



*River Corridor Closure Project*

# **Recovery Act Weekly Report**

For the week ending August 5, 2011

Contract DE-AC06-05RL14655

*Protecting the Columbia River*

## Overview

Background Summary of Projects that Washington Closure Hanford (WCH) will accomplish using ARRA funds.

### A. The Environmental Restoration Disposal Facility (ERDF)

ERDF is the hub of the WCH scope of work and supports a major portion of other Hanford contractor (OHC) waste disposal. Wastes collected from sites around the Hanford complex are brought to ERDF for treatment and disposal. WCH operates the ERDF and is currently using ARRA funds to upgrade and expand its capabilities to meet the needs of Hanford's accelerating mission.

### B. The 618-10 Burial Grounds

The trenches at 618-10 have long been regarded as some of Hanford's worst waste sites. Using ARRA funds, WCH will characterize the site. Intrusive and non-intrusive techniques will be used, and the subsequent analysis of data will enable the project to pursue remediation of the site safely and effectively.

### C. The 618-11 Burial Grounds

Along with 618-10, the 618-11 Burial Grounds are among the biggest challenges faced by WCH using ARRA funds. The 618-11 characterization work will require special care because of its proximity to the Energy Northwest Generating Facility, north of the 300 Area.

### D. Waste Site Remediation

WCH is employing ARRA funds to clean up many failed waste sites not originally part of its contract. Sites in the 100-F and IU 2&6 segments 1&2 are proposed for waste site remediation in the two year period starting in October 2009.

### E. Confirmatory Sampling of other new sites

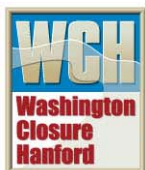
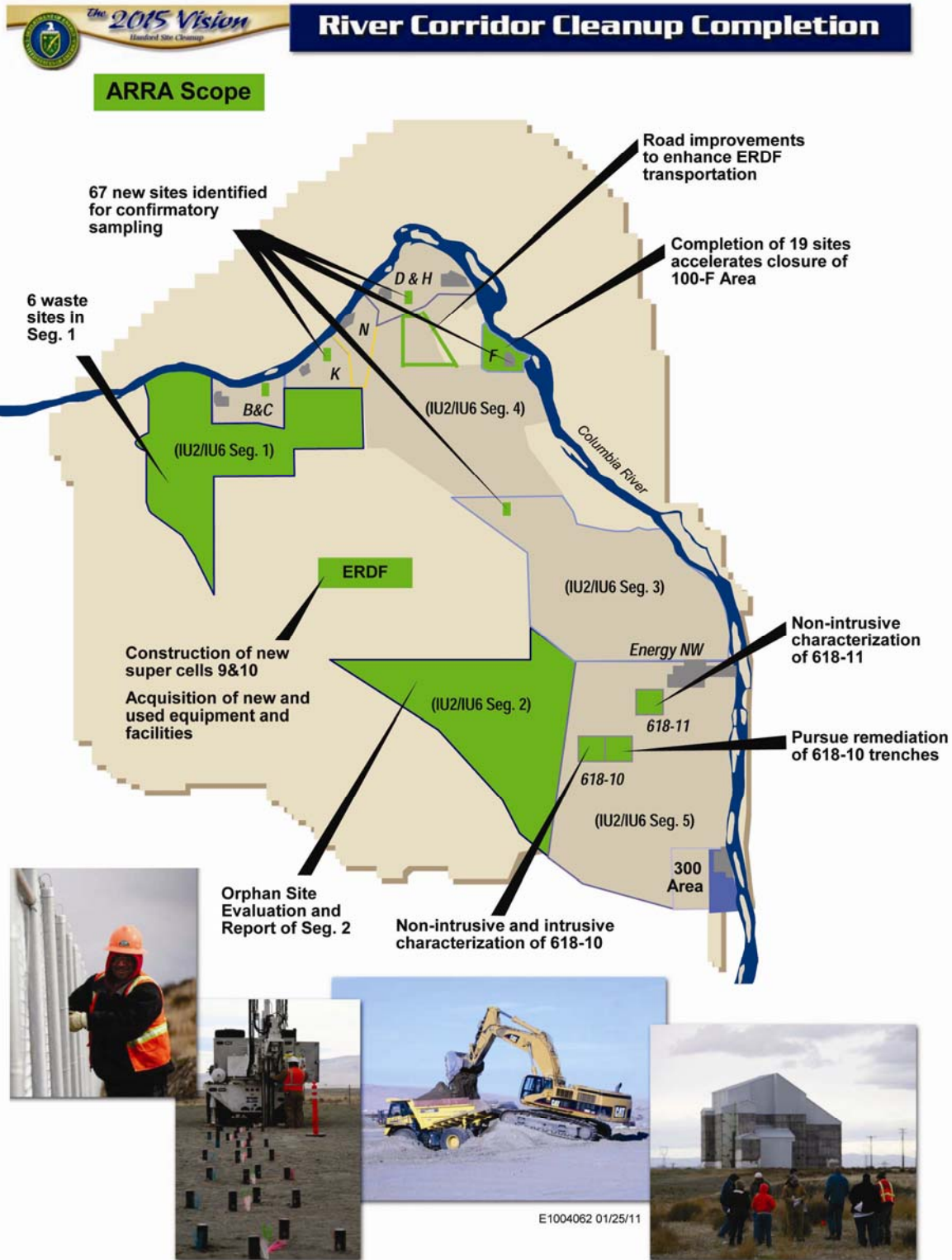
WCH is proposing to complete the early sampling process of 67 potential waste sites using ARRA funds. Confirmatory sampling is performed for sites that require additional information for determining if the site requires remediation.

This weekly report will provide evidence of these activities as they occur in support of ARRA.

The following figure illustrates the overall scope of WCH's ARRA projects.



# Overview (Continued)



## Safety

### Safety Accomplishments

As of June 19, 2011, WCH and its subcontractors worked 609,809 hours of ARRA scope with no safety incidents.

### Hazard Reductions

The River Corridor Closure Project's Weekly Safety Roundup focuses on safety issues that affect Hanford Site workers. A recent topic included in the Roundup addressed the implementation of controls that will minimize the potential spread of contamination beyond Contamination Area (CA) and High-Contamination Area (HCA) boundaries. DOE regulations require the following:

*Appropriate controls shall be maintained and verified which prevent the inadvertent transfer of removable contamination to locations outside of radiological areas under normal operating conditions.*

Normal operating conditions at the Hanford Site include frequent high winds. On several occasions in the past, this has resulted in contamination and contaminated materials being blown from CAs and HCAs to unposted areas.

Typically, the Hanford Meteorological Station has provided a Special Adverse Weather Advisory when these high winds have been anticipated. When this type of advance warning is provided, we need to ensure that adequate measures are taken to minimize the potential spread of contamination.

No one person or group is singly responsible to ensure all controls are put in place. Controls may include the following:

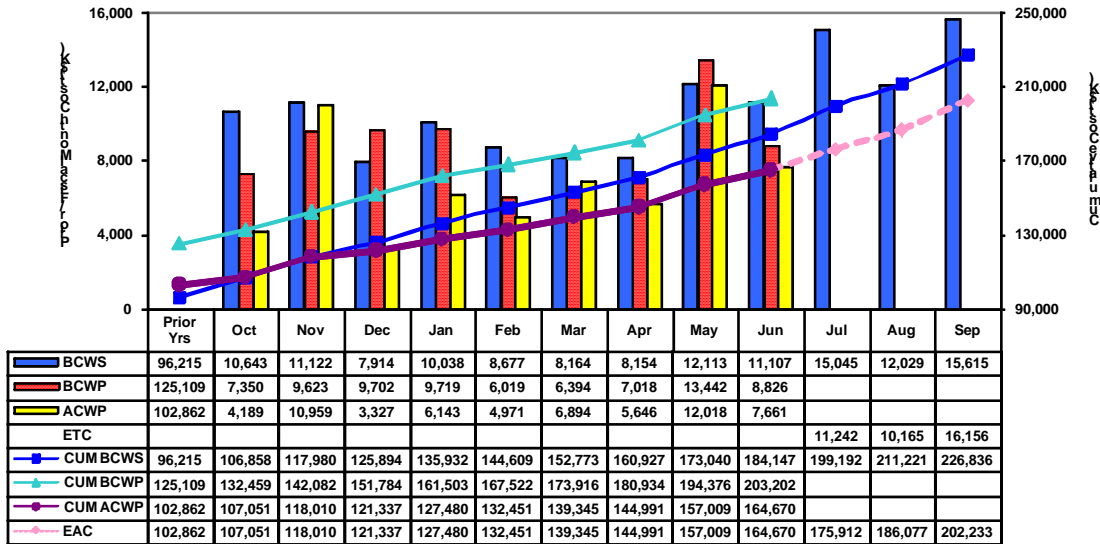
- Projects providing direction to put clean cover in place or apply fixative (lockdown)
- Supervisors and workers in CAs and HCAs ensuring items that could easily be blown from the areas are secured.



# Cost/Contract Status

Contract Mod #	Date	Scope	Obligated (\$M) (Inception to Date)	Not to Exceed (\$M) (Inception to Date)
099	4/9/09	ERDF Cell Expansion & Upgrades; 618-10 NIC	\$203.0	\$28.0
105	4/30/09	ERDF Cell Expansion & Upgrades; 618-10 NIC	\$203.0	\$44.5
126	7/23/09	H.37 Clause - Reporting Requirements	N/A	N/A
139	9/3/09	ERDF Cell Expansion & Upgrades; 618-10 NIC	\$253.6	\$44.5
142	9/30/09	ERDF Cell Expansion & Upgrades; 618-10 NIC; Phase 2 Scope	\$253.6	\$123.8
174	2/22/10	ERDF Cell Expansion & Upgrades; 618-10 NIC; Phase 2 Scope	\$248.2	\$123.8
182	3/25/10	ERDF Cell Expansion & Upgrades; 618-10 NIC; Phase 2 Scope	\$248.2	\$155.8
185	4/19/10	Phase 1 and Phase 2 Scope	\$248.2	\$178.0
192	4/27/10	Phase 1 and Phase 2 Scope	\$253.6	\$178.0
205	5/26/10	Reallocate Funds for Equipment and GPPs	\$253.6	\$178.0
210	6/23/10	Funding deobligation	\$229.3	\$178.0
217	8/4/10	Funding re-obligation	\$233.6	\$178.0
230	9/24/10	Phase 3 Definitization	\$233.6	\$178.0
241	11/22/10	Reallocate Funds for Equipment	\$233.6	\$178.0
242	12/1/10	Increase the Cost Authority on RL-0041.R2	\$233.6	\$196.6
247	12/16/10	Reallocate Funds for Capital Expenditures	\$233.6	\$196.6
253	1/18/11	Increase 41.R1 Cost Authority and reallocate funds for capital	\$233.6	\$214.4
266	2/17/11	Reallocate Funds for Capital Expenditures	\$233.6	\$214.4
281	4/5/11	Increase Cost Authority on RL-0041.R2	\$233.6	\$233.6
284	4/14/11	Reallocate Funds for Capital Expenditures	\$233.6	\$233.6
291	5/9/11	Authorization to charge ERDF operations to ARRA	\$233.6	\$233.6
298	5/20/11	Reallocate Funds for Capital Expenditures	\$233.6	\$233.6
304	6/15/11	Reallocate Funds for Capital Expenditures	\$233.6	\$233.6

RCC Project - ARRA  
Current Performance Measurement Baseline (PMB)  
Prior Years / FY11 Fiscal Month



ARRA Proposals 1, 2, 3 and ERDF Operations Buy Back Actuals (\$K)

Apportionment Number	Apportionment Title		June 2011	Inception To Date	Cost Authority
RL-0041.R1	ERDF Cell Expansion	PMB	5,764	116,813	156,847
RL-0041.R2	River Corridor Soil & Groundwater (618-10)	PMB	1,897	47,857	76,754
<b>Sub Total</b>		<b>PMB</b>	<b>7,661</b>	<b>164,670</b>	<b>233,601</b>
<b>Fee</b>			<b>580</b>	<b>15,677</b>	
<b>Total</b>			<b>8,241</b>	<b>180,347</b>	

\* PMB = Performance Measurement Baseline.





## ERDF

### **Super Cells 9 and 10 Construction**

WCH and subcontractors TradeWind Services and DelHur Industries completed construction of super cells 9 and 10 in February. Super cell 9 was placed into service in February, and waste is expected to be introduced to super cell 10 later this summer.

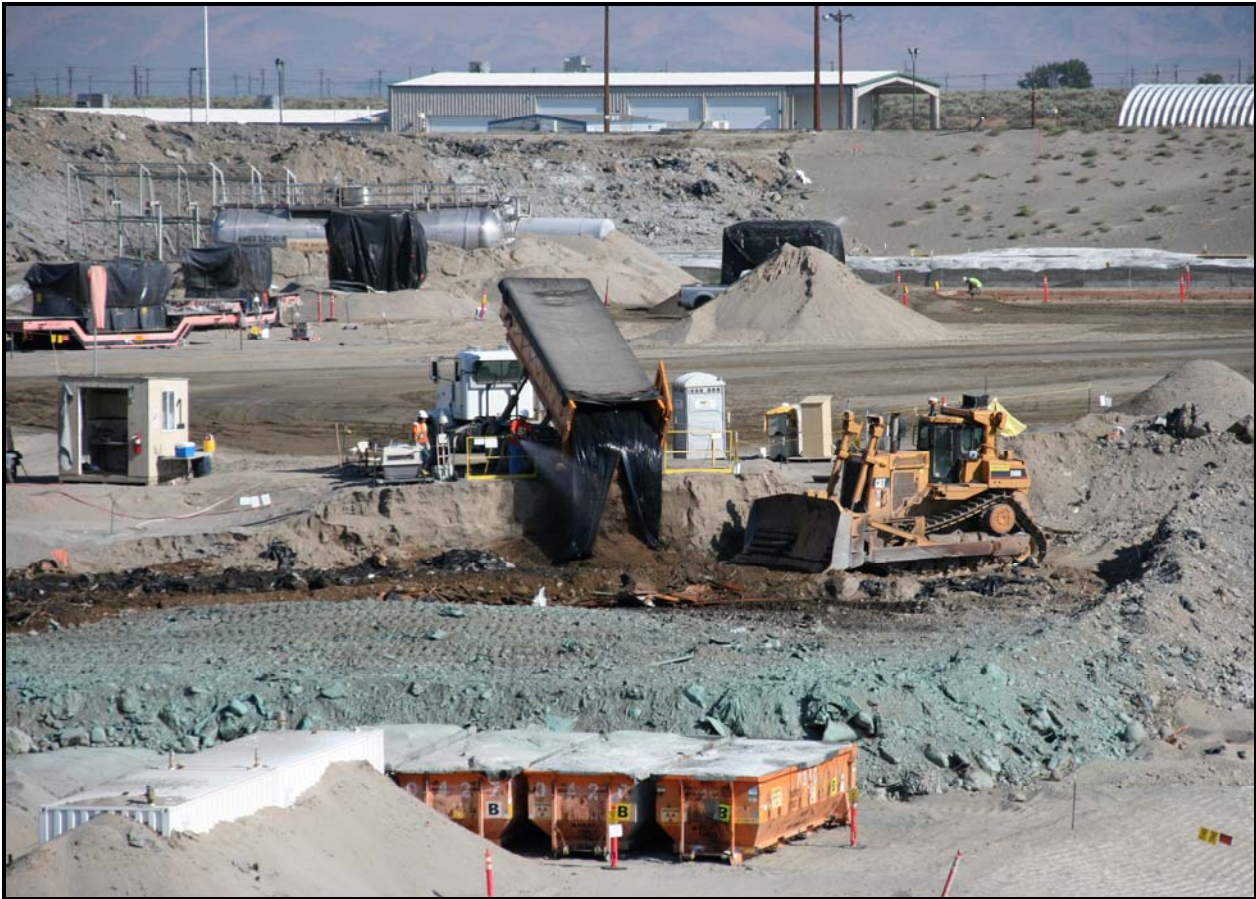
The addition of the super cells increased the Environmental Restoration Disposal Facility's (ERDF) capacity by 5.6 million tons for a total of 16.4 million tons. The expansion project, initially scheduled to be completed by September 30, 2011, was finished 7 months ahead of schedule and nearly \$16.4 million under budget. The construction of super cell 10 included upgrades to the leachate transmission pipe and construction of two new leachate storage tanks.

The project team used lessons learned from previous cell construction to devise the design for the super cells. A super cell is equivalent to an existing pair of cells – 1,000 feet long, 500 feet wide, and 70 feet deep – and is more cost-efficient because it simplifies the leachate collection system. The super cell design eliminated 12 inches of drainage gravel and requires fewer pumps, motors, crest pads, valves, and other pieces of equipment. The result was a cost reduction of \$1.5 million per super cell.

In addition, weather enclosures for cells 1 and 2 were constructed. The enclosures provide protection for the existing leachate piping systems and electrical/instrumentation.



## ERDF (Continued)



*Recovery Act funding is being used for disposal purposes at the Environmental Restoration Disposal Facility. Nine Hanford Site railcars (rear) are being disposed at the facility. (Photo 1)*

### **Facility and Equipment Upgrades**

WCH subcontractor ELRFowler completed construction of ERDF's expanded transportation maintenance facility (TMF). Only punch-list items remain. The expanded TMF will include two additional truck bays, an exterior awning that will cover two concrete pads, and a conference room. In July, construction of the container maintenance facility (CMF) and equipment maintenance facility (EMF) and operations center were completed.

The CMF includes a large container repair line, a maintenance shop, and a weld area. The equipment maintenance facility will include two service lines, an operational storage facility, a large concrete pad, and an exterior awning over a smaller concrete pad. The new operations center will help alleviate severe overcrowding of personnel and also accommodate new employees hired to handle the increasing waste volumes.

The TMF includes two additional truck bays, a large concrete pad, an exterior awning that will cover two smaller concrete pads, and a conference room.

## ERDF (Continued)



*A ribbon-cutting ceremony for the opening of three new maintenance facilities and an operations center was held at the Environmental Restoration Disposal Facility. (Photo 2)*

WCH continues to install radio-frequency identification tags for ERDF's new waste container tracking system. About 1,000 tags have been installed. The system, designed by Pacific Northwest National Laboratory, will assist the Waste Operations team by providing the location of full and empty containers.

ERDF's new batch plant is complete. The plant is used to produce concrete used to mix with debris, ensuring no void space during disposal operations.



## ERDF (Continued)



*The new batch plant is producing grout material for disposal operations at the Environmental Restoration Disposal Facility. (Photo 3)*

### Upcoming Activities

- Continue punch-list items for the transportation maintenance facility.

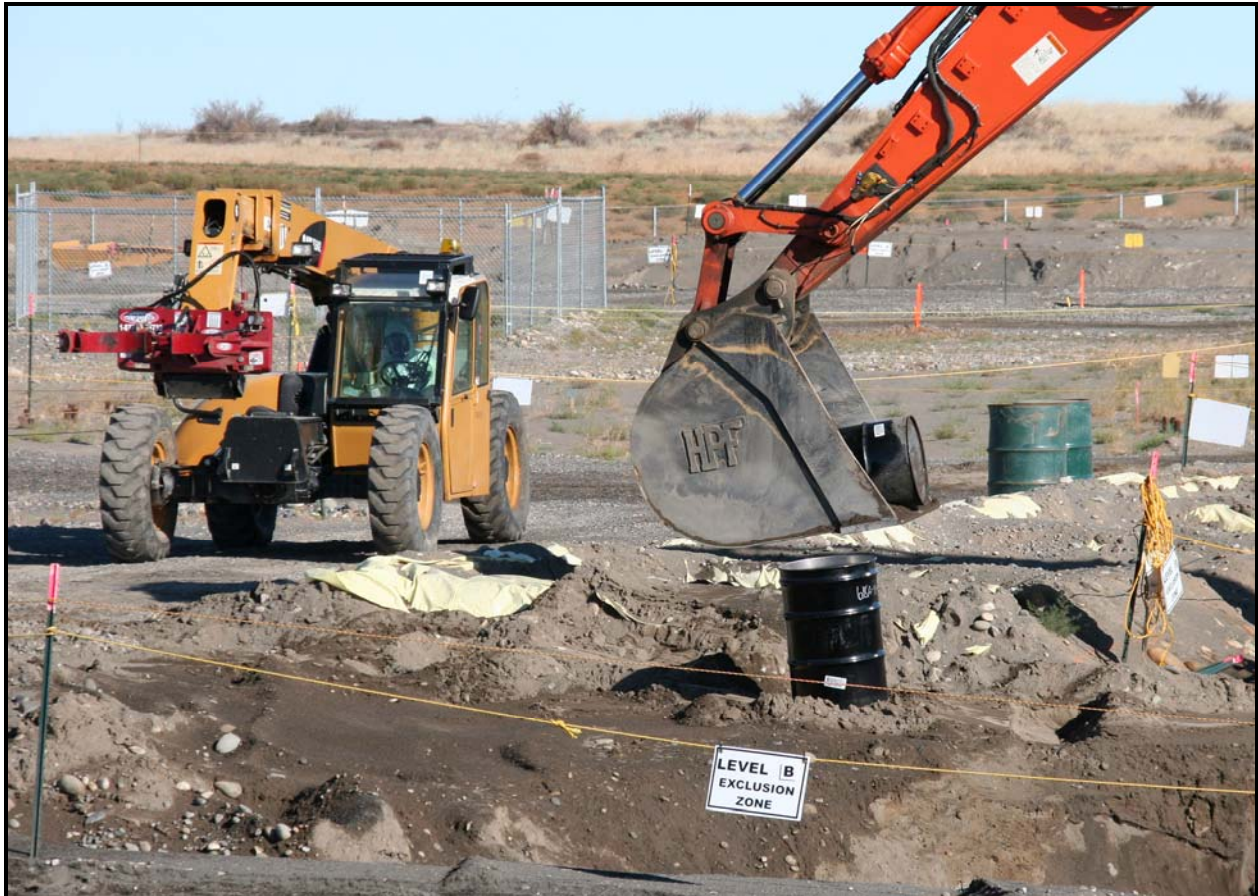
## 618-10 Burial Ground

### Trench Remediation Project

WCH continued excavation of waste trenches at the 618-10 Burial Ground. The project team continued excavation and drum removal from the burial ground's south trench. As of August 4, about 41,145 bank cubic meters have been removed.

The project team has uncovered more than 30 concrete-lined drums that were used to dispose of radioactive liquids. In addition, 30 drums that contain radioactively contaminated shavings in oil and miscellaneous debris have been unearthed. Oil was used in some disposed drums to keep uranium shavings or other material from igniting if exposed to oxygen.

The team also has found about 200 bottles containing liquids, which will be sampled and treated before disposal.



Washington Closure Hanford continues to remove drums at the 618-10 Burial Ground. So far, more than 60 drums have been unearthed. (Photo 4)



## 618-10 Burial Ground (Continued)



*An excavator uncovers a concreted drum from the north trench of the 618-10 Burial Ground. (Photo 5)*

## 618-10 Burial Ground (Continued)



*The surge trench on the east side of the 618-10 Burial Ground is expanded. Surge trenches are excavated in clean soil adjacent to the burial ground. They provide a below-ground area to hold material excavated during the trench excavation process. (Photo 6)*



## 618-10 Burial Ground (Continued)

The 618-10 Burial Ground operated from 1954 to 1963, receiving low- and high-activity radioactive waste from 300 Area laboratories and fuel development facilities. Low-activity wastes were primarily disposed in 12 trenches, while the moderate- and high-activity wastes were disposed in 94 vertical pipe units (VPUs). The VPUs were constructed by welding five bottomless drums together and buried vertically about 10 feet apart.

The 618-10 Burial Ground operated from 1954 to 1963, receiving low- and high-activity radioactive waste from 300 Area laboratories and fuel development facilities. Low-activity wastes were primarily disposed in 12 trenches, while the moderate- and high-activity wastes were disposed in 94 vertical pipe units (VPUs). The VPUs were constructed by welding five bottomless drums together and buried vertically about 10 feet apart.

In September 2010, WCH completed intrusive characterization field operations at the burial ground. Test pits were dug through a subset of disposal trenches, unearthing a limited number of drums to verify the condition and types of wastes that were disposed.

Several drums containing radioactive waste, a shipping cask, and miscellaneous waste were discovered during the intrusive trench characterization activities. The drums contained depleted uranium and uranium oxide. In addition, "concreted" 55-gallon drums also were discovered. Based on the records research and the finds during intrusive characterization, the number of drums the burial ground may contain is estimated to be between 2,000 and 6,000 (most likely closer to 2,000). That includes an estimated 800 concreted drums that were used to dispose of highly radioactive waste nested inside a pipe surrounded by concrete. The pipe contains the waste and the concrete provides radiation shielding for its contents. Workers also found a cask with unknown contents, bollards, bottles, metal pieces, and other miscellaneous debris.

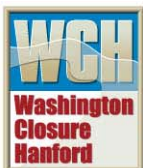
Nonintrusive characterization field activities were completed in May 2010. The scope of activities carried out as part of nonintrusive characterization included geophysical delineation, in situ characterization using a multi-detector probe, and soil sampling from below a selection of 10 VPUs. During in situ characterization, measurements were collected for 100 cone penetrometers in the trench area and 375 cone penetrometers in the VPU area.

### Upcoming Activities

- Continue excavation of waste trenches.

### Video

[Click here to view video of waste trench excavation at the 618-10 Burial Ground.](#)



## 618-11 Burial Ground

In June, WCH and subcontractor North Wind Inc. completed radiological characterization of all 50 vertical pipe units (VPUs) at the 618-11 Burial Ground. The characterization report is being reviewed and is expected to be finalized in August. Infrastructure work is scheduled to begin this fall.

The 618-11 Burial Ground operated from March 1962 to December 1967. Low- to high-activity wastes from 300 Area laboratories and fuel development facilities were disposed at the site. The burial ground not only contains VPUs, but also three slope-sided trenches and five large caissons.

The project team began field work by conducting geophysical delineation to determine the number and location of the VPUs and caissons. The delineation was determined using reconnaissance-level magnetic field survey, detailed-level magnetic and time-domain electromagnetic induction (TDEMI) survey, and ground-penetrating radar (GPR) survey.

North Wind then installed two cone penetrometers (narrow steel tubes) about 6 to 8 inches from the exterior of each VPU and to an approximate depth of 6 feet below the VPU. A gamma-logging probe was inserted into the cone penetrometers to identify the location of radioactive materials within the VPUs.



## 618-11 Burial Ground (Continued)



*During nonintrusive characterization at the 618-11 Burial Ground, a multi-detector probe was used to identify the location of radioactive materials within the vertical pipe units. (Photo 7)*

## 618-11 Burial Ground (Continued)

The VPUs typically were constructed by welding five 55-gallon bottomless drums end to end. The caissons were constructed of corrugated metal pipe (8-foot diameter, 10-foot long). The top of the caisson was 15 feet below grade and connected to the surface by an offset pipe (3-foot diameter) with a dome-type cap. The trenches are 900 feet long by 500 feet wide and 25 feet deep.

The purpose of nonintrusive characterization is to characterize the burial ground's contents without opening or exposing them to workers or the surface environment. The data collected will be used to help plan remediation strategies.

### Upcoming Activities

- Review characterization report.



## 100-F Area

WCH and subcontractor Ojeda Business Ventures continued with the remediation of 19 waste sites at 100-F Area. The project team is focusing on 100-F-57, a site with stained concrete and soil containing hexavalent chromium. Workers have completed concrete demolition and loadout of the western portion of the site to 15 feet and continue excavation and loadout of concrete rubble from a pipe trench at the site. They also are preparing to excavate a deeper plume to 19.5 feet.

The following sites have had the soil excavated and loaded out:

- 100-F-26:4 (process sewer pipeline section)
- 100-F-44:8 (fuel oil pipelines)
- 100-F-44:9 (process sewer pipeline)
- 100-F-45 (river bank pipeline)
- 100-F-47 (electrical substation foundation)
- 100-F-48 (coal-pit debris)
- 100-F-49 (maintenance garage lube pit foundation)
- 100-F-51 (fish laboratory footprint, pipelines)
- 100-F-55 (contaminated ash layer)
- 100-F-58 (asbestos-containing surface debris)
- 100-F-8 (drains)
- 100-F-62 (animal farm septic lines)
- 100-F-63 (animal farm radioactive effluent lines).

F Reactor operated from 1945 to 1965 as one of Hanford's nine surplus plutonium production reactors for the nation's nuclear weapons program. The reactor was cocooned in 2003. During reactor construction and operations, waste was disposed in unlined pits and trenches throughout the site.

The 100-F Area also was the home of the experimental animal farm (EAF), which from 1945 to 1976 operated adjacent to the reactor site. The EAF used animals for studying the potential effects of ionizing radiation exposure to humans in the occupational setting. Reactor and EAF sites in the 100-F Area contributed to the discharge of contaminated cooling water, other liquids, and solid wastes.

WCH completed cleanup of 53 waste sites at F Area in 2008, loading out more than 408,000 tons of waste. However, during the course of cleanup, 19 additional waste sites were discovered.

### Upcoming Activities

- Begin excavation of western portion of 100-F-57 to 15 feet.
- Collect closeout samples from 100-F-63 and 100-F-51.



## IU 2 & 6 Segment 1

WCH completed revegetation of the five IU 2&6 waste sites on November 30, 2010. Segment 1 encompasses about 28 square miles of the northwestern portion of the Hanford Site, away from the nine surplus plutonium production reactor areas. The waste sites were unique because they were primarily used for housing and support areas.

The remediation sites were:

- 600-341 (four areas that contained dry cell battery remnants and/or battery debris)
- 600-343 (residual ash from burned material and dumped asphalt in excavation trench)
- 600-344 (stained area)
- 600-345 (stained area with oil filters)
- 600-346 (four small fly-ash dump areas with metal debris).

Earlier this year a global positioning environmental radiological survey indicated that an additional site, 600-342, did not require additional remediation.



## Confirmatory Sampling

WCH completed sampling of ARRA confirmatory sites. Sampling was performed at 41 sites in accordance with the regulator approved work instructions that were completed earlier this year. Based on the sampling results, documentation is being prepared to recommend whether the sites require remediation. This documentation is then submitted to the DOE and the regulatory agencies for review and approval. The recommendations have been approved for more than 90% of the sites; the remaining documents are in the review and approval process.



## General

### Contracting Actions

- There were no significant contracting actions this week.

### Media, Visits, Press Releases

- WCH hosted a media event on cleanup progress being made at the 618-10 Burial Ground. Reporters from three local TV stations were briefed by WCH's Project Manager and the DOE Project Lead for the burial ground.



*John Darby, Washington Closure Hanford's Project Manager for the 618-10 Burial Ground, answers questions from the local media during a media event at the burial ground. (Photo 8)*