



*River Corridor Closure Project*

# **Recovery Act Weekly Report**

For the week ending February 18, 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

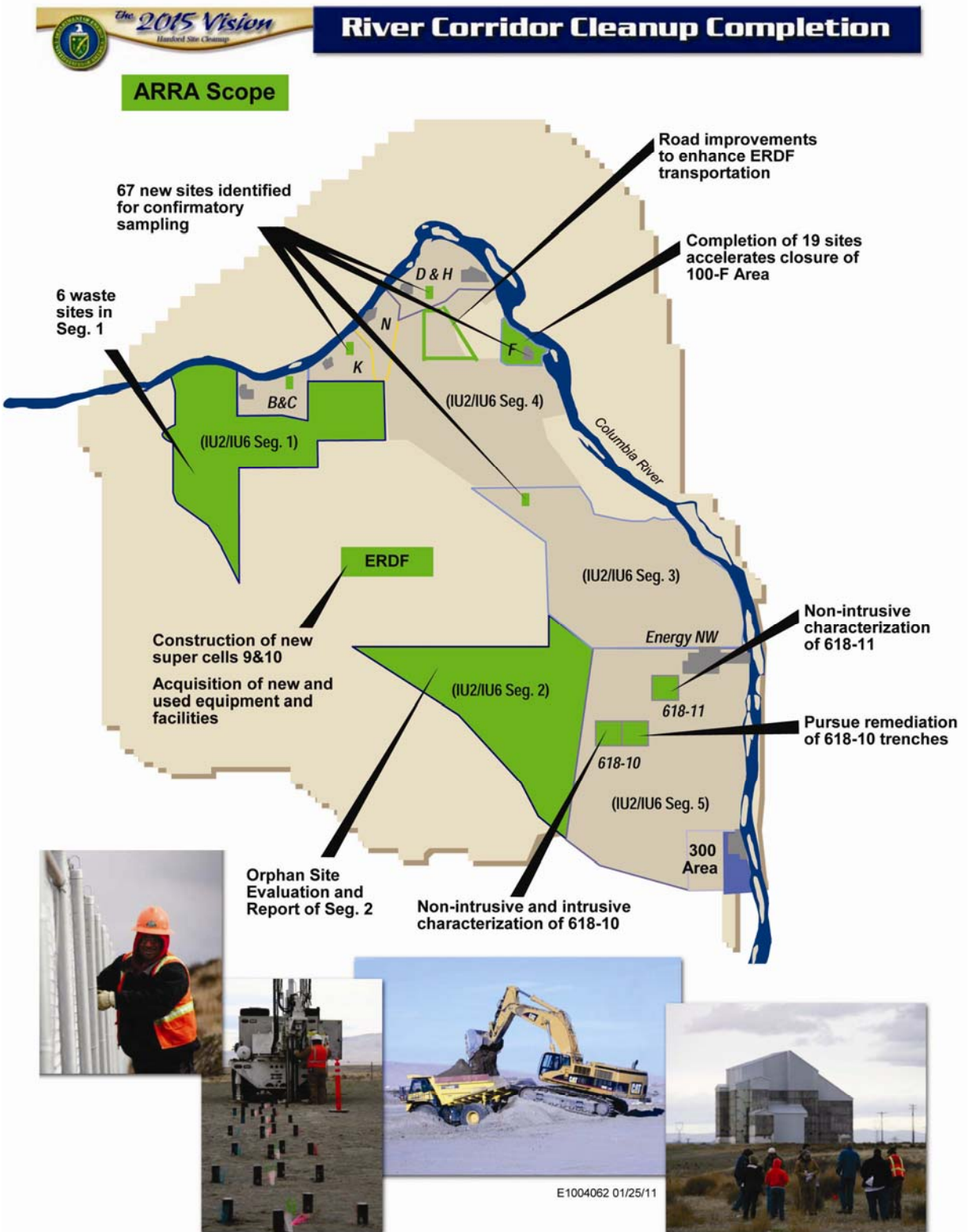
WCH is proposing to complete the early sampling process of 67 potential waste sites using ARRA funds. Confirmatory sampling is performed for sites that require additional information for determining if the site requires remediation.

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)



E1004062 01/25/11



# 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**

### Safety Events/Activities

- Provided a hazard contamination control word search activity to all employees.
- Celebrated 3 million safe work hours without a day away from work incident for all of WCH including subcontractors.

### Health Focus

- Provided safety topics on proper vision checks.

### Incident Severity Reduction

- Provided Safety Awareness Bulletins on various ergonomics topics, including ergonomic-general requirements and regulations, and the effects of pushing and pulling.
- Provided topics on distracted driving, construction equipment, and working around hazards.

### Electrical Safety Focus

- Provided a lockout/tagout safety presentation.
- Provided information on arc flash potential, controls, and precautions.

### IH Program Improvements

- Provided Cold Stress controls and precautions to employees.
- Provided controls and precautions for extreme weather conditions and the potential health effects for personnel.
- Continued with the development of an IH Improvement Plan to systematically integrate the changes and improvements to the sampling protocols for beryllium and other exposure potential contaminants.

### Subcontractor Oversight

- Provided DOE with a review of the flow down of requirements to all subcontractors along with a review of the current process and the improvements to be initiated through procurement and the subcontract technical representatives.



## Safety (Continued)

- Conducted oversight of excavations for both WCH and subcontractor employees reviewing permits, excavation requirements, application and compliance of requirements, knowledge of these requirements and the interface with the subcontractors to ensure that the appropriate requirements are flowed down to the subcontractors.
- Provided safety topic on importance/requirements for inspection of fall protection equipment and elevated work apparatus.

### Sitewide Program Implementation

- Issued the revision to the Hoisting and Rigging requirements of the sitewide program. Issued a Standing Order to ensure that the OSHA requirements for hoisting and rigging were in place while the revision to the sitewide hoisting and rigging manual were evaluated.
- Established a WCH beryllium working group, including senior management and union representatives, to discuss issues and changes to the program and improvements made programmatically on a weekly basis.
- Provided an OSHA interpretation to the sitewide fall protection committee on requirements for working on heavy equipment.

### Human Performance Initiative

- Provided a Lessons Learned on how to communicate with employees to help increase their effectiveness, increase the likelihood of the desired results, and change behaviors.

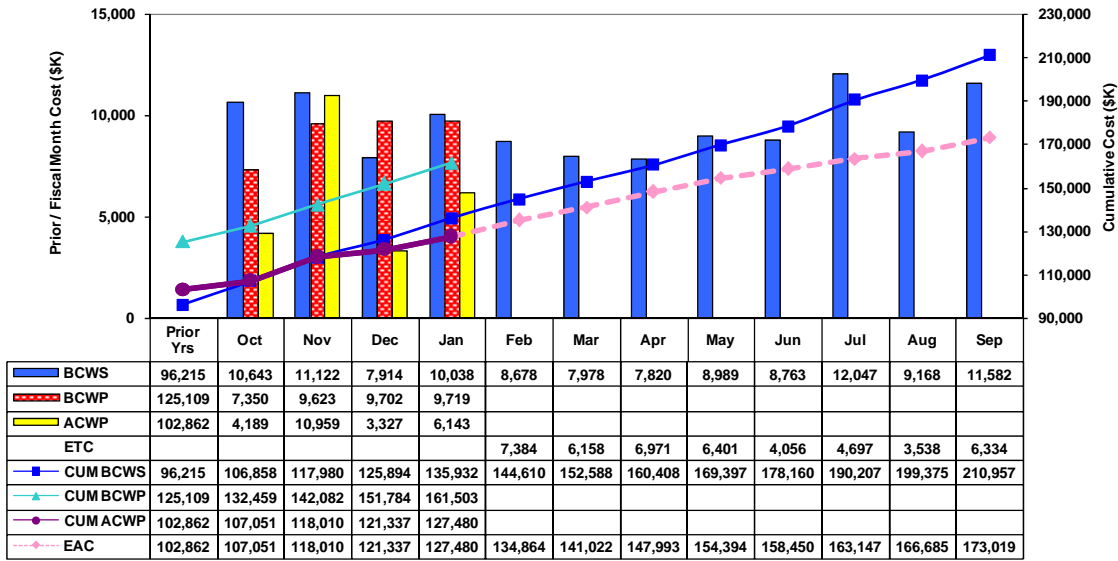




# Cost/Contract Status

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

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		January 2011	Inception To Date	Cost Authority
RL-0041.R1	ERDF Cell Expansion	PMB	3,340	90,607	156,847
RL-0041.R2	River Corridor Soil & Groundwater (618-10)	PMB	2,803	36,872	57,566
<b>Sub Total</b>		<b>PMB</b>	<b>6,143</b>	<b>127,479</b>	<b>214,413</b>
<b>Fee</b>			<b>581</b>	<b>12,774</b>	
<b>Total</b>			<b>6,724</b>	<b>140,253</b>	

\* PMB = Performance Measurement Baseline.



## ERDF

### Super Cells 9 and 10 Construction

U.S. Department of Energy, Richland Operations Office (DOE-RL) approved the *Final Report Construction Quality Assurance (CQA) Environmental Restoration Disposal Facility Super Cell 9*. The Waste Operations team began introducing waste into the super cell Monday, February 14. The Performance Milestone – *Complete ERDF Super Cell 9 Acceptance Testing March 31, 2011* – was completed with “zero” recordable injuries, 10 weeks ahead of schedule, and approximately \$6 million under budget.

Earlier this month, WCH subcontractor TradeWind Services conducted final acceptance testing for super cell 10 with DOE-RL and the U.S. Environmental Protection Agency (EPA). Super cell 10 is scheduled to begin accepting waste in March.



*The Waste Operations team dumps waste that was introduced into super cell 9 at the Environmental Restoration Disposal Facility. (Photo 1)*

## ERDF (Continued)



*A bulldozer spreads waste in super cell 9 at the Environmental Restoration Disposal Facility. (Photo 2)*

TradeWind also conducted final acceptance testing for Leachate Storage Tank (LST) No. 3. The majority of testing has been completed, but the project team must install a new motor-operated valve before testing can be finalized.

WCH subcontractor DelHur Industries continues to assemble the dome covers for ERDF's two new leachate storage tanks – LST 3 and LST 4. The project team has assembled the dome frames and will place the skin on the frames next week. The domes, which are about 13 feet high, are scheduled to be set on the tanks in early March.



## ERDF (Continued)



*A Washington Closure Hanford subcontractor assembles the frame of the dome cover for Leachate Storage Tank No. 4 at the Environmental Restoration Disposal Facility. (Photo 3)*

## ERDF (Continued)



*Work to place the skins over the dome frames will begin next week. The dome covers are scheduled to be set on the tanks in March. (Photo 4)*

### **Facility and Equipment Upgrades**

WCH continues with construction of the new maintenance facilities at ERDF. The project team is installing siding at the equipment maintenance facility/operations center and prepping to pour the second section of the concrete floor.

At the container maintenance facility, work continues to install the fire sprinkler system and the HVAC, and construct the interior walls. Prep work to pour the stem walls is under way at the transportation 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.

## ERDF (Continued)

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 from Washington Closure Hanford subcontractor ELRFowler installs siding at the equipment maintenance facility/operations center. (Photo 5)*

Pacific Northwest National Laboratory (PNNL) completed software development of a new waste container tracking system for ERDF. PNNL completed testing the prototype and producing radio-frequency identification tags. The system will accurately track waste shipments and equipment, and generate real-time reports.

WCH subcontractor DelHur Industries continues to work on the electrical installation for 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.



## ERDF (Continued)

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

Construction of weather enclosures for crest pads associated with cells 1 and 2 is under way. The forms for the footers are being constructed, and underground electrical work has begun. The enclosures were designed by Vista Engineering, a local company.



*Washington Closure Hanford subcontractor DelHur Industries began construction of the weather enclosure for the crest pad associated with cell 1. (Photo 6)*

### Upcoming Activities

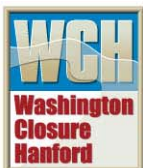
- Continue construction of the container maintenance facility.
- Continue construction of the equipment maintenance facility/operations center.
- Continue construction of the transportation maintenance facility.



## ERDF (Continued)

### Video

[Click here to view video of waste being introduced in super cell 9 at the Environmental Restoration Disposal Facility \(ERDF\).](#)



## 618-10 Burial Ground

### Trench Remediation Project

WCH subcontractor White Shield/Apollo is wrapping up infrastructure work at the 618-10 Burial Ground. The project team is installing well pumps and setting up the operations area.

WCH continues to conduct mock-up training for personnel in preparation of full-scale remediation of the burial ground trenches. Remediation is scheduled to begin in March.



*Washington Closure Hanford subcontractor White Shield/Apollo moves ecology blocks in the drum-punch area at the 618-10 Burial Ground. (Photo 7)*

## 618-10 Burial Ground (Continued)



*White Shield/Apollo places ecology blocks in the drum-punch area at the 618-10 Burial Ground. (Photo 8)*

Earlier this month, WCH awarded subcontracts worth \$8 million to three small businesses to provide labor and equipment for remediation. Two subcontracts totaling nearly \$2.1 million were awarded for lease of heavy equipment. CWR Enterprises of Rathdrum, Idaho, partnered with Rowand Machinery of Pasco, Washington, for a \$1,378,000 subcontract to provide heavy construction equipment.

Also providing heavy construction equipment under a \$718,000 subcontract is Acquisition Business Consultants of Richland, Washington, which partnered with Peters & Keatts of Lewiston, Idaho. Phoenix Enterprises NW of Richland was awarded a subcontract worth nearly \$6 million to provide craft and other non-manual labor.

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 VPU's. The VPU's were constructed by welding five bottomless drums together and buried vertically about 10 feet apart.

## 618-10 Burial Ground (Continued)

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, which contained liquid radioactive waste, 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 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 site upgrades.
- Continue with training and mockups.





## 618-11 Burial Ground

### Nonintrusive Characterization Project

WCH is preparing for nonintrusive characterization field activities at 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.

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 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 activities 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.

The project team is scheduled to start geophysical delineation of the burial ground later this month. 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.

Based on geophysical delineation results, the project team will drive two narrow steel cylinders called cone penetrometers around each VPU and to an approximate depth of six feet below each VPU. The gamma logging probe will be inserted into the cone penetrometers to identify the location of radioactive materials within the VPUs. The project team is scheduled to begin installing cone penetrometers this spring.

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 feet in diameter, 10 feet long), with the top of the caisson 15 feet below grade and connected to the surface by an offset pipe (3 feet in 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)



*In this July 1998 photo, the green rectangle is the 618-11 Burial Ground. The site is adjacent to the Columbia Generating Station, a commercial nuclear plant. (Photo 9)*

## 100-F Area

WCH completed recovery of approximately 200 gallons of sodium dichromate from pipelines at 100-F-26:7. The safe and efficient removal of the toxic liquid by WCH and its subcontractors prevents potential leaking and groundwater contamination. The liquid has been containerized and sampled. Once sample results are received, the liquid will be sent to an approved waste disposal facility.

The project team will complete pipe removal at 100-F-26:7 next week. The work includes removing a section of pipe under power lines. Hanford subcontractor Mission Support Alliance will deactivate the power lines before the section of pipe is removed.



*A Washington Closure Hanford subcontractor safely drains sodium dichromate from a pipe at 100-F-26:7. (Photo 10)*



## 100-F Area (Continued)



*The safe and effective draining of sodium dichromate from the pipes at 100-F-26:7 prevented potential leaking and groundwater contamination. (Photo 11)*



## 100-F Area (Continued)

Site 100-F-26:7 is one of 19 waste sites WCH and subcontractor Ojeda Business Ventures are remediating at 100-F Area. Field work began in September and will conclude this spring.

The project team also completed a test pit campaign at 100-F-57, where it continued to find stained concrete and soil. Earlier, sampling confirmed the presence of hexavalent chromium. Excavation and loadout of asbestos waste from 100-F-57 continued.

An underground storage tank that was discovered last month at 100-F-49 was removed. Waste oil was pumped from the tank before removal. The site contained an old maintenance garage lube pit foundation, pipelines, and drywells.



*Washington Closure Hanford subcontractors drain waste oil from a drum discovered at 100-F-49. (Photo 12)*

## 100-F Area (Continued)



*A drum containing waste oil is removed from 100-F-49. The oil was drained from the drum before removal. (Photo 13)*

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 excavation and loadout of asbestos waste at 100-F-57.
- Begin receiving lab data from test pit campaign at 100-F-57.
- Complete draining liquids from pipes at 100-F-26:7.
- Continue excavation and stockpiling at 100-F-61.
- Excavate and stockpile 100-F-8.
- Continue excavation and loadout at 100-F-49.



## 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

- Scott Van Camp, the new DOE-Headquarters Senior Site Program Manager for Hanford, visited the 618-10 Burial Ground and ERDF as part of a Hanford Site tour. He was briefed at 618-10 by WCH's project manager for Trench Remediation, and at ERDF by WCH's director of Waste Operations.
- A group of students and faculty from Walla Walla University visited ERDF as part of a Hanford Site tour. The group was briefed at ERDF by WCH's director of Waste Operations.

### Contracting Actions

- Revised proposal and began final negotiations for 618-11 Burial Ground non-intrusive characterization.

