



*River Corridor Closure Project*

# Recovery Act Weekly Report

For the week ending April 15, 2011

Contract DE-AC06-05RL14655

*Protecting the Columbia River*

## 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

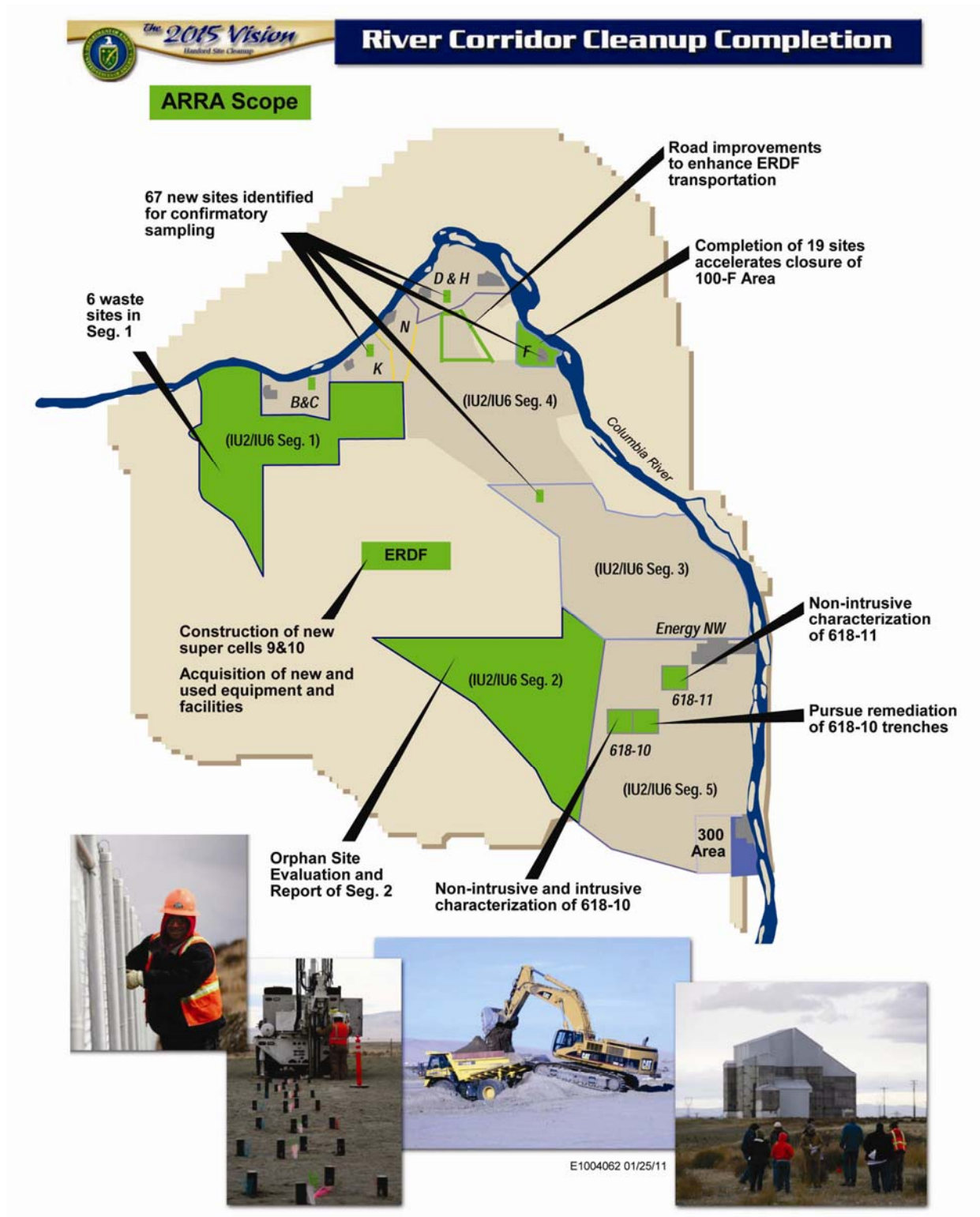
WCH is proposing to complete the early sampling process of 67 potential waste sites using ARRA funds. Confirmatory sampling is performed for sites that require additional information for determining if the site requires remediation.

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 March 20, 2011, WCH and its subcontractors have worked 423,305 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 Awareness" section of the Roundup highlighted safe digging. April is "National Safe Digging Month," an initiative that urges excavators to call 811 before beginning a digging project to avoid the injuries or fatalities that could result from striking a utility line.

According to the Common Ground Alliance, a utility line is damaged by a professional excavator or homeowner once every three minutes. One third of these incidents are caused by failure to call 811 before beginning a digging project.

Striking a single line can cause injury or death, significant repair cost, fines, and inconvenient outages, which is why every digging project, no matter how large or small, warrants a call to 811.

Last fall in Hanford's 200 East Area, a crew was preparing to install temporary office and bathroom trailers to support additional personnel. The installation activities included excavation for a new fire hydrant and electrical power.

Although the area had been previously scanned for utilities/interferences during the bid phase and preparation phase, soil and gravel had been added for the placement of a trailer, subsequently erasing some of the original markings.

Prior to the start of excavation, a ground scanning crew had returned to remark the underground interferences, but did not completely finish due to some ongoing site grading in the vicinity. An informal verbal communication was made to a field worker supervisor that the scanning crew would come back to finish the job the following day.

This was not properly communicated to the excavation crew. When the excavation started the following day, an abandoned cathodic protection line was found broken during potholing activities. A zero voltage check was performed, the broken piece of line removed, and work was released for continued excavation. The following morning an additional cathodic protection line and low voltage communication line were broken during machine excavation. The low voltage communication line was shown on the scan report, but ground markings were missing.

In this case, the result of a communication error and incomplete scan and marking of the ground caused unnecessary damage to utility lines.

## Remember whether at home or at work:

- Perform all work safely using the five core functions of the Integrated Safety Management System.
- Watch out for each other.
- Apply ALARA principles to any potential hazardous task.



## Safety (Continued)

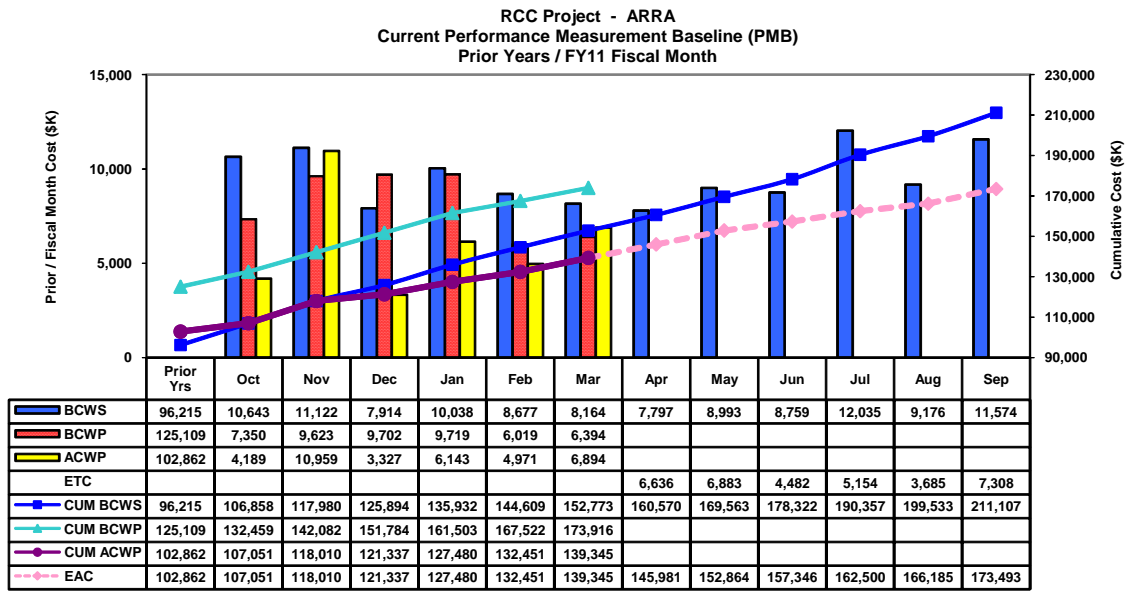
- If you aren't sure, pause and get the right answer.
- Issue a Stop Work for imminent safety hazards.
- Learn from both your successes and mistakes.
- Report to work fit for duty; go home as healthy and safe as you were when you came to work.



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

## River Corridor Closure Project - ARRA



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

Apportionment Number	Apportionment Title		March 2011	Inception To Date	Cost Authority
RL-0041.R1	ERDF Cell Expansion	PMB	3,973	97,705	156,847
RL-0041.R2	River Corridor Soil & Groundwater (618-10)	PMB	2,921	41,640	57,566
Sub Total		PMB	6,894	139,345	214,413
Fee			460	13,814	
Total			7,354	153,159	

\* PMB = Performance Measurement Baseline.



## ERDF

### Super Cells 9 and 10 Construction

Washington Closure Hanford (WCH) is awaiting approval on the final Construction Quality Assurance (CQA) Report for Super Cell 10 and Leachate Storage Tank No. 3. The report was submitted earlier this month to the U.S. Department of Energy, Richland Operations Office (DOE-RL) and the U.S. Environmental Protection Agency (EPA).

The Waste Operations team began disposing contaminated railroad ties in super cell 9. Approximately 65,000 railroad ties will cover about half of the super cell floor. The Hanford Site had more than 110 miles of railroad track, only a fraction is still in use.

Super cell 9 was placed into service in mid-February. WCH and subcontractors TradeWind Services and DelHur Industries completed construction of both super cells with “zero” recordable injuries, months ahead of schedule, and more than \$16 million under budget.



On April 6, more than 700 waste containers were disposed at the Environmental Restoration Disposal Facility. Recovery Act funding has helped accelerate cleanup throughout the Hanford Site. (Photo 1)

## ERDF (Continued)



*ERDF personnel began disposing of contaminated railroad ties in super cell 9. The construction of super cell 9 is part of a \$100 million expansion and upgrade of the facility. (Photo 2)*

### Facility and Equipment Upgrades

Progress continues with the construction of ERDF's new maintenance facilities. WCH subcontractor ELRFowler poured the concrete slab and is installing siding and roofing on the east addition of the transportation maintenance facility. Construction of the interior walls was completed in the equipment maintenance facility (EMF) portion of the EMF/operations center. In the container maintenance facility, the project team installed the door openers, metal siding on the walls, and HVAC trim.

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 ELRFowler poured another section of concrete for the east addition of ERDF's transportation maintenance facility. (Photo 3)*

## ERDF (Continued)



*An ELRFowler employee floats a section of the recently poured concrete slab for the east addition of the container maintenance facility. (Photo 4)*

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

WCH subcontractor DelHur Industries has completed electrical tie-in at ERDF's new batch plant. The cement for the plant has been ordered, and an operations test is scheduled for later this month. The batch plant will produce concrete used to mix with debris, ensuring no void space during disposal operations.

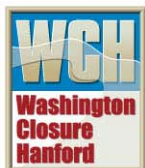
## ERDF (Continued)

The final report for ERDF's new septic system has been submitted to the Washington State Department of Health. The septic system was designed by Columbia Engineers and Constructors, a small business based in Richland, Washington.

TradeWind Services continues to construct weather enclosures for the crest pads associated with cells 1 and 2. In crest pad building 2, the roofing and siding have been installed and the interior walls are under construction. The project team also is beginning to install siding and roofing in crest pad building 1. 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.
- Continue construction of crest pad buildings associated with cells 1 and 2.

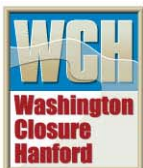


## 618-10 Burial Ground

### **Trench Remediation Project**

WCH conducted a project startup review for trench excavation of the 618-10 Burial Ground. Trench excavation is expected to begin next week. The project team also is installing water tanks for dust suppression and setting up the drum processing area (instrument stations, drum storage area). Mockup exercises and training also continued.

Earlier this month, the project team completed excavation of a surge trench in clean soil adjacent to the burial ground. The surge trench will provide a below-ground area to hold material excavated during the remediation process.



## 618-10 Burial Ground (Continued)



*An excavator operator performs mockup exercises at the 618-10 Burial Ground. Remediation of the burial ground's trenches is scheduled to begin next week. (Photo 5)*

## 618-10 Burial Ground (Continued)



*An excavator operator prepares to place a drum into a salvage container during mockup exercises at the 618-10 Burial Ground. (Photo 6)*

## 618-10 Burial Ground (Continued)



*A telehandler operator conducts mockup exercises at the 618-10 Burial Ground. (Photo 7)*

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 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 early September, 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 as many as 4,000. That includes an estimated 800 concreted drums that were used to dispose of highly radioactive waste nested

## 618-10 Burial Ground (Continued)

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 trench excavation.



## 618-11 Burial Ground

WCH completed mobilization activities in preparation for 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 data collected will be used to help plan remediation strategies.

The project team continued to analyze data gathered during geophysical delineation, which is used to help locate each of the burial ground's vertical pipe units (VPUs) and caissons. The delineation is determined using reconnaissance-level magnetic field survey, detailed level magnetic and time domain electromagnetic induction (TDEMI) survey, and ground-penetrating radar (GPR) survey.

The project team also continued characterization project startup review activities. Upon completion of the startup review activities, WCH subcontractor North Wind Inc. will begin to install cone penetrometers around the VPUs. Cone penetrometers (narrow steel tubes) will be installed 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.

The 618-11 Burial Ground operated from March 1962 to December 1967 and contains three slope-sided trenches, five large caissons, and 50 VPUs. It received low- to high-activity waste from 300 Area laboratories and fuel development facilities.

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). 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.



## 100-F Area

WCH and subcontractor Ojeda Business Ventures continued with the remediation of 19 waste sites at 100-F Area.

The project team began 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 loaded out plume material from 100-F-26:7, a site that contained sodium dichromate pipelines. Before removing the pipelines, the approximately 200 gallons of sodium dichromate was safely and efficiently secured, preventing potential leaking and groundwater contamination.

Sludge found in a storage tank at 100-F-49 (old maintenance garage lube pit foundation, pipelines, and drywells) was removed, and the remaining waste at the site was loaded out. Closeout samples from F-44:8 (small diameter fuel oil pipelines) also were collected.



*Washington Closure Hanford subcontractor Ojeda Business Ventures demolishes concrete slabs at 100-F-57, a waste site located near F Reactor. (Photo 8)*

## 100-F Area (Continued)



Waste site 100-F-57 was found to contain stained concrete and soil containing hexavalent chromium. (Photo 9)

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

- Collect closeout samples from F-26:4.
- Collect closeout samples from F-47.
- Continue demolishing concrete and loading out concrete and underlying soil at 100-F-57.

### Video

[Click here to view video of remediation at 100-F Area.](#)



## 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; the remaining documents are in the review and approval process.



## General

### Media, Visits, Press Releases

- The ERDF team continues to support the DOE's public tours of the Hanford Site. The tour season began April 12 and runs through September 22. As part of the tour, visitors are briefed at ERDF on the facility's operations and procedures.

### Contracting Actions

No significant contracting actions this week.

