

Immobilized Low Activity Waste

Comments

E-0047/008

Question # 13- Does DOE continue to take the position that alternatives pursued for tank closure should continue to have a performance standard equal to borosilicate glass treatment and that any such tank disposals be retrievable?

L-0012/008

We need to see tank waste put into glass form.

L-0039/012

Disposal of immobilized low activity waste (ILAW) that is an alternate waste form [is not adequately analyzed in this EIS.]

L-0039/017

This draft EIS assumes all ILAW will be in the borosilicate glass waste form. Should DOE proceed with decisions based on this draft of the HSW EIS, the Board believes DOE is committing to a performance standard equivalent to glass, regardless of the waste form.

L-0040/002, LM-0019/002

[The] WAFP [Washington Academy of Family Physicians] opposes any "accelerated cleanup" of Hanford Nuclear Reservation tank wastes that is not scientifically demonstrated to be superior to vitrification in providing long-term protection of human health and the environment.

P-0140/002

As a member of a committee with Clark Co. [County] League of Woman Voters years ago on Hanford radioactive waste I learned that vitrification was the only really safe way [to clean up Hanford] and it was never done - and is still the only way for effective, safe storage of waste.

TPO-0011/003

And the fact that this glassification was originally what was intended, and now it's only going to be 20 percent, because it's cheaper.

TSP-0004/001

I am incredibly incensed at finding out that the Bush Administration's reason for failure to, what's the word, glassify, vitrify this waste is because of economic factors. How can they justify spending six billion dollars on war when obviously the priority for the health, safety and well-being of this citizenry of the state of Washington and perhaps all over the United States is placed as a second priority.

TSP-0008/001

[One of my issues is] vitrification and the fact that the DOE is proposing to essentially abandon that type of treatment. ... it needs to be done.

TSP-0010/006

Putting cost above doing the best thing for people in this area and at Hanford by eliminating vitrification is absolutely wrong.

TSP-0011/004

And we have to realize that we have to demand the vitrification[.]

Response

The scope of the HSW EIS is to evaluate the potential environmental impacts of ongoing activities of the Hanford Solid Waste Program and to evaluate implementation of alternatives consistent with the WM PEIS. The HSW EIS evaluates reasonably foreseeable treatment, storage, and disposal facilities and activities for

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LLW, MLLW, and TRU waste. It also evaluates disposal of ILAW in a form that has performance characteristics equivalent to borosilicate glass.

The Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site (68 FR 1052) will analyze other tank waste activities.

ILAW disposal has been evaluated in the HSW EIS based on the expectation that it will be a borosilicate waste form. Outside the scope of the HSW EIS, DOE has been considering adjustments to the ILAW waste form and its chemical and radionuclide composition. It is expected that potential environmental impacts associated with such changes in the ILAW waste form will be evaluated in the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052).

Comments

F-0003/004

When is the vitrification plant going to be finished? How about getting it up and running correctly before we start dragging more radioactive garbage in to Hanford.

L-0005/004

Every effort must be made to vitrify the contents of the leaking tanks as soon as possible. Cleanup funds are already being cut. How could they possibly cover the costs of storing yet more nuclear waste safely?

Response

ILAW disposal has been evaluated in the HSW EIS based on the expectation that it will be a borosilicate waste form. Outside the scope of the HSW EIS, DOE has been considering adjustments to the ILAW waste form and its chemical and radionuclide composition. It is expected that potential environmental impacts associated with such changes in the ILAW waste form will be evaluated in the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052).

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

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Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

Comments

L-0055/057

After the HLW is separated and vitrified from the tank waste, what is left is classified as Immobilized Low Activity Waste (ILAW). What process is used to immobilize this waste? Grouting is not a recommended process for immobilizing waste. The grouting (or "cast stone") will eventually break down and this waste will once again be mobilized into the environment. This EIS states it will use vitrification, however, the ORP are discussing other alternatives for the ILAW tank waste. The CTUIR believes the waste should be stored in containers or in a form that will last at least as long as the waste it is containing remains dangerous. If it is not, then DOE is just delaying the eventual contamination of the ground water for a future generation to deal with. The High Level Waste (HLW) will be stored for the interim at Hanford. Is the 2010 an accurate figure for when this water will be shipped out? Could the storage period be longer?

Response

ILAW disposal has been evaluated in the HSW EIS based on the expectation that it will be a borosilicate waste form. Outside the scope of the HSW EIS, DOE has been considering adjustments to the ILAW waste form and its chemical and radionuclide composition. It is expected that potential environmental impacts associated with such changes in the ILAW waste form will be evaluated in the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052).

The HSW EIS proposes no changes to existing decisions made regarding the management of high-level waste. Transportation and disposal of HLW, including potential disposal of high level waste melters, is evaluated in the Yucca Mountain Repository Environmental Impact Statement (DOE 2002c).

Comments

L-0041/010

The HSW-EIS makes two assumptions regarding the analysis of tank waste disposal that are vulnerable to invalidation, making the entire tank waste analysis subject to the same vulnerability. The first of these assumptions is that the Waste Incidental to Reprocessing provisions of DOE Order 435.1 will be upheld in the current litigation on this subject. The second assumption is that all the low activity tanks waste will be immobilized as borosilicate glass. We already know from DOE's own documents that this will not be the case as DOE is exploring three supplemental forms of waste treatment. DOE also needs to explicitly acknowledge the vulnerability of both assumptions and discuss the actions that will be taken in either or both of these assumptions are invalidated.

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TPO-0016/004

They're already talking about not cleaning up the high-level waste in the nuclear waste tanks, by simply re-labeling, re-characterizing that waste and leaving it in place, maybe popping some concrete.

Response

ILAW disposal has been evaluated in the HSW EIS based on the expectation that it will be a borosilicate waste form. Outside the scope of the HSW EIS, DOE has been considering adjustments to the ILAW waste form and its chemical and radionuclide composition. It is expected that potential environmental impacts associated with such changes in the ILAW waste form will be evaluated in the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052).

The HSW EIS proposes no changes regarding the classification of high-level waste.

Comments

L-0041/037

Due to the screening approach used, groundwater modeling is based on technetium 99 and uranium, and appears to exclude the ILAW source term. The EIS states that SAC estimates indicate up to 450 curies of technetium 99 entering groundwater from an estimated inventory of 2,300 curies. ILAW could contain up to 25,500 curies of technetium 99 and DOE hypothesizes that only 86 curies would be released from the ILAW material (Page 5.248, Line 26). Therefore, Oregon recommends that the final ILAW waste form meet a performance requirement to leach a maximum of 86 curies in the next 10,000 years using prevailing waste characterization methods. Additionally DOE asserts that solid waste to be disposed will only account for 20 percent (450 curies + 86 curies = 536 curies) of the technetium 99 to be released to groundwater. This indicates that the estimated total release to groundwater will be about 2,680 curies of technetium 99. That is more than the inventory estimated in the SAC. The final EIS should resolve this apparent uncertainty.

Response

Volume I Section 5.14.3 explains how ILAW was accounted for in the cumulative groundwater impacts.

Comments

L-0044/012

The EIS does not adequately show the differences between the various alternatives locating disposal in 200 East versus 200 West Area. There are documented differences in disposing of the ILAW in 200 West versus 200 East Area, but this does not show up in the analysis that support this EIS. This absence indicates a problem with the modeling, or the points of calculation are too far way from the facilities.

Response

The EIS evaluates four different disposal locations for ILAW, including locations in the 200 East and 200 West Areas.

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and are discussed qualitatively for the other alternatives. A discussion of the differences between

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the 1-km point of analysis and the disposal facility boundary is provided in Volume I Section 5.3 and Volume II Appendix G.