Focus on Waste Management

Ecology's View

The draft EIS shows that it appears better to dispose of treated waste in landfills in the 200 East Area than in the 200 West Area due to potential impacts to the groundwater. Disposal of treated waste in landfills needs more study in planning any expansion of Hanford's waste disposal facilities.

The potential long-term impact of waste that will remain at Hanford after the cleanup may be significant depending on cleanup actions chosen. This means that all future cleanup decisions must be evaluated to minimize this long-term risk to the public.

What the Draft EIS Says

Low-Level Burial Grounds (LLBGs)

The LLBGs consist of many separate disposal areas in the 200 East and 200 West Areas. There are some lined trenches and some unlined trenches in the LLBGs. The cumulative inventories analysis addresses impacts of the waste in the LLBGs. The key radiological contributors to the cumulative human health risk are tritium, carbon-14, technetium-99, iodine-129, and uranium isotopes. The chemical risk and hazard drivers are chromium and nitrate.

Lined Disposal Trench in Low-Level Radioactive Waste Burial Ground 218-W-5

WHY IT MATTERS

The Tank Closure & Waste Management Environmental Impact Statement (EIS) 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.

Comments accepted through March 19, 2010.

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Chapter 6, Table 6.9 of the draft EIS shows the cumulative volume of waste on the Hanford Site. The largest volume of waste comes from Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) remediation activities in Hanford's 100 and 300 Areas. The LLBGs have a smaller volume of waste but have waste with higher potential risk. Thus, the cumulative inventories in Appendix S of the draft EIS are very important.

Cumulative Waste Volumes					
	Waste Type (cubic meters)				
Activities	**High-Level Waste**	**Transuranic Mixed**	**Low-Level Radioactive Waste/Mixed Low-Level Radioactive Waste**	**Hazardous**	**Nonradioactive / Nonhazardous**
200 Area LLBGs[1]	N/A	Not Reported	405,240	N/A	N/A
CERCLA waste[2]	N/A	Not Reported	21,400,000	Not Reported	Not Reported
Decommissioned, defueled naval reactor compartments	N/A	N/A	121,625	N/A	N/A
Total	0	0	21,926,865	0	0

[1]The burial grounds the U.S. Department of Energy (USDOE) included in the draft EIS's waste estimate in 200-East Area are 218-E-2, 218-E-4, 218-E-5, 218-E-5A, 218-E-10 trench, 218-E-1, 218-E-8, 218-E-12A, and 218-E-12B. The burial grounds USDOE included in the draft EIS's waste estimate in 200-West Area are 218-W-1, 218-W-1A, 218-W-2, 218-W-2A, 218-W-3, 218-W-3A, 218-W-4A, 218-W-3AE, 218-W-4B, 218-W-4C, 218-W-5, 218-W-7, and 218-C-9. Some of the burial grounds may also contain TRU waste.

[2]Total estimated CERCLA waste (Low-Level Radioactive Waste (LLW) and Mixed Low-Level Radioactive Waste (MLLW)) to be generated for the 100 and 300 Areas only; the amount of waste from the 200 Areas is unknown (Wood et al. 1995).

The cumulative impact analysis identified 2321 sites with radiological or chemical constituents of potential concern (COPC) (Appendix S, Table S-6). The inventory is unknown for 403 of those sites. The unknown inventory sites are mainly in the 200 Areas. The next table shows the inventory for the cumulative impacts analysis and the alternatives impacts analysis (Appendix S, Table S-7).

Alternatives and Cumulative Radionuclide and Chemical Inventories		
Constituent	**Alternatives Inventory (in Curies)**	**Known Cumulative Inventory (in Curies)**
Technetium-99	30,200	762
Iodine-129	49	25
Uranium-238	964	3,220
Strontium-90	50,900,000	2,100,000
Cesium-137	47,100,000	2,430,000
Tritium	19,700	1,500,000
Carbon-14	3,180	43,500

A large part of the alternatives' inventory will be moved to a deep geologic repository during cleanup. Some of the mobile, long-lived radionuclides will remain onsite. However, all the cumulative inventory, and some of the alternatives inventory, will remain on the Hanford Site after cleanup.

Integrated Disposal Facility and Low-Level Burial Grounds

The draft EIS evaluates the impacts of ongoing solid waste management operations as well as the proposed disposal of low-level radioactive waste and mixed low-level radioactive waste in an Integrated Disposal Facility (IDF).

200-East Area Integrated Disposal Facility

The Record of Decision for the Hanford Site Solid Waste Environmental Impact Statement made decisions and commitments to dispose of LLW in lined trenches. This creates the alternatives to dispose of waste either at the IDF in 200 East Area, or at the IDF-East in combination with a new IDF in the 200 West Area (IDF-West). The table below illustrates this scenario.

Contaminant	Tank Closure Alternative 2B		Tank Closure Alternative 3A	
	WM Alternative 2 (IDF-East)	WM Alternative 3 (IDF-East +IDF-West)	WM Alternative 2 (IDF-East)	WM Alternative 3 (IDF-East +IDF-West)
Radionuclide concentrations (picocuries per liter)				
Technetium-99	2041	20,209	2878	20,209
Iodine-129	18.7	172.6	18.4	172.6
Chemical concentrations (microgram per liter)				
Chromium	4	4	2	2
Fluoride	0	1	0	1
Nitrate	14,245	14,243	14,384	14,381

Waste Management (WM) Alternative 2 uses only the IDF-East. WM Alternative 3 uses both the IDF-East and IDF-West. The table describes the maximum concentrations for the COPCs when the waste alternatives are combined with tank closure alternatives 2B and 3A. WM Alternative 3 results in maximum concentrations of technetium-99 and iodine-129 that are about 10 times higher than those in WM Alternative 2. The concentrations are above drinking water standards for both alternatives.

View the TC&WM EIS online at http://www.gc.energy.gov/nepa or www.hanford.gov