

DEPARTMENT OF
ECOLOGY
State of Washington

Fact Sheet

Proposed Permit Modification to Part V 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*, to add Closure Unit Group 25, Plutonium Uranium Extraction (PUREX) Plant Storage Tunnels

August 2018

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PERMITTEES

The permit is to be issued to Hanford's owner and co-operators. The U.S. Department of Energy (USDOE), as the owner and operator of the facility, is a permittee. (USDOE is a single Permittee, although we list below both of its Richland offices.) As co-operators, Hanford contractors are also permittees.

United States Department of Energy
Richland Operations Office
(Owner/Operator)
P.O. Box 550, MSIN A7-50
Richland, Washington 99352

United States Department of Energy
Office of River Protection
(Owner/Operator)
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

CH2M HILL Plateau Remediation Company
(Co-Operator)
P.O. Box 1600, MSIN: H7-30
Richland, Washington 99352

Washington River Protection Solutions, LLC
(Co-Operator)
P.O. Box 1500, MSIN: H6-63
Richland, Washington 99352

Mission Support Alliance, LLC
(Co-Operator)
2490 Garlick, MSIN H1-30
Richland, Washington 99354

Pacific Northwest National Laboratory
(Co-Operator)
P.O. Box 999, MSIN: K1-46
Richland, Washington 99352

Bechtel National, Inc.
(Co-Operator)
2435 Stevens Center Place, MSIN: H4-02
Richland, Washington 99354

The Washington State Department of Ecology (Ecology) is proposing a draft permit modification to Part V of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste* (hereafter called the Hanford Site-wide Permit).

This proposed draft permit modification adds Closure Unit Group 25, Plutonium Uranium Extraction (PUREX) Plant Storage Tunnels to Part V of the Hanford Site-wide Permit. The unit group will no longer exist in Part III of the Hanford Site-wide Permit.

On July 12, 2018, U.S. Department of Energy's Richland Operations Office (USDOE-RL) submitted to Ecology a Temporary Authorization request to begin grouting PUREX Tunnel Number 2 before this permit modification goes into effect. Ecology is currently reviewing the request.

Ecology developed this Fact Sheet to fulfill the requirements of Washington Administrative Code (WAC) 173-303-840(2)(f).

This Fact Sheet is divided into seven sections:

- 1.0 Hanford Site-Wide Permit Background
- 2.0 PUREX Storage Tunnels Dangerous Waste Management Unit Description
- 3.0 Class 3 Permit Modification Process for PUREX Storage Tunnels
- 4.0 Proposed Modification to Part V of the Hanford Site-wide Permit
- 5.0 Procedures for Reaching a Final Decision on the Draft Permit Modification
- 6.0 State Environmental Policy Act

Hanford Site-wide Permit Background

Ecology's Nuclear Waste Program (NWP) manages dangerous waste within the State by writing permits to regulate its treatment, storage, and disposal.

Ecology has the authority to regulate dangerous waste and the dangerous waste components of mixed (radioactive and dangerous) waste, under 70.105 RCW and WAC 173-303. The Hanford Site-wide Permit has requirements for the treatment, storage, and disposal of dangerous and mixed waste at Hanford. Ecology does not regulate waste that is solely radioactive. USDOE has the exclusive authority to regulate radioactive materials and radioactive waste at Hanford.

Ecology first issued the Hanford Site-wide Permit in 1994. The facility has been operating under that initial permit since then. Since 1994, the permit has been modified several times to incorporate changes or updates and to incorporate and closeout several dangerous waste management units (DWMUs).

The Hanford Site-wide Permit provides standard and general facility conditions, as well as unit group conditions for the operation, closure, and post-closure care of DWMUs at Hanford. These DWMUs are administratively grouped into operating, closure, or post-closure unit groups in the Site-wide Permit. Each unit group may contain one or more DWMU.

The Hanford Site-wide Permit is organized as follows:

- Part I Standard Conditions.
- Part II General Facility Conditions.
- Part III Operating Units.
- Part IV Corrective Action for Past Practice Units.
- Part V Closure Units.
- Part VI Post-Closure Units.

In 2012, NWP issued Revision 9 of the Hanford Site-wide Permit with 37 unit groups and two Corrective Action units. The DWMUs within the unit groups are operating, in closure, or in post-closure. At this time, the NWP is reconciling the over 5,000 public, U.S. Environmental Protection Agency, and permittee comments received on that Revision 9 draft. Until a new revision of the Hanford Site-wide Permit is issued for a new public comment period, the legal and enforceable revision of the Hanford Site-wide Permit is Revision 8C.

PUREX Storage Tunnels Dangerous Waste Management Unit Description

The Plutonium Uranium Extraction (PUREX) Plant is located in the southeast portion of the 200 East Area of Hanford. The PUREX Plant was used for the recovery of uranium and plutonium

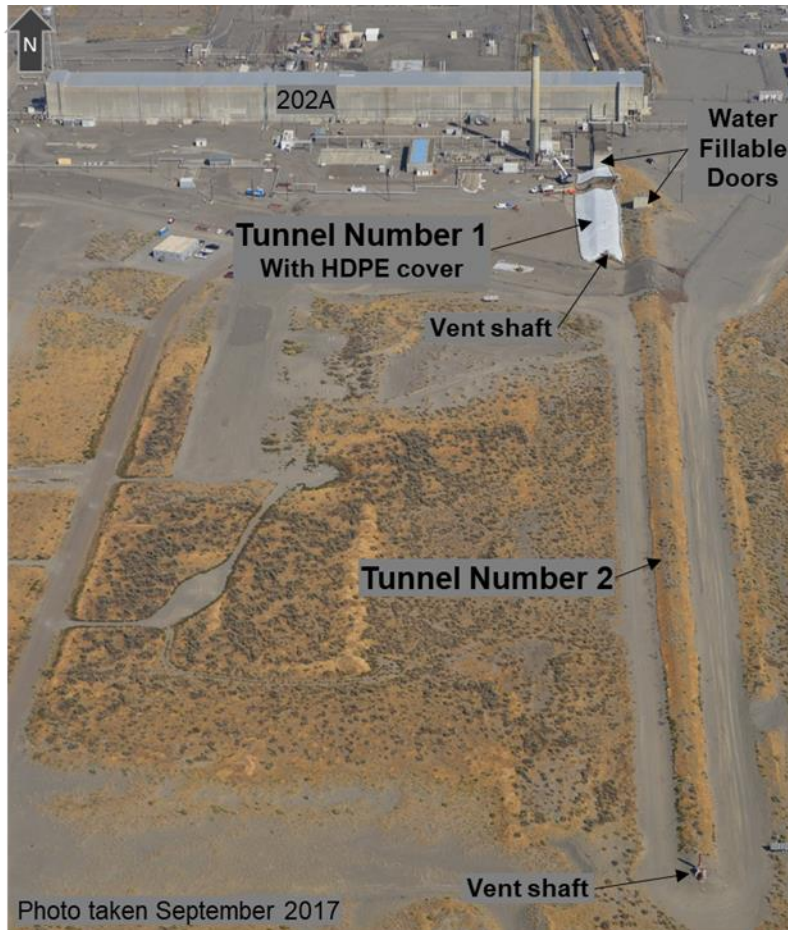
from irradiated reactor fuel. The PUREX plant was built in 1956 and operated until 1972. It was restarted in 1983 and operated until 1989. The USDOE-RL issued a final shutdown order in December 1992.

Associated with the PUREX Plant are the PUREX Tunnels. PUREX Storage Tunnels 1 and 2 are each a DWMU, and the two DWMUs are Miscellaneous Units. The two tunnels store waste on railcars from the PUREX Plant and other onsite sources. Waste stored in the tunnels include barium, cadmium, chromium, lead, mercury, silver, and light mineral oil contained in oil absorption material.

PUREX Storage Tunnel 1 was constructed in 1956 and provides storage space for waste on 8 rail cars. Tunnel 1 is approximately 19 feet wide by 22 feet high by 358 feet long. In May of 2017, the tunnel experienced a partial roof collapse and subsequently the tunnel was stabilized with grout in October and November of 2017.

PUREX Storage Tunnel 2 was constructed in 1964 and provides storage for waste on 28 rail cars. Tunnel 2 is approximately 19 feet wide by 22 feet high by 1,688 feet long. The proposed permit modification would stabilize Tunnel 2 with grout as an interim closure action that would not preclude future closure or remedial decisions.

A structural evaluation of PUREX Tunnel 2, performed after the collapse of Tunnel 1, revealed the threat of future structural failure. The proposed modifications are necessary to support the interim stabilization action of filling Tunnel 2 with grout. The stabilization effort requires a revised Part A Form, Waste Analysis Plan, Process Information, Closure and Financial Assurance, Preparedness and Prevention, Inspection Requirements, and Contingency Plan.



PUREX Plant and Storage Tunnels 1 and 2

Class 3 Permit Modification Process for the PUREX Storage Tunnels

On May 9, 2017, workers discovered a collapse in a portion of the Tunnel 1 wood timber roof structure resulting in a hole approximately 5.8 meters (19 feet) wide by 5.2 meters (17 feet) long. That day, the Emergency Operations Center was activated and an informational notification was made to Ecology that the RCRA Contingency Plan was being implemented.

On May 10, 2017, 53 truckloads of soil fill was placed through the roof opening at the collapsed area for contamination control, shielding, protection from the environment, and stabilization of the tunnel support walls. A protective cover was installed over Tunnel 1 on May 20, 2017.

Ecology issued an Administrative Order to USDOE-RL on May 10, 2017. The Administrative Order #14156 was amended on September 14, 2017 to Amended Administrative Order #15419 and required the following corrective actions:

1. Starting immediately, determine the cause of breach in PUREX Storage Tunnel 1 and assess if there is an immediate risk of further failures in PUREX Storage Tunnels 1 and 2. By July 1, 2017, submit to the Department of Ecology, Nuclear Waste Program a structural integrity evaluation for both PUREX Storage Tunnels 1 and 2.
2. Starting immediately, develop corrective actions to ensure the safe storage of the waste in the PUREX Storage Tunnels 1 and 2 in light of the above described failure

in PUREX Storage Tunnel 1, until a decision on permanent disposition of the PUREX Storage Tunnels 1 and 2 is determined as part of closure under the Dangerous Waste Regulations.

By August 1, 2017, submit a draft report detailing the corrective actions to ensure the safe storage of the waste in the PUREX Storage Tunnels 1 and 2 to the Department of Ecology, Nuclear Waste Program for comment and approval.

3. By December 8, 2017, submit a draft permit modification to the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion Revision 8C to modify the permit to do the following:
 - Update Preparedness and Prevention Addendum to ensure the control and mitigation of run-on onto PUREX Storage Tunnel 1 and 2.
 - Update Process Information Addendum to include information required under Corrective Action 2 to demonstrate the ongoing ability of PUREX Storage Tunnel 1 and Tunnel 2 to continue to safely store mixed waste until closure. This includes submitting as part of the modification, the structural integrity evaluation supporting safe operation of PUREX Storage Tunnel 1 and Tunnel 2.
 - Update the Closure Addendum to include any interim actions needed for safe storage of waste in PUREX Storage Tunnel 1 and Tunnel 2.
 - Update the Closure Addendum to address final closure under the Dangerous Waste Regulations coordinated with the future CERCLA remedial decisions for both PUREX Storage Tunnel 1 and Tunnel 2.

USDOE-RL notified Ecology on May 31, 2017, of its plan to address the significant threat of further failure of Tunnel 1 by void filling the tunnel with grout. On June 8, 2017, Ecology approved the plan to grout Tunnel 1 as an interim stabilization measure under the Resource Conservation and Recovery Act Permit Contingency Plan. The act of grouting Tunnel 1 would not preclude future closure or remedial decisions.

During a June 30, 2017, news conference, USDOE-RL committed to holding a workshop to help the public understand the results of an engineering evaluation of PUREX Tunnel 2, following the partial collapse and stabilization of Tunnel 1. On July 20, 2017, Ecology and USDOE-RL held a joint workshop with the public to answer questions and hear comments from members of the public.

Ecology received the structural integrity evaluations to fulfill Corrective Action 1 on June 30, 2017. USDOE-RL then submitted Corrective Action 2 on August 1, 2017, which detailed the corrective actions to ensure safe storage of the waste in PUREX Storage Tunnels 1 and 2. Corrective Action 3 was fulfilled when USDOE-RL submitted a draft permit modification to Ecology on December 5, 2017.

Ecology reviewed the draft modification and provided comments to the permittees through an informal review process at the end of December 2017 and the beginning of January 2018. Through a comment and response process, Ecology's comments were reconciled and the Permittees prepared a formal permit modification.

On February 8, 2018, the permittees submitted a formal Class 3 permit modification request to Ecology for the PUREX Storage Tunnels, which included a Part A Form, Waste Analysis Plan,

Process Information, Closure and Financial Assurance, Preparedness and Prevention, Inspection Requirements, and Contingency Plan. The permittees held a public comment period from February 12 through April 12, 2018. The permittees also held a public meeting on March 14, 2018, at the Richland Public Library.

After review of USDOE-RL's proposed Class 3 permit modification, Ecology issued a completeness determination letter with notice of deficiencies on April 20, 2018, in accordance with Washington Administrative Code (WAC) 173-303-830(4)(c)(vi) and WAC 173-303-840(1)(b). After Ecology worked with the permittees to resolve the technical deficiencies, USDOE-RL submitted the revised permit modification that addressed the technical deficiencies.

Revision 8C of the Hanford Site-wide Permit will be modified by permit modification. Ecology addressed public comments received during the permittees' comment period in a response to comment document. This response to comment document accompanies the draft permit modification, and is available online at <https://ecology.wa.gov/Waste-Toxics/Nuclear-waste/Public-comment-periods>.

Proposed Modification to Part V of the Hanford Site-wide Permit

The proposed draft permit modification adds Closure Unit Group 25, PUREX Storage Tunnels to Part V of the Hanford Site-wide Permit. This draft modification is the second portion of the Class 3 modification.

The draft permit modification consists of permit conditions, Part A Form, Waste Analysis Plan, Process Information, Closure and Financial Assurance, Preparedness and Prevention, Inspection Requirements, and Contingency Plan for the interim stabilization of the PUREX Storage Tunnels. Information was added to each chapter/addenda to describe the collapse of Tunnel 1, the subsequent grout stabilization action for Tunnel 1, and the proposed interim stabilization action for Tunnel 2.

The following is a summary of proposed revisions made to each chapter/addenda:

1. **Part A:** Minor changes were made to update the Part A to meet current requirements. This includes updating the NAICS Codes, incorporation of the Title V Air Operation Permit under "Other Environmental Permits," rearrangement of Dangerous Waste Codes, and an updated photo, topographic map, and various diagrams. The entire Part A document is subject to review. The changes are not all shown in redline.
2. **Waste Analysis Plan:** Changes to this section include a description of the compatibility of the grout with the waste contained inside the tunnels and also an explanation for complying with Land Disposal Restrictions. The PUREX Storage Tunnels Inventory (Table 3.1) was updated for accuracy after document review.
3. **Process Information:** Changes include a description of the operation of the PUREX Storage Tunnels for the proposed interim closure activities and an added section to describe the safe storage of waste until a final closure decision is made.
A summary of historical operations replaced sections that explained how the tunnels operated. Included in this section are engineering evaluations for Tunnel 1 and 2 as required by Amended Administrative Order #15419. The engineering evaluation for Tunnel 1 is provided in Appendix 4A and Tunnel 2 is provided in Appendix 4B.
4. **Closure and Financial Assurance:** The Closure and Financial Assurance chapter was updated to describe the interim closure activities and potential options for closure when a

decision is made. For Tunnel 1, updates include interim response activities, site preparation and modification, grout design, and an explanation of how the grout was placed into the Tunnel (including pictures/diagrams). For Tunnel 2, updates include proposed site preparation and modification, grout design, and an explanation on how the grout will be placed into Tunnel 2 (including pictures/diagrams).

Other changes to this chapter include descriptions of potential closure actions that could be selected when a final closure decision has been decided. Table 11.1 was added to explain the method of compliance for WAC 173-303-680(2) through (4) requirements. A closure schedule and timeline was also included in this section. This chapter includes engineering drawings H-2-837312-1, H-2-837314-1, H-2-837314-2, H-2-837316-1, and H-2-837317-1a.

5. **Preparedness and Prevention:** Language was updated in this section to correspond with this unit group no longer being in active operations. An explanation of the control of runoff/run-on and control of releases to the atmosphere was added to this section.
6. **Inspection Requirements:** Inspection requirements for Tunnel 1 were updated, and justification for the annual inspection was provided. Tunnel 2 requirements were changed to a daily video surveillance until interim stabilization of grouting is complete. After grouting is complete, inspections will be performed annually, and justification is provided for an annual inspection.
7. **Contingency Plan:** An explanation was added to the Contingency Plan to describe how the grout that was placed in Tunnel 1 and proposed for Tunnel 2 will remove the potential for further structure failure of the tunnels.

The proposed permit modification describes the steps that USDOE-RL will take to perform interim stabilization of the PUREX Storage Tunnel 2. Following completion of the PUREX Storage Tunnels interim stabilization activities, an extended interim closure period will begin prior to the final closure of the Storage Tunnels DWMUs.

The final closure decision has not been made, and will be made together with the remedial actions decisions for the 200-CP-1 CERCLA Operable Unit. The interim stabilization action of filling Tunnel 1 with grout, and the proposed action of filling Tunnel 2 with grout, will not preclude any final future closure or remedial decision.

The unit group permit conditions and Addenda in Part V, Closure Unit Group 25 are intended to comply with dangerous waste regulations to protect human health and the environment by ensuring the PUREX Storage Tunnels continue to safely store waste until a final closure decision is made. Ecology reviewed the proposed Class 3 permit modification for the PUREX Storage Tunnels and included permit conditions to ensure that the permittees comply with environmental standards and modify the closure plan as needed during closure activities.

Ecology proposes to incorporate the following permit condition into Closure Unit Group 25, PUREX Storage Tunnels:

Permit Condition V.25.B.2 requires the permittees to comply with all of the requirements set forth in the Closure and Financial Assurance chapter. This permit condition will require that the PUREX Storage Tunnels will be closed in accordance with the schedule contained in Closure and Financial Assurance chapter of the permit.

Procedures for Reaching a Final Decision on the Draft Permit Modification

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.

Part I, Part II, and Attachment 9 Permit Applicability Matrix will be modified after the public comment period, when the permit modification becomes effective.

This draft permit modification was prepared according to the procedures in WAC 173-303-840(2). As required by WAC 173-303-840(3)(d), draft permits Ecology issues will have at least a 45-day public comment period. The public comment period for this draft permit will be August 13 through September 27, 2018.

Comments must be post-marked, received by e-mail, or hand-delivered no later than close of business (5:00 p.m. PST) September 27, 2018.

Direct all written comments to:

Stephanie Schleif
Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354

E-mail address: hanford@ecy.wa.gov

In accordance with WAC 173-303-840(10)(c), when a permit is modified, only those conditions to be modified will be reopened when a new draft permit is prepared. All other aspects of the existing Permit remain in effect for the duration of the modification.

Ecology will consider and respond to all written comments on this draft permit modification that are submitted by the September 27 deadline. Ecology will then issue a final permit modification that will become effective 30 days after the issuance date. If the final decision includes substantial changes to the draft permit modification because of public comment, we will consider initiating a new public comment period.

Two public hearings are scheduled for this comment period:

August 27 5:30 p.m.
Richland Public Library
955 Northgate Dr.
Richland, Washington

September 5 6:30 p.m.
University of Washington
Center for Urban Horticulture, NHS Hall,
3501 NE 41st St.
Seattle, Washington

For more information contact:

Daina McFadden
Washington State Department of Ecology
(509) 372-7950

E-mail address: hanford@ecy.wa.gov

After completion of the 45-day public comment period, Ecology will issue the final Hanford Site-wide Permit with Part V, Closure Unit Group 25, PUREX Storage Tunnels to the permittees. NWP will also issue a Response to Comments document to the permittees and the public. The final permit decision may be appealed within 30 days after issuance of that decision. If there is no appeal, the permit will stand as issued.

Copies of the following documents for Part V, Closure Unit Group 25, PUREX Storage Tunnels are available for review at the Hanford Public Information Repositories locations listed below:

- Conditions
- Part A Form
- Waste Analysis Plan
- Process Information
- Closure and Financial Assurance
- Preparedness and Prevention
- Inspection Requirements
- Contingency Plan

For additional information call (509) 372-7950 or e-mail hanford@ecy.wa.gov.

Hanford Public Information Repositories

Richland, Washington

Ecology Nuclear Waste Program Resource Center
3100 Port of Benton Blvd. Richland, WA 99354
509-372-7950

U.S. Department of Energy Administrative Record
2440 Stevens Drive, Room 1101 Richland, WA 99354
509-376-2530

Washington State University Tri-Cities
Department of Energy Reading Room
2770 Crimson Way, Room 101L Richland, WA 99354
509-375-7443

Other Locations:

Portland

Portland State University
Branford Price Millar Library
1875 Southwest Park Avenue
Portland, Oregon 97201
(503) 725-4542

Seattle

University of Washington Suzzallo Library
P.O. Box 352900
4000 15th Avenue Northeast
Seattle, Washington 98195
(206) 543-5597

Spokane

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

Information on the proposed permit modification is also available online at <https://ecology.wa.gov/Waste-Toxics/Nuclear-waste/Public-comment-periods>. If special accommodations are needed for public comment, contact Ecology's Nuclear Waste Program at (509)372-7950.

State Environmental Policy Act

Appendix R of the Tank Closure & Waste Management Environmental Impact Statement (EIS) includes the PUREX Tunnels in the cumulative impacts analysis for the Hanford Site. Based on that analysis, Ecology has done a Determination of Significance/Adoption Notice for the EIS.

The EIS analyzed impacts from the current USDOE-RL vision that calls for the PUREX tunnels to be filled with grout and covered with a surface barrier (DOE 2005b:vi; Fluor Hanford 2004:A3-2). Final closure of the tunnels will require an evaluation of alternatives (Bergeron et al. 2001:3.26).

Link to the Cumulative Impacts Analysis for the Hanford Site: [Link to Appendix R Cumulative Impacts: Assessment Methodology](#)