

## Focus on Other Tank Waste Treatment Issues

### What the Draft EIS Says

#### Sulfate Removal

Alternative 5 includes removal of sulfate from the treated low-activity waste (LAW) stream. The sulfate would be immobilized in a grout waste and disposed of at Hanford. This alternative would prolong the vitrification melter life span, which would reduce the amount of melter replacements. It would also increase waste sodium levels in the LAW glass, which would result in less glass and shorter treatment timeframes. This alternative requires two new facilities near the Waste Treatment Plant (WTP) – a sulfate removal facility and a related sulfate waste grout facility.

#### Transuranic (TRU) Waste Treatment and Disposal

Alternatives 3A, 3B, 3C, 4 and 5 include a process to retrieve and treat waste that the U.S. Department of Energy (USDOE) believes could be classified as mixed TRU waste. USDOE believes this applies to about 3 million gallons of waste now stored in 17 single-shell tanks and 3 double-shell tanks. The proposed treatment process would be carried out in new facilities in 200 East and 200 West Areas.

Since issuing the draft EIS, USDOE announced it was no longer pursuing this approach due to objections by the state of New Mexico (Federal Register, Vol. 74, No. 242). But the proposal remains in USDOE planning assumptions.

#### Disposing of All Tank Waste as High-Level Waste

Alternatives 6A, 6B, and 6C vitrify all tank waste for disposal offsite as high-level waste (HLW). Alternative 6A would eliminate the Pretreatment Facility and replace the WTP's two LAW melters with three HLW melters, adding to the two HLW melters already in the WTP. The five HLW melters would produce about 550,000 metric tons of immobilized HLW in the

#### MORE INFORMATION

The Tank Closure & Waste Management Environmental Impact Statement 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.

The draft EIS 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  
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form of vitrified glass. It would be produced at an average rate of 3,800 metric tons of glass (MTG) per year. The treatment mission would take more than 145 years.

Under Alternatives 6B and 6C, WTP's Pretreatment Facility would operate as now designed to separate waste into HLW and LAW waste streams. A second LAW vitrification facility with four LAW melters would be constructed, making a total of six LAW melters. The two HLW melters would produce about 38,000 metric tons of immobilized HLW, at an average rate of 1,520 MTG per year.

#### TERMS TO KNOW

**Low-Activity Waste (LAW)** - Low-activity waste is the part of high-level waste that is not as highly radioactive, which remains after pretreatment to remove transuranic waste and cesium-137.

**Melter** - The equipment in the Waste Treatment Plant that mixes glass formers and waste and heats them. When they cool, the glass immobilizes the waste.

**Sulfate** – A chemical compound with sulfur and oxygen. The sulfate can produce acid gases in the melter and reduces melter life.

**Transuranic (TRU)** – Containing elements above uranium on the periodic table, thus having an atomic number greater than 92. Transuranics are radioactive and are almost entirely manmade. Transuranic waste results mostly from the reprocessing of spent fuel and from using plutonium to make nuclear weapons.

The six LAW melters would produce about 560,000 metric tons of immobilized LAW at an average rate of 24,000 MTG per year. The treatment mission would take about 25 years.

Under all three alternatives, USDOE would store glass onsite until it can ship it offsite to a deep geologic repository. USDOE would dispose of secondary waste onsite.

### Ecology's View

#### Sulfate Removal

USDOE has not formally proposed this action. If it does, Ecology would need more information to fully evaluate this option.

#### Transuranic Waste Treatment and Disposal

Ecology does not support this action.

#### Disposing of All Tank Wastes as High-Level Waste

USDOE has removed this option from its set of preferred alternatives. If USDOE changes that position, we would need assurance that completing waste treatment and tank waste removal would stay on track.

### USDOE's Preferred Alternatives

For tank waste treatment, USDOE has selected Alternatives 2A, 2B, 3A, 3B, 3C, 4 and 5, "because they would allow separation and segregation of the tank waste for management and disposition as LAW and HLW, according to the risks imposed."

Since sulfate removal is in Alternative 5, USDOE has not ruled out this optional waste treatment process.

Although USDOE included TRU removal in Alternatives 3A, 3B, 3C, 4, and 5, it no longer is considering that approach.

## **Ecology's Analysis**

### **Sulfate Removal**

By prolonging melter life and allowing higher sodium loading in LAW glass, sulfate removal could allow USDOE to process waste sodium much faster. This could shorten the overall time of treatment.

Appendix E indicates more research and development would be needed to improve sulfate removal and grouting processes. We would be concerned with the sulfate grout waste form and the distribution of contaminants between the grout waste form and the liquid stream returned to WTP LAW vitrification facility.

### **TRU Waste Treatment and Disposal**

USDOE's ability to send tank waste as mixed TRU waste to the Waste Isolation Pilot Project depends, in part, on approval by the state of New Mexico. New Mexico has voiced strong opposition.

Ecology believes that USDOE has little chance of overcoming regulatory obstacles to the proposed action. We would not permit facilities for treatment of mixed TRU tank waste before USDOE has a clear regulatory pathway.

Because we continue to have legal and technical concerns with any Hanford tank waste being considered as mixed TRU waste, our position is that the waste should be treated at Hanford through the WTP. Ecology does not expect this to delay completion of the tank waste treatment mission.

### **Disposing all Tank Waste as HLW**

Under the Nuclear Waste Policy Act it is not legal to dispose of HLW at Hanford. Ecology believes that the IHLW must go to a deep geologic repository. The long-term plan has been to dispose of the ILAW at Hanford.

View the TC&WM EIS online at <http://www.gc.energy.gov/nepa> or [www.hanford.gov](http://www.hanford.gov)