



DEPARTMENT OF
ECOLOGY
State of Washington

FACT SHEET

Proposed Permit Modification to Part III 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 Operating Unit Group 14, Waste Encapsulation and Storage Facility*

August 2020

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Proposed Permit Modification to Part III 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 Operating Unit Group 14, Waste Encapsulation and Storage Facility*

PERMITTEES

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

The Washington State Department of Ecology (Ecology) developed this Fact Sheet in accordance with the requirements of Washington Administrative Code (WAC) 173-303-840(2)(f). Its purpose is to discuss the proposed draft permit modification to Part III 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 will add Operating Unit Group 14, Waste Encapsulation and Storage Facility (WESF) to Part III of the Hanford Site-wide Permit.

This Fact Sheet is divided into six sections:

- 1.0 Hanford Site-Wide Permit Background
- 2.0 Waste Encapsulation and Storage Facility Dangerous Waste Management Unit Description
- 3.0 Class 3 Permit Modification Process for the Waste Encapsulation and Storage Facility
- 4.0 Proposed Modification to Part III 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

1.0 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. Since 1994, the permit has been modified many 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 mixed and dangerous waste Treatment, Storage and Disposal (TSD) Units at Hanford. These TSDs are administratively grouped into operating, closure, or post-closure unit groups in the Hanford 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.

Upon approval and issuance of this permit modification the Waste Encapsulation and Storage Facility Operating Unit Group, (OUG 14) will be added to Part III Operating Units, of the Hanford Site-wide Permit.

2.0 Waste Encapsulation and Storage Facility Operating Unit Group Description

The WESF was constructed on the west end of B Plant between 1971 and 1973 to encapsulate and store radioactive cesium-137 (Cs-137) and strontium-90 (Sr-90) that had been separated from plutonium production waste stored in underground storage tanks on the Hanford Facility. Separation of cesium and strontium from tank waste occurred at B Plant.

The WESF consists of seven hot cells, the hot cell service area, operating areas, building service areas, truckport, and the pool cell area. The WESF has four DWMUs: three operating (Hot Cell G, Pool Cells 1-8 and 12, and the Truckport) and one closing (Hot Cells A through F). These DWMUs are classified X99 miscellaneous units, due to the unique properties of the stored mixed waste and storage capsule design. For more information regarding the Hot Cells A through F Closing Unit Group see Part V of the Hanford Site-wide Permit.

Pool Cells 1-8 and 12 serve as the primary storage area for the 1,936 capsules containing cesium and strontium salts. These concrete pools are equipped with a stainless steel liner, heat exchanger system, ion exchange water purification system, and other features to optimize storage conditions. Capsules are submerged under approximately 13 feet of water to cool the capsules and shield the pool cell room.

Hot Cell G provides an area for safe inspection and maintenance of capsules using remote manipulators. If needed, a suspect capsule can be placed into Shielded Storage in Hot Cell G for longer-term storage or monitoring. The initial assembly steps for the Capsule Storage Systems (CSSs) will also occur in Hot Cell G. Up to six capsules will be placed and sealed in each Universal Capsule Sleeve (UCS). Spacers, if needed, and an aluminum shunt within each sleeve helps locate the capsules within a UCS. Once filled and sealed, each UCS will be transported to the Truckport via crane.

The Truckport can hold a single Vertical Concrete Cask (VCC) as the overall CSS is assembled. Up to 22 UCSs are transferred into a stainless steel Transportable Storage Canister (TSC) within a VCC. Once filled, the TSC is sealed, the VCC is closed, and the CSS is complete. The complete CSS is manually transferred out of the Truckport using an air pallet and hauled to dry storage at CIS. CIS is OUG 19 in the Hanford Site-wide Permit.

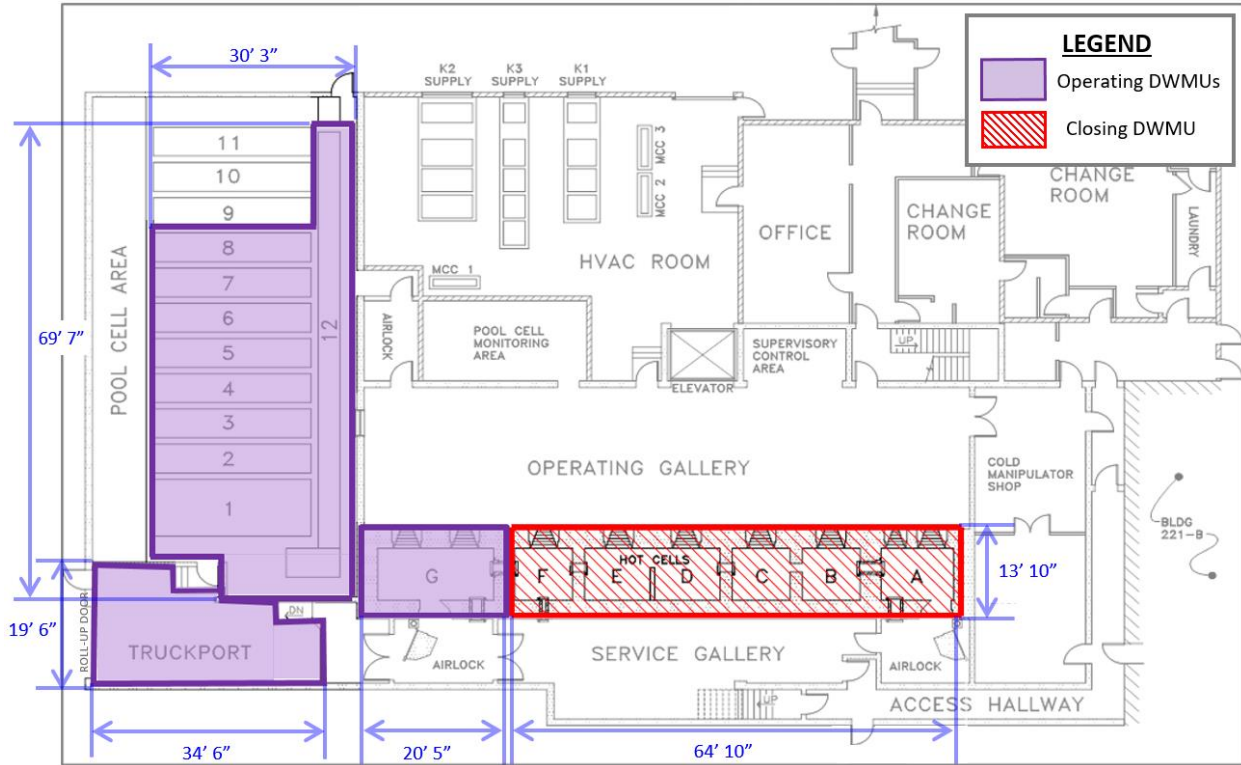


Figure 1 Waste Encapsulation and Storage Facility First Floor Plan

TYPE AND QUANTITY OF WASTE

The WESF can store a total of 1,936 cesium and strontium capsules: 1,335 cesium capsules (1,312 standard and 23 Type W overpack capsules) and 601 standard strontium capsules. Each standard capsule has a capacity of approximately 1 liter and the total mass of mixed waste stored is 11,131 pounds. The cesium and strontium salts are considered to be mixed waste, as defined in WAC 173-303-040, due to the radioactive cesium and strontium combined with heavy metals barium, cadmium, chromium, lead, and silver.

BASIS FOR PERMIT CONDITIONS

Permit conditions are based upon WAC 173-303-680, Miscellaneous Units. Although the capsules are containers, as defined in WAC 173-303-040, the design and properties of the cesium and strontium salts and unique features of the capsules make the WESF DWMUs miscellaneous units rather than a container storage areas. The requirements for container storage areas in WAC 173-303-630 are appropriate for traditional containers, which typically allow access and transfer of containerized waste. The cesium and strontium capsules also have unique risks and design requirements which were not considered for in WAC 173-303-630. Additionally, the sealed and compartmentalized CSS design makes demonstrating compliance with labeling requirements in WAC 173-303-630(3) difficult or impossible.

WAC 173-303-680 requires that miscellaneous units be located, designed, constructed, operated, maintained, and closed in a manner which protects human health and the environment. In addition to these general requirements, miscellaneous units must meet appropriate requirements for tanks, containers, or surface impoundments.

The cesium and strontium salt production and encapsulation procedures ensure the capsules do not contain free liquids, ignitable or reactive waste, or waste which is incompatible with other stored waste. The stainless steel and Hastelloy capsules are compatible with the stored waste, which will not be changed by additional layers of stainless steel and concrete in the CSS design. If the WESF were classified as a traditional container storage area, it would be exempt from the requirement for secondary containment under WAC 173-303-630(7)(c). However, as a miscellaneous unit, the design considers the unique characteristics of the stored waste to integrate safety features which protect human health and the environment as required in WAC 173-303-680(2).

Ecology has drafted unit-specific permit conditions that are applicable to General Waste Management, Waste Analysis Requirements, Reporting and Recordkeeping, Security, Preparedness and Prevention, Contingency Plan, Inspections, Training, Closure, and Miscellaneous Unit Management Standards.

Permit conditions focus on preventing exposure to the strontium and cesium salts through design features, administrative procedures, and maintenance if it becomes necessary. The permittees are required to address any discovered or suspected damage to capsules. One method of doing so would be to overpack the capsule to provide an additional layer of containment. Once Hot Cell G has been reconfigured for loading of CSSs it may no longer be possible to assemble the Type W overpacks. Instead, it is anticipated that a UCS would serve the same purpose.

Once assembled, the CSSs are robust passive structures with no moving parts or need for human intervention in normal operation. Current storage in the WESF pool cells is also stable. Even without active cooling, passive cooling from water evaporation could be used to protect the capsules indefinitely. However, entry into certain areas of the WESF must be restricted while capsules are out of the pool cells.

It is most protective of human health and the environment to minimize the periods where capsules are out of the pool cells. However, Ecology does not want loading operations to be rushed. The permittees are required to notify Ecology if operations stall for one week or more. This allows transfer operations to be conducted at a safe pace and ensures Ecology can determine if stoppage of work is justified.

3.0 Class 3 Permit Modification Process for the Waste Encapsulation and Storage Facility Operating Unit Group

The permittees submitted a Class 3 permit modification application for the WESF OUG on November 16, 2017. The 60-day public comment period, as required by WAC 173-303-830(4)(c), began on November 27, 2017, and ended on January 31, 2018. The permittees also held a public meeting on December 13, 2017, at the Richland Public Library. Ecology responded to 121 comments submitted during that comment period.

Ecology performed a completeness review and documented our findings in Letter 18-NWP-019 on February 5, 2018 for the Class 3 Permit Modification Request in accordance with WAC 173-303-830(4)(c)(vi) and WAC 173-303-840(1)(b). The permittees responded with Letters 18-AMRP-0088 on May 3, 2018 and 18-AMRP-0103 on May 24, 2018 to formally transmit the documentation necessary for Ecology to review and proceed with our final completeness determination and technical review. Ecology and the permittees resolved the technical deficiencies identified in 18-NWP-019 as well as additional items through a Response Comment Record and workshop procedure, which is documented in the administrative record for this permit modification. After Ecology worked with the permittees to resolve

the deficiencies, USDOE Richland Operations Office submitted a revised permit modification application that addressed the deficiencies on April 22, 2020.

Ecology has determined that this permit application is complete and has drafted the permit for public review and comment. The draft permit modification to Rev. 8C of the Hanford Site-wide Permit is 8C.2018.2D and is available for public review in locations listed in Section 5.0.

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>.

4.0 Proposed Modification to Part III of the Hanford Site-wide Permit

The proposed draft permit modification 8C.2018.2D would add Operating Unit Group 14, WESF, to Part III of the Hanford Site-wide Permit. The WESF modification also includes the facility changes necessary to transfer capsules from the WESF to CIS.

The draft permit modification consists of unit group-specific permit conditions, Part A, Waste Analysis Plan, Process Information, Security, Preparedness and Prevention, Training, Closure, Inspection and Contingency/Building Emergency Plan Addenda for the design and operation of the WESF Operating Unit Group.

5.0 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.

Parts I and II Conditions and the Attachment 9 Permit Applicability Matrix will be modified after the public comment period to incorporate elements of Operating Unit Group 14, 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 issued by Ecology will have at least a 45-day public comment period. The public comment period for this draft permit will be August 3 through September 18, 2020.

Comments must be post-marked, received by e-mail, or hand-delivered no later than close of business (5:00 p.m. PST) September 18, 2020.

Direct all comments to (electronic preferred):

Daina McFadden
Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354

eComments link: <http://wt.ecology.commentinput.com/?id=DJWB3>

Ecology will consider and respond to all written comments on this draft permit modification that are submitted by the September 18, 2020, deadline. At the completion of the 45-day public comment period Ecology will make a final permitting decision. If the final decision is to issue the permit, Ecology will issue a final permit for Part III, OUG 14, Waste Encapsulation and Storage Facility to the permittees, 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, Ecology will consider initiating a new public comment period.

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:

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

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

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.

At this time, Ecology's offices are currently not open for in-person permit document reviews. When in-person reviews become available again, Ecology will let you know. In the meantime, you can still view permit records on the Ecology website at <https://ecology.wa.gov/Waste-Toxics/Nuclear-waste/Public-comment-periods>. To view documents at the other Hanford Public Information Repositories, including the USDOE Administrative Record at 2440 Stevens Drive, please contact those facilities for access to public comment period documents.

If you have difficulty accessing documents on the Ecology website or at the other Public Information Repositories, we will work with you to arrange a way to provide records to you electronically or hard copy.

Members of the public can request a DVD or hard copy of the proposed permit modification or receive additional information by calling (509) 372-7950 or sending an e-mail to hanford@ecy.wa.gov.

This approach is consistent with Washington State Department of Ecology offices across the state.

Copies of the documents for Part III, Operating Unit Group 14, WESF, are available for review at the Hanford Public Information Repositories locations listed below:

- Unit Group Specific Conditions.
- Addendum A, Part A.
- Addendum B, Waste Analysis Plan.
- Addendum C, Process Information.
- Addendum F, Preparedness and Prevention.
- Addendum G, Personnel Training.
- Addendum H, Closure Plan.
- Addendum I, Inspections.
- Addendum J, Contingency Plan/Building Emergency Plan.
- And any associated supplemental information necessary to support review of the permit modification.

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

Spokane

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

Seattle

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

Information on 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 Ecology's Nuclear Waste Program at (509)372-7950.

6.0 State Environmental Policy Act

The permittees have developed the Final Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington (TC-WM EIS). TC-WM EIS addressed the potential transfer of cesium and strontium capsules from pool storage at the WESF to dry storage.

An amended Record of Decision (ROD) was published in the Federal Register on May 18, 2018, to address differences in the dry storage facility design. These differences in design are not related to operation or design of the WESF and, therefore, do not directly impact the applicability of SEPA to this permitting action. For more information, please see letter 18-NWP-014.