Issue 95

River Corridor Closure Project

Recovery Act Weekly Report

For the week ending August 12, 2011

Contract DE-AC06-05RL14655

Protecting the Columbia River

E0908027

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.

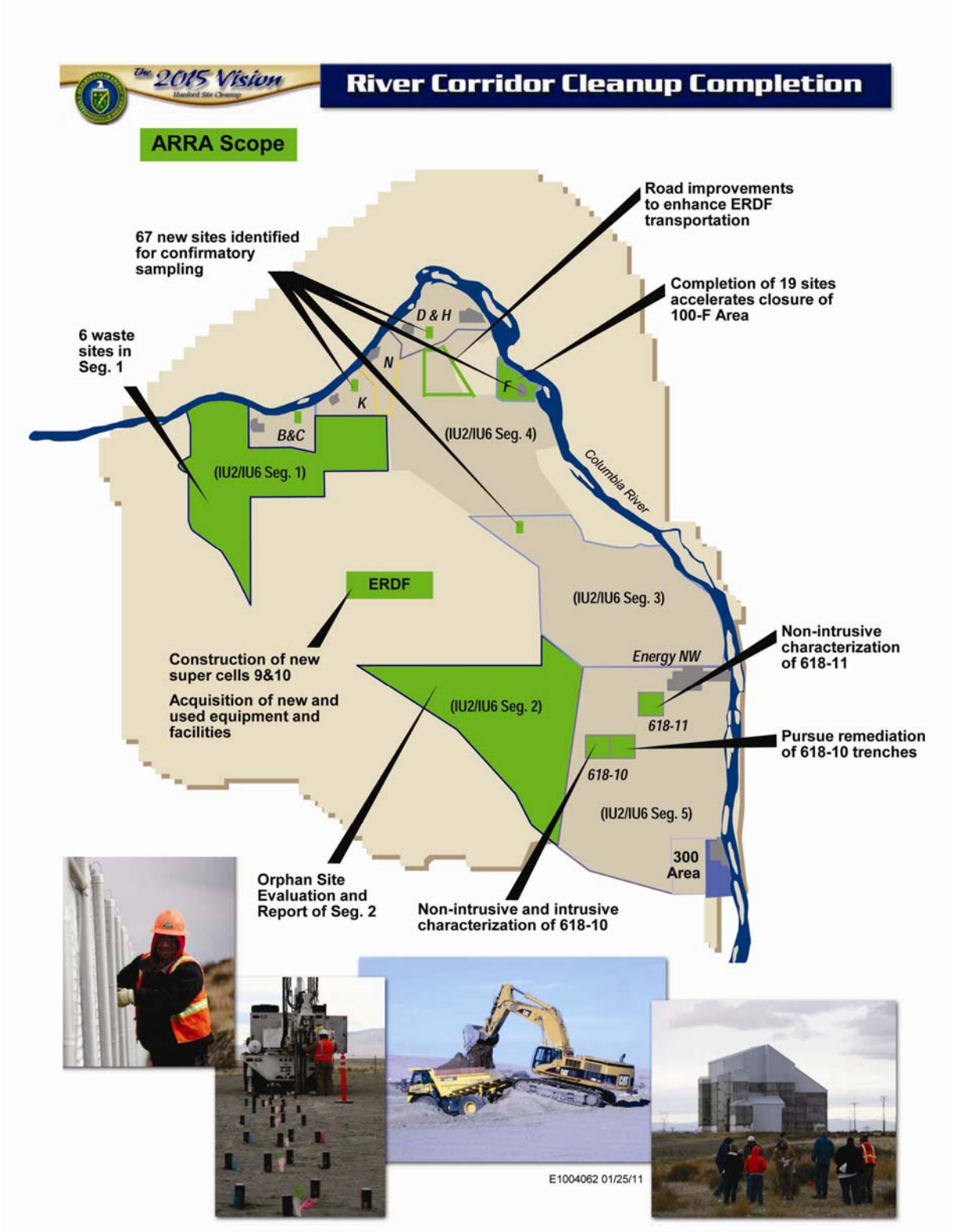
E. Confirmatory Sampling of other new sites

   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 July 24, 2011, WCH and its subcontractors worked 691,095 hours of ARRA scope with no safety incidents.

Hazard Reductions
The River Corridor Closure Project's Weekly Safety Roundup focuses on safety issues that affect Hanford Site workers. A recent topic included in the Roundup was titled "When Shortcuts Become the Norm."

Most workplaces require workers to follow a series of pre-defined steps when performing certain tasks. From time to time, workers may stray from the established procedures and take shortcuts. Unless there are negative consequences, the shortcuts get repeated until they eventually become the "norm." This situation, known as the "Normalization of Deviance," is a safety hazard you must stop. Here's why and how.

The Normalization of Deviance Creeps up on You

Initially, the deviation by workers from set standards is incremental, barely noticed, and is, therefore, easily accepted. In most cases, we only become aware of "Normalization of Deviance" when an incident results.

To demonstrate this phenomenon let's use a Lockout/Tagout (LOTO) procedure for above 750 volts of electrical energy as an example. General LOTO steps consist of:

- Isolating the electrical energy
- Tagging (and locking if possible)
- Testing for potential
- Applying worker's protective grounding.

I believe that well-designed procedures allow for the human element. In other words, you should be able to miss a step in a well-designed procedure and one of the other steps should be the check.

In the case of the LOTO steps, in theory, if one of these steps were missed, one of the other steps would act as a check and there should be no consequence.

From Shortcut to Accepted Procedure

However, when a step is missed and there's been no negative consequence to the shortcut, it's now possible that some workers – and supervisors – actually view missing the step as a positive. Perhaps missing the step allows a worker to save time or maybe the sub-standard procedure requires fewer tools or fewer people. If this is the case, it's very likely that the same shortcut will be repeated, particularly in a pressure situation.

By repeatedly missing the step, the shortcut gains credibility and the outcome supports the experience. Over time, this leads to a belief that this behavior is now the "norm" or acceptable standard. In most cases, the result is positive.

Safety (Continued)

The Slippery Slope of Shortcuts
However, in the worker's mind, what was once a four-step procedure has now become a three-step procedure. The margin for human error has now increased, since one of the steps/checks has been removed from the procedure, adding to risk of incident.

Now what happens if this same worker is mentoring or training an apprentice or inexperienced worker? He's now teaching a three-step instead of a four-step procedure, again increasing the risk of incident.

Let's take another example: Speeding. Most of us do not consistently go 20 miles an hour (32 kilometers per hour) over the speed limit in one fell swoop. We start by going 3 or 5 MPH (8 kilometers per hour) over the limit, as this seems to be an acceptable speed based on the other drivers around us who have already become "normalized." For many of us the speed slowly creeps upward.

Eventually the consequences catch up, leading to an incident (collision, speeding ticket), and then we revert back to the standard.

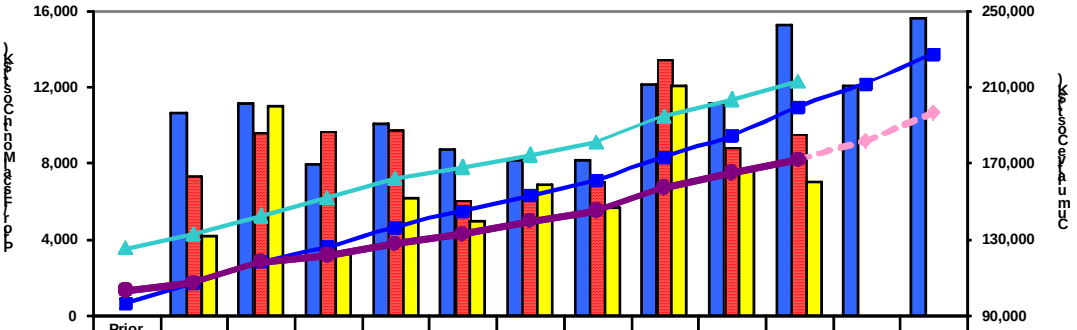
Conclusion
When we look at the regulations, standards or procedures, we realize that most were "written in blood" or designed as a result of a loss. Complying with those standards is the best way to avoid "Normalization of Deviance."

How does this apply to your work area?

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



	Prior Yrs	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
BCWS	96,215	10,643	11,122	7,914	10,038	8,677	8,164	8,154	12,113	11,107	15,239	12,029	15,614
BCWP	125,109	7,350	9,623	9,702	9,719	6,019	6,394	7,018	13,442	8,826	9,521		
ACWP	102,862	4,189	10,959	3,327	6,143	4,971	6,894	5,646	12,018	7,661	7,005		
ETC												9,418	14,941
CUM BCWS	96,215	106,858	117,980	125,894	135,932	144,609	152,773	160,927	173,040	184,147	199,386	211,415	227,029
CUM BCWP	125,109	132,459	142,082	151,784	161,503	167,522	173,916	180,934	194,376	203,202	212,723		
CUM ACWP	102,862	107,051	118,010	121,337	127,480	132,451	139,345	144,991	157,009	164,670	171,675		
EAC	102,862	107,051	118,010	121,337	127,480	132,451	139,345	144,991	157,009	164,670	171,675	181,093	196,034

ARRA Proposals 1, 2, 3 and ERDF Operations Buy Back Actuals ($K)

Apportionment Number	Apportionment Title		July 2011	Inception To Date	Cost Authority
RL-0041.R1	ERDF Cell Expansion	PMB	6,308	122,762	156,847
RL-0041.R2	River Corridor Soil & Groundwater (618-10)	PMB	697	48,913	76,754
Sub Total		PMB	7,005	171,675	233,601
Fee			440	16,116	
Total			7,445	187,791	

*** PMB = Performance Measurement Baseline.**

ERDF

Super Cells 9 and 10 Construction
Washington Closure Hanford (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 waste is expected to be introduced to super cell 10 later this summer.

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)

The Waste Operations team continues to fill super cell 9 at the Environmental Restoration Disposal Facility. (Photo 1)

Facility and Equipment Upgrades
WCH and subcontractor ELRFowler completed construction of ERDF's new maintenance facilities and operations center. All the facilities are occupied and in service.

The container maintenance facility includes 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 truck maintenance facility includes two additional truck bays, a large concrete pad, an exterior awning that will cover two smaller concrete pads, and a conference room.

The new operations center will help alleviate severe overcrowding of personnel and also accommodate new employees hired to handle the increasing waste volumes.

WCH has installed radio-frequency identification (RFID) tags on all WCH and CH2M Hill Plateau Remediation Contract (CHPRC) waste containers. The RFID tags are part of a new tracking

ERDF (Continued)

system that will assist the Waste Operations team by providing the location of full and empty containers. RFID tags were installed on more than 1,200 waste containers.

Upcoming Activities

- Continue design work on 13th Street upgrade project.

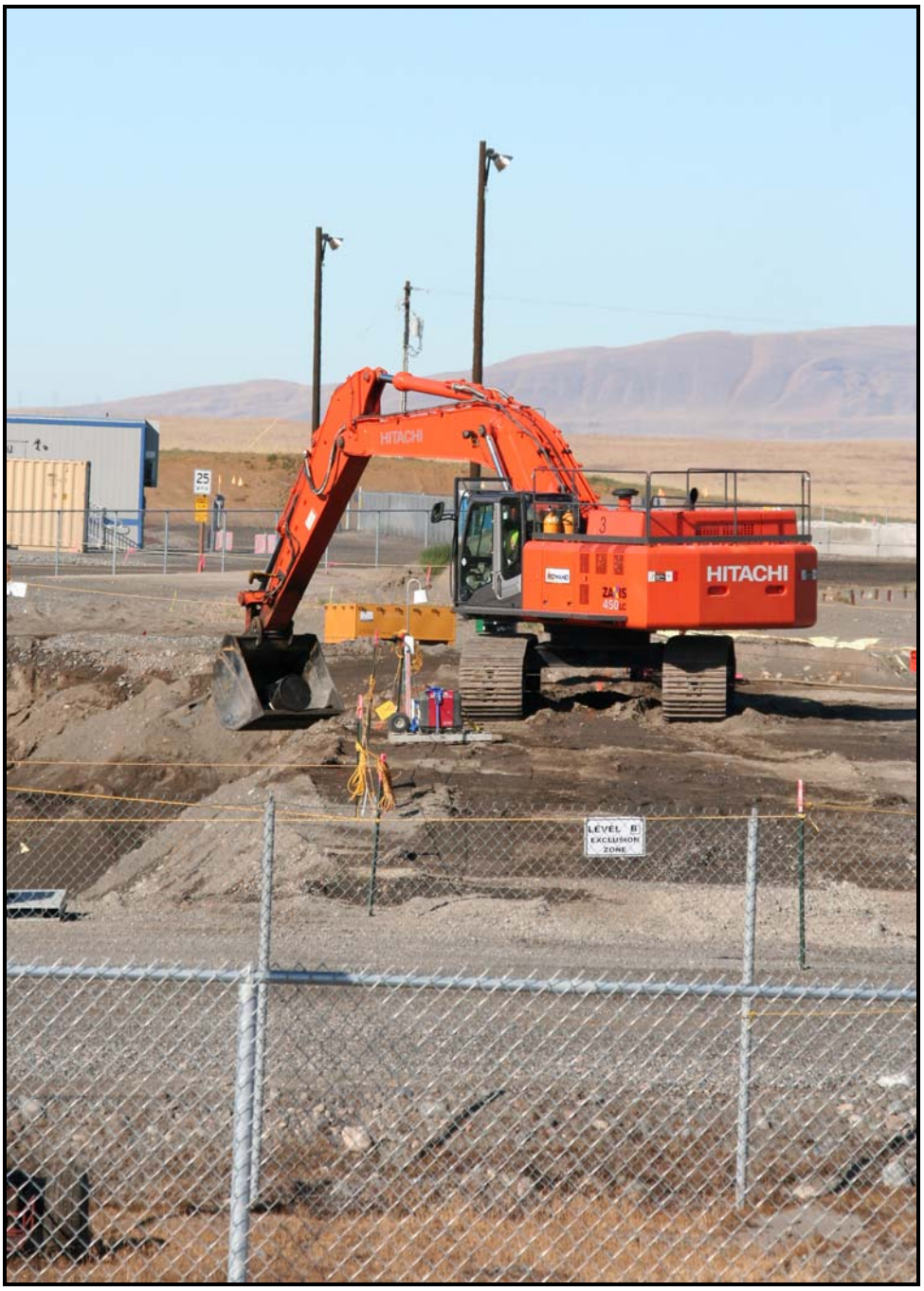
618-10 Burial Ground

Trench Remediation Project
WCH continued excavation of waste trenches at the 618-10 Burial Ground. As of August 11, a total of 43,200 bank cubic meters (66% of target) has been removed.

So far, the project team has unearthed approximately 70 drums. Many of the drums contain radioactively contaminated shavings and oil, and miscellaneous debris. About 30 drums are concrete-lined, which typically were used to dispose of radioactive liquids. Workers also have found 200 bottles containing liquids that will be evaluated and treated before disposal.

The project team completed excavation of the surge trench on the east side of the burial ground. Surge trenches are excavated in clean soil adjacent to the burial ground. They provide a below-ground area to hold material excavated during the trench excavation process.

618-10 Burial Ground (Continued)



Washington Closure Hanford continues to remove drums from the 618-10 Burial Ground. So far, about 70 drums have been removed. (Photo 2)

618-10 Burial Ground (Continued)

A telehandler, left, transports a salvage container during drum removal at the 618-10 Burial Ground. The 85-gallon containers are used to pack excavated drums. (Photo 3)

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

618-10 Burial Ground (Continued)

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.
- Review and upgrade of project documents.
- Continue processing of drums & anomalies as operations are released.

618-11 Burial Ground

In June, WCH and subcontractor North Wind Inc. completed radiological characterization of all 50 vertical pipe units (VPUs) at the 618-11 Burial Ground. The characterization report is being reviewed and is expected to be finalized in August. 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

- Review characterization report.

100-F Area

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

WCH shipped approximately 200 gallons of sodium silicate and sodium dichromate off site. The liquid will be treated at an EPA-approved treatment facility in Kent, Washington. Earlier this year, the sodium dichromate was safely and efficiently secured from pipelines at site 100-F-26:7, preventing potential leaking and groundwater contamination.

The project team continues work at 100-F-57, a site that consists of stained concrete and soil containing hexavalent chromium. Workers continue to excavate and load out concrete rubble from the pipe trench section of the site, and also have built a ramp and completed design changes to allow for remediation to the 19.5-foot level.

Remediation also was completed of plumes at 100-F-61 (stained soil) and 100-F-62 (animal farm septic lines), and loadout continues of a plume at 100-F-48 (coal pit debris).

In February, Washington Closure Hanford safely removed sodium dichromate from pipelines at 100-F-26:7. (Photo 4)

100-F Area (Continued)

Workers at 100-F Area load a drum of sodium silicate and sodium dichromate from 100-F-26:7 for transport to a treatment facility. (Photo 5)

100-F Area (Continued)

The drums of sodium silicate and sodium dichromate will be treated at Burlington Environmental, an EPA-approved facility in Kent, Washington. (Photo 6)

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-61 (stained soil)
- 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 and loadout of concrete rubble from pipe trench at 100-F-57.
- Begin excavation and loadout of plume at 100-F-57 from 15 to 19.5 feet.
- Continue loadout of plume for 100-F-48.

Video

Click here to view video of drums containing sodium dichromate being shipped from 100-F Area to an off-site treatment facility.

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. Based on the sampling results, documentation was prepared to recommend whether the sites require remediation. All documents have been approved by DOE and the regulatory agencies and have been issued.

General

Media, Visits, Press Releases

- There were no significant media events this week.

Contracting Actions

- There were no significant contracting actions this week.