



*River Corridor Closure Project*

# **Recovery Act Weekly Report**

For the week ending June 10, 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

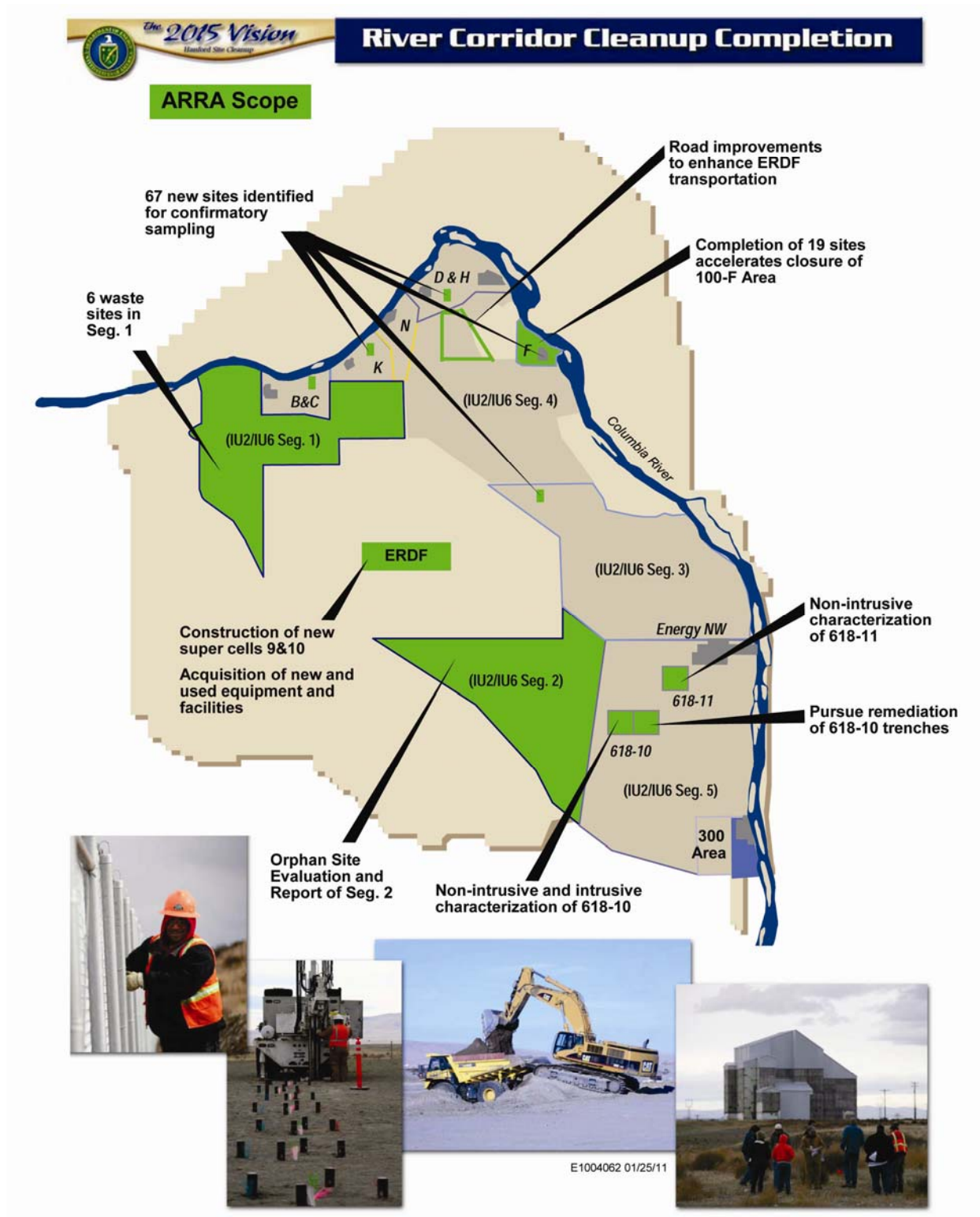
WCH is proposing to complete the early sampling process of 67 potential waste sites using ARRA funds. Confirmatory sampling is performed for sites that require additional information for determining if the site requires remediation.

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)



E1004062 01/25/11



# Safety

## Safety Accomplishments

As of May 22, 2011, WCH and its subcontractors worked 513,888 hours of ARRA scope with no lost-time incidents.

## Hazard Reductions

The River Corridor Closure Project's "Hot Topics" focuses on safety issues that affect Hanford Site workers. Last week's topic was titled "It's Gonna Be a Hot One." During the upcoming hot summer months, heat stress will continue to be a hot topic. To minimize risks to everyone it is important to follow the tips below.

### High Temperature Hazards and Controls

The Project coordinates with both the Project Safety and Health Representative and the Industrial Hygiene Representative to ensure hot season hazards have been addressed when temperatures are expected to exceed 80 degrees.

### High Temperature Weatherization Checklist

#### Personnel

- Determine the appropriate heat-related clothing (e.g., cooling vests, brimmed hats, evaporative head/neck bands, and "breathable" PPE) and consider this in work package planning.
- Provide and encourage drinking of cool palatable water or other acceptable fluid replacement drink.
- Provide information, training, and/or briefings regarding heat stress/strain and symptoms of heat-induced illness/injuries.
- Emphasis should be given on self awareness and timely reporting.
- Provide information and training regarding the dangers, precautions, and treatments of encounters with local insects, spiders, snakes, and other pests.
- Remind personnel to notify appropriate supervision of any personal conditions that may be affected or cause a hindrance when working in elevated temperature environments.
- Determine the appropriate use of cooling areas based upon work activities and weather conditions. Implement the appropriate cooling schedule.

#### Other

- Provide contact information for Heat Stress Hotline and Hanford Weather Station to employees.



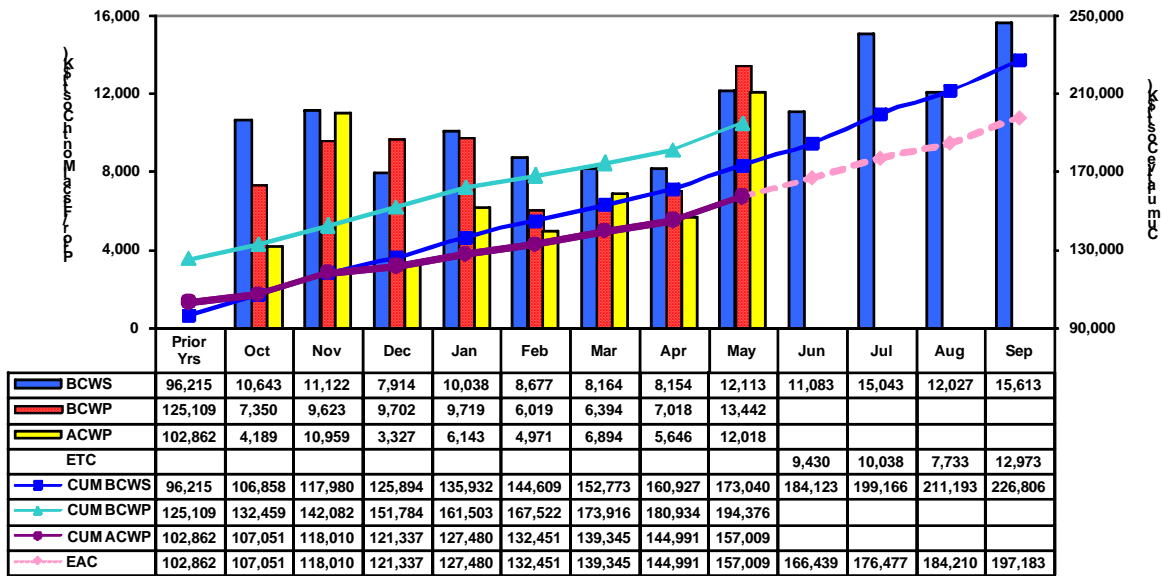
## Safety (Continued)

- Evaluate work activities during the planning phase of work package development and other work activities, and determine the need for cooling fans and misters where necessary.
- Evaluate the need for engineering controls that reduce the metabolic rate, provide general air movement, reduce process heat, and provide shielding from radiant heat sources and recommend controls during the planning phase of work package development and other work activities.
- Evaluate work activities to determine if moderate/heavy work activities could be conducted during the cooler parts of the day.

# 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

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



ARRA Proposals 1, 2 and 3 Actuals (\$K)

Apportionment Number	Apportionment Title		May 2011	Inception To Date	Cost Authority
RL-0041.R1	ERDF Cell Expansion	PMB	8,464	111,049	156,847
RL-0041.R2	River Corridor Soil & Groundwater (618-10)	PMB	3,554	45,960	76,754
<b>Sub Total</b>		<b>PMB</b>	<b>12,018</b>	<b>157,009</b>	<b>233,601</b>
<b>Fee</b>			<b>707</b>	<b>15,096</b>	
<b>Total</b>			<b>12,725</b>	<b>172,105</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 super cell 10 was authorized for use in early May.

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)



*Waste disposal continues in super cell 9 at the Environmental Restoration Disposal Facility. (Photo 1)*

## ERDF (Continued)



*Railroad ties from the Hanford Site continue to be disposed in super cell 9. ERDF is expected to receive nearly 60,000 railroad ties. (Photo 2)*

### **Facility and Equipment Upgrades**

Construction continues on ERDF's new maintenance facilities. The project team is testing the HVAC system and performing touch-up work in the container maintenance facility. Electrical work continues and the suspended ceilings are being installed in the equipment maintenance facility/operations center. In the transportation maintenance facility, the air, water, and lubrication lines are being installed.

The container maintenance facility will include 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 expanded transportation maintenance facility will include two additional truck bays, a large concrete pad, an exterior awning that will cover two smaller concrete pads, and a conference room. The project began pouring the concrete footers on the east side of the building.

## ERDF (Continued)



*Washington Closure Hanford subcontractor DelHur Industries continues to expand ERDF's transportation maintenance facility. Work on the facility is expected to be completed next month. (Photo 3)*

WCH continued to install radio-frequency identification tags and began testing the readers for the new waste container tracking system at ERDF. Pacific Northwest National Laboratory (PNNL) continues to produce radio-frequency identification tags for the new waste container tracking system at ERDF. So far, WCH has installed 140 tags on waste containers. PNNL is scheduled to deliver the balance of the 1,300 tags to WCH by early July. The tracking system will assist the Waste Operations team by providing the location of full and empty containers.

WCH completed its upgrade of ERDF's main gate intersection. The upgrade allows the facility to safely and efficiently handle the increased volume of traffic.

Operational testing is under way at ERDF's new batch plant. The batch plant will manufacture concrete used to mix with debris during disposal operations. The plant is expected to be placed into service by the end of the month.

## ERDF (Continued)



*Sand for ERDF's new batch plant continues to be stockpiled. The batch plant will be used to manufacture grout for disposal operations. (Photo 4)*

## ERDF (Continued)



*The screen plant continues to stockpile sand for ERDF's new batch plant. Washington Closure Hanford began operational testing of the batch plant last week. (Photo 5)*

Late last month, WCH transitioned to its new septic system at ERDF. The new system will handle the additional demands of ERDF's new maintenance facilities, as well as its existing facilities. Later this month, the facility's original septic tank will be demolished. The new septic system was designed by Columbia Engineers and Constructors, a small business based in Richland, Washington.

### **Upcoming Activities**

- Continue construction of the container maintenance facility.
- Continue construction of the equipment maintenance facility/operations center.
- Continue construction of the transportation maintenance facility.

## 618-10 Burial Ground

### Trench Remediation Project

WCH continued trench excavation of the 618-10 Burial Ground. As of June 9, a total of 24,900 cubic bank meters has been removed. Last week, the project team excavated six concreted drums for the north side of the burial ground. Soil sampling of the waste trenches also was performed.

The project team also performed setup and operational testing of a second drum punch facility and continued testing the burial ground's water system.



Washington Closure Hanford continues excavation of the waste trenches at the 618-10 Burial Ground. (Photo 6)

## 618-10 Burial Ground (Continued)



*So far, the project team has encountered several drums, including one concreted drum and another containing oil and miscellaneous debris. (Photo 7)*

## 618-10 Burial Ground (Continued)



*A radiological control technician takes a reading during trench excavation at the 618-10 Burial Ground. (Photo 8)*

## 618-10 Burial Ground (Continued)



*Samples are collected during trench excavation at the 618-10 Burial Ground. (Photo 9)*

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

## 618-10 Burial Ground (Continued)

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.
- Complete set-up of second drum punch facility.



## 618-11 Burial Ground

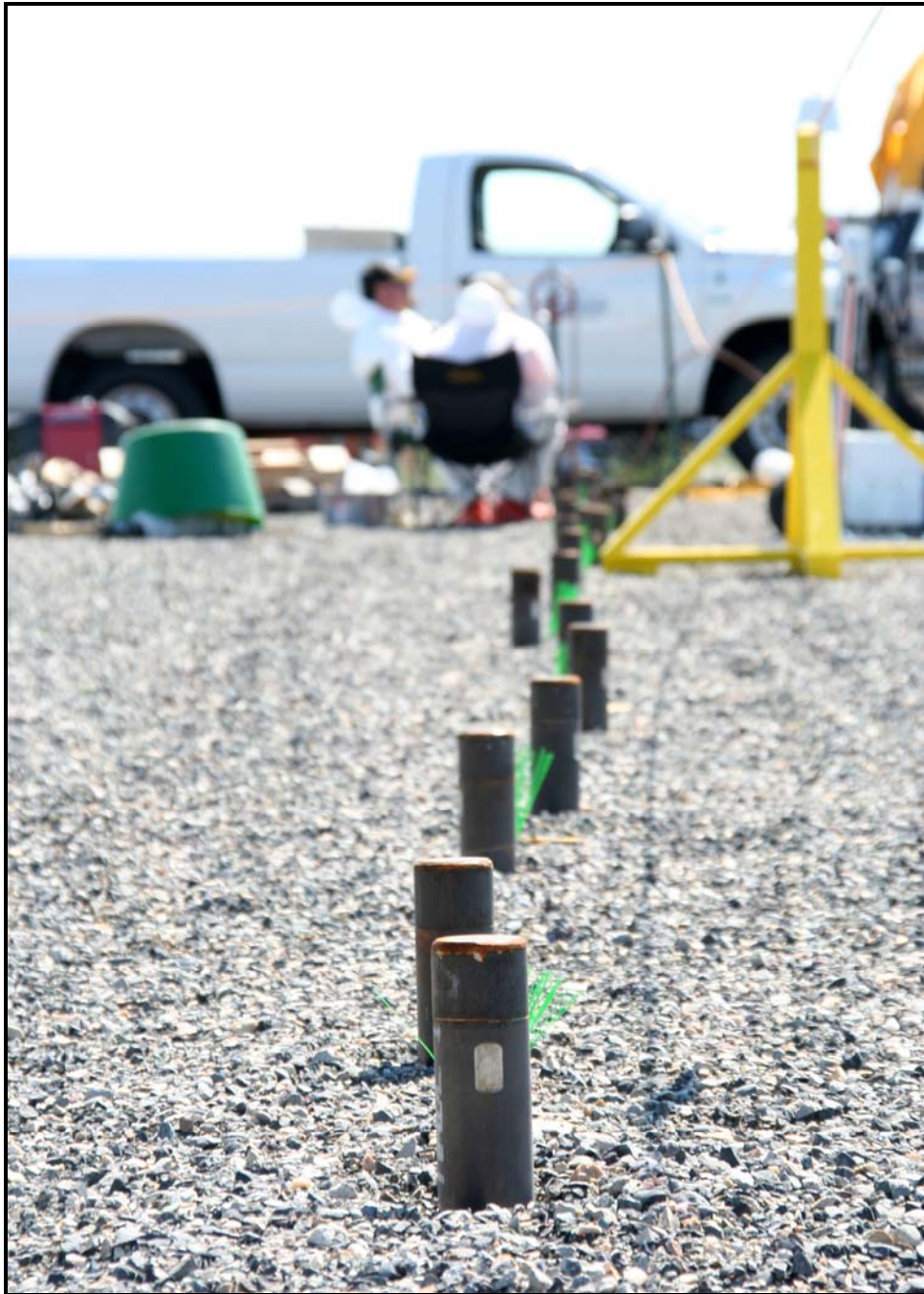
Nonintrusive characterization continues at the 618-11 Burial Ground. WCH subcontractor North Wind Inc. is performing radiological characterization of the vertical pipe units (VPUs).

The project team is inserting a gamma-logging probe into the cone penetrometers to identify the location of radioactive materials within the VPUs. Earlier this month, North Wind 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. To date, 34 VPUs have been characterized.



*Employees with Washington Closure Hanford subcontractor North Wind Inc. retrieve a multi-detector probe during nonintrusive characterization of the 618-11 Burial Ground. (Photo 10)*

## 618-11 Burial Ground (Continued)



*Two narrow steel sleeves called cone penetrometers were driven next to each of the 50 vertical pipe units at the 618-11 Burial Ground. (Photo 11)*

## 618-11 Burial Ground (Continued)

The 618-11 Burial Ground, which operated from March 1962 to December 1967, also contains three slope-sided trenches and five large caissons. Low- to high-activity wastes from 300 Area laboratories and fuel development facilities were disposed in the burial ground.

Prior to cone penetrometer installation, the project team conducted geophysical delineation to determine the number and location of the burial ground's VPUs and caissons. The delineation was determined using reconnaissance-level magnetic field survey, detailed-level magnetic and time-domain electromagnetic induction survey, and ground-penetrating radar survey.

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.

Low- to moderate-activity waste typically was disposed in the trenches, and moderate- to high-activity waste was disposed in the VPUs and caissons. Some high-activity waste was placed inside concreted-sealed drums and disposed in the trenches.

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.

## 618-11 Burial Ground (Continued)



*The 618-11 Burial Ground operated from March 1962 to December 1967. It is located next to Columbia Generation Station, a commercial nuclear power plant. (Photo 12)*

### Upcoming Activities

- Continue VPU radiological characterization activities.

### Video

[Click here to view the video of nonintrusive characterization.](#)

## 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 demolishing concrete at 100-F-57 and loading out concrete and underlying soil from the western portion of the site. The site consists of stained concrete and soil containing hexavalent chromium.

Samples collected from 100-F-47 (electrical substation foundation) and 100-F-44:8 (fuel oil pipelines) indicated that additional remediation is required. Preparations for excavation are under way.

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

- Continue excavation of western portion of 100-F-57 to 15 feet.
- Excavate additional material from 100-F-47.
- Excavate and loadout additional material from 100-F-44:8



## 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 80% of the sites; the remaining documents are in the review and approval process.



## General

### Media, Visits, Press Releases

- Six of DOE's Hanford Site tours made stops at ERDF. Visitors were briefed on the facility's operations and procedures.

### Contracting Actions

There were no significant contracting actions this week.

