Issue 84

River Corridor Closure Project

Recovery Act Weekly Report

For the week ending May 20, 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 (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.

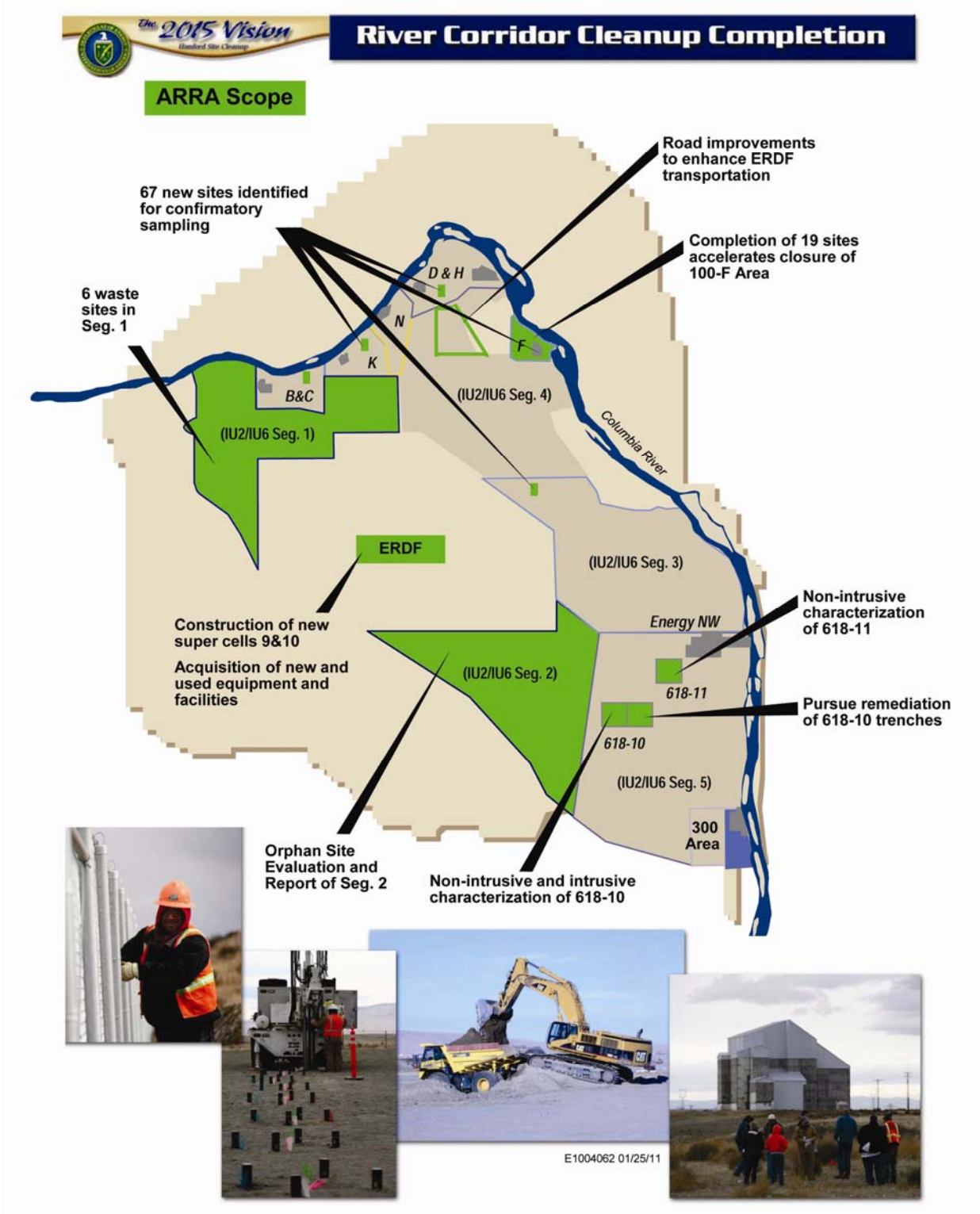
E. Confirmatory Sampling of other new sites

   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 April 17, 2011, WCH and its subcontractors worked 449,002 hours of ARRA scope with no safety incidents.

Hazard Reductions
The River Corridor Closure Project's "Take 5 for Safety" focuses on safety topics that affect Hanford Site workers. Last week's topic was titled "Heat Stress – Not Just a Summertime Hazard."

Much of our field work is performed during the summer months when the potential for heat stress is fairly high. However, historically in this area, a good number of heat-related disorders can occur in the spring time before people become acclimated to the heat after the winter months. Being uncomfortable is not the major problem when working in high temperatures. Varying degrees of heat stress may be suffered, increasing the potential for accidents.

Knowing the signs and symptoms of heat stress could make the difference between having to take a break and experiencing a serious illness. The human body maintains a fairly constant internal temperature. When we become overheated, several reactions take place. First, the body rids itself of excess heat by increasing circulation in blood vessels close to the surface of your skin. This is why your face and hands turn red when you begin to overheat. Your brain may also signal your sweat glands to work harder. As the sweat evaporates, it cools the skin and removes large quantities of heat from your body.

<u>Factors that may Trigger Heat Stress</u>

- Having a medical condition such as heart disease, excessive weight, or diabetes; some prescription medications; or poor physical condition.
- Having personal habits such as smoking, following a poor diet, consuming excessive soft drinks and caffeine, and using alcohol and drugs.
- Putting excessive physical effort into your work.
- Wearing inappropriate clothing. The color, type of material, and quantity of your clothing will affect the way your body cools itself. Dark colors absorb heat; light colors reflect it.

<u>Identify and Treat</u>

- Learn to recognize heat-related illnesses.
- Identifying and responding to early symptoms can save lives.
- Watch out for yourself and your fellow coworkers.

Safety (Continued)

Four Heat Illnesses

Heat Cramps: Athletes are familiar with this syndrome caused by salt depletion. It is easily treated with rest and electrolyte-balanced fluids, such as drinking sports drinks or plain water and eating salty chips or nuts. Avoid salt tablets because of the risks of overdosing.

Heat Exhaustion: This condition is serious and is caused by severe dehydration. Symptoms can include fatigue, dizziness, nausea, and vomiting in addition to early neurological signs such as headache, impaired judgment, and anxiety. Exhaustion causes profuse sweating and cool, clammy skin. Move the person out of the heat, provide fluids as tolerated, strip off extra clothing, and cool them by wetting clothing and fanning the individual. Have the person medically evaluated.

Heat Stroke: This is a medical emergency. It can look like exhaustion except the body temperature is 104 °F or higher, and the brain is seriously affected. Neurological effects can include confusion, irrational or aggressive behavior, incoherent speech, collapse, convulsion, and coma. When the body's heatcoping mechanisms have failed, sweating stops and the skin becomes red, dry, and hot to the touch. Call 911 and quickly lower the body temperature.

Prevent heat illness with three steps

Hydrate: Hydration is the most important step to combating heat stress. In extreme heat and humidity workers should use the half-half rule: drink a half liter every half hour. Workers should not wait until they feel thirsty to drink; if they are thirsty they may already have lost 2% of their body's water. The onset of heat exhaustion can begin after losing 3% of the body's water and heat stroke occurs once 8% is lost. The bottom line is, if a worker is not regularly urinating or has dark urine, they are dehydrated and at risk for heat illnesses.

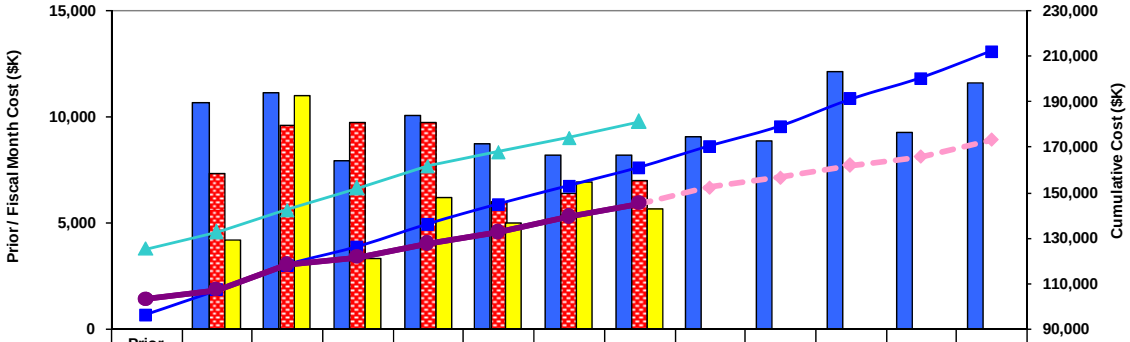
Assess: Assess the relative danger of the conditions. Be aware that high heat, high humidity, and low air circulation all create a more dangerous working environment. Any time more than one of these variables is present, the danger is compounded. In these conditions, workers need to take breaks in the shade and wear light, breathable clothing and hats. Some farm workers wear excess clothing to protect themselves from the sun, but this is a dangerous practice that has resulted in death.

Acclimate: If an employee is new to a job or is returning after time away, ease them back into full-time work over the course of five days. Starting at half time or 50% effort and increasing to full time workload by 10% each day can greatly reduce the employee's susceptibility to heat stress.

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

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	9,052	8,804	12,091	9,204	11,573
BCWP	125,109	7,350	9,623	9,702	9,719	6,019	6,394	7,018					
ACWP	102,862	4,189	10,959	3,327	6,143	4,971	6,894	5,646					
ETC									6,996	4,529	5,244	3,779	7,518
CUM BCWS	96,215	106,858	117,980	125,894	135,932	144,609	152,773	160,927	169,979	178,783	190,874	200,078	211,651
CUM BCWP	125,109	132,459	142,082	151,784	161,503	167,522	173,916	180,934					
CUM ACWP	102,862	107,051	118,010	121,337	127,480	132,451	139,345	144,991					
EAC	102,862	107,051	118,010	121,337	127,480	132,451	139,345	144,991	151,987	156,516	161,760	165,539	173,057

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

Apportionment Number	Apportionment Title		April 2011	Inception To Date	Cost Authority
RL-0041.R1	ERDF Cell Expansion	PMB	3,680	101,385	156,847
RL-0041.R2	River Corridor Soil & Groundwater (618-10)	PMB	1,966	43,606	76,754
Sub Total		PMB	5,646	144,991	233,601
Fee			575	14,389	
Total			6,221	159,380	

*** PMB = Performance Measurement Baseline.**

ERDF

Super Cells 9 and 10 Construction
WCH and subcontractors TradeWind Services and DelHur Industries completed construction of super cells 9 and 10 in February. Super cell 9 was placed into service in February, and super cell 10 was authorized for use in early May.

The addition of the super cells increased ERDF's capacity by 5.6 million tons to 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.

Waste is disposed in super cell 9 at the Environmental Restoration Disposal Facility. (Photo 1)

ERDF (Continued)

Facility and Equipment Upgrades
WCH continued to make progress with construction of the new maintenance facilities at ERDF. The project team is installing electrical, plumbing, HVAC, and fire sprinklers in the transportation maintenance facility and the equipment maintenance facility/operations center. Finish work continued at the container maintenance facility.

The container maintenance facility will include a large container repair line, a maintenance shop, and a weld area. The equipment maintenance facility will include two service lines, an operational storage facility, a large concrete pad, and an exterior awning over a smaller concrete pad. The new operations center will help alleviate severe overcrowding of personnel and also accommodate new employees hired to handle the increasing waste volumes.

The expanded transportation maintenance facility will include two additional truck bays, a large concrete pad, an exterior awning that will cover two smaller concrete pads, and a conference room. The project began pouring the concrete footers on the east side of the building.

Washington Closure Hanford subcontractor ELRFowler grades the area between the container maintenance facility and the equipment maintenance facility/operations center. (Photo 2)

ERDF (Continued)

WCH began installing radio-frequency identification tags for ERDF's new waste container tracking system. The system, which was designed by Pacific Northwest National Laboratory, will assist the Waste Operations team by providing status reports at waste generation sites. System testing is scheduled for later this month.

The screen plant for ERDF's new batch plant continues to manufacture sand. Safe guards are being installed and electrical work continues at the batch plant. The batch plant will produce concrete used to mix with debris, ensuring no void space during disposal operations. It is expected to be placed into service by the end of the month.

Washington Closure continues to stockpile sand for use in the facility's new batch plant. The batch plant is expected to be in service later this month. (Photo 3)

WCH transitioned to its new septic system at ERDF. The new system will handle the additional demands of ERDF's new maintenance facilities as well as its existing facilities. Later this month the facility's original septic tank will be demolished. The new septic system was designed by Columbia Engineers and Constructors, a small business based in Richland, Washington.

ERDF (Continued)

WCH subcontractor TradeWind Services completed construction of the crest pad buildings for cells 1 and 2. The buildings provide protection for the existing leachate piping systems and electrical/instrumentation. They were designed by Vista Engineering, a local company.

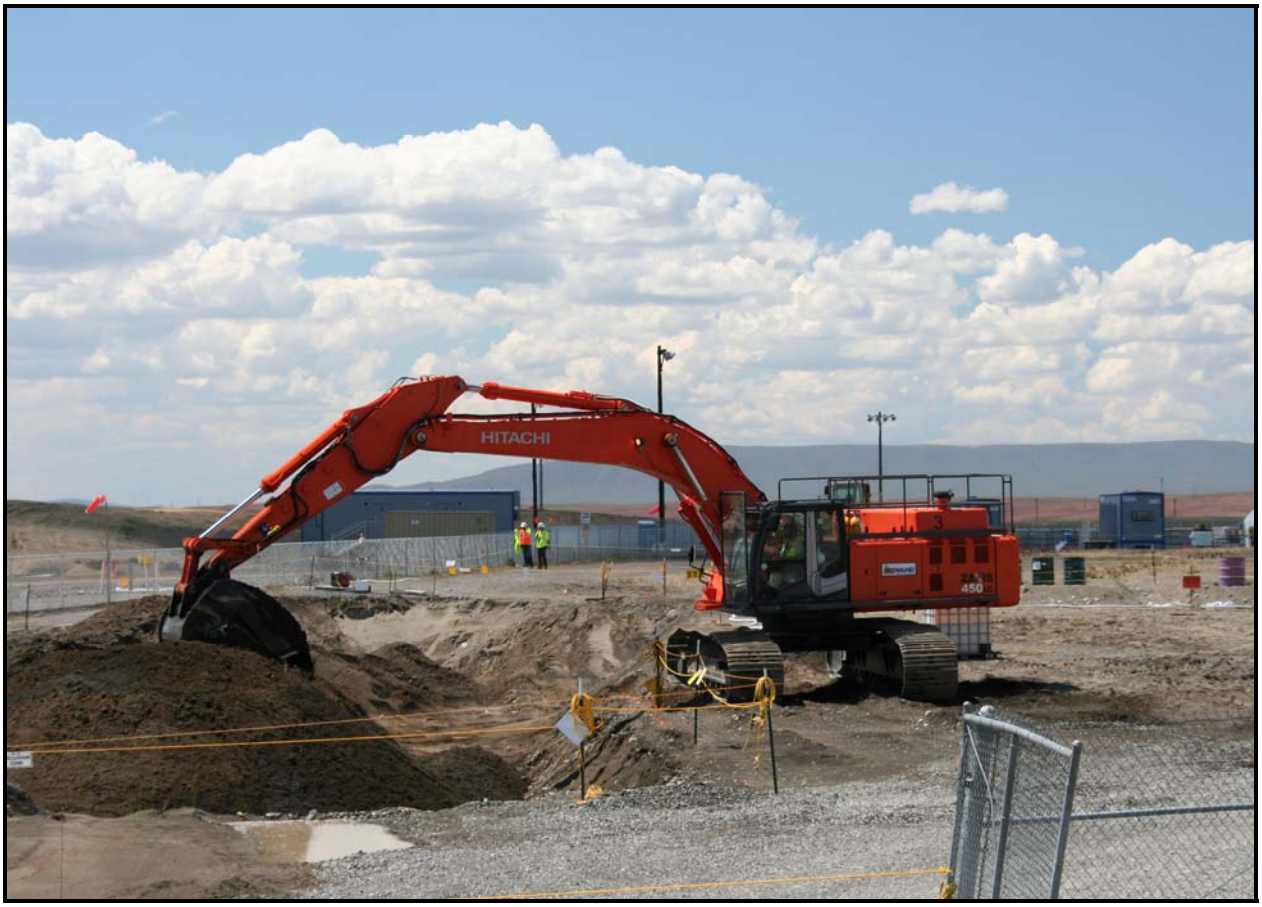
Upcoming Activities

- 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 the new front entrance.

618-10 Burial Ground

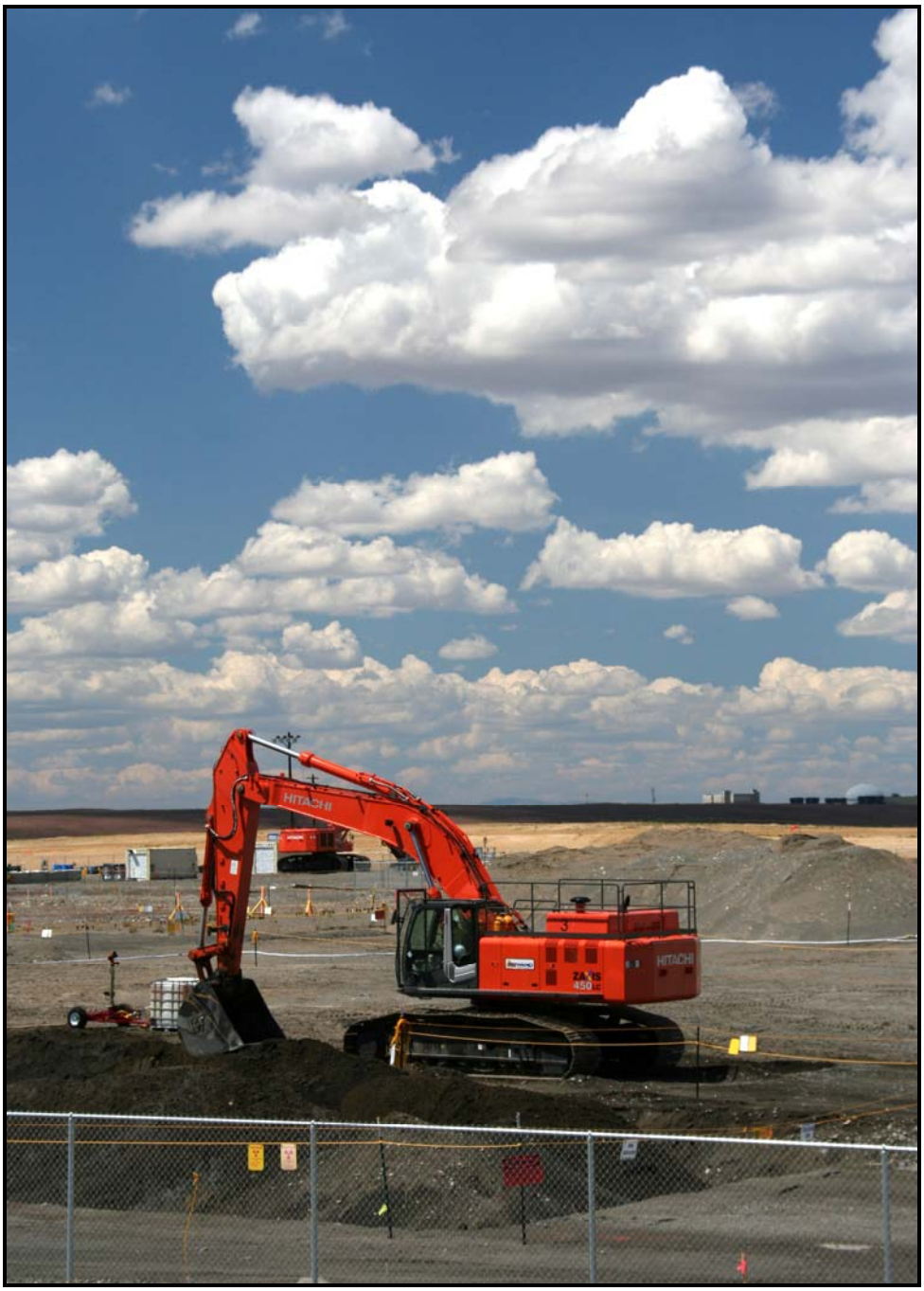
Trench Remediation Project
WCH continued trench excavation on the north and south sides of the 618-10 Burial Ground. The project team continues to encounter bottles in the north trench. As of May 18, a total of 21,900 bank cubic meters has been removed.

The project team also continued testing of the burial ground's water system and the setup of the second drum punch facility.



Washington Closure Hanford continues excavation of the waste trenches on the south side of the 618-10 Burial Ground. (Photo 4)

618-10 Burial Ground (Continued)



The 618-10 Burial Ground, one of the most complex burial grounds on the Hanford Site, contains 12 waste trenches. (Photo 5)

618-10 Burial Ground (Continued)

One of numerous bottles found during trench excavation on the north side of the 618-10 Burial Ground. (Photo 6)

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.
- Complete set up of second drum punch facility.

Video

Click here to view video of waste trench excavation at the 618-10 Burial Ground.

618-11 Burial Ground

Nonintrusive characterization continues at the 618-11 Burial Ground. WCH subcontractor North Wind Inc. is performing radiological characterization of the vertical pipe units (VPUs).

The project team is inserting a gamma-logging probe into the cone penetrometers to identify the location of radioactive materials within the VPUs. Earlier this month, North Wind 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.

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

Employees with Washington Closure Hanford and subcontractor North Wind Inc. retrieve a multi-detector probe from a cone penetrometer during nonintrusive characterization of the 618-11 Burial Ground. (Photo 7)

618-11 Burial Ground (Continued)

A multi-detector probe is a gamma-logging instrument used to determine the location of the radioactive materials within a vertical pipe unit. (Photo 8)

618-11 Burial Ground (Continued)

A North Wind employee takes readings during nonintrusive characterization of the vertical pipe units at the 618-11 Burial Ground. (Photo 9)

Prior to cone penetrometer installation, the project team conducted geophysical delineation to help locate each of the burial ground's 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.

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.

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)

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

- Continue VPU radiological characterization activities.

100-F Area

WCH and subcontractor Ojeda Business Ventures continued with the remediation of 19 waste sites at 100-F Area. The project team is demolishing concrete at 100-F-57 and loading out concrete and underlying soil. The site consists of stained concrete and soil containing hexavalent chromium. Closeout samples also were collected from 100-F-26:4 (sewer pipeline), 100-F-51 (fish laboratory footprint, pipelines) and 100-F-63 (effluent lines).

At 100-F-45, very high spring runoff from the Columbia River threatened the excavated waste site. Consequently, closeout sampling design and sample collection proceeded on an expedited basis, rapid laboratory analysis was performed, and the results were shared with the U. S. Environmental Protection Agency. Based on a review of the laboratory data, an expedited approval to backfill the site was received, and subcontractor personnel mobilized and backfilled the site.

Washington Closure Hanford subcontractor Ojeda Business Ventures backfills site 100-F-45. (Photo 10)

100-F Area (Continued)

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).

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

- Begin excavation of western portion of 100-F-57 to 15 feet.
- Collect closeout samples from 100-F-63 and 100-F-51.

IU 2 & 6 Segment 1

WCH completed revegetation of the five IU 2&6 waste sites on November 30, 2010. Segment 1 encompasses about 28 square miles of the northwestern portion of the Hanford Site, away from the nine surplus plutonium production reactor areas. The waste sites were unique because they were primarily used for housing and support areas.

The remediation sites were:

- 600-341 (four areas that contained dry cell battery remnants and/or battery debris)
- 600-343 (residual ash from burned material and dumped asphalt in excavation trench)
- 600-344 (stained area)
- 600-345 (stained area with oil filters)
- 600-346 (four small fly-ash dump areas with metal debris).

Earlier this year a global positioning environmental radiological survey indicated that an additional site, 600-342, did not require additional remediation.

Confirmatory Sampling

WCH completed sampling of ARRA confirmatory sites. Sampling was performed at 41 sites in accordance with the regulator approved work instructions that were completed earlier this year. Based on the sampling results, documentation is being prepared to recommend whether the sites require remediation. This documentation is then submitted to the DOE and the regulatory agencies for review and approval. The recommendations have been approved for more than 75% of the sites; the remaining documents are in the review and approval process.

General

Media, Visits, Press Releases

- Two groups of community leaders – Hanford Communities and Leadership Tri-Cities – visited ERDF as part of a Hanford Site tour. The visitors were briefed on ERDF's operations and procedures.

Contracting Actions

There were no significant contracting actions this week.