



DEPARTMENT OF
ECOLOGY
State of Washington

FACT SHEET

Proposed Permit Modification 8C.2022.2D 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, Operating Unit Group 11, Integrated Disposal Facility*

July 2022

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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, Operating Unit Group 11, Integrated Disposal Facility*

PERMITTEES

United States Department of Energy
Richland Operations Office
(Owner/Operator)
P.O. Box 550, MSIN H5-20
Richland, WA 99352

Central Plateau Cleanup Company
P.O. Box 1464
Richland, WA 99352

Note: This permit modification was initiated with United States Department of Energy (USDOE) and CH2M HILL Plateau Remediation Company (CHPRC) as the Permittees. On January 1, 2021, the Plateau Remediation Contract came to an end, and the Central Plateau Cleanup contract came into being. The Central Plateau Contract was awarded to Central Plateau Cleanup Company (CPCCo), which took over the day-to-day operations of the Integrated Disposal Facility (IDF), including permitting, at that time.

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 update the following to Operating Unit Group (OUG) 11, IDF, Part III of the Hanford Site-wide Permit: add Disposal Cell 2 to the permit, add storage and treatment unit information, and expand on disposal operations information. It would also allow acceptance of a variety of mixed low-level wastes from Hanford Site operations in addition to immobilized low-activity waste (ILAW) glass from the Waste Treatment Plant.

This Fact Sheet is divided into six sections:

- 1.0 Hanford Site-wide Permit Background.
- 2.0 IDF Dangerous Waste Management Unit Description.
- 3.0 Class 3 Permit Modification Process for the IDF Operating Unit Group 11.
- 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 Revised Code of Washington (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 IDF OUG 11, within the Hanford Site-wide permit will be updated accordingly.

2.0 INTEGRATED DISPOSAL FACILITY DANGEROUS WASTE MANAGEMENT UNIT DESCRIPTION

The IDF plays a vital role in supporting Hanford's Direct-Feed Low-Activity Waste program (DFLAW), which is an important part of the Hanford cleanup mission. The proposed permit modifications will allow the Permittees to operate the IDF landfill and accept ILAW and other waste streams for disposal in support of tank waste treatment and the DFLAW mission.

To date, IDF has not received any dangerous waste. The facility is in a "pre-active life" status. WAC 173-303-040 defines the "active life" of a facility as "the period from the initial receipt of dangerous waste at the facility until the department receives certification of final closure." The IDF has not yet begun its official "active life."

Ecology has defined the "pre-active life" period as the time between the end of construction and the initial receipt of waste. When the IDF is ready to receive and dispose of permitted waste, IDF will begin its "active life." When the Permittees are ready to begin the facility's active life and receive waste, they must submit a permit modification to Ecology.

The purpose of the IDF is to provide a disposal facility for the permanent, environmentally safe disposition of vitrified ILAW packages and other operational waste streams that meets Resource Conservation and Recovery Act (RCRA) requirements for land disposal. Prior to disposal, all waste must meet Land Disposal Restrictions (LDR) requirements listed in the RCW 70.105.050(2); WAC 173-303-140; and 40 Code of Federal Regulations (CFR) 268 (incorporated by reference in WAC 173-303-140).

The IDF Unit Group currently consists of one DWMU (landfill disposal cell). This permit modification will bring the number of DWMUs up to four, including two landfill disposal cells, a storage pad, and a treatment pad. The IDF is located on 82 hectares (202 acres) of land within the south-central portion of the 200 East Area of the Hanford Site. The IDF is approximately 223 meters wide by 233 long by 14 meters deep. Its disposal capacity is 82,000 cubic meters of waste.

The IDF is divided lengthwise into two individual cells; these landfill cells will allow for the disposal of low-level waste (LLW) and LDR-compliant mixed low level waste (MLLW). The IDF disposal cells are constructed with dual geomembrane liners, as well as leachate collection and removal systems. The facility will provide disposal for 19,000 metric tons of dangerous radioactive and chemical waste annually. The landfill is designed to hold four layers of waste containers separated vertically by 0.9 meters of soil.

Additionally, IDF has a secondary leak detection system (SLDS). The SLDS provides access to the area just below the Leak Detection System (LDS) sump area. The SLDS collects liquids from construction water and possibly other sources. The SLDS liners convey the liquids to the SLDS piping for monitoring and removal.

Type and Quantity of Waste

Mixed waste forms approved for disposal at the IDF landfill cells include ILAW in glass form from the Waste Treatment Plant (WTP) Low Activity Waste (LAW) Vitrification facility and other waste streams as specified below.

- Used WTP LAW melter systems.
- Secondary solid waste (SSW) from WTP.
- Solidified SSW from the Effluent Treatment Facility.
- Fast Flux Test Facility non-liquid waste and demolition waste resulting from decommissioning.
- Secondary waste (SW) (LLW and MLLW) from operations at the Tank Farms and Solid Waste Operations Complex.
- *Non-Comprehensive Environmental Response, Compensation, and Liability Act of 1980*, non-tank LLW and MLLW from various on-site generators.
- Mixed waste generated by IDF operations.

The type and quantity of waste managed and disposed at the IDF is provided in the Part A of the IDF Permit. More detail on individual waste streams is located in Appendix BB, “Waste Stream Descriptions.”

Basis for Permit Conditions

Ecology worked with the Permittees to develop permit conditions that apply to the operation and maintenance of the DWMUs and associated ancillary equipment. As a result, Ecology has written conditions that require compliance with the regulations in WAC 173-303. The draft permit conditions are focused on the design and operation requirements found in WAC 173-303-630, *Use and management of containers* and WAC 173-303-665, *Landfills*.

Ecology has drafted unit-specific permit conditions that are applicable to waste stream acceptance, general waste management, groundwater monitoring, security, preparedness and prevention, personnel training, closure, inspections, contingency plan, post-closure, and reporting and recordkeeping.

The intent of this draft permit and associated permit conditions is to protect human health and the environment while ensuring proper disposal of mixed waste at the IDF.

3.0 CLASS 3 PERMIT MODIFICATION PROCESS FOR THE INTEGRATED DISPOSAL FACILITY OPERATING UNIT GROUP 11

The USDOE and its contractor, CHPRC (the predecessor of CPCCo), (the Permittees) requested a Class 3 modification to the IDF chapter of the Hanford Site-wide Permit in accordance with WAC 173-303-830(4)(c). The Permittees initiated a public comment period for this Class 3 permit modification on December 16, 2019, to run through February 14, 2020, for the review of the IDF Permit.

Ecology responded on March 6, 2020, that the permit modification was incomplete. The Permittees provided information to Ecology on June 24, 2020, to make the Class 3 permit modification complete. On November 16, 2020, Ecology completed the technical review and detailed the deficiencies in a formal letter to the Permittees. Ecology worked with the Permittees to resolve these deficiencies, and the Permittees provided the updated documents and information to Ecology to support the development of the draft permit for the second portion of the permit modification on June 22, 2021.

Ecology determined that this permit application was complete and drafted the permit for public comment. The draft permit modification to Rev. 8C of the Hanford Site-Wide Permit, 8C.2020.1D, was available for a 45-day public review period from September 13 through October 28, 2021, at locations listed in Section 5.0.

Ecology addressed public comments received during the permittees' public comment period in a response to comment document. This response to comment document accompanies the draft permit modification, and is available online at [Ecology.wa.gov/Waste-Toxics/Nuclear-waste/Public-comment-periods](https://ecology.wa.gov/Waste-Toxics/Nuclear-waste/Public-comment-periods).

During the 45-day public comment period (September 13 through October 28, 2021), Ecology received public comments that required Ecology to re-open the IDF OUG 11 draft permit for another 45-day public comment period with all of the required documentation, as detailed in WAC 173-303-840(7).

On April 6, 2022, Ecology received a Temporary Authorization (TA) request from the Permittees (via email) detailing a limited scope of construction activity to begin for the IDF Storage Pad. On April 27, 2022, Ecology responded to the TA request and approved the work requested by the Permittees (22-NWP-068).

4.0 PROPOSED MODIFICATION TO PART III OF THE HANFORD SITE-WIDE PERMIT

This proposed permit modification will add a description of operations to the Dangerous Waste Permit for the IDF, and adds details to ensure the operating permit is compliant with all dangerous waste regulations. This proposed permit modification also moves IDF into the Active Life phase of the facility as described in Section 2.0. The modification proposes changes to the following:

- Unit-Specific Permit Conditions.
- Addendum A, "Part A Form."
- Addendum B, "Waste Analysis Plan."
 - Appendix BA, "Quality Assurance Project Plan for IDF Waste Analysis." (new)
 - Appendix BB, "Waste Stream Descriptions." (new)
- Addendum C, "Process Information."
 - Appendix C1, "Phase I Critical Systems Design Report."
 - Appendix C2, "Critical Systems Table."
 - Appendix C3, "Design Drawings."
 - Appendix C4, "Construction Quality Assurance Plans."
 - Appendix C5, "Facility Response Action Plan."
 - Appendix C6, "Construction Specifications."
- Addendum D, "Groundwater Monitoring Plan."
 - Appendix DA, "Quality Assurance Project Plan." (new)
 - Appendix DB, "Sampling Protocol." (new)
 - Appendix DC, "Well Construction." (new)
- Addendum E, "Security." (new)

- Addendum F, “Preparedness and Prevention.” (new)
- Addendum G, “Personnel Training.”
- Addendum H, “Closure Plan.”
 - Appendix HA, “Sampling and Analysis Plan.” (new)
 - Attachment HA.a, “Visual Sample Plan Report Documentation.” (new)
- Addendum I, “Inspection Plan.” (new)
- Addendum J, “Contingency Plan.” (new)
- Addendum K, “Post-Closure.” (new)

Chapter 2, “Topographic Map Description” – This chapter is proposed to be removed from the IDF Permit.

Chapter 6, “Procedures to Prevent Hazards” – This chapter is proposed to be removed from the Dangerous Waste Permit and replaced with three new Addenda; Security, Preparedness and Prevention, and Inspection Plan.

Chapter 13, “Other Federal and State Laws” – This chapter is proposed to be removed from the Dangerous Waste Permit, and the information will be incorporated into the new addenda throughout the IDF Permit.

Addendum J.1, “Pre-Active Life Contingency Plan” and Addendum J.2, “Active Life Contingency Plan” – These two Addenda are proposed to be removed from the Dangerous Waste Permit and replaced with Addendum J, “Contingency Plan.”

Each of these permit documents was updated with details to support operations for the IDF, specifically acceptance, storage, treatment, and disposal of LLW and MLLW. Permit requirements for the construction of the storage pad and treatment pad have been included in this modification.

Draft changes are represented in the following manner:

- Existing permit documents appear in red-line strike out in the draft permit, and new text (red-line) is open for public comment during this comment period.
- Existing permit document text that has not changed but moved to a new location is represented in green text with a double underline. This existing permit text is not open for public comment.
- The (new) permit documents identified above are not shown in red-line strike out except for the files that Ecology made additional changes since the previous 45-day public comment period (September 13 through October 28, 2021) as described in Section 5.0, however each new permit document is open for public comment.

Draft Permit Conditions

Ecology collaborated with the Permittees to develop permit conditions which support the operation of the IDF. The result is proposed permit conditions that detail the operation of the container storage pad, the storage and treatment pad, and the landfill disposal cells of the IDF. Existing permit conditions that were not changed but moved to a new location are represented in green text with a double underline. These existing permit conditions are not open for public comment.

The scope of the unit-specific conditions includes general waste management (including container management); treatment; and landfill operation and maintenance (including the liner management, the leachate collection component management, the leachate collection and removal system, the leachate detection system, and the secondary leachate detection system) as necessary to dispose ILAW from the WTP and additional operational waste streams as identified and listed in this document in Section 3.0, under subheading “Type and Quantity of Waste.”

Permit conditions to support future construction of additional landfill cells and waste stream acceptance requirements have been retained from the existing approved IDF Permit.

As detailed in Section 6.0, Ecology is adopting Tank Closure and Waste Management Environmental Impact Statement (TC&WM EIS). TC&WM EIS indicated that the SSW (SW from WTP) must be immobilized carefully or impacts could occur from the SW above acceptable standards making it not disposable at the IDF. As a mitigation to protect vadose zone and groundwater, Ecology developed new permit conditions to address the impact from SSW. These SSW proposed permit conditions address issues like: addition of a Secondary Waste Technical Requirements Document, inclusion of SW in the Risk Budget Tool, waste performance modeling, waste form performance criteria, and protection of groundwater. Proposed permit conditions also address a certification from USDOE that the SSW is not High Level Waste. These permit conditions reflect Ecology's expectation that the SSW stream, to be disposed at the IDF, will be evaluated using the similar requirements that are used for the evaluation of the ILAW glass.

The permit conditions for the modeling risk-budget tool were also updated to indicate that the Permittees have developed this tool and will now maintain the information, incorporate Ecology comments, and run modeling at the request of Ecology while the IDF is in its Active Life.

Upon approval and issuance of this permit modification, the IDF will be authorized to begin treatment, storage, and disposal of dangerous and mixed waste.

Engineering Drawings and Reports

Engineering documents and reports that were added to support this draft permit modification are included in the Addenda and Appendices listed above.

Supporting Information

The following documents will be hosted with the draft permit to support public review and comment:

- *Waste Acceptance Criteria for the Integrated Disposal Facility*, IDF-00002, Rev. 0.
- RPP-RPT-27414, *Independent Qualified Registered Professional Engineer Design Assessment Report For The Integrated Disposal Facility (IDF) Leachate Tank System (Cell 2)*.
- RPP-RPT-29276, *Integrated Disposal Facility (IDF), CQA Final Certification Report for IDF Cell Nos. 1 and 2*.

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.

Ecology received comments during a public comment period held December 16, 2019, through February 14, 2020. In addition to this public comment period, Ecology received comments specific to IDF during a comment period held on the renewal of the draft Rev. 9 Hanford Site-wide Permit, from May 1 through October 22, 2012. Ecology addresses these comments in a response to comments document. This response to comments document accompanies the draft permit modification, and is available online at <https://ecology.wa.gov/Waste-Toxics/Nuclear-waste/Public-comment-periods>.

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 was held from September 13 through October 28, 2021. Ecology will consider and respond to all written comments on this draft permit modification that were submitted by the October 28, 2021, deadline.

During the 45-day public comment period (September 13 through October 28, 2021), Ecology received public comments that required Ecology to update several draft permit files necessary to support this draft permit. Based on the public comments received, Ecology is re-opening the IDF OUG 11 draft permit for another 45-day public comment period with all of the necessary associated documentation, as detailed in WAC 173-303-840(7). This re-opened public comment period for the IDF OUG 11, will include Appendix C6, "Construction Specifications," which was not included in the previous 45-day public comment period. Additionally, Ecology made updates to incorporate the changes approved through a Class ¹ permit modification (PCN-IDF-2021-01). Ecology re-incorporated language that was previously deleted in error and a figure that was previously not available for public review due to a technical issue. Ecology made additional changes in the following draft permit files:

- Unit-Specific Permit Conditions.
- Addendum C, "Process Information."
- Appendix C1, "Phase I Critical Systems Design Report."
- Appendix C3, "Design Drawings."
- Addendum D, "Groundwater Monitoring Plan."
- Appendix DA, "Quality Assurance Project Plan."
- Appendix DB, "Sampling Protocol."
- Appendix DC, "Well Construction" (previously called "Well As-Built Diagrams and Proposed Well Locations").
- Addendum E, "Security."
- Addendum G, "Personnel Training."
- Appendix HA, "Sampling and Analysis Plan."
- Addendum I, "Inspection Plan."

The re-opened public comment period will run from July 25 through September 9, 2022.

As detailed in WAC 173-303-840(7), comments filed during the re-opened comment period will be limited to the substantial new questions that caused its reopening. Any public comment received between July 25 and September 9, 2022, should remain focused on either newly added draft permit file (i.e., Appendix C6) or updated draft permit files as listed above.

Comments must be post-marked, received by e-mail, or hand-delivered no later than close of business September 9, 2022 (5:00 p.m. PST).

Direct all comments to (electronic preferred):

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

eComments link: <https://nw.ecology.commentinput.com/?id=fKKhkj>

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 of the Hanford Site-wide Permit, OUG 11, IDF, 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

Ecology will also issue a Response to Comments document to the Permittees and the public upon issuance of the final permit. The final permit modification may be appealed within 30 days after issuance. If there is no appeal, the permit will be effective 30 days following issuance.

Copies of the following documents for Part III, OUG 11, IDF are available for review at the Hanford Public Information Repositories locations listed below.

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

Hanford Public Information Repositories and Administrative Records

Richland, Washington

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

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

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

Other Locations:

Portland

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

Spokane

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

Seattle

University of Washington Suzzallo Library
P.O. Box 352900
4000 15th Avenue Northeast
Seattle, WA 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

Ecology is adopting Tank Closure and Waste Management Environmental Impact Statement (TC&WM EIS) Alternative 2 for tank waste treatment, *Implement the Tank Waste Remediation System EIS Record of Decision with Modifications*. Ecology is also adopting TC&WM EIS *Waste Management Alternative 2: Disposal in IDF, 200-East Area Only*. Title of Document Being Adopted: *Final Tank*

Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, WA,
USDOE/EIS-0391, prepared December 5, 2012. This is available at:
<http://www.hanford.gov/page.cfm/FinalTCWMEIS>.

Ecology made a SEPA determination # 202004362 for the IDF on August 24, 2020. Additional SEPA review is not required for the current permit modification to support the operations of the IDF.

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