

This is a draft document for board discussion

Investigate Feasibility of Reclassifying Certain High-Level Waste to Enable Acceleration of Disposal and Reduction of Costs

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Background

Glass waste Melter #2 recently reached the end of functional use within the Defense Waste Processing Facility (DWPF), necessitating its replacement and storage pending disposal in a future permanent geological repository for High-Level Waste (HLW). As no such repository currently exists, the retired melters must be safely stored and guarded at SRS for many decades. The melters are currently designated as HLW merely because of the source of the waste that secondarily contaminates them and may not be based on the actual risk posed to workers at SRS, to the environment and to the nearby public.

HLW disposition in a deep geologic repository is highly uncertain because none has been established for our nation. A HLW repository is extraordinarily expensive (an estimated \$4.5 billion has been already expended at Yucca Mountain, plus an estimated \$29 billion liability has been incurred (McBride, 2017). If the used melters could be disposed of safely as either Low-Level Waste (LLW) or Transuranic (TRU) waste, the schedule and costs of disposal could be greatly reduced.

Further, this principle of disposing waste based on its risk could potentially be extended to some of the vitrified HLW canisters produced by DWPF. Many of the canisters currently stored in the temporary SRS Glass Waste Storage Buildings (GWSBs) contain vitrified sludge containing low enough concentrations of radionuclides such that a significant proportion of canisters may be able to be reclassified as either TRU waste or LLW.

Discussion

Disposing of the retired DWPF melters and canisters as other than HLW based on actual risks could result in an enormous reduction in HLW repository disposal costs, and a large increase in the certainty that the future disposition of these wastes could be achieved safely and protective of human health, worker safety and the environment. Radioactivity in the melters and in some poured canisters may contain less transuranic radioactivity than the highest loadings of some of the most radioactive transuranic wastes already sent from SRS to be buried inside of the DOE Waste Isolation Pilot Plant (WIPP) in New Mexico.

Recommendation

The SRS Citizens Advisory Board recommends that DOE investigate the feasibility of reclassifying the used DWPF melters and some portion of HLW canisters as TRU waste or LLW to expedite disposal, reduce costs, and to free-up storage space in the temporary GWSBs.

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