



*River Corridor Closure Project*

# Recovery Act Weekly Report

For the week ending July 1, 2011

Contract DE-AC06-05RL14655

## 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

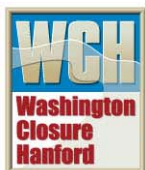
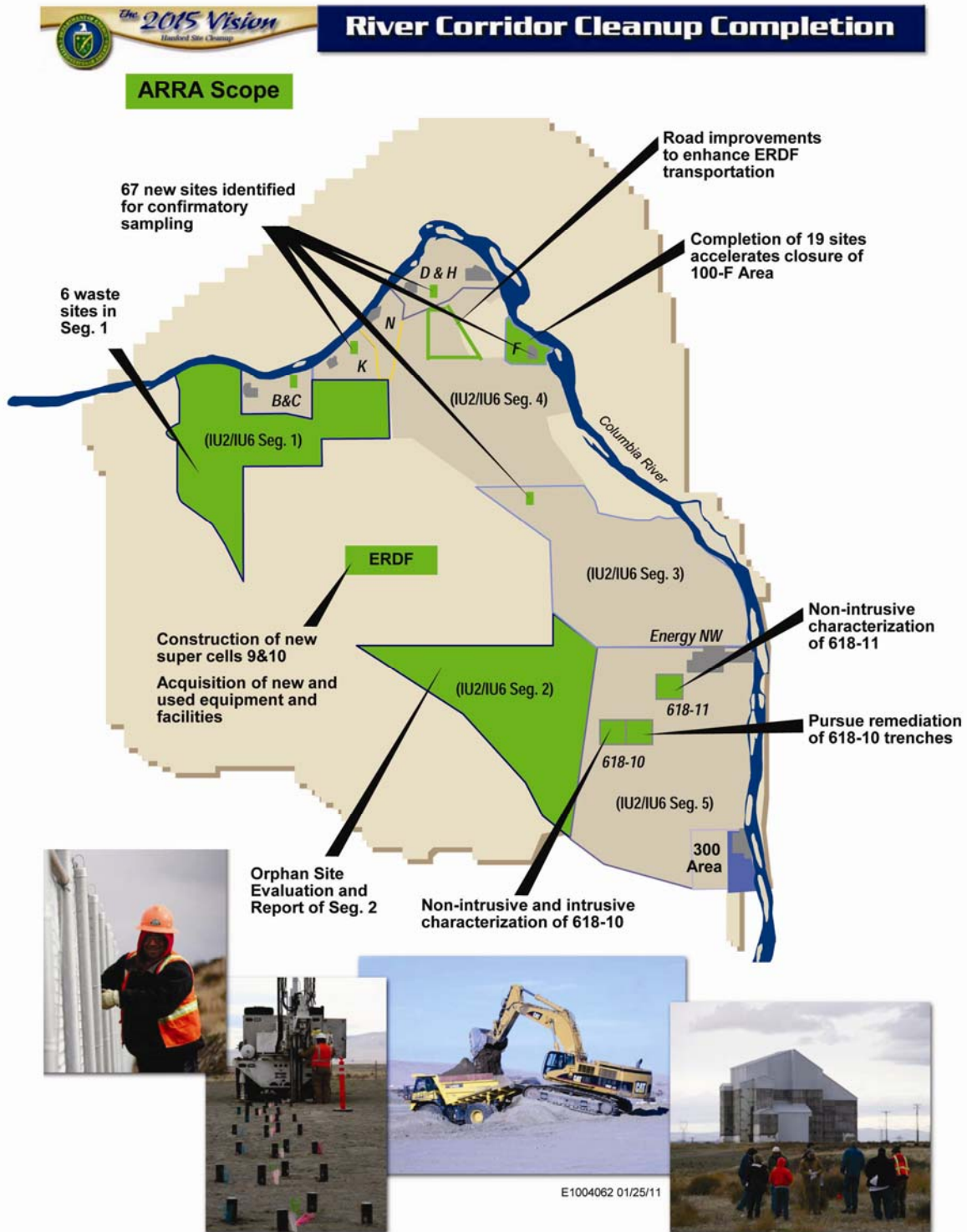
WCH is proposing to complete the early sampling process of 67 potential waste sites using ARRA funds. Confirmatory sampling is performed for sites that require additional information for determining if the site requires remediation.

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 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 "Safety Toolbox" focuses on safety issues that affect Hanford Site workers. A recent topic was titled "Handy Tips for Safety."

### Ignorance is not bliss

When OSHA revised its personal protective equipment (PPE) standard in 1994, it included a new rule on hand safety. There were two main reasons for revising the overall PPE rule: (1) too many employees were not wearing PPE, and (2) too many employees who did wear PPE were either using the wrong PPE or using it incorrectly. Regarding hand injuries specifically, one study showed that 70% of injured workers did not wear gloves, and the remaining 30% wore gloves that were inadequate, damaged, or wrong for the type of hazard being protected against. OSHA concluded that it simply wasn't enough for employers to require employees to wear PPE – the employer needed to select PPE on the basis of the specific conditions and potential hazards of the task to be performed.

### Have employees conduct their own hazard assessment for hand safety

OSHA requires employees to determine the types of PPE to be required by assessing the workplace for hazards. Involving employees in this hazard assessment can be an effective training technique. On the topic of hand safety, employees should be asked to list all the ways their hands might be injured on the job. Depending on the jobs performed in your workplace, the list might include:

- Cuts, lacerations, punctures, and even amputations
- Abrasions from rough surfaces
- Broken fingers or other bones in the hand
- Chemical burns
- Severe skin irritation (dermatitis) from contact with certain chemicals
- Thermal burns from touching very hot objects
- Absorption of hazardous substances through unprotected skin.

### Choose the right gloves for the job

Of course, wearing gloves will help protect against many of the hazards listed above, but not just any kind of glove will do. As another training exercise, employees are asked to match the hazards they've identified with the right kind of glove and to explain why certain types of gloves are not appropriate for certain hazards. (For example, use rubber rather than cotton gloves for handling hazardous liquids because rubber repels liquids and cotton absorbs them). And for hand injuries that generally are not prevented by gloves, training should be conducted on safe ways to use hand tools, power tools, machinery, and other causes of serious injuries.



## Safety (Continued)

### Why it matters

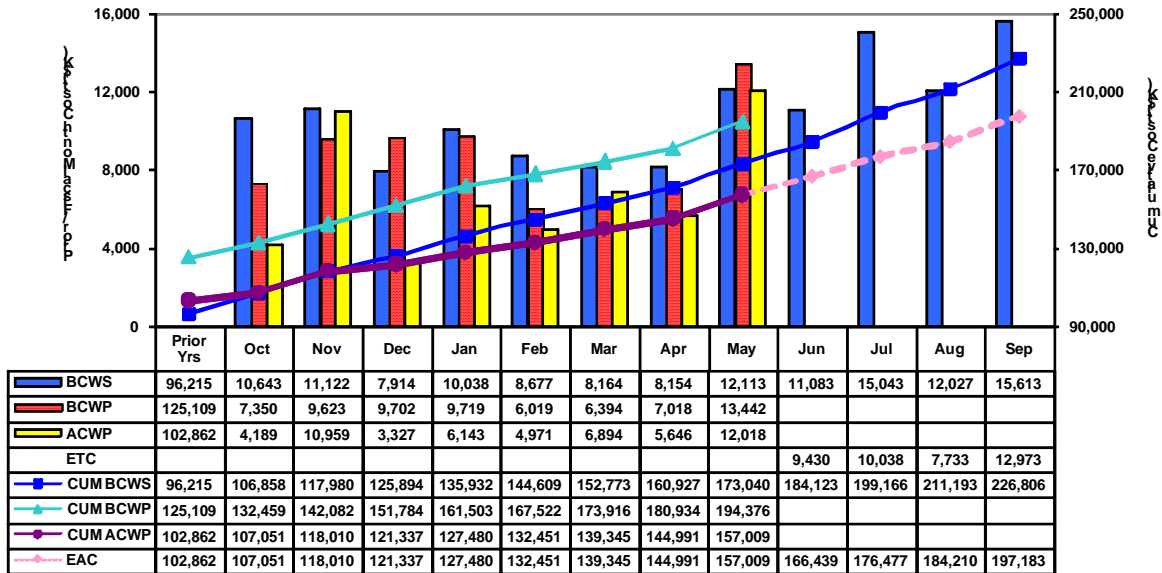
- There are about 250,000 serious hand, finger, and wrist injuries every year in private industry, according to Bureau of Labor data.
- In a recent year, about 8,000 of these injuries were amputations.
- In fiscal year 2004, OSHA issued more than 1,000 citations for violations of the “General Requirements” section of its PPE standard.



# 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 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. A project startup review package for super cell 10 is under development.

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)



*An aerial photo taken in late June shows the 58,500 Hanford Site railroad ties that were disposed in super cell 9 at the Environmental Restoration Disposal Facility. (Photo 1)*



## ERDF (Continued)



*The Environmental Restoration Disposal Facility has received 7 of 11 railcars from the 212-R rail spur. The remaining railcars are expected to be delivered next week. The railcars contained lead-lined casks used to transport irradiated fuel. (Photo 2)*

### **Facility and Equipment Upgrades**

Construction continues on ERDF's new maintenance facilities. Water is being hooked up to the container maintenance facility (CMF) and equipment maintenance facility (EMF)/operations center. The project team is completing finish work at the CMF and installing flooring and carpet in the EMF/operations center. Electrical and plumbing work continues in the truck 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.

## ERDF (Continued)

WCH continues to receive radio-frequency identification tags for ERDF's new waste container tracking system. The system was designed by Pacific Northwest National Laboratory (PNNL). To date, PNNL has delivered 559 of 1,300 tags.

WCH is reviewing procedures and the Job Hazard Analysis for ERDF's new batch plant. The plant will manufacture concrete used to mix with debris during disposal operations. It is expected to be in service in early July.

### 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 30, a total of 29,600 bank cubic meters has been removed.



*An aerial photo taken in late June shows trench excavation in the north section of the 618-10 Burial Ground. (Photo 3)*

## 618-10 Burial Ground (Continued)



*Washington Closure continues trench excavation of the 618-10 Burial Ground. So far, several concreted drums and other containers that contain uranium have been found. (Photo 4)*

## 618-10 Burial Ground (Continued)



*Washington Closure is working on the north and south sides of the 618-10 Burial Ground. (Photo 5)*

## 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.

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 and processing of anomalies (drums and bottles).



## 618-11 Burial Ground

WCH and subcontractor North Wind Inc. completed radiological characterization of the 50 vertical pipe units (VPUs) at the 618-11 Burial Ground. The characterization report is expected to be completed by August and 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.

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

- Develop 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 demolishing concrete at 100-F-57 and loading out concrete and underlying soil. The site consists of stained concrete and soil containing hexavalent chromium.

The project team also completed excavation and loadout from 100-F-47 (electrical substation foundation) and 100-F-61 (stained soil).



*Washington Closure Hanford subcontractor Ojeda Business Ventures continues excavation and loadout of concrete at 100-F-57. (Photo 6)*



## 100-F Area (Continued)



*The stained concrete and underlying soil at 100-F-57 contains hexavalent chromium. (Photo 7)*

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).

## 100-F Area (Continued)

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.
- Collect closeout samples from 100-F-45.
- Collect closeout samples from 100-F-55.
- Collect closeout samples from 100-F-62.



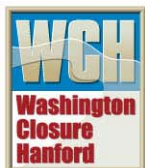
## IU 2 & 6 Segment 1

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

- Ray Hamilton, captain of Columbia River Journeys, toured ERDF as part of a Hanford Site tour. Mr. Hamilton was briefed on the facility's operations and procedures.

### Contracting Actions

- There were no significant contracting actions this week.

