



*River Corridor Closure Project*

# Recovery Act Weekly Report

For the week ending September 19, 2010

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

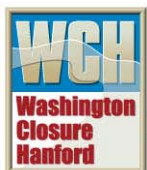
WCH is employing ARRA funds to clean up many failed waste sites not originally part of its contract. Sites in the 100-F and IU 2&6 segments 1&2 are proposed for waste site remediation in the two year period starting in October 2009.

### E. Confirmatory Sampling of other new sites

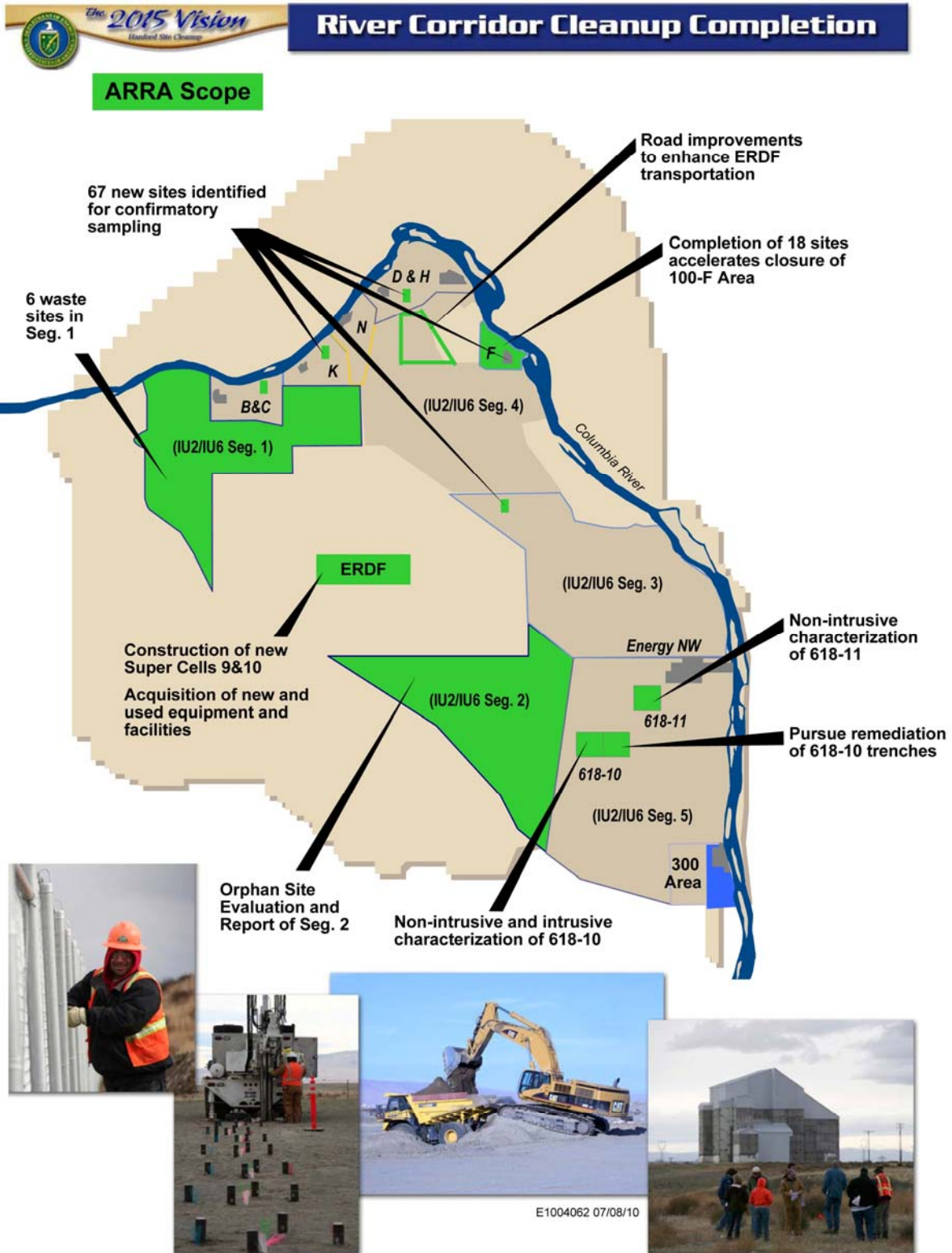
WCH is proposing to complete the early sampling process of 67 potential waste sites using ARRA funds. Confirmatory sampling is performed for sites that require additional information for determining if the site requires remediation.

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 07/08/10

# Safety

## Safety Accomplishments

As of August 29, 2010, WCH and its subcontractors have worked 262,885 hours of ARRA scope with no safety incidents.

## Hazard Reductions

The River Corridor Closure Project's Hot Topics are used to share safety information with all WCH employees. Last week's edition highlighted the safety and health improvement plan's highlights for August.

### *Working Toward an Injury-Free Workplace-Incident Severity Reduction*

- Provided a Hot Flash on heat intolerance and aging.
- Provided a Hot Flash on the correlation between heat stress and body fat ratios.
- Issued a Rude Awakening on a journeyman electrician who was electrocuted while installing a 15kv switch for an overhead power line.
- Provided a Rude Awakening on a lathe operator who was struck in the head and killed by a stainless steel rod extending from the back of a metal lathe.
- Provided a Vehicle Safety Awareness on the dangers of distracted driving and resulting fatalities.
- Issued a Vehicle Safety Awareness on the dangers of road rage.

### *Incident Severity Reduction*

- Issued a Safety Flash sighting a vehicle collision with a cone pentrometer.
- Issued an ergonomics article on the permanent damage of carpal tunnel syndrome and how to work safely to avoid this condition.
- Issued a Dodge the Bullet highlighting an incident at ERDF where an A-frame gantry toppled.
- Provided a Dodge the Bullet highlighting the 100-N electrical arc incident.
- Completed the Integrated Environmental, Safety and Health Management System (ISMS)/Voluntary Protection Program (VPP) assessment in preparation for the ISMS declaration report and update to the ISMS description document. Identified that the summer ISMS/VPP initiative was effective in raising awareness and engaging employees in the functions and principles of ISMS.



## Safety (Continued)

### *Safety Ownership Program*

- Issued a Hot Topic on the ISMS VPP Awareness Scratcher Ticket Rollout.

### *Training Requirements*

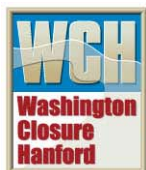
- Issued a Hot Topic on heat stress with an overview of the most current revisions to SH-1-4.5, "Temperature Extremes," of the WCH Safety Manual.
- Provided a Hot Topic with a presentation detailing proper excavation procedures including requirements, competent person, field implementation, and inspection.
- Conducted a briefing for all PSRs, competent persons, STRs, and affected contractor personnel on the proper response techniques when encountering an event involving overhead power lines.
- Conducted a briefing with all PSRs on the proper inspection, use, and maintenance of ladders.

### *Elevated Work Practice Improvements*

- Conducted a factual accuracy review of the end-point assessment performed by DOE. Provided responses back to DOE in a timely manner.
- Conducted a review of the site-wide procedure to determine the cost impacts of the new processes and requirements and how these can affect WCH and its subcontractors.

### *Heat Stress*

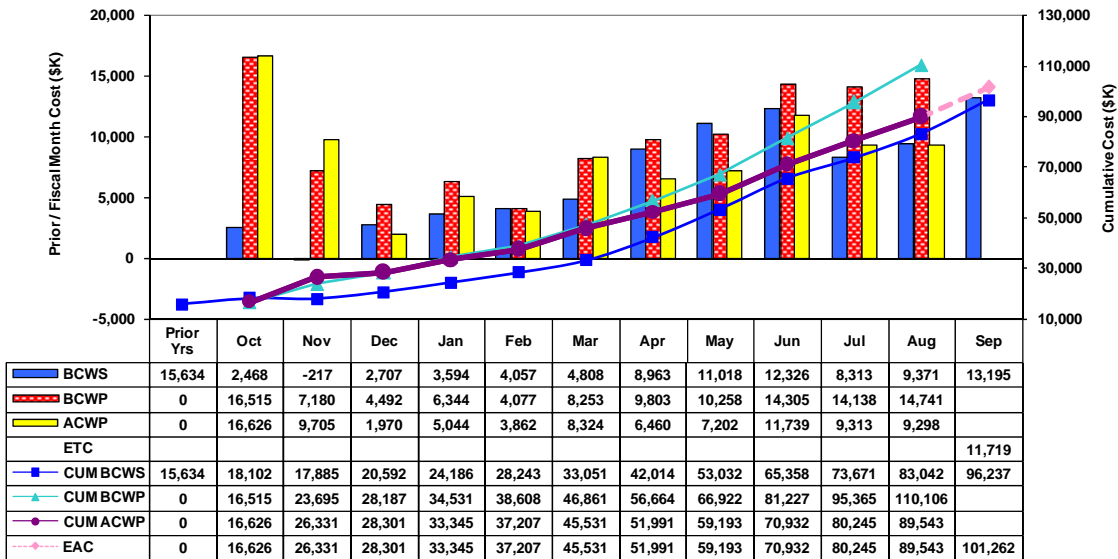
- Stopped work and reissued the previous Temperature Extreme procedure when questions arose as to the interpretation of certain requirements in the new procedure. The new revision to this procedure is still in progress.
- Conducted repeated site-by-site reviews using a heat stress checklist and Lines of Inquiry to determine compliance and effectiveness of the current processes and procedures. All active sites were reviewed with information going to the WCH certified industrial hygienist for review and verification.
- Conducted several specialized briefing sessions with industrial hygiene technicians to ensure that the requirements for the heat stress portion of the Temperatures Extremes procedures are being applied consistently.



# 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

RCC Project - ARRA  
Current Performance Measurement Baseline (PMB)  
Prior Years / FY10 Fiscal Month



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

Apportionment Number	Apportionment Title		August 2010	Inception To Date	Cost Authority
RL-0041.R1.2	ERDF Cell Expansion	PMB	6,483	64,957	139,072
RL-0041.R2	River Corridor Soil & Groundwater (618-10)	PMB	2,815	24,586	38,907
<b>Sub Total</b>		<b>PMB</b>	<b>9,298</b>	<b>89,543</b>	<b>177,979</b>
<b>Fee</b>			<b>716</b>	<b>9,496</b>	
<b>Total</b>			<b>10,014</b>	<b>99,039</b>	

\* PMB = Performance Measurement Baseline.



## ERDF

### Super Cells 9 and 10 Construction

WCH continues to construct the liner and leachate collection systems for super cells 9 and 10. The liner system consists of a 3-foot layer of admix, two layers of high-density polyethylene (HDPE), a 1-foot layer of gravel with a 12-inch perforated drainage pipe, a geocomposite layer, and two geotextile layers. Admix is a 3-foot low-permeability compacted soil layer of the liner system that is manufactured by mixing excavated soil with imported bentonite.

In super cell 9, the secondary and primary HDPE layers, and the geocomposite layer have been installed. About 75% of the rock used for the gravel drainage layer has been placed, with the remaining gravel scheduled to be placed early next week.

In super cell 10, admix placement is 72% complete, and work continues on the installation of the HDPE and geocomposite layers. About 85% of the primary HDPE layer has been installed, and the primary HDPE and geocomposite layers both are 45% complete. Work also continues on the sumps and the crest pad buildings for super cells 9 and 10.



*A view from the northeast corner of super cell 10 shows liner construction progress at the Environmental Restoration Disposal Facility.*

## ERDF (Continued)



*Workers test the welds on the primary high-density polyethylene layer in super cell 9 at the Environmental Restoration Disposal Facility.*



## ERDF (Continued)



*Work to install piping for leachate holding tank No. 4 began at the Environmental Restoration Disposal Facility. The new holding tank will have a capacity of 420,000 gallons.*

Construction has begun on leachate holding tank No. 4 at ERDF. Tank No. 4 and tank No. 3, which also is under construction, will replace the facility's two original holding tanks – Numbers 1 and 2. Removal of tank No. 1 was completed last week, and tank No. 2 will be removed when the two replacement tanks are in service. Each of the original tanks measured 80 feet in diameter and had a capacity of 275,000 gallons. Each replacement tank will measure 100 feet in diameter with a 425,000-gallon capacity.

### **Facility and Equipment Upgrades**

ELRFowler continues with construction of ERDF's new waste container maintenance facility. The project team is preparing to construct the stem walls, which are used to join the building foundation with the vertical walls. The new container maintenance facility will include a large container repair line, a maintenance shop, and a weld area.

ELRFowler also has begun excavation for the foundation of the heavy equipment facility and the adjoining operations center. The new equipment maintenance facility will include two service lines, an operational storage facility, a large concrete pad, and an exterior awning over a smaller

## ERDF (Continued)

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.

ELRFowler is a joint venture between local companies ELR Consulting and Fowler General Construction. It also will construct an upgraded transportation truck maintenance facility, which will include two additional truck bays, a large concrete pad, an exterior awning that will cover two smaller concrete pads, and a conference room.

Pacific Northwest National Laboratory (PNNL) continues work on a new waste container tracking system for ERDF. The system will accurately track waste shipments and equipment, and generate real-time reports. PNNL has begun electrical and reader software development. Development of the mechanical is expected in September.

WCH is reviewing a bid from Fowler General Construction for construction of ERDF's new septic system. The septic system was designed by Columbia Engineers and Constructors, a small business based in Richland, Washington. Columbia Engineers and Constructors also continues to incorporate design comments from the Washington State Department of Health.

Mission Support Alliance subcontractor Fowler General Construction continues repair work on three Hanford Site roads – Routes 1, 2 and 4. Paving of Routes 1 and 2 is complete, and prep work continues on Route 4. The roads are used to transport waste material for disposal at ERDF.

WCH subcontractor George A. Grant has completed construction of a new lighting system at ERDF's transportation yard. A total of 15 light posts were installed. The transportation yard is used for truck-and-trailer combinations and other equipment. The truck-and-trailer combinations are used to transport non-regulated soil for disposal at ERDF.

WCH reissued bids for design and construction of a batch plant for ERDF. 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.

DelHur Industries has started on the preliminary design of weather enclosures for crest pad buildings for cells 1 and 2.

### Upcoming Activities

- Continue construction of the liner and leachate collection system for super cells 9 and 10.
- Continue construction of leachate holding tanks 3 and 4.
- Continue construction of container maintenance facility.
- Continue construction of equipment/operations center.



## 618-10 Burial Ground

### **618-10 Intrusive and Non-Intrusive Characterization/Trench Remediation Project**

The project team continues with site mobilization for construction upgrades, such as water lines, civil site expansion, and trailer locations. Intrusive characterization subcontractor demobilization also continues at the 618-10 Burial Ground.

Intrusive characterization field operations were completed earlier this month. Cross-trenching involved digging test pits through a subset of disposal trenches and unearthing a limited number of drums to verify the condition and types of wastes that were disposed.

WCH, along with DOE and Hanford Site regulators, will use the information obtained during intrusive characterization to help determine the safest and most efficient way to clean up the burial ground including how to safely dispose of the high-dose-rate waste in the concreted drums. Full-scale remediation of the 618-10 Burial Ground trenches is scheduled to start in spring 2011.

Several drums containing radioactive waste, a shipping cask and miscellaneous waste were discovered during field operations. The drums are believed to contain depleted uranium and uranium oxide. In addition, "concreted" 55-gallon drums which could possibly contain 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, which 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.

Before being removed from the trench, the drums were observed for any reactions, and radiological surveys are conducted with instrumentation mounted on the excavator. The temperature of the drums also is checked using an infrared thermometer. Once the exposed drums were cleared, they were removed from the excavation face and placed in salvage containers (85-gallon drums) and moved to a drum inspection area.

All exhumed drums pass through a characterization process. Radiological surveys are performed on the drums with a gamma spectrometer and a neutron detector before being moved to a storage area on site.

Solid waste will be disposed at ERDF. Drums containing oil and depleted uranium chips will likely be shipped to an offsite treatment facility where the oil, which may contain heavy metals and PCBs, will be drained and incinerated. The shavings will be stabilized and sent to ERDF for disposal.

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 vertical pipe units (VPUs). The VPUs were constructed by welding five bottomless drums together and buried vertically about 10 feet apart.



## 618-10 Burial Ground (Continued)

Available records indicate that the burial ground was used to dispose of cardboard boxes of low-level waste and miscellaneous laboratory debris including bottles, boxes, filters, aluminum cuttings, spent fuel fragments in small juice cans, radiologically contaminated equipment and laboratory instruments, and high-level liquid waste sealed in drums.

In early July, WCH awarded a subcontract worth nearly \$3.7 million to install water, electricity, roads, office trailers, and waste container transfer areas for remediation at the 618-10 Burial Ground. White Shield/Apollo is a small, disadvantaged joint venture between White Shield Inc. of Pasco, Washington, and Apollo Inc. of Kennewick, Washington. White Shield/Apollo will begin work at the burial ground this fall and is scheduled to complete infrastructure work by February 2011.

Work continues in developing the non-intrusive characterization report. The scope of activities carried out as part of non-intrusive 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. Data collected during non-intrusive characterization activities will be used to evaluate safe and effective strategies for remediation.

### Upcoming Activities

- Continue procurements for various subcontracts.
- Continue development of non-intrusive characterization report.



## 100-F Area

WCH completed the project startup review for remediation of 18 waste sites, and subcontractor Ojeda Business Ventures began remediation field operations at 100-F Area. In advance, the project team completed subcontractor training and drills for all site personnel.

WCH subcontractor Ojeda Business Ventures began remediation at site 100-F-55. The site contains a layer of contaminated ash. In addition, Ojeda excavated a test pit at site 100-F-26:4 and performed sampling.

The project team also poured the concrete footers for the subcontractor truck scales.



*Workers excavate a test pit at site 100-F-26:4. The site contains a section of process sewer pipeline.*

## 100-F Area (Continued)



*Samples are taken from the excavator bucket at site 100-F-26:4.*

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.

## 100-F Area (Continued)

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.



*F Reactor was the third of Hanford's nine nuclear reactors. It operated from February 1945 to June 1965.*

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, the 18 additional waste sites were discovered. The 18 sites that require remediation 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 Area (Continued)

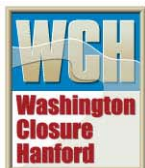
- 100-F-48 (coal-pit debris)
- 100-F-49 (maintenance garage lube pit foundation, pipelines, drywells)
- 100-F-51 (fish laboratory footprint, pipelines)
- 100-F-55 (contaminated ash layer)
- 100-F-56 (scattered surface debris, stains)
- 100-F-57 (buried pipeline cradle debris)
- 100-F-58 (asbestos-containing 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).

### Upcoming Activities

- Continue subcontractor mobilization activities.
- Begin installation of electric service to subcontractor trailers.
- Begin remediation at site 100-F-48.

### Video

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





## IU 2 & 6 Segment 1

Remaining work instructions for waste site-specific verification closeout sample plans have been reviewed and approved by the U.S. Department of Energy, Richland Operations Office (RL) and the U.S. Environmental Protection Agency. Verification closeout samples for sites 600-341 and 600-344 have been collected for laboratory analysis.

Additional remediation of the southeast quadrant of waste site 600-345 was performed in early August in order to remove the remaining TPH contaminated soil. Closeout samples were collected for laboratory analysis.

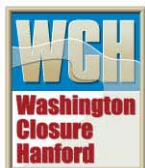
Remediation of five IU 2 & 6 Segment 1 waste sites discovered during the 2008 orphan site evaluation was completed in April. The remediation sites are as follows:

- 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.

IU 2 & 6 Segment 1 encompasses about 23 square miles of the northwestern portion of the Hanford Site, away from the nine surplus plutonium production reactor areas. Segment 1 sites were unique because they were primarily used for housing and support areas.

Remediation of these waste sites will contribute to RL's Vision 2015 goal of completing regulatory closure work in IU 2 & 6 Segment 1 by the end of 2010.



## Confirmatory Sampling

WCH is more than 30% complete with the ARRA confirmatory sampling campaign. The sampling campaign is scheduled to continue over the next four months, and will be performed in the 100-D, 100-F, 100-K, and 100-IU Areas of the Hanford Site.

Confirmatory sampling at 100-F will be completed next week, and confirmatory sampling at 100-IU-6 is scheduled to begin in mid-October.

Sampling is being performed by WCH subcontractor TerranearPMC (TPMC) in accordance with the regulator approved work instructions that were completed earlier this year. Sites that pass the confirmatory sampling process will be closed out and no further action will be required under the existing interim record of decision. Those that fail will be recommended for remediation to meet regulatory standards.

TPMC is a small disadvantaged business based in Irving, Texas, with an office in Richland, Washington. It provides environmental remediation and compliance, radiological waste management, engineering design, and construction management.



## General

### **Mentoring/Training**

No significant mentoring/training events this week.

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

- The DOE public tour season is complete. From April to September, WCH hosted 56 tours at ERDF.

### **Contracting Actions**

No significant contracting actions this week.

