in accordance with WAC 173-303-680(3) and WAC*



HANFORD TANK WASTE  
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**DANGEROUS WASTE PERMIT  
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WTP Comments**

*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.*

Inaccurate regulatory citation. There are no notification requirements at WAC 173-303-640(4)(c)(iii).

**ALTERNATIVES:** No alternative language suggested; please delete condition in its entirety.

**REFERENCE(S):** No WAC reference found that requires Permittees to notify Ecology of liquids in secondary containment.

Attachment 2  
13-ECD-0086  
CCN: 262101  
(2 Pages)

Comments on Proposed Permit Modification

Removal of Permit Conditions Regarding the Correction to 7% Oxygen

  
\_\_\_\_\_  
Gae M. Neath



HANFORD TANK WASTE  
TREATMENT AND  
IMMOBILIZATION PLANT  
(WTP)

**DANGEROUS WASTE PERMIT  
DRAFT PERMIT MODIFICATION OCTOBER 2013  
WTP Comments**

**TOPIC:** Removal of Permit Conditions regarding the correction to 7% oxygen

**CONDITION NO(S):** III.10.H.5.f.v.K & III.10.J.5.f.v.K

**CONDITION TEXT:** Documentation based on current WTP Unit design either confirming the Permittees' demonstration that it is not technically appropriate to correct standards listed in Permit Conditions III.10.H.1.b.ii. through III.10.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.10.H.1.b.ii. through III.10.H.1.b.ix., III.10.I.b.ii. through III.10.I.b.ix., III.10.I.1.e.iii., and III.10.H.1.e.iii., Permit Tables III.10.H.C, III.10.H.F, III.10.I.C., III.10.I.F. and Operating Unit Group 10, Appendix 9.0 to reflect the addition of an oxygen monitor and the correction of the standards to seven percent (7%) oxygen.

Documentation based on current WTP Unit design either confirming the Permittees' demonstration that it is not technically appropriate to correct standards listed in Permit Conditions III.10.J.b.ii. through III.10.J.b.ix. to seven percent (7%) oxygen, or a request, pursuant to Permit Conditions III.10.C.9.e. and III.10.C.9.f., to update Permit Conditions III.10.J.b.ii. through III.10.J.b.ix., III.10.K.b.ii. through III.10.K.b.ix., III.10.K.e.iii., and III.10.J.1.e.iii., Permit Tables III.10.J.C, III.10.J.F, III.10.K.C., III.10.K.F, and Operating Unit Group 10, Appendix 10.0 to reflect the addition of an oxygen monitor and the correction of the standards to seven percent (7%) oxygen.

**COMMENT:** The Permit Conditions requiring addition of an oxygen monitor and correcting to 7% oxygen need to be removed from the WTP DWP based on technical demonstration provided and previous agreement with Ecology in September 2002.

**BASIS:** Permittees met the requirements for Permit Conditions III.10.H.5.f.v.K and III.10.J.5.f.v.K prior to the initial effective date of the WTP DWP in September 2002 by providing the required supplemental technical information in the letter dated May 8, 2002 (02-EMD-031 and CCN 33396), *Modification of Hanford Facility Dangerous Waste Permit for the River Protection Project Waste Treatment and Immobilization Plant, WTP Supplemental Information*. Ecology accepted the WTP provided justification for not applying the requirement for correction to 7% oxygen.

Ecology documented its decision in WTP DWP Fact Sheet 01-05-006 that was issued in September 2002 per Sections 3.5.6 and 3.5.7 (pg. 27), which states:

"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



HANFORD TANK WASTE  
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melting 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."

**DISCUSSION:** N/A

**ALTERNATIVES:** N/A

**REFERENCE(S):** Letter, Boston H. L. ORP, to Wilson M.A., Ecology, *Modification of Hanford Facility Dangerous Waste Permit for the River Protection Project Waste Treatment and Immobilization Plant, WTP Supplemental Information*, dated May 8, 2002 (02-EMD-031 and CCN 33396).

Ecology Publication Number 01-05-006, *Fact Sheet for the Hanford Facility Resource Conservation and Recovery Act Draft Permit for the Treatment, Storage, and Disposal of Dangerous Waste*" (CCN 42918).

Attachment 3  
13-ECD-0086  
CCN: 262101  
(5 Pages)

Comments on Proposed Permit Modification

General Comment

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Gae M. Neath



**GENERAL COMMENT:**

Since the WTP Permit was issued in September 2002, approximately 1300 detailed engineering drawings and documents have been provided, consistent with the Permit requirements. Ecology incorporates this technical information into the Permit, including updates as design changes are proposed and the Permit is modified. In addition to the technical information, the Permit contains 63 Tables that include summary of key design features for each permitted unit along with the equipment identification numbers, room locations, capacity, type, dimensions, materials of construction, etc.

Based on the Permit requirements, Permittees submit modifications to maintain the technical information and Permit Tables current with the approved design changes. As a result, the Permit Tables, Chapters, and Appendices are continuously being revised repeating the same changes in many places in the Permit. For example, each facility sump design information is addressed in several engineering documents (such as sump data, leak detection, waste removal, system logic description documents), drawings, and at least three to five Permit Tables, depending on the facility. We are concerned that the WTP Permit structure, where one has to repeat the same technical information for each permitted unit in several places, is not the most efficient or transparent format and creates the potential for errors and omissions making the Permit inconsistent with itself (see the comments listed below) which may raise compliance questions.

Permittees propose that Ecology re-structure or streamline the WTP Permit by consolidating all technical information currently contained in the Permit Chapters, Tables, and Appendices in one place within the WTP Permit.

**CORRECTIONS, ERRORS, AND OMISSIONS**

- 
- ITEM (01):** DWP Table III.10.E.A
- Page 55 of 362 – Replace Piping and Instrumentation Diagram (P&ID) 24590-PTF-M6-FRP-00009, Rev 3, with 24590-PTF-M6-FRP-00009001, Rev 0, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-006.
- 
- ITEM (02):** DWP Table III.10.E.A
- Page 55 of 362 – Replace P&ID 24590-PTF-M6-FRP-00010, Rev 3, with 24590-PTF-M6-FRP-00010001, Rev 0, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-006.
- 
- ITEM (03):** DWP Table III.10.E.A
- Page 65 of 362 – Replace Rev 0 with Rev 1 for the following P&IDs in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-013:
- 24590-PTF-M6-HLP-00001003
  - 24590-PTF-M6-HLP-00002002
-



HANFORD TANK WASTE  
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**DANGEROUS WASTE PERMIT  
 DRAFT PERMIT MODIFICATION OCTOBER 2013  
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--24590-PTF-M6-HLP-00003002  
--24590-PTF-M6-HLP-00003003

**ITEM (04):**

DWP Table III.10.E.A

Page 65 of 362 – Replace Rev 0 with Rev 1 for the following P&IDs in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-013:

--24590-PTF-M6-HLP-00001003  
--24590-PTF-M6-HLP-00002002  
--24590-PTF-M6-HLP-00003002  
--24590-PTF-M6-HLP-00003003

**ITEM (05):**

DWP Table III.10.E.A

Page 65 of 362 – Add P&ID 24590-PTF-M6-HLP-00001004, Rev 0, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-013.

**ITEM (06):**

DWP Table III.10.E.A

Page 73 of 362 – Add P&ID 24590-PTF-M6-TCP-00001003, Rev 0, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-006.

**ITEM (07):**

DWP Table III.10.E.A

Page 74 of 362 – Add P&ID 24590-PTF-M6-TLP-00006001, Rev 0, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-004.

**ITEM (08):**

DWP Table III.10.E.A

Page 77 of 362 – Replace P&D 24590-PTF-M5-V17T-0002204, Rev 2, with Rev 3, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-013.

**ITEM (09):**

DWP Table III.10.E.A

Page 83 of 362 – Delete P&ID 24590-PTF-M6-PVP-P0009, Rev 0, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-013.

**ITEM (10):**

DWP Table III.10.E.A

Page 84 of 362 – Add Engineering Specification 24590-WTP-3PS-HD00-T0001, Rev 4, located in Appendix 7.7, in accordance with the approved design package PTF-095 for PIH-TK-00001.



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**DANGEROUS WASTE PERMIT  
 DRAFT PERMIT MODIFICATION OCTOBER 2013  
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ITEM (11): DWP Table III.10.E.B

Page 85 of 362 through 88 of 362 – Replace General Arrangement (GA) drawing 24590-LAW-P1-P01T-00005, Rev 3, with Rev 4, in accordance with the approved permit modification 24590-LAW-PCN-ENV-11-008.

ITEM (12): DWP Table III.10.E.B

Page 85 of 362 through 88 of 362 – In accordance with the approved permit modification 24590-LAW-PCN-ENV-12-002, replace the following GAs:

- 24590-LAW-P1-P01T-00002, Rev 5, with Rev 6
- 24590-LAW-P1-P01T-00004, Rev 3, with Rev 4.

ITEM (13): DWP Table III.10.E.C

Page 96 of 362 – Add Engineering Specification 24590-WTP-3PS-HD00-T0001, Rev 4, located in Appendix 7.7, in accordance with the approved design package HLW-029 for HSH-TK-00001/2.

ITEM (14): DWP Table III.10.E.D

Page 99 of 362 – Replace P&ID 24590-LAB-M6-RLD-00001001, Rev 0, with Rev 1, and P&ID 24590-LAB-M6-RLD-00002001, Rev 0 with Rev 1, in accordance with the approved permit modification 24590-LAB-PCN-ENV-11-001.

ITEM (15): DWP Table III.10.E.J

Page 126 of 362 – Replace P&ID 24590-PTF-M6-TCP-00001002, Rev 0, with Rev 1, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-006.

ITEM (16): DWP Table III.10.G.A

Page 193 of 362 – Replace Mechanical Data Sheet 24590-PTF-MVD-CNP-00016, Rev 1, with 24590-PTF-MVD-CNP-00006, Rev 6, in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-008.

ITEM (17): DWP Table III.10.H.A

Pages 252 of 362 through 258 of 362 – Replace Process Flow Diagram (PFD) 24590-LAW-M5 V17T-P0010, Rev 2, with 24590-LAW-M5 V17T-00010, Rev 4 and 24590-LAW-M5 V17T-P0011, Rev 1, with 24590-LAW-M5 V17T-00011, Rev 5, in accordance with the submitted design package LAW-026c.



HANFORD TANK WASTE  
TREATMENT AND  
IMMOBILIZATION PLANT  
(WTP)

**DANGEROUS WASTE PERMIT  
 DRAFT PERMIT MODIFICATION OCTOBER 2013  
 WTP Comments**

- 
- ITEM (18):** DWP Table III.10.J.A
- Page 252 of 362– Replace Corrosion Evaluation 24950-HLW-N1D-HOP-P0005, Rev 1, with 24590-HLW-N1D-HOP-00005, Rev 5, in accordance with the approved permit modification 24590-HLW-PCN-ENV-12-005.
- 
- ITEM (19):** DWP Appendix 8.2
- Correct the drawing title for P&ID 24590-PTF-M6-FRP-00010001, Rev 0, to read “P&ID - PTF Waste Receipt Process System Utility Services PWD-RK-00001” in accordance with the approved permit modification 24590-PTF-PCN-ENV-12-006.
- 
- ITEM (20):** DWP Appendix 8.6
- In accordance with the approved permit modification 24590-PTF-PCN-ENV-12-008:
- |                                 |                                  |
|---------------------------------|----------------------------------|
| Replace:                        | With:                            |
| 24590-PTF-MVD-CNP-P0006, Rev. 0 | 24590-PTF-MVD-CNP-00006, Rev 6   |
| 24590-PTF-MVD-FEP-P0006, Rev. 3 | 24590-PTF-MVD-FEP-00006, Rev. 5  |
| 24590-PTF-MVD-FEP-P0007, Rev. 2 | 24590-PTF-MVD-FEP-00007, Rev. 5  |
| 24590-PTF-MVD-TLP-P0005, Rev. 2 | 24590-PTF-MVD-TLP-00005, Rev. 7. |
- 
- ITEM (21):** DWP Appendix 9.1
- Replace the following PFDs in accordance with the submitted design package LAW-026c:
- 24590-LAW-M5-V17T-P0010, Rev 2, with 24590-LAW-M5-V17T-00010, Rev 4
  - 24590-LAW-M5-V17T-P0011, Rev 1, with 24590-LAW-M5-V17T-00011, Rev 5.
- 
- ITEM (22):** DWP Appendix 9.1
- Add the following documents in accordance with the submitted design package LAW-026c:
- 24590-LAW-M5N-V17T-00015
  - 24590-LAW-M5N-V17T-00017.
- 
- ITEM (23):** DWP Appendix 9.4
- Delete GA 24590-LAW-P1-P01T-00008, Rev 7, in accordance with the approved permit modification 24590-WTP-PCN-ENV-11-009.
-



HANFORD TANK WASTE  
TREATMENT AND  
IMMOBILIZATION PLANT  
(WTP)

**DANGEROUS WASTE PERMIT  
DRAFT PERMIT MODIFICATION OCTOBER 2013  
WTP Comments**

- 
- ITEM (24):** DWP Appendix 9.6
- Add Mechanical Data Sheet 24590-LAW-MAD-LVP-00006, Rev. 9, in accordance with the submitted design package LAW-026c.
- 
- ITEM (25):** DWP Appendix 9.7
- Add Engineering Specification 24590-LAW-3PS-MACS-T0001, Rev. 2, and associated change documents:
- 24590-QL-MRA-MACS-00007-T0005  
--24590-WTP-SDDR-MS-12-00039
- in accordance with the submitted design package LAW-026c.
- 
- ITEM (26):** DWP Appendix 9.9
- Add Corrosion Evaluation 24590-LAW-NID-LVP-00003, Rev 3, in accordance with the submitted design package LAW-026c.
- 
- ITEM (27):** DWP Appendix 9.11
- Add the Independent Qualified Registered Professional Engineer (IQRPE) report 24590-CM-HC4-HXYG-00240-02-00009, Rev 00A, in accordance with the submitted design package LAW-026c.
- 
- ITEM (28):** DWP Appendix 9.11
- Replace the IQRPE report 24590-CM-HC4-HXYG-00240-02-00008, Rev 0, with Rev 00A, in accordance with the approved permit modification 24590-LAW-PCN-ENV-13-001.
- 
- ITEM (29):** DWP Appendix 10.4
- Delete GAs 24590-HLW-P1-P01T-00010, Rev 11, and 24590-HLW-P1-P01T-00011, Rev 11, in accordance with the approved permit modification 24590-WTP-PCN-ENV-11-009.
-

**APPENDIX C: ECOLOGY LETTER DOCUMENTING FINAL PERMIT DECISION**



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

3100 Port of Benton Blvd • Richland, WA 99354 • (509) 372-7950  
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

March 17, 2014

14-NWP-032

Mr. Kevin Smith, Manager  
United States Department of Energy  
Office of River Protection  
PO Box 450, MSIN: H6-60  
Richland, Washington 99352

Mr. Frank Armijo, President  
Mission Support Alliance, LLC  
2490 Garlick Boulevard, MSIN: H5-20  
Richland, Washington 99354

Mr. Matthew McCormick, Manager  
United States Department of Energy  
Richland Operations Office  
PO Box 550, MSIN: A7-50  
Richland, Washington 99352

Mr. Michael Schlender, Associate Director  
Pacific Northwest National Laboratory  
PO Box 999, MSIN: K1-46  
Richland, Washington 99352

Ms. Peggy McCullough, Project Director  
Bechtel National, Inc.  
2435 Stevens Center Place, MSIN: H4-02  
Richland, Washington 99354

Mr. John Fulton, President and CEO  
CH2M HILL Plateau Remediation Company  
PO Box 1600, MSIN: H7-30  
Richland, Washington 99352

Mr. Scott Sax, President  
Washington Closure Hanford, LLC  
2620 Fermi Avenue, MSIN: H4-24  
Richland, Washington 99354

Mr. Dave Olson, President  
Washington River Protection Solutions, LLC  
PO Box 850 MSIN: H6-63  
Richland, Washington 99352

Re: Final Permit Modification on the October 15 through December 20, 2013, Comment Period for 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 10, Waste Treatment and Immobilization Plant, WA7890008967*

Dear Madam and Gentlemen:

This letter issues the Department of Ecology's (Ecology) final permit decision to incorporate the permit modifications into Part III, Operating Unit 10, Waste Treatment and Immobilization Plant (WTP Permit) of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, WA7890008967*. In accordance with Washington Administrative Code (WAC) 173-303-840(8)(b), this WTP Permit is effective April 16, 2014.



As required by WAC 173-303-840, Ecology held a public comment period October 15 through December 20, 2013, for this permit modification. We received eleven sets of comments during the public comment period. We are issuing a *Response to Comments* document to meet the requirements of WAC 173-303-804(9). This document provides comment responses and describes the public involvement process taken in support of the public comment period.

The enclosed DVD contains the final permit modification package, consisting of the *Response to Comments*, the Statement of Basis, and the final WTP Permit. The *Response to Comments* (Ecology Publication 14-05-001) is also available on the Ecology website at <http://fortress.wa.gov/ecy/publications/SummaryPages/1405001.html>.

The DVD and paper copy of the final WTP Permit is the official and enforceable version.

We are providing a paper copy of the modified documents and drawings for the WTP Permit to the United States Department of Energy Administrative Record, 2440 Stevens Drive, Richland, Washington. DVD copies are provided to Bechtel National, Inc. and the United States Department of Energy.

This modification to the WTP Permit consisted of the following two permit packages and two documents:

***Design Package No. LAW-026C, Rev. 0, Miscellaneous Unit Subsystems for LAW Facility LVP System (LVP Exhausters)***

This design package addressed the installation of the Offgas/Vessel Vent Process (LVP) System miscellaneous unit subsystems in the Low Activity Waste (LAW) Facility at the +48-foot elevation.

This design package consisted of:

- A final assessment report signed by an Independent, Qualified, Registered, Professional Engineer (IQRPE) certifying the LVP Exhauster Design.
- Two process flow diagrams (PFDs) and associated change documents to replace permitted LVP PFDs.
- A mechanical data sheet for the exhausters.
- An engineering specification for exhausters and hoses.
- A technical change notice to the exhauster specification.
- A supplier deviation disposition request to the exhauster specification.
- A corrosion evaluation for melter offgas exhausters.

***Permit Package No. BOF-001, Rev. 0, Container Storage Area for Balance of Facilities  
(Failed Melter Storage Facility)***

This permit package addressed the Container Storage Area located in the Failed Melter Storage Facility (Building 32) at the southeast corner of the WTP Facility. The Failed Melter Storage Facility will be used primarily to store High Level Waste (HLW) melters that have completed service life and may receive containerized miscellaneous mixed waste from the HLW Facility.

This permit package included a general arrangement drawing, update of WTP Permit Tables III.10.D.A and III.10.D.B, and vendor cut sheets describing a typical commercially available waste container management building and drum spill collection pallet.

This documentation was provided to support the completion of Item 10 in the WTP Interim Compliance Schedule, Appendix 1.0. However, due to the number of outstanding uncertainties remaining, Ecology added a new Compliance Schedule Item 46, which requires submittal of final design information associated with the Failed Melter Storage Facility (Building 32) pending resolution of these uncertainties.

***IQRPE Structural Integrity Assessment Report for LAW Secondary Containment Bulge Enclosures (LCP\LFP\LOP\RLD)***

The IQRPE report was included in the permit modification request 24590-LAW-PCN-ENV-12-001. It describes the design and structural integrity of the installed LAW Facility bulges as secondary containment structures. The bulges were previously addressed in four separate LAW ancillary equipment IQRPE reports, which are located in Appendix 9.11. There are no changes to the design of the existing bulges, nor does this report replace any of the existing ancillary equipment IQRPE reports.

Ecology provided the public with the opportunity to review and comment on this IQRPE report because it was submitted as a new report in Appendix 9.11 and because of the significant changes between the ancillary equipment and the secondary containment IQRPE reports.

***Engineering Specification for Plate and Frame Heat Exchangers, 24590-WTP-3PS-MEP0-T0001, Revision 0***

This engineering specification is a supplement to *Engineering Specification for Pressure Vessel Design and Fabrication*, 24590-WTP-3PS-MV00-T0001, which is already included in the WTP Permit. This engineering specification is applicable to plate and frame type heat exchangers in both the Pretreatment (for example, PTF-PVP-HX-00002) and HLW (for example, HLW-HOP-HX-00002 and HLW-HOP-HX-00004) facilities.

This engineering specification and associated applicable change documentation will be placed in Appendix 7.7.

## **Class 1 Modifications**

Because the draft WTP Permit was available for public comment from October 15 through December 20, 2013, Ecology administratively incorporated several Class 1 and Class <sup>1</sup> permit modifications into this final WTP Permit, as allowed by WAC 173-303-830(4)(a)(i) and (ii). Quarterly notifications of all Class 1 and Class <sup>1</sup> permit modifications are provided to the facility mailing list in accordance with Permit Condition I.C.3.

- 24590-LAW-PCN-ENV-13-003, Class <sup>1</sup> Modification updates the piping and instrumentation diagram (P&ID) *LAW Secondary Offgas/Vessel Vent Process System SCO/SCR/SKID* (24590-LAW-M6-LVP-00005002, Revision 1) and removes the P&ID *LAW Secondary Offgas/Vessel Vent Process System Ammonia Dilution SKID* (24590-LAW-M6-LVP-00005001, Revision 0) in Appendix 9.2.
- 24590-WTP-PCN-ENV-13-001, Class 1 Modification provides editorial changes in Permit Conditions III.10.C.9.f (Critical Systems), III.10.H.1.b.x, III.10.I.1.b.x, III.10.J.1.b.x, and III.10.K.1.b.x (Short-and Long-Term LAW and HLW); Appendix 7.7 (Specifications); and Appendix 2 (Critical Systems for the WTP).
- 24590-HLW-PCN-ENV-13-006, Class <sup>1</sup> Modification updates two PFDs for the HLW Melter Offgas Treatment Process System in Appendix 10.1.
- 24590-HLW-PCN-ENV-13-012, Class 1 Modification updates four P&IDs for the HLW Canister Decontamination Handling System in Appendix 10.2.

## **Your Right to Appeal:**

You have a right to appeal this Permit to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this Permit. The appeal process is governed by Chapter 43.21B Revised Code of Washington (RCW) and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do all of the following within 30 days of the date of receipt of this Permit:

- File your appeal and a copy of this Permit with the PCHB (see addresses on page 5). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Permit on Ecology in paper form – by mail or in person (see addresses on page 5). E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Mr. Kevin Smith, et al.  
March 17, 2014  
Page 5

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**1. To file your appeal with the Pollution Control Hearings Board:**

**Mail appeal to:**

Pollution Control Hearings Board  
PO Box 40903  
Olympia, Washington 98504-0903

**OR**

**Deliver your appeal in person to:**

Pollution Control Hearings Board  
1111 Israel Road, Southwest, Suite 301  
Tumwater, Washington 98501

**2. To serve your appeal on the Department of Ecology:**

**Mail appeal to:**

Department of Ecology  
Attn: Appeals Processing Desk  
PO Box 47608  
Olympia, Washington 98504-7608

**OR**

**Deliver your appeal in person to:**

Department of Ecology  
Attn: Appeals Processing Desk  
300 Desmond Drive, Southeast  
Lacey, Washington 98503

**3. Send a copy of your appeal to:**

Dan McDonald  
Department of Ecology  
Nuclear Waste Program  
3100 Port of Benton Boulevard  
Richland, Washington 99354

If there are any questions regarding this permit modification, contact Nitya Chandran, WTP Permit Writer, at [nitya.chandran@ecy.wa.gov](mailto:nitya.chandran@ecy.wa.gov) or 509-372-7931.

Sincerely,



Jane A. Hedges  
Program Manager  
Nuclear Waste Program

nc/jc  
Enclosures

cc: See page 6

Mr. Kevin Smith, et al.  
March 17, 2014  
Page 6

14-NWP-032

cc electronic w/o enc:

Dennis Faulk, EPA  
Paul Harrington, USDOE  
Lori Huffman, USDOE  
Tony McKarns, USDOE  
Gae Neath, USDOE  
Delmar Noyes, USDOE  
Don Sommer, USDOE  
Donna Busche, BNI  
Barry Curn, BNI  
Barbara Dubiel, BNI  
Brad Erlandson, BNI  
Sandi Murdock, BNI  
Walter Remsen, BNI  
Dan Robertson, BNI  
Jan Schneider, BNI  
Gail Laws, WDOH  
Nitya Chandran, Ecology

cc w/enc, DVD:

Dave Bartus, EPA  
Barry Curn, BNI  
Stuart Harris, CTUIR  
Gabriel Bohnee, NPT  
Russell Jim, YN  
Isabelle Wilder, Wanapum  
Steve Hudson, HAB  
Jon Perry, MSA  
Ken Niles, ODOE  
John Fowler, ACHP  
Robin Priddy, BCAA  
Allyson Brooks, DAHP  
Tim Erkel, USACE  
Mike Livingston, WDFW  
John Martell, WDOH  
Ted Maxwell, WSDA  
Shane Early, WSDNR  
Administrative Record:  
Waste Treatment Plant (TSD #H-0-8)  
BNI Correspondence Control  
CH2MHill Correspondence Control  
Environmental Portal  
USEPA Region 10 Correspondence Control  
USEPA Region 10 Hanford Office  
Hanford Operating Record General File  
USDOE-ORP Correspondence Control  
USDOE-RL Correspondence Control  
WRPS Correspondence Control

cc w/enc, paper copy:

Administrative Record: Waste Treatment Plant (TSD #H-0-8)