



# RECORD OF DECISION

## On Plutonium and Cesium Contaminated Waste Sites on Hanford's Central Plateau

(Formally known as 200-CW-5, 200-PW-1, 200-PW-3 & 200-PW-6)

The U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency (EPA), with concurrence from the Washington Department of Ecology have issued a Record of Decision (ROD). A **ROD** is an important legal document that explains which remedies will be used to clean up waste sites under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This ROD identifies the cleanup approach that will be used to address contamination at 21 waste sites in the Hanford Site's Central Plateau.

U.S. Department of Energy • Washington State Department of Ecology • U.S. Environmental Protection Agency

## BACKGROUND

The 21 plutonium and cesium contaminated waste sites are located on Hanford's Central Plateau. They are formally part of the 200-CW-5, 200-PW-1, 200-PW-3, and 200-PW-6 operable units (OUs) as shown in Figure 1. The OUs are divided into six waste groups based on the type of liquid waste they received. The waste groups are Z-Ditches, High-Salt, Low-Salt, Settling Tanks, Cesium-137, and Other Sites. These waste sites were created when large volumes of liquid waste were generated and discharged to underground disposal structures such as ditches and cribs during the processing of plutonium.

Cleanup work to preserve and protect the Columbia River is a priority at Hanford. Resources are prioritized to focus on cleanup along the river over the next few years. Once cleanup along the Columbia River is completed, cleanup focus will shift from the River Corridor to Hanford's Central Plateau. With the ROD now in place for these waste sites in the Central Plateau, DOE is scheduled to submit the next work document (Remedial Design/Remedial Action Work Plan) on these waste sites to EPA by September 2015.

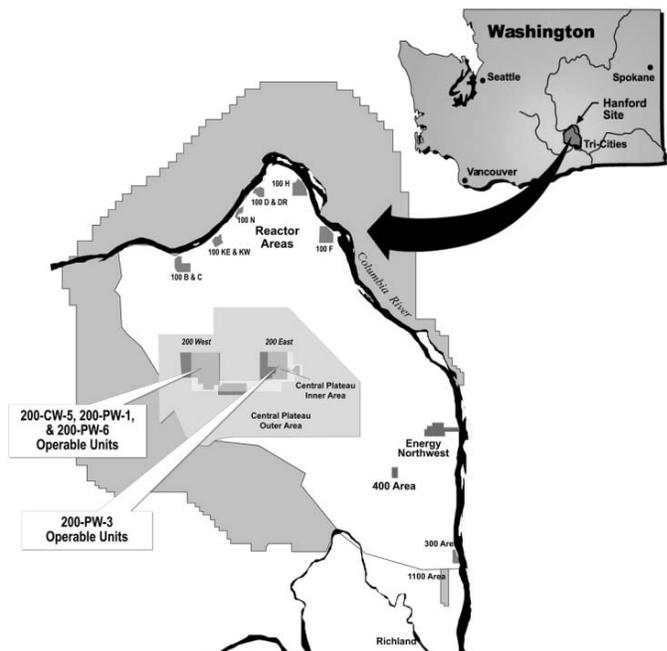


Figure 1: Hanford Site and Operable Unit (OU) Locations  
200-CW-5, 200-PW-1, and 200-PW-6 are located in the 200 West Area and 200-PW-3 is located in the 200 East Area.

### For More Information

- ❖ The Record of Decision is available at <http://www5.hanford.gov/arpir/?content=findpage&AKey=0093644>
- ❖ The Fact Sheet on the Proposed Plan for this decision is available at [www.hanford.gov/files.cfm/200\\_PW\\_sites\\_FINAL.pdf](http://www.hanford.gov/files.cfm/200_PW_sites_FINAL.pdf)
- ❖ The Proposed Plan for this decision is available at [www.hanford.gov/files.cfm/DOE-RL-2009-117\\_R0.pdf](http://www.hanford.gov/files.cfm/DOE-RL-2009-117_R0.pdf)

## HOW WERE PUBLIC COMMENTS TAKEN?

A **Proposed Plan** is a document used to facilitate public involvement in selecting a cleanup alternative. A public comment period on the Proposed Plan for this decision, initially scheduled to run from July 5-August 5, 2011, was extended through September 6, 2011 in response to requests from stakeholders. Individuals sent written comments through the mail or electronically. Written comments, along with written transcripts from the meetings, were also collected at the four public meetings held in Richland, WA, Seattle, WA, Hood River, OR, and Portland, OR during July 2011. These meetings provided the agencies the opportunity to discuss the cleanup alternatives evaluated and obtain input from a broader community audience. We received 318 comments from 122 individuals and groups.

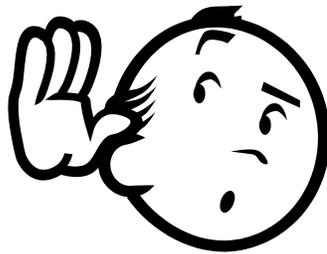


## Major Themes Identified From Public Comments

- Excavate and Remove All Plutonium
- Remove All Cesium
- Dig Deeper Than Two Feet in the High-Salt Waste Sites
- Ship Plutonium Off-Site
- Plutonium Is Mobile
- Don't Rely On Barriers/Caps
- Government Is Not Long-term Stewardship
- Don't Rely On Institutional Controls
- Model for Seismic Activity, Floods, Climate Change
- Insufficient Scientific Data
- Support for Leaving Cesium in Place
- Regulatory Standards

## HOW WERE PUBLIC COMMENTS USED?

A **Responsiveness Summary** summarizes public comments received on the Proposed Plan and provides the agencies' responses to those comments. The Responsiveness Summary for this decision is Part III of the ROD (see "For More Information" box on page 1). Appendix A of the ROD provides all of the public comments received grouped by major themes.



There were three key areas that public input influenced the final cleanup decision. The Tri-Party agencies acknowledge that the public generally prefers digging deeper than 2 feet below the bottom of a waste site for the High-Salt Waste Group. After hearing public comment, DOE will now consider removing more plutonium-contaminated soil at the three waste sites in the High-Salt Waste Group. Next, a more conservative cleanup value was selected for plutonium 239/240. The preliminary remediation goal identified in the feasibility studies for these waste sites was 2,900 pCi/g. The final cleanup goal is 765 pCi/g. The Tri-Party agencies also acknowledge that some members of the public were concerned over how the Settling Tanks are being cleaned up. An Applicable or Relevant and Appropriate Requirement (ARAR) was added to the cleanup decision. This ensures that as the settling tanks are remediated, the cleanup actions will comply with the substantive requirements of Washington's Hazardous Waste Management Act, Dangerous Waste Regulations for closure of a dangerous waste tank.

## Key Changes Due to Public Comment

- ✓ DOE will consider removing more plutonium-contaminated soil at the High-Salt Waste Group
- ✓ A more conservative cleanup value was selected for plutonium 239/240
- ✓ A requirement was added to ensure the Settling Tanks are cleaned up to satisfy state regulations

## WHICH CLEANUP ALTERNATIVES WERE SELECTED IN THE ROD?

The table below summarizes the final cleanup approach identified in the ROD. Removal, Treatment (as needed), and Disposal (RTD) of plutonium-contaminated soil and debris was selected for the Z-Ditches, Low-Salt, and High-Salt Waste Groups. An existing soil vapor extraction (SVE) system is being incorporated into the final cleanup decision to address volatile organic contaminants of carbon tetrachloride and methylene chloride at the High-Salt Waste Group. Evapotranspiration (ET) barriers will be used for added protection to prevent water infiltration at the Low-Salt and High-Salt Waste Groups. For the Cesium-137 Waste Group, soil cover will be used to provide a 15-foot layer of clean soil over the cesium-contaminated soil to prevent contact with humans and animals/plants. For the Settling Tanks Waste Group, the remaining sludge in the tanks will be removed. The waste sites in the Other Sites Waste Group do not pose an unacceptable risk to human health or the environment and do not require further action.

Plutonium-contaminated soil and debris that is dug up will be placed in containers and disposed. Waste that qualifies as “transuranic waste” (meaning the waste container has waste with plutonium concentrations greater than 100 nCi/g) will be sent to the Waste Isolation Pilot Plant (WIPP) in New Mexico. Waste that does not qualify for disposal at WIPP will be sent to Hanford’s Environmental Restoration Disposal Facility (ERDF).

Waste Group	Waste Sites Description	Selected Remedy
Z-Ditches	3 Shallow ditches, 1 tile field, and 1 unplanned release site received cooling water containing plutonium, americium, cesium and other contaminants.	Remove, treatment (if needed), and disposal (RTD) of contaminated soil to meet cleanup levels with disposal at ERDF or WIPP, as appropriate.
High-Salt	3 below surface waste sites received highly acidic liquid waste containing plutonium, americium, and carbon tetrachloride.	RTD to remove soil to 0.6 m (2 feet) below the bottom of the disposal structure to a depth of 20 – 23 feet from the surface. Plutonium-contaminated soil will be disposed of at WIPP or ERDF, as appropriate. A soil vapor extraction system will continue to be used to treat organic contamination. Evapotranspiration (ET) barriers will be constructed over the remaining contamination.
Low-Salt	4 cribs received liquid waste containing plutonium and americium. This waste was not acidic.	RTD to remove soil up to a depth of 22 - 33 feet from the surface. Plutonium-contaminated soil will be disposed of at WIPP or ERDF, as appropriate. ET barriers will be constructed over the remaining contamination.
Cesium-137	4 cribs and 1 unplanned release site received liquid waste containing cesium-137.	A 15-foot layer of soil cover will be maintained over these waste sites.
Settling Tanks	2 settling tanks collected waste particles (sludge) before the liquid waste was discharged.	The remaining sludge in the tanks will be removed. The sludge will be sent to WIPP for disposal.
Other Sites	1 french drain and 1 injection/reverse well that do not have high levels of contamination.	No action since these waste sites do not pose an unacceptable risk to human health and the environment

# Read About the Latest Cleanup Decision at Hanford!



Information available inside!

## **Why Should You Care About the Cleanup Decision for Plutonium and Cesium Waste Sites on Hanford's Central Plateau?**

The cleanup decision tells the public:

- How public comment was considered in finalizing the decision
- Which final cleanup alternatives were selected for these waste sites
- Why the final cleanup alternatives were selected