



*River Corridor Closure Project*

# **Recovery Act Weekly Report**

For the week ending March 11, 2011

Contract DE-AC06-05RL14655

## Overview

Background Summary of Projects that Washington Closure Hanford (WCH) will accomplish using ARRA funds (pending definitization of scope and contract modifications).

### 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

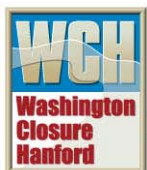
WCH is employing ARRA funds to clean up many failed waste sites not originally part of its contract. Sites in the 100-F and IU 2&6 segments 1&2 are proposed for waste site remediation in the two year period starting in October 2009.

### E. Confirmatory Sampling of other new sites

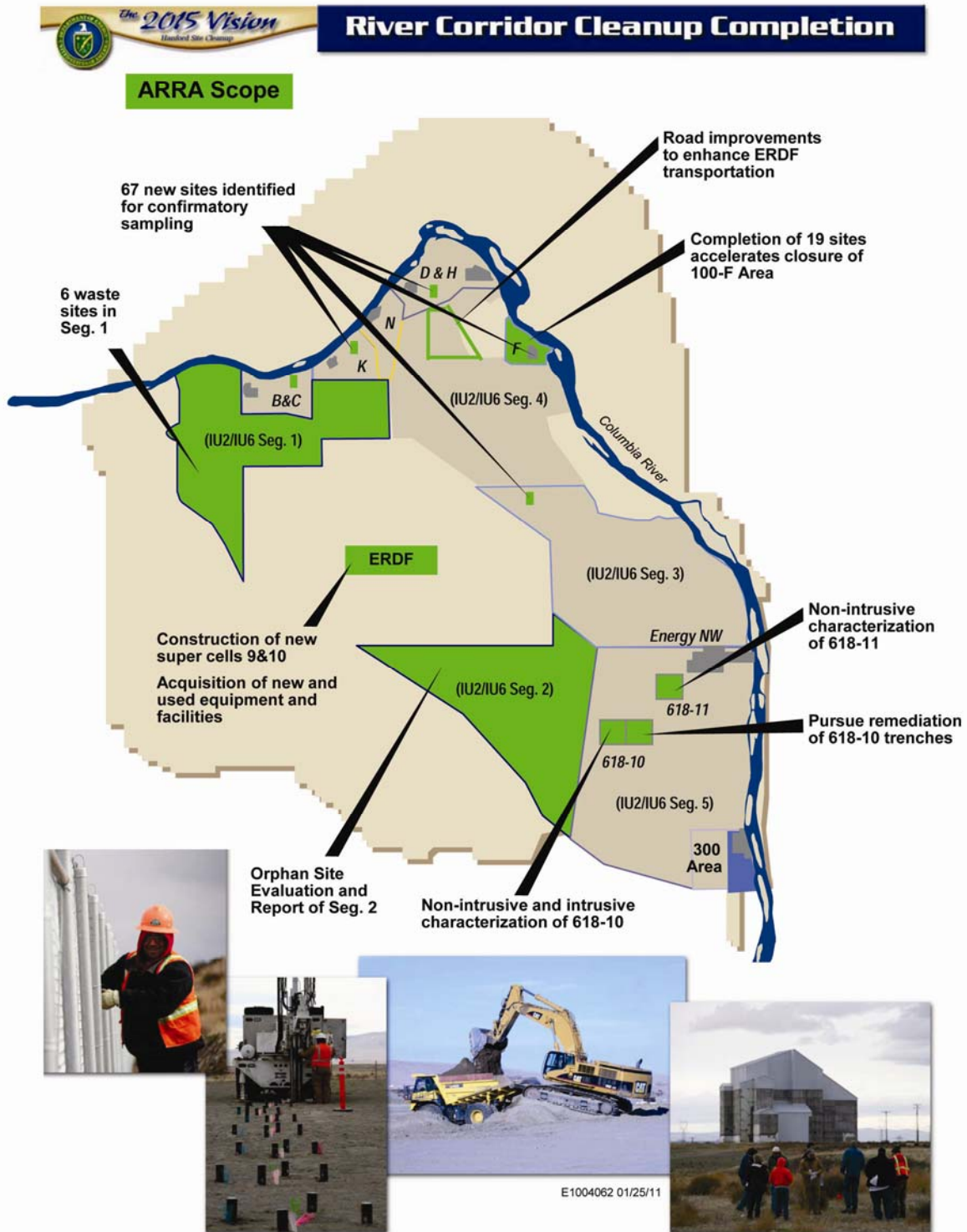
WCH is proposing to complete the early sampling process of 67 potential waste sites using ARRA funds. Confirmatory sampling is performed for sites that require additional information for determining if the site requires remediation.

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 January 23, 2011, WCH and its subcontractors have worked 365,552 hours of ARRA scope with no safety incidents.

## Hazard Reductions

The River Corridor Closure Project's "Weekly Roundup" focuses on safety topics that affect Hanford Site workers. This week's "Safety Toolbox" highlighted avoiding fatigue. Fatigue is defined as weariness or exhaustion from labor, exertion, or stress. When we are fatigued our sensory receptor does not have the power to respond to a situation.

### *Signs of Fatigue*

- Tiredness
- Falling asleep unwillingly
- Irritability
- Depression
- Loss of appetite.

### *Effects of Fatigue*

- Hindered decision-making ability
- Reduced productivity
- Inattentiveness
- Reduced ability to handle stress
- Loss of memory or ability to recall details
- Decreased reaction time.

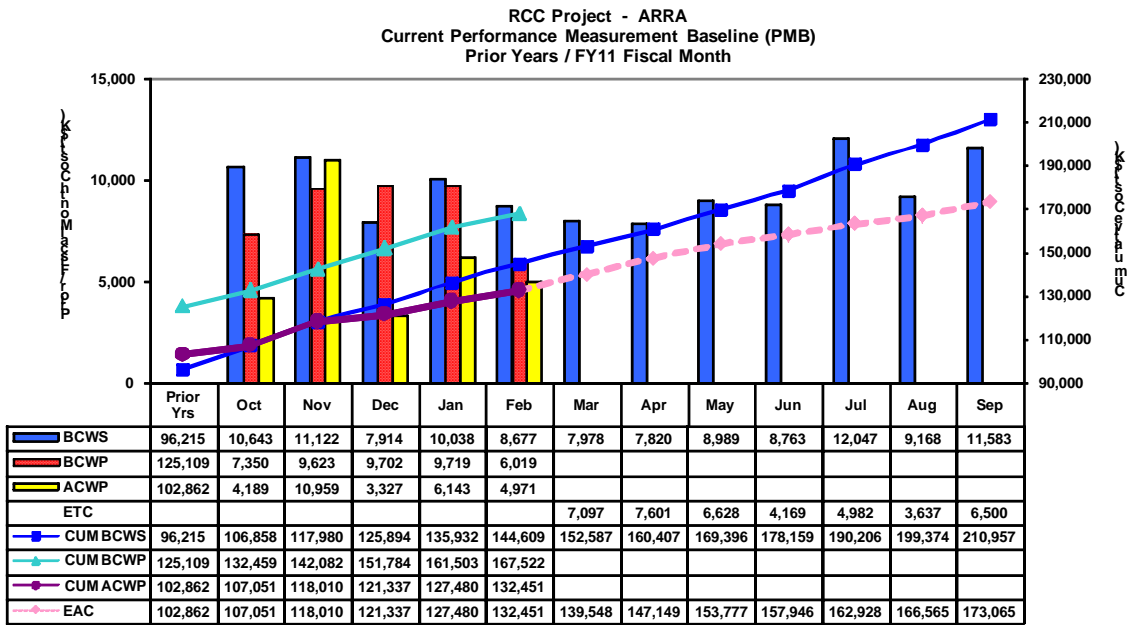
### *Prevention*

- Take frequent breaks for water, rest, and food.
- Encourage job rotation to avoid repetition and maintain awareness.
- Monitor behavior of co-workers for signs of fatigue, and relieve them whenever possible.
- Ensure the availability of adequate time off.
- Find a healthy balance between work and personal life.
- Become aware of training and counseling opportunities.



# 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 Definition	\$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	2/17/10	Reallocate Funds for Capital Expenditures	\$233.6	\$214.4



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

Apportionment Number	Apportionment Title		February 2011	Inception To Date	Cost Authority
RL-0041.R1	ERDF Cell Expansion	PMB	3,125	93,732	156,847
RL-0041.R2	River Corridor Soil & Groundwater (618-10)	PMB	1,847	38,719	57,566
<b>Sub Total</b>		<b>PMB</b>	<b>4,972</b>	<b>132,451</b>	<b>214,413</b>
<b>Fee</b>			<b>580</b>	<b>13,355</b>	
<b>Total</b>			<b>5,552</b>	<b>145,806</b>	

\* PMB = Performance Measurement Baseline.



## ERDF

### Super Cells 9 and 10 Construction

WCH received comments from the U.S. Environmental Protection Agency (EPA) on the final *Construction Quality Assurance (CQA) Report for Super Cell 10*. WCH will incorporate the comments and officially submit the report next week to the U.S. Department of Energy, Richland Operations Office and the EPA.

WCH and subcontractors TradeWind Services and DelHur Industries completed construction of the super cells 9 and 10 more than \$16 million under budget, months ahead of schedule, and with “zero” recordable injuries.



Waste is spread across super cell 9 at the Environmental Restoration Disposal Facility. The super cell was placed into service in mid-February. (Photo 1)

## ERDF (Continued)

WCH completed placement of the dome covers for the Environmental Restoration Disposal Facility's (ERDF's) two new leachate storage tanks – LST 3 and LST 4. The dome covers, which are made of structural steel and aluminum, are 13 feet high and weigh 27,400 pounds. The 8-foot-high tanks are 100 feet in diameter and have a capacity of about 425,000 gallons. LST 4 is expected to be in service next week.



*Construction of the two leachate storage tanks and their dome covers was completed at the Environmental Restoration Disposal Facility. (Photo 2)*

## ERDF (Continued)

### Facility and Equipment Upgrades

WCH continues with construction of ERDF's new maintenance facilities. The project team completed installation of underground utilities and poured a new section of the concrete floor at the transportation maintenance facility. Workers also completed installation of the sidewalls and roof of the operations center and continued to install insulation, electrical, and plumbing. In addition, drywall installation was completed at the container maintenance facility.

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.



*An employee with Washington Closure Hanford subcontractor ELRFowler installs siding on the west side of ERDF's equipment maintenance facility/operations center. (Photo 3)*



## ERDF (Continued)



*An ELRFowler employee tapes the drywall at ERDF's container maintenance facility. (Photo 4)*

## ERDF (Continued)

Pacific Northwest National Laboratory (PNNL) continues to produce radio-frequency identification tags for a new waste container tracking system at ERDF. The system will accurately track waste shipments and equipment, and generate real-time reports.

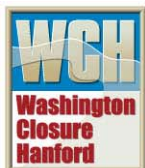
WCH subcontractor DelHur Industries continues electrical work at ERDF's new batch plant. The batch plant will produce "flow fill" concrete used to mix with debris, ensuring no void space during disposal operations. In support of the batch plant, WCH purchased two concrete mixer trucks and a pump truck from Peters and Keatts Equipment Inc. Peters and Keatts is based in Lewiston, Idaho.

Electrical work for ERDF's new septic system has been completed. The system was designed by Columbia Engineers and Constructors, a small business based in Richland, Washington.

TradeWind continues to construct the foundations of the weather enclosures for the crest pads associated with cells 1 and 2. The enclosures were designed by Vista Engineering, a local company.

### 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 continues to prepare for the start of full-scale remediation at the 618-10 Burial Ground. The project team completed the project safety review for surge trench excavation, which is scheduled to begin next week. Surge trenches are excavated in clean soil adjacent to the trench areas and are used to hold material excavated during the trench remediation process.

The project team also continued with training and mockup exercises, and is working to install wells and water tanks for fire control and dust suppression. Work to install electricity, roads, office trailers, and waste container transfer areas is complete.



*Washington Closure Hanford is installing wells at the 618-10 Burial Ground where remediation activities are scheduled to begin this month. (Photo 5)*

## 618-10 Burial Ground (Continued)

The 618-10 Burial Ground operated from 1954 to 1963, receiving low- and high-level radioactive waste from 300 Area laboratories and fuel development facilities. Low-activity wastes were primarily disposed in 23 trenches, while the moderate- and high-activity wastes were disposed in 94 VPUs. The VPUs were constructed by welding five bottomless drums together and buried vertically about 10 feet apart.



*Washington Closure Hanford subcontractor White Shield/Apollo has nearly completed utility installation at the 618-10 Burial Ground. The project team is scheduled to begin field activities next week. (Photo 6)*

In early September, WCH completed intrusive characterization field operations at the burial ground. Test pits were dug through a subset of disposal trenches and 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 as many as 4,000. That includes an

## 618-10 Burial Ground (Continued)

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. 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 with construction of site upgrades.
- Continue with training and mockups.
- Begin excavating surge trenches.



## 618-11 Burial Ground

WCH is making final preparations to begin nonintrusive characterization of the 618-11 Burial Ground. 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 618-11 Burial Ground operated from March 1962 to December 1967 and contains three slope-sided trenches, five large caissons, and 50 vertical pipe units (VPUs). It received low- to high-activity waste from 300 Area laboratories and fuel development facilities.

Nonintrusive characterization will provide data and information for planning remediation strategies for the VPUs, caissons, and trenches. The scope of work includes geophysical delineation and in situ radiological characterization using a gross gamma activity logging instrument.

WCH completed the project startup review for geophysical delineation, which is scheduled to begin next week. Geophysical delineation will help locate each of the VPUs and caissons. The delineation will be determined using reconnaissance-level magnetic field survey, detailed level magnetic and time domain electromagnetic induction (TDEMI) survey, and ground-penetrating radar (GPR) survey.

Beginning next month, the project team will use data gathered during geophysical delineation to install cone penetrometers (narrow steel tubes) about 6 to 8 inches around each VPU and to an approximate depth of 6 feet below the VPU. A gamma logging probe will then be inserted into the cone penetrometers to identify the location of radioactive materials within the VPUs.

Similar to the 618-10 Burial Ground, 618-11 is one of WCH's most hazardous and complex cleanup projects. The site is located in the 300 Area, adjacent to Energy Northwest's commercial nuclear power plant (Columbia Generating Station) and near the Columbia River.

The VPUs at the 618-11 Burial Ground are similar to those at 618-10. They 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), with the top of the caisson 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.



## 618-11 Burial Ground (Continued)



*Washington Closure Hanford performs prep work, such as mowing, fill, and gate modifications, at the 618-11 Burial Ground in preparation for field activities. Geophysical delineation is scheduled to begin next week. (Photo 7)*

### Video

[Click here to view the video on field work beginning at the 618-11 Burial Ground.](#)

## 100-F Area

WCH and subcontractor Ojeda Business Ventures continued with the remediation of 19 waste sites at 100-F Area. Excavation and loadout from 100-F-56 (surface debris, stains) and 100-F-58 (asbestos-containing surface debris) was completed.

The project team also continued excavation and loadout at 100-F-26:7. Last month, WCH Hanford subcontractor Mission Support Alliance deactivated power lines to allow the project team to remove the final sections of pipe at the site. Before removing the pipelines, the project team safely and efficiently secured approximately 200 gallons of sodium dichromate from pipelines, preventing potential leaking and groundwater contamination. The liquid has been sampled and waste profiles are being developed.

Excavation and loadout also continued at 100-F-49 (old maintenance garage lube pit foundation, pipelines, and drywells), and stockpiled material was loaded out from 100-F-62 (septic lines at the old experimental animal farm).

WCH continues to receive laboratory data from a test pit campaign at 100-F-57, where stained concrete and soil were found and the presence of hexavalent chromium was confirmed.

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.





## 100-F Area (Continued)

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. The sites are:

- 100-F-26:4 (process sewer pipeline section)
- 100-F-26:7 (sodium dichromate and sodium silicate pipelines)
- 100-F-44:8 (fuel oil pipelines)
- 100-F-44:9 (process sewer pipeline)
- 100-F-45 (buried riverbank effluent pipeline)
- 100-F-47 (electrical substation foundation)
- 100-F-48 (coal-pit debris)
- 100-F-49 (maintenance garage lube pit foundation, pipelines, drywells)
- 100-F-51 (fish laboratory footprint, pipelines)
- 100-F-55 (contaminated ash layer)
- 100-F-56 (scattered surface debris, stains)
- 100-F-57 (buried pipeline cradle debris)
- 100-F-58 (asbestos-containing surface debris)
- 100-F-60 (pipeline)
- 100-F-61 (stained soil site)
- 100-F-8 (French drains)
- 100-F-62 (animal farm septic lines)
- 100-F-63 (animal farm radioactive effluent lines)
- 600-351 (stained oil areas).

### Upcoming Activities

- Continue receiving lab data from test pit campaign at 100-F-57.
- Begin excavation and stockpiling waste from 100-F-45, begin size reducing pipe.
- Complete excavation and loadout at 100-F-49.
- Begin excavation and loadout of 600-351.



## IU 2 & 6 Segment 1

WCH completed revegetation of the five IU 2&6 waste sites on November 30. Segment 1 encompasses about 23 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:

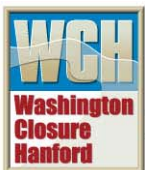
- 600-341 (four areas that contained dry cell battery remnants and/or battery debris)
- 600-343 (residual ash from burned material and dumped asphalt in excavation trench)
- 600-344 (stained area)
- 600-345 (stained area with oil filters)
- 600-346 (four small fly-ash dump areas with metal debris).

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 75% of the sites, and the remaining documents are under development or in the review and approval process.



## General

### **Media, Visits, Press Releases**

No significant media events this week.

### **Contracting Actions**

No significant contracting actions this week.

