

Ecology Proposes Changes to Waste Treatment Plant Design

The [Washington State Department of Ecology](http://www.ecy.wa.gov) (Ecology) is proposing a modification 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 change is located in Part III, Operating Unit Group 10.

The permittees are:

U.S. Department of Energy Office of River Protection
P.O. Box 450
Richland, Washington 99352

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

This class 3 permit modification provides the technical information and engineering drawings to support the design and construction of the secondary containment for the Effluent Management Facility (EMF) within the WTP. The modification includes information for the following buildings at EMF: Process (Building 25), Low Point Drain (Building 25A) and Utility (Building 26).

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 the WTP. All modifications to the WTP Permit are classified by Ecology under Washington Administrative Code 173-303-830.

Direct Feed LAW Configuration Overview

In order to initiate tank waste treatment by 2023, ORP developed a plan to begin feeding pre-treated low-activity tank waste directly to the WTP Low-Activity Waste (LAW) Vitrification Facility. This plan is called the Direct Feed Low-Activity Waste (DFLAW) configuration.

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

May 22, 2017 -
July 7, 2017

To Submit Comments

New! Please submit comments electronically (preferred) via: <http://wt.ecology.commentinput.com/?id=56Thj>, send by U.S. mail, or hand-deliver to:

Mandy Jones
3100 Port of Benton Blvd.
Richland, WA 99354

Public Meeting

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

Joanna Morse
509-372-7950
Hanford@ecy.wa.gov

Special Accommodations

To request ADA accommodation, including materials in a format for the visually impaired, call the Nuclear Waste Program at 509-372-7950.

Persons with impaired hearing may call Washington Relay Service at 711.

Persons with speech disability may call TTY at 877-833-6341.

The DFLAW configuration supports treatment by allowing the LAW Vitrification Facility and the Analytical Laboratory (Lab) to begin treating waste prior to the startup of the Pretreatment (PT) Facility and High-Level Waste (HLW) Vitrification Facility. Although most of the WTP facilities required for the DFLAW configuration are complete or near completion, the plan does require construction of two new facilities:

1. Effluent Management Facility (EMF).
2. LAW Pretreatment System (LAWPS) Facility (not within the scope of this modification).



The Waste Treatment Plant, commonly called the vit plant, in 2016 (photo courtesy of Bechtel).

Design Package for Effluent Management Facility Secondary Containment

The Effluent Management Facility (EMF) permit modification package 24590-BOF-PCN-EVN-15-002 addresses the design and construction of the secondary containment for the Process (Bldg. 25), Low Point Drain (Bldg. 25A) and Utility (Bldg. 26) buildings.

The DFLAW configuration is intended to be in operation for ten years. This allows time to resolve issues with the HLW and PT processes and finish the construction of those facilities. Once the HLW and PT facilities are completed, the WTP operations will shift to the original WTP baseline configuration and continue treatment of the tank waste. Once WTP is operating in the baseline configuration, EMF will discontinue operations. However, EMF will remain in cold stand-by until the treatment of tank waste has been completed.

The Direct Feed LAW Effluent Management Process (DEP) system within the EMF is in place to replicate some functions the Pretreatment Facility performed during baseline operations. Those functions will include management and treatment of the liquid effluent from the LAW and LAB Radioactive Liquid Waste Disposal systems. The major components of the DEP system include an evaporator, reboiler, three condensers, and nine regulated vessels, listed below:

- Evaporator (DEP-EVAP-00001)
- Reboiler (DEP-RBLR-00001)
- Condensers (DEP-COND-00001A/B/C)
- Low Point Drain Vessel (DEP-VSL-00001)
- Evaporator Feed Vessel (DEP-VSL-00002)
- Evaporator Concentrate Vessels (DEP-VSL-00003A/B/C)
- Overhead Sampling Vessels (DEP-VSL-00004A/B)
- Lag Storage Vessels (DEP-VSL-00005A/B)

Once effluents are treated at the EMF they may be transferred to one of three other facilities for further processing or storage. Those facilities are: the Tank Farms, the Liquid Effluent Retention Facility/Effluent Treatment Facility (LERF/ETF), or the LAW Vitrification Facility.

Future permit modifications to incorporate the major components of the DEP system into the WTP Permit will be documented in the draft Interim Compliance Schedule that is supplied with this draft permit modification for public review and comment. The permitting of these major components will be processed as Agency Initiated Modifications, to support the continued design and construction of the EMF.

Reviewing the Proposed Changes

Ecology invites you to review and comment on this proposed WTP Permit modification. The comment period runs from May 22, 2017, through July 7, 2017. See the box on the right side of page 1 for information on how to submit comments.

During the public comment period, documents will be available for review beginning May 22, 2017, on Ecology's website and at the locations listed on page 4.

Hanford's Information Repositories and Document Review Locations

Richland

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

Department 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

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

Seattle

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

Spokane

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

Terms To Know

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 radioactive hazardous and other solid waste and waste in underground tanks.

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

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 1,000,000 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.

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.

Direct Feed Low-Activity Waste (DFLAW): Facility configuration in which low-activity waste is sent from the Hanford Tank Farms through the Low-Activity Waste Pretreatment Facility directly to Low-Activity Waste Vitrification Facility for treatment.



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Richland, WA 99354

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Permit Modification

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