



U.S. DEPARTMENT OF
ENERGY



***Draft Environmental Impact Statement for the Disposal of
Greater-Than-Class C
Low-Level Radioactive Waste and GTCC-Like Waste
Briefing to the West Valley Citizen Task Force***

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Office of Environmental Management
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Introduction

- Notice of Availability for Draft GTCC EIS issued on February 25, 2011
- 120-day public comment period ends June 27, 2011
- Nine public hearings in April/May 2011
- Close coordination between GTCC EIS team and West Valley Demonstration Project office, particularly on waste inventory



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2

Proposed Action, Purpose, and Need

Proposed Action: Construct and operate a new facility or facilities or use an existing facility for the disposal of GTCC LLRW and GTCC-like waste

Purpose and Need:

- No existing disposal facility for GTCC waste
- Federal Government responsibility under section 3(b)(1)(D) of the Low Level Radioactive Waste Policy Amendments Act of 1985
- Responsive to National Security Concerns: disused sealed sources
- Supports U.S. Programs: medical isotope production, clean energy, deep space exploration, and other programs
- Implements Environmental Stewardship: DOE and commercial cleanup commitments (e.g., West Valley Site)

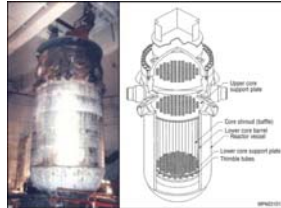


GTCC Waste Inventory

- GTCC Low-Level Radioactive Waste (LLRW): Most hazardous of the four U.S. Nuclear Regulatory Commission (NRC) classes of commercial LLRW
- GTCC-like Waste: DOE generated or owned LLRW or transuranic waste with characteristics similar to GTCC LLRW and no identified path for disposal
- Approximately 12,000 cubic meters (m³) with 160 million curies (MCi)
 - Relatively small volume but high activity
 - Less than 10 percent of total volume currently in storage; most waste will not be generated for several decades
- West Valley GTCC LLRW and GTCC-like waste comprises approximately 50 percent of the total estimated GTCC waste inventory
 - 2,200 m³ from West Valley Demonstration Project (e.g., decontamination and decommissioning of Main Plant Process Building and Waste Tank Farm)
 - 4,300 m³ in State-Licensed Disposal Area and NRC-Licensed Disposal Area



GTCC Waste Inventory: Three Waste Types



Activated Metals

Largely generated from the decommissioning of nuclear reactors.)
Prevalent radionuclides include C-14, Mn-54, Fe-55, Ni-59, Ni-63, Nb-94, and Co-60



Sealed Sources

Widely used in equipment to diagnose and treat illnesses (particularly cancer), sterilize medical devices, irradiate blood for transplant patients, nondestructively test structures and industrial equipment, and explore geologic formations to find oil and gas.
Prevalent radionuclides include Cs-137, Am-241, and Pu-238



Other Waste

Other Waste primarily includes contaminated equipment, debris, scrap metal, filters, resins, soil, and solidified sludges. These wastes are associated with the production of molybdenum-99, production of radioisotope power systems, and environmental cleanup.
Photo shows GTCC contaminated glove boxes. Prevalent radionuclides include a wide range of radionuclides including T-99, I-129, Cs-137, and several transuranic radionuclides including isotopes of plutonium, americium and curium



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5

GTCC Generator and Storage Locations

- GTCC LLRW
 - Activated metals: primarily from nuclear power plants, most of which are located in eastern and midwestern states
 - Sealed sources: throughout the U.S. (e.g., hospitals and universities)
 - Other Waste: Missouri, New York, Texas, and Virginia
- DOE GTCC-like Waste
 - West Valley Site, New York
 - Babcock and Wilcox facility, Virginia
 - Idaho National Laboratory, Idaho
 - Oak Ridge Reservation, Tennessee



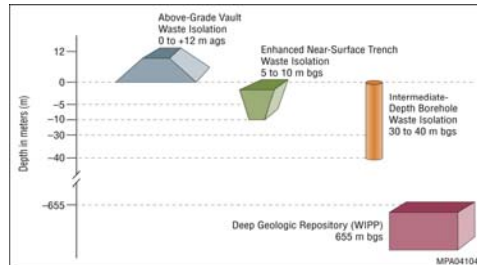
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6

Proposed Disposal Methods

- Geologic repository-Waste Isolation Pilot Plant (WIPP) (≤ 26 new rooms)
- Intermediate depth borehole (≤ 110 acres)
- Enhanced near surface trench (≤ 50 acres)
- Above grade vault (≤ 60 acres)



Disposal Method Considerations in Draft GTCC EIS

- NRC regulations require GTCC LLRW to be disposed in a geologic repository, but allows for alternative land disposal methods to be considered
- Draft EIS assumes protection of the inadvertent human intruder by institutional controls, disposal depth, control of waste concentrations, waste form stabilization, and intruder barriers



Proposed Disposal Locations

- Six DOE sites with existing radioactive waste disposal operations and federal land in the WIPP vicinity
- Generic commercial facilities in four NRC regions across the U.S. (Region I-Northeast, Region II-Southeast, Region III-Midwest, and Region IV-West)



Alternatives Evaluated

1. No Action (continue current storage practices)
2. Geologic Repository at WIPP
3. Boreholes at Hanford, INL, LANL, NNSS, WIPP Vicinity, and generic commercial Region IV
4. Trenches at Hanford, INL, LANL, NNSS, SRS, WIPP Vicinity and generic commercial Regions II and IV
5. Vaults at Hanford, INL, LANL, NNSS, SRS, WIPP Vicinity, and generic commercial Regions I-IV

DOE Does Not Have A Preferred Alternative

- Preferred alternative(s) to be developed for Final EIS in consideration of public comments on Draft EIS
- Combination of alternatives might be appropriate



Draft EIS Analysis: Potential Impacts

- **Alternative 1-No Action (continue current storage/management practices):** potential long-term human health impacts; no incremental impact for other resource areas; wastes would not be shipped therefore no transportation was assumed
- **Alternative 2-WIPP:** Impacts would be low for all resource areas
 - Transportation: an estimated 11,800 rail shipments or 33,700 truck shipments over approximately 60 years, which could result in one to two non-radiological accident fatalities
- **Alternative 3, 4, and 5 (borehole, trench, and vault):** Low impacts for all resource areas except potential long-term human health impacts at some sites
 - Environmental Justice: subsequent NEPA analysis would consider unique exposure pathways to tribal and other sensitive populations
 - Cultural Resources: known cultural resources within GTCC reference locations at LANL, NNSS, and SRS
 - Cumulative Impacts: potential cumulative human health impacts at Hanford, INL, LANL, and SRS
 - Transportation: an estimated 5,000 rail shipments/ or 12,600 truck shipments approximately 60 years, which could result in one non-radiological accident fatality



Considerations for Preferred Alternative(s) for Final EIS

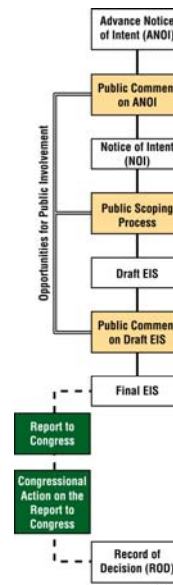
Preferred alternative could be a combination of two or more alternatives, based on the above considerations

- *Public comments on Draft GTCC EIS*
- *Waste type considerations:* radionuclide inventory, waste form stability, physical characteristics (size), and availability for disposal
- *Disposal method considerations:* inadvertent human intrusion, construction and operational experience, post-closure care, and cost
- *Disposal location considerations:* human health impacts (including cumulative impacts); cultural resources and tribal concerns; laws, regulations, and other requirements



Next Steps

- Develop Final EIS in consideration of public comments on Draft EIS
- Issue Final EIS
- Issue Report to Congress and await Congressional action
- Issue Record of Decision
- Implement selected alternative or alternatives
 - Some alternatives may require new or modification to existing federal legislation for implementation



For Further Information

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- You can continue to stay informed
by visiting the GTCC EIS website at:
<http://gtcceis.anl.gov>



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13