

## Protecting the Columbia River from High-Risk Burial Grounds

### Background

The 618-1 Burial Ground is located in the northeast corner of the 300 Area, along the Columbia River, approximately one mile north of Richland. The burial ground was active from 1945 through 1951 and received wastes from several of the 300 Area laboratories and buildings that were operational during that time. Portions of the burial ground is covered with concrete pads that were associated with former buildings and storage areas. The burial ground includes three trenches about 20 by 180 feet in size and a fourth area approximately 75 by 120 feet which may include several short trenches or pits. Excavation activities include:

- Segment 1: West Trench
- Segment 2: Middle Trench
- Segment 3: East Trench
- Segment 4: Limestone Neutralization Pit.

### Anticipated Challenges

Because waste disposal records are not available, a review of historic documents and interviews with workers indicates the following forms of contaminated waste could be encountered during remediation:

- Drums containing uranium oxide (possibly pyrophoric)
- Drums containing uranium metal chips in oil (pyrophoric)
- Bulk uranium (estimated to be about 16 tons)
- Small quantities of plutonium and plutonium fission products from laboratory operations
- Acid releases and contaminated concrete slabs and pipelines left over from structures that were built over the trenches but have since been removed
- Contaminated soil, gloves, miscellaneous equipment, uranium contaminated laboratory equipment and solid laboratory waste.

It is anticipated that other types of contaminants could be encountered.

### Work Scope

The following remediation activities will be conducted:

- Excavation of soils/debris (including concrete slabs) and hazardous waste materials
- Soil/debris and waste drum characterization and analysis
- Material handling and transport including sorting, size reduction, treatment, stockpiling of soil and debris, and packaging for safe shipment
- Decontamination of equipment
- Placement of backfill and revegetation.

### Work Processes and Controls

To account for the unknown risks and materials, the project team is applying lessons learned during recent cleanup activities at the 618-7 Burial Ground, a similar hazardous waste site not far from 618-1.



Removal of buildings in the 300 Area provides access to hazardous materials buried a few hundred yards from the Columbia River.

To protect the workers from potential hazards, the following precautions are applied:

- No workers are permitted in the excavation during excavation activities
- Blast shields are provided on equipment
- Drums are remotely handled and an excavator is used to overpack aging drums
- Industrial health and radiological remote monitoring instrumentation is applied
- Anomalies, or unidentified suspected hazards, are radiologically characterized or sampled.

## Recent Progress and Upcoming Objectives

Excavation activities at Segment 4 began September 17, to meet a Tri-Party Agreement milestone due at the end of the month. Additional skilled workers and equipment will transfer from the 618-7 Burial Ground to nearby 618-1 as activities expand.

Concrete slabs from three buildings that once stood over the burial ground will be removed by the end of September. Removing the buildings located in the northern half of the 300 Area provides access to contaminated material in the soil directly above groundwater.

The project estimates removing 88,000 tons of debris from the 618-1 trenches by May 2009.

## Frequently Asked Questions

### *How does the risk at this project compare to other sites?*

In comparison to other cleanup activities, this project poses no new risks to the public. The project follows safety procedures to prepare for both expected and unexpected hazards.



*Workers prepare staging areas where contaminated debris will be shipped for disposal. The eastern bank of the river is in the background.*

### **What are the risks and hazards for the workers and the environment?**

Prior to excavation, the waste in the burial ground poses a risk to the groundwater. By removing the waste, Washington Closure Hanford reduces potential threats to the Columbia River. While workers face risks in demolishing the concrete slabs and removing the unmapped waste, they use controlled work processes and lessons learned to safely remove the waste with limited exposure to workers and the environment.



*Excavation begins at the first trench in the high-hazard burial ground, 618-1, located at Hanford's 300 Area adjacent to the Columbia River.*

### **How do we know what's in the burial ground?**

Historical documentation of waste disposal is limited, meaning workers today cannot know for sure what is in the burial ground. To anticipate the risks and hazards, experts have researched available historical data to determine what waste was likely generated and disposed of at the site.

### **What will be done with the waste?**

Excavated materials will be treated and disposed of in the Environmental Restoration Disposal Facility or sent to an off-site disposal facility.

### **What will be left after cleanup is finished?**

After the waste has been removed, the site will be sampled to verify that cleanup objectives have been met. Once cleanup is verified as satisfactory, the site will be backfilled and revegetated in compliance with regulatory requirements.