

Ecology's views on the Tank Closure and Waste Management Environmental Impact Statement

The U.S. Department of Energy (USDOE) has recently prepared the draft Tank Closure and Waste Management (TC&WM) Environmental Impact Statement (EIS). The draft EIS presents many important issues for discussion.

Ecology's role as Cooperating Agency

Washington's Department of Ecology is a cooperating agency with USDOE for this draft EIS. A state agency may be a cooperating agency on a federal EIS when the agency has jurisdiction by law over, or specialized expertise for, a major federal action under evaluation in the EIS.

As a cooperating agency, Ecology does not co-author or direct the production of the EIS. We have access to certain data and information USDOE and its contractors used to prepare the study.

State law (the [State Environmental Policy Act](#) or SEPA) requires us to review potential environmental impacts before making permitting decisions. SEPA allows us to adopt a federal study if its quality and content meet SEPA's requirements. We have worked with USDOE on the draft EIS in the hope of ensuring the study's quality and content is good enough for us to adopt, at least in part.

Alternatives considered

The draft EIS considers 17 separate alternatives. The alternatives include these key decision areas:

- Retrieving waste from single-shell tanks and closing single-shell tanks.
- Choosing supplemental treatment methods for tank wastes.
- Managing waste on the Central Plateau (including disposal of offsite defense wastes).

WHY IT MATTERS

The Tank Closure & Waste Management Environmental Impact Statement will support decisions for the final cleanup of much of the waste at Hanford – the tank farms, the rest of the waste in the tanks, and the Fast Flux Test Facility.

It also analyzes impacts to groundwater from waste disposal activities to determine whether it is safe for Hanford to dispose of more wastes.

Get more information

Visit Ecology's Web site at

www.ecy.wa.gov/programs/nwp/index.html

Join the Hanford Cleanup email list at www.ecy.wa.gov/maillist.html

Call the Hanford Cleanup Information line - 800-321-2008

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Special accommodations

If you need this publication in an alternate format, call the Nuclear Waste Program at 509-372-7950. Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.

- Managing and disposing of waste analyzed in the Hanford Solid Waste EIS.
- Evaluating alternatives for the final disposition of the Fast Flux Test Facility.

Improvements

We believe USDOE made positive changes to address data quality shortcomings in the Hanford Solid Waste EIS. The improvements specifically relate to:

- The data used in analyzing impacts on groundwater.
- The integration of analyses of all waste types that USDOE may dispose of at Hanford.
- The adequacy of the cumulative impact analysis.

Key issues

We believe this document benefited from quality reviews and quality assurance procedures. We still have some concerns about the alternatives in the draft EIS. They are:

Single-Shell Tank Retrieval Options: USDOE presents a range of alternatives. However, the state only supports alternatives that retrieve at least 99 percent of the waste, and leave no more than an average of one inch of waste in the bottom of each tank.

Pretreatment of Tank Waste: One alternative in the draft EIS provides for no pretreatment for some of the waste in the 200 West Area. We oppose alternatives that do not pretreat tank waste because they do not meet the intent of the Nuclear Waste Policy Act.

Transuranic Tank Wastes: USDOE is considering treating and sending waste from some tanks to the Waste Isolation Pilot Project, in New Mexico, as mixed (radioactive and hazardous) transuranic waste. We have legal and technical concerns with this approach. USDOE must provide a strong justification for designating any tank waste as mixed transuranic waste. USDOE also must assure Ecology that there is a viable disposal

TERMS TO KNOW

Draft EIS - Tank Closure & Waste Management Environmental Impact Statement.

LAW – Low-activity waste is the part of high-level waste that is not as highly radioactive, which remains after pretreatment to remove transuranic waste and cesium-137.

Transuranic waste – waste with radionuclides with an atomic number greater than that of uranium, with a half-life of more than 30 years, and in concentrations greater than 100 nanocuries per gram of waste. In lay terms, TRU wastes are usually contain plutonium.

Secondary waste – waste resulting from the process of pretreating and turning tank waste to glass.

Vadose zone – the area between the ground's surface and the water table.

Tank Closure EIS – A study USDOE started for decisions on closing Hanford's single-shell tank farms.

Hanford Solid Waste EIS – An EIS USDOE prepared to evaluate impacts from treatment, storage, and disposal of solid (radioactive and hazardous) waste, proposed and ongoing, at Hanford,

Vitrification – the process of making glass.

Grout – a form of cement.

Melters – the equipment in the WTP that heats up the glass formers and wastes so they form glass when they cool.

pathway before we will modify Hanford's dangerous waste permit to allow tank waste to be designated as mixed transuranic waste.

Supplemental Treatment: In the draft EIS, USDOE considers technologies to supplement the WTP's capacity to treat low-activity waste. Ecology agrees with the need for supplemental low-activity waste treatment, since the WTP is not designed to immobilize all of the low-activity waste in a reasonable time. We fully support the alternative that includes a second LAW vitrification facility.

Secondary Wastes from Tank Waste Treatment: The draft EIS evaluates the impacts of disposing of secondary waste that result from tank waste treatment. Ecology agrees with USDOE that secondary waste from the WTP and supplemental treatment operations will need additional mitigation before disposal.

Tank Waste Treatment Flow Sheet: We disagree with USDOE's representation that bulk vitrification would capture iodine-129 as effectively as a LAW facility would. Iodine-129 is a significant risk driver because it is mobile in the environment and has a long half-life.

The draft EIS assumes that for any treatment method, 20 percent of the iodine-129 from the tank waste will end up in vitrified glass and 80 percent of the iodine-129 will end up in the grouted secondary waste.

However, at our request, USDOE agreed to run a sensitivity analysis based on the current design of the WTP's LAW Facility, which is designed to capture much of the iodine-129 and recycle it back to the Pretreatment Facility. The overall effect is that 70 percent of the iodine-129 would end up in LAW glass, and only 30 percent would go to the grouted secondary waste.

This difference in capture reinforces Ecology's opinion that choosing draft EIS alternative 2B, which uses WTP and a second LAW facility, is most protective.



What is the impact to the groundwater from wastes already disposed at Hanford?

High-Level Waste Melter Disposal: Failed high-level waste melter may be too radioactive for onsite disposal. The draft EIS suggests that options for disposal of failed high-level waste melter can be explored later. Ecology believes USDOE and Ecology must work towards early agreement on the disposal pathway for failed melter.

Storage for Vitrified High-Level Waste Canisters: Since the repository program at Yucca Mountain is in question, USDOE should build and operate interim storage for canisters containing vitrified high-level waste. Lack of storage space must not slow down tank waste treatment.

Waste Release: The draft EIS models waste releases from several types of final waste forms, including:

- LAW glass in canisters
- Failed and used LAW melters
- Waste in bulk vitrification boxes
- Steam-reformed waste
- Grouted LAW from tank waste
- Grouted secondary waste
- Waste left in waste sites
- Grouted waste in the bottom of the tanks
- Direct buried waste in landfills
- Macroencapsulated waste

Ecology understands the methods and formulas for the waste form release calculations. However, we need to see the modeling results to complete our review before we can validate this portion of the draft EIS.

Off-Site Waste: Based on the current state of Hanford's cleanup and the analysis in the draft EIS, the state of Washington opposes the disposal of waste generated offsite at Hanford.

The draft EIS shows that proposed disposal of off-site waste would significantly increase groundwater impacts beyond acceptable levels. We are pleased USDOE has proposed continuing the existing offsite waste moratorium until at least the WTP is operational. The state of Washington requests that USDOE choose "no off-site waste disposal" as its preferred alternative in the final EIS, to be adopted as a Record of Decision.

Waste Disposal Location Alternatives: Ecology agrees with USDOE that the Integrated Disposal Facility in the 200 East Area is the preferred alternative for waste disposal.

Black Rock Reservoir: The draft EIS considers the impact to groundwater from locating Black Rock Reservoir upgradient of Hanford. We are concerned USDOE's modeling shows that leakage from the reservoir could threaten human health and the environment because of its potential to move contaminated groundwater under Hanford.

Cumulative Impacts and Risk Evaluation: The draft EIS evaluated cumulative impacts and risks. The risk evaluation modeling presented in the draft EIS should not be:

- Interpreted as a Hanford-wide comprehensive human health and ecological risk assessment.
- Applied to the river corridor.
- Used for other specific Hanford area.

Focus on the TC&WM EIS

Nuclear Waste Program

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Specific Hanford areas will require unique site parameters that are applicable to that area's specific use.

Vadose Zone Modeling: Subsurface transport over multiple phases (STOMP) computer modeling for the Hanford vadose zone was used in the draft EIS. Ecology believes that the Hanford site parameters used with this model are adequate for the purposes of this draft EIS. Use of STOMP in other assessments requires careful technical review and consideration of site-specific parameters. Further revisions of these STOMP parameters may be necessary.

Background on Ecology's role with the EIS

Ecology's involvement as a cooperating agency – and the current scope of the draft EIS – is grounded in a series of events:

| Date | Event |
|----------------|--|
| February 2002 | USDOE initiated the Tank Closure EIS. |
| March 25, 2003 | Ecology became a cooperating agency for this EIS. |
| March 2003 | Ecology filed a lawsuit in federal district court to prevent the importation of certain waste that USDOE had decided to send to Hanford. |
| January 2004 | USDOE issued the final Hanford Solid Waste EIS. That study examined the impacts from disposal, at the Hanford site, of certain volumes of waste at the Hanford site. Ecology amended its lawsuit to challenge the adequacy of the Solid Waste EIS analysis. |
| May 2005 | The federal district court granted Ecology a period of time to explore issues with the Hanford Solid Waste EIS. |
| January 2006 | USDOE and Ecology signed a settlement agreement ending litigation on the Hanford Solid Waste EIS. This settlement agreement integrated the analysis of tank closure impacts from the Tank Closure EIS and the analysis disposal of all waste types considered in the final Hanford Solid Waste EIS. The settlement agreement also integrated a cumulative impact analysis. The Tank Closure EIS was renamed the Tank Closure and Waste Management EIS. |

What's next?

Our work is not over, and neither is USDOE's. This EIS is a draft that needs a thorough review. Your opinions matter. The public comment period is your opportunity to tell USDOE – and Ecology – your concerns about the draft EIS. USDOE must respond to all comments and include them in the final EIS. We will have a foreword in the final EIS that describes how USDOE responded to our comments.



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Public comments wanted!

The draft EIS's comment period is from October 30, 2009 through March 19, 2010. You can comment in writing or in person. Send your comments to:

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You can also attend one of the public hearings. Check www.ecy.wa.gov/programs/nwp or www.Hanford.gov for the schedule.
