

2,000-Gallon Test Bed Initiative Demonstration

Draft Research, Development, and Demonstration Permit



Figure 1. Columbia River looking at the Hanford Site

- Public comment period March 11 – April 25, 2024
- Hybrid public meeting 5:30 p.m. March 20, at the Richland Public Library
- This is a Research, Development and Demonstration (RD&D) Permit

Public comment invited

The Washington State Department of Ecology (Ecology) is proposing a draft RD&D permit for the 2,000-gallon Test Bed Initiative (TBI) Demonstration located in the 200 West Area of the Hanford Site.

The permittees are:

United States Department of Energy
P.O. Box 550, MSIN H5-30
Richland, WA 99352

Washington River Protection Solutions, LLC
P.O. Box 850, MSIN: H3-21
Richland, WA 99352

Public meeting

We are holding an informational meeting for this public comment period 5:30 p.m. on March 20, 2024. We will have presentations from Ecology and Energy, followed by a question-and-answer session. The meeting will be held at the Richland

Public Library, 955 Northgate Drive, Richland Washington.

To attend online or listen via phone:

- <http://tinyurl.com/TBI-Public-Meeting>
- Audio only: 1-253-205-0468

Meeting ID: 838 5404 8034

Passcode: 105942

Background

The Hanford Site occupies 580 square miles in southeastern Washington State. The site produced plutonium for the nation's defense program from 1943 to the late 1980s.

Today, waste management and environmental cleanup are the primary missions at Hanford.

Overview

This draft RD&D permit would authorize the proposed 2,000-gallon TBI Demonstration in order to test the feasibility and efficacy of deploying an in-tank pretreatment system (ITPS) to separate and pre-treat about 2,000 gallons of low-activity tank waste. The pretreated waste would then be shipped offsite for grouting and disposal at Resource Conservation and Recovery Act (RCRA)

permitted facilities outside the state of Washington.

The ITPS that will be tested during the proposed 2,000-gallon TBI Demonstration will filter and remove radionuclides from 2,000 gallons of supernatant tank waste. This waste will be removed from Tank SY-101, a double-shell tank in the SY Tank Farm located in the 200 West Area of the Hanford Site. Supernatant is the liquid portion of the tank waste. Once the supernatant is separated and pre-treated through ITPS, it will be stored in six U.S. Department of Transportation compliant shipping containers (process totes). Sampling will be conducted to confirm compliance with applicable shipping requirements prior to being shipped offsite for grouting and disposal.

An initial 3-gallon TBI Demonstration was performed in 2017 as a proof-of-concept demonstration with a small quantity of Hanford tank waste under a RCRA Treatability Study. This initial demonstration included:

- Pretreatment of 3 gallons of supernatant at the 222-S Laboratory and certification that the pretreated waste could be shipped offsite.
- Treatment (immobilization: stabilization/solidification) of the pretreated waste using a grouting process at an offsite RCRA-permitted facility in Richland, Washington.
- Transport and permanent disposal of the immobilized waste at an offsite RCRA-permitted disposal site in Andrews, Texas.

Under this draft RD&D permit, the permittees will demonstrate the feasibility and efficacy of using an alternative pre-treatment process that uses an ITPS to filter and remove radionuclides from the supernatant. This approach uses advances in waste treatment technology (such as improved ion exchange media), and leverages experience gained during other mixed waste management operations. The 2,000-gallon TBI Demonstration will also provide information and data to inform future projects.

Successful deployment of such an approach for onsite pre-treatment and offsite disposition of low-activity waste from tanks located in the 200 West Area of the Hanford Site could support critical needs for the tank waste mission. These needs include mitigation of DST space limitations in the SY Tank Farm and accelerated timelines for retrieval of waste from tanks in the 200 West Area.

This draft RD&D permit is anticipated to be effective for one year and limits the overall amount of Tank SY-101 supernatant to be pretreated during the demonstration to up to 2,000 gallons.

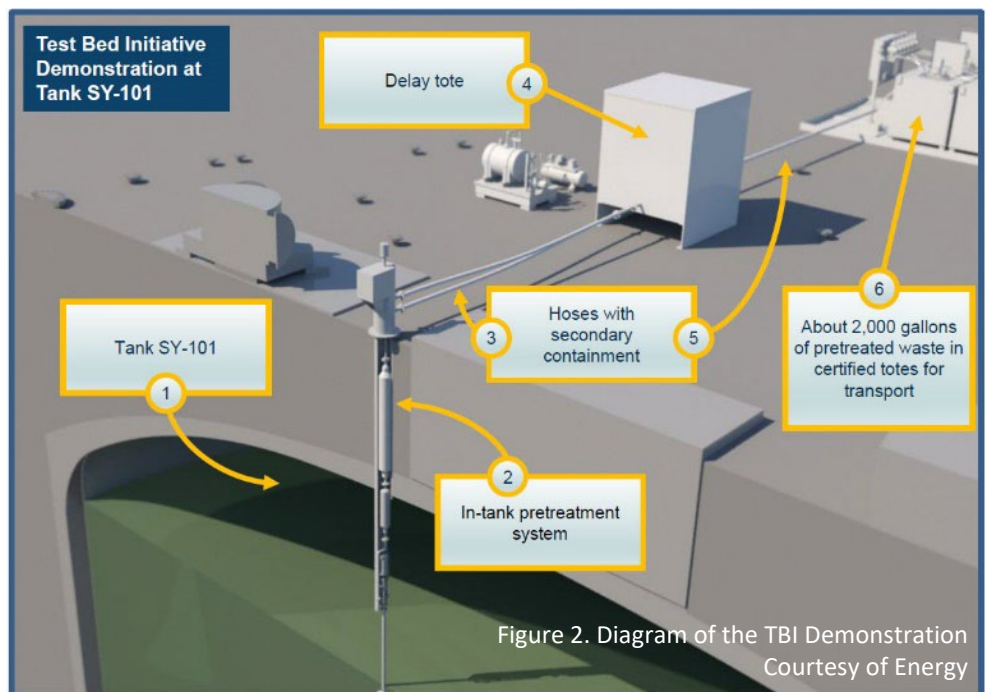


Figure 2. Diagram of the TBI Demonstration
Courtesy of Energy

Reviewing the proposed permit

Ecology invites you to review and comment on this draft RD&D permit. See the last page for comment period dates and information on how to submit comments.

Copies of the draft permit, fact sheet, and supporting documentation will be available during the public comment period online at Ecology’s website¹. The documents will also be available electronically at the Hanford Public Information Repositories listed on the next page.

Ecology will consider and respond to all significant comments received during the public comment period. We will document our responses and issue a response to comments document when we make our final permitting decision.

Hanford’s Information Repositories

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

University of Washington
Suzzallo Library
Box 352900
Seattle, WA 98195
206-543-5597

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

Portland State University
Millar Library
1875 SW Park Avenue
Portland, OR 97207
503-725-4542

For information on other comment periods or ways to get involved, go to ecology.wa.gov/Hanford and click “Public comment periods” on the left bar or visit [Hanford.gov](https://hanford.gov) “public involvement opportunities”.

You can also follow us on social media.



@EcologyWAHanford



@ecyHanford

¹ [Ecology.wa.gov/Waste-Toxics/Nuclear-waste/Public-comment-periods](https://ecology.wa.gov/Waste-Toxics/Nuclear-waste/Public-comment-periods)



Nuclear Waste Program
 3100 Port of Benton Blvd
 Richland WA 99354

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March 11 – April 25, 2024



Electronic submission (preferred):

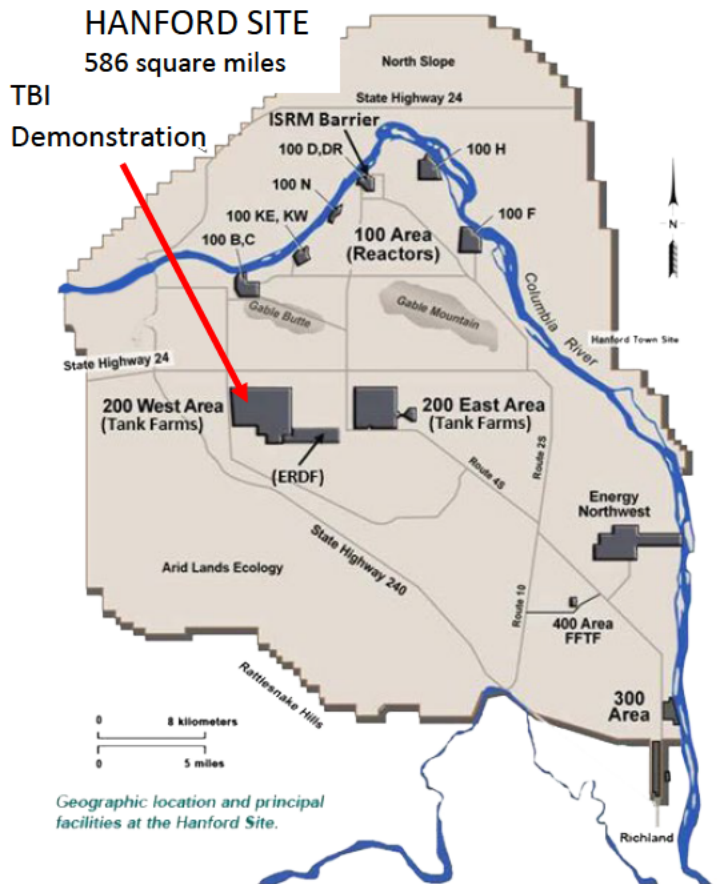
<https://nw.ecology.commentinput.com/?id=tNePGUIA5>

An informational hybrid public meeting is scheduled at the Richland Public Library 5:30 p.m. March 20.

A public hearing is not scheduled, but if there is enough interest, we will consider holding one.

To request a hearing, mail or hand-deliver comments, or for more information, contact:

Daina McFadden
 509-372-7950
 3100 Port of Benton Blvd
 Richland, WA 99354
Hanford@ecy.wa.gov



To request an ADA accommodation, contact Ecology by phone at 509-372-7950 or email at Daina.McFadden@ecy.wa.gov, or visit ecology.wa.gov/Accessibility. For Relay Service or TTY call 711 or 877-833-6341.