HANFORD CHALLENGE

SAY WHAT? COMMENT WRITING GUIDE Nov 2020

Radioactive Glass Logs

Can glassified tank waste liquids be safely disposed on the Hanford Site?

Draft Waste Incidental to Reprocessing Evaluation for Vitrified Low-Activity Waste
(VLAW WIR "vee-law weer")

COMMENT DEADLINE: FRI NOV 27, 2020

The U.S. Department of Energy (DOE) is gathering your comments on its draft Waste Incidental to Reprocessing Evaluation of Vitrified Low-Activity Waste that it plans to dispose of in a lined landfill in the center of the Hanford site, the Integrated Disposal Facility.

The questions this evaluation seeks to answer:

- Will the tank waste liquids meet the "WIR" criteria so they can be disposed of (forever) as low-level waste in this landfill once the radioactive cesium has been removed and the treated liquids have been immobilized in glass logs?

- Will the landfill, as designed, including planned controls, slow down the spread of radioactivity enough to protect human and environmental health over the next 10,000 years?

CONCERNS

Hanford Challenge supports efforts to vitrify (immobilize in glass) Hanford's tank waste. However, Hanford Challenge doesn't believe that the Department of Energy should use the Waste Incidental to Reprocessing, or "WIR" process to determine the answers to these questions, and should instead be using a Nuclear Regulatory Commission (NRC) determination. The use of WIR has been found to be contrary to the law under the Nuclear Waste Policy Act.

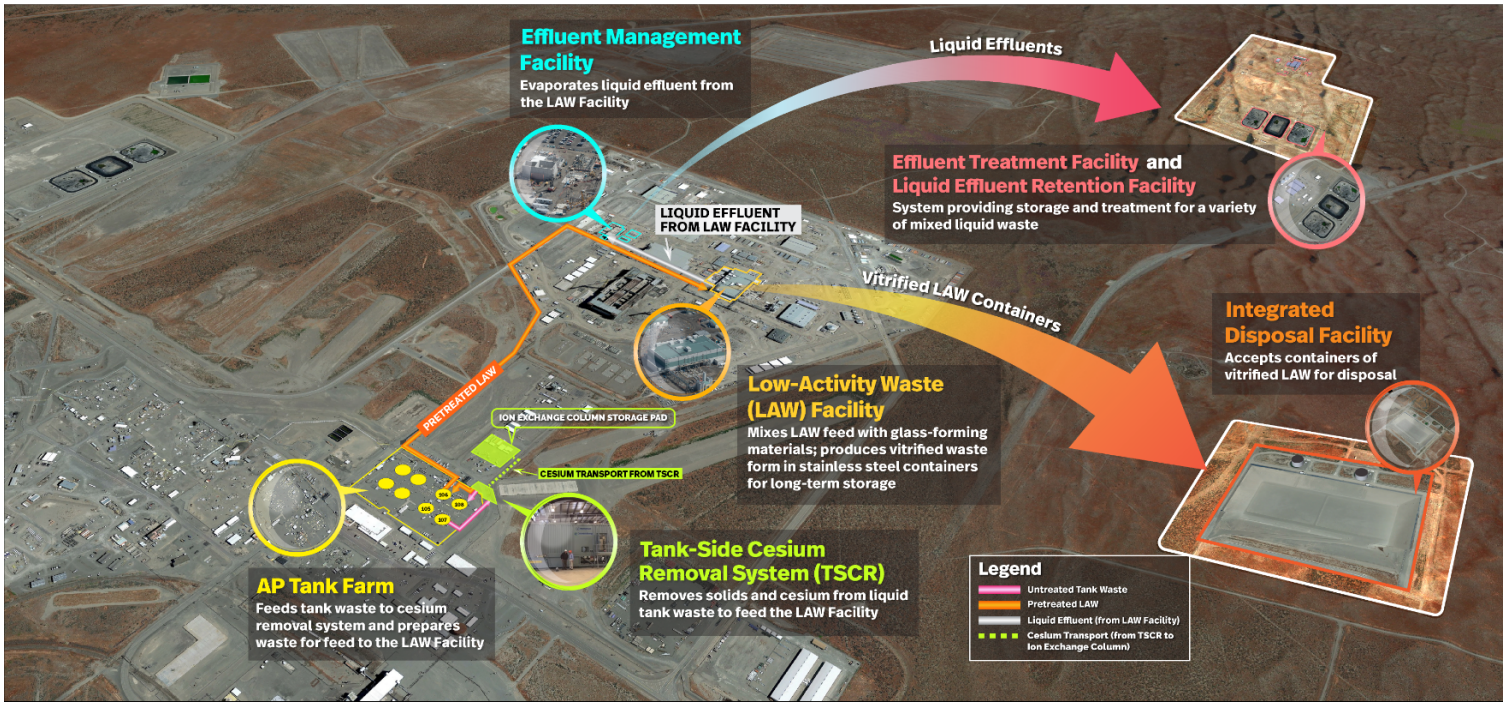
Our review of this draft WIR Evaluation, has concluded that to safely dispose of low-activity waste at this lined landfill, the U.S. Department of Energy needs to manage the waste not the people. In other words keep the waste away from the people, not the people away from the waste. When DOE imagines the future, it assumes that the federal government will remain in control of this land over the next 130 years and successfully keep people out with institutional controls like fences, guards, and signs. There is simply too much uncertainty in these assumptions. Instead, DOE should use engineered controls to design a landfill that prevents future people from digging up or disturbing the waste.

CONTEXT

The process for safely storing, treating, and isolating Hanford's tank waste has been fraught with problems. In order to make decisions about what to do with Hanford's tank waste, the federal government has to determine "what the waste is" to figure out where and how the waste can be legally buried. High-level waste has the strictest rules for isolation, low-level waste has less strict rules.

All forms of isolation eventually fail. The future impact radioactive waste will have on people, plants and animals will be determined by how dangerous the waste is, where we leave it, and how long it takes to migrate through the environment to reach people, plants and animals.

Read on to see Hanford Challenge's suggested comments.

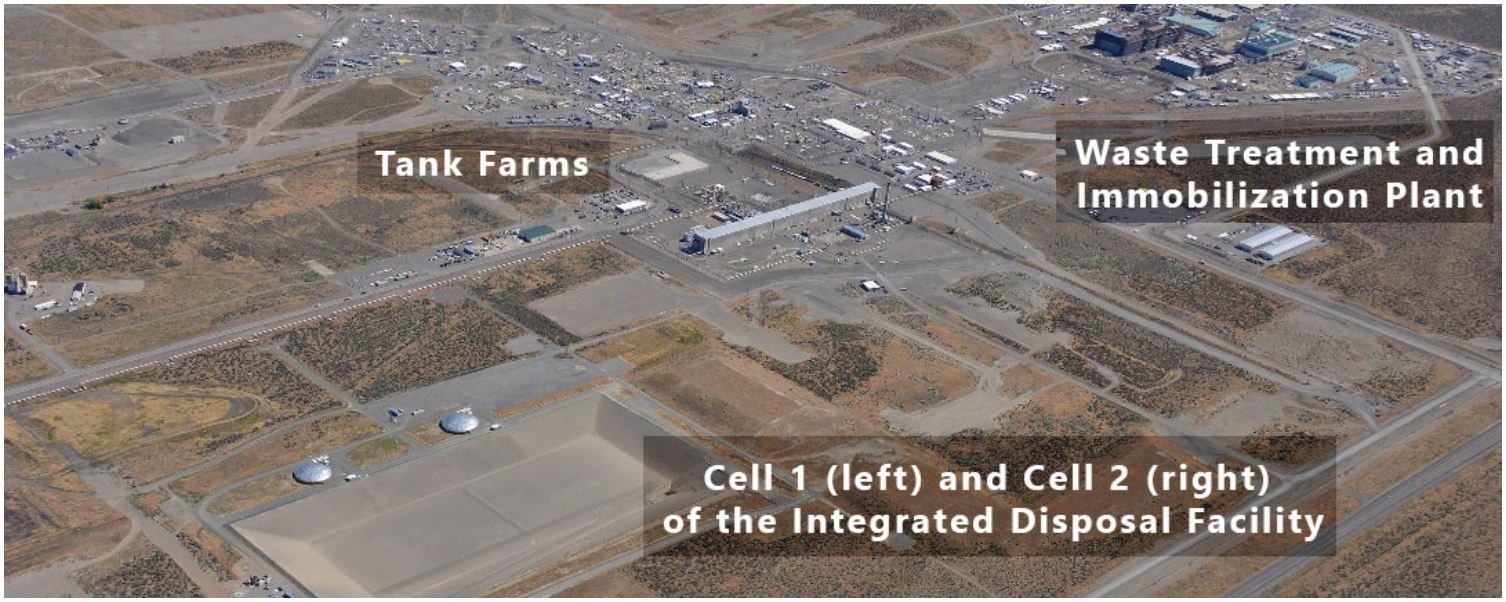


Direct Feed Low-Activity Waste

The image above shows the U.S. Department of Energy's (DOE) "Direct-Feed Low-Activity Waste" treatment plan. Tank waste liquids from the AP Tank Farm would go to the Tank-Side Cesium Removal System for treatment. Once the cesium is removed, the waste is sent via underground transfer lines to the Low-Activity Waste Facility to be immobilized in glass logs. The glass logs and by-products of the glassification process, like HEPA filters, would then be disposed of forever in the Integrated Disposal Facility, shown in orange.

U.S. Department of Energy wants the WIR determination process to show that the high-level tank waste would be low-level waste after solids in the waste and cesium-137 is removed. The waste would not be allowed for near-surface burial at Hanford without being reclassified as low-level waste.

Images courtesy, U.S. DOE



HANFORD CHALLENGE SUGGESTED COMMENTS

Hanford's high-level tank waste is extremely radioactive and contains a dangerous mix of toxic chemicals and radionuclides. How we treat and dispose of this waste is incredibly important for the protection of human and environmental health.

Suggested Comments:

NRC Determination Not WIR Determination: Vitrifying Hanford's tank waste liquids is important, however DOE should use an NRC determination process not a WIR determination to determine if Hanford's tank waste liquids have been treated to remove sufficient concentrations of radionuclides for onsite disposal at the Integrated Disposal Facility.

Engineered Controls, Not Institutional Controls: The uncertainties in the draft WIR evaluation are well-documented and substantial, therefore the landfill must be "over-engineered" to keep the waste isolated from future humans, instead of using institutional controls to keep humans away from the waste. Failure to add additional controls makes it likely that the project will not meet the acceptance criteria.

Remove Key Radionuclides and Add to HLW Waste Stream: The glass making process preferentially removes iodine-129 and technetium-99. Rather than recycle the "steam" containing these key radionuclides to get it into the VLAW glass, the volatilized Tc-99 and I-129 "steam" should be captured and sent into the high-level waste stream.

Resolve NRC Staff Concerns and Comments: Prior to finalization of the VLAW WIR, all Nuclear Regulatory Commission concerns and comments related to the draft VLAW WIR, should be resolved to the NRC staff's satisfaction.

Consider Cumulative Impacts: The WIR evaluation should include consideration of cumulative health and safety impacts from other waste that may be left on the Hanford Site long-term, to ensure that impacts from multiple waste sites and sources were all considered.

SUBMIT COMMENTS

Email: VLAWDraftWIR@rl.gov by midnight on Friday Nov 27th

This Say What? Guide is funded through a Public Participation Grant from the Washington State Department of Ecology. The content was reviewed for grant consistency, but is not necessarily endorsed by the agency.

REFERENCE LINKS

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Department of Energy Documents

- Dept. of Energy Fact Sheet on the Draft VLAW WIR
- Dept. of Energy Webpage with Technical Document Links including:
  - Draft Waste Incidental to Reprocessing Evaluation for Vitrified Low-Activity Waste
  - Performance Assessment
  - Presentations from Public Meetings with the NRC
- Nov 19, 2020 DOE Presentation on Draft VLAW WIR Public Meeting with NRC

Nuclear Regulatory Commission Documents

- Nov 19, 2020 NRC Presentation on its Request for Additional Information on the Draft VLAW WIR for Public Meeting
- Nov 6, 2020 NRC Request for Additional Information on the Draft VLAW WIR

Public Interest and Stakeholder Resources

- Joint Comments filed by Hanford Challenge, Natural Resources Defense Council, and Columbia Riverkeeper
- Nov 24, 2020 Technical Presentation by Marco Kaltofen, PhD, PE.
- Hanford Challenge Sample Comments