



River Corridor Closure Project

Recovery Act Weekly Report

For the week ending September 16, 2011

Contract DE-AC06-05RL14655

Protecting the Columbia River

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

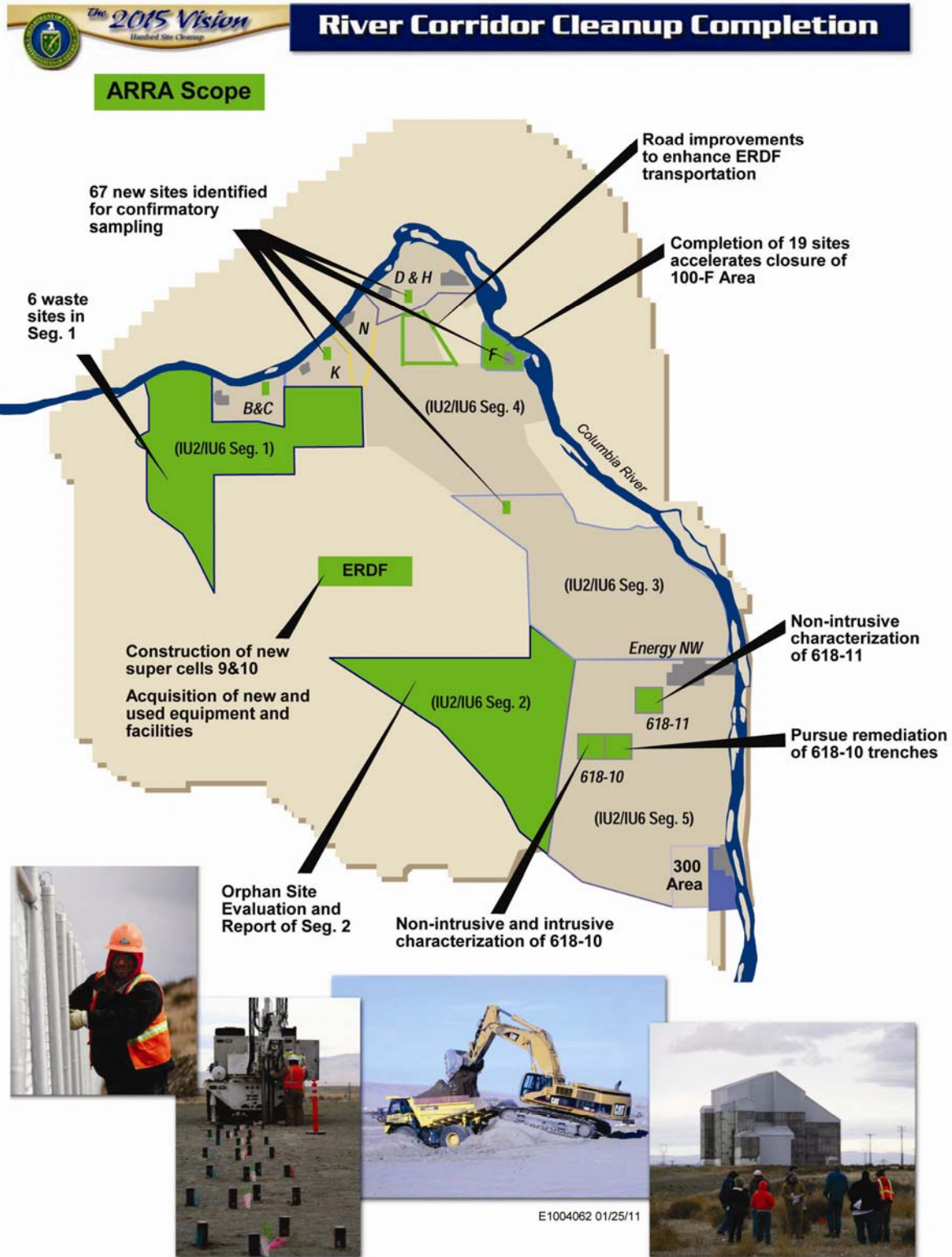
WCH is proposing to complete the early sampling process of 67 potential waste sites using ARRA funds. Confirmatory sampling is performed for sites that require additional information for determining if the site requires remediation.

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 August 21, 2011, WCH and its subcontractors worked 745,461 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 focused on manual handling.

Manual handling refers to transporting or supporting of a load and includes lifting, putting down, pushing, pulling, carrying, and moving of a load either by hand or bodily force. Mechanical assistance may be involved except where human effort is required to move, steady, or position the load, then this is still manual handling. Injuries such as strains and sprains are often the result of failures in manual handling safety. These injuries can affect the back, upper or lower limbs, or neck and are generally termed musculoskeletal injuries.

How can we avoid manual handling injuries?

- Eliminate manual handling (for example, change the process so the object doesn't have to be moved).
- Automate or mechanize instead of using manual handling. For example, use a forklift truck, sack trolley/dolly/hand truck, stair climber, hiab truck crane, conveyor, etc.

Mechanics of lifting

During handling activities, the back (especially inter-vertebral discs) is most easily damaged by a combination of compressing and bending. Increasing the distance of the centre of gravity load from the body causes increased leverage and greater loading on the spine, mainly in the lumbar region.

The dynamic method of lifting an object is the most effective and, when done correctly, it is the safest method. When lifting an object from the ground it requires bent knees with some bending of the back.

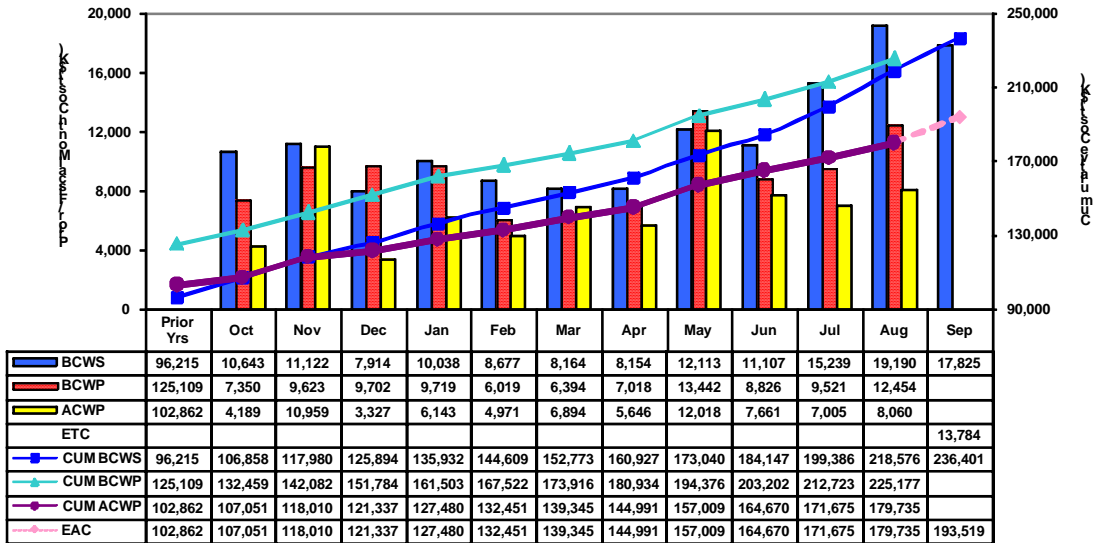
Move into the load and lift in a smooth motion, pulling the load into the body. You must be trained to use this method.



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
320	8/11/11	Increase ERDF Operations Not to Exceed amount to \$26M	\$233.6	\$233.6

RCC Project - ARRA
Current Performance Measurement Baseline (PMB)
Prior Years / FY11 Fiscal Month



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

Apportionment Number	Apportionment Title		August 2011	Inception To Date	Cost Authority
RL-0041.R1	ERDF Cell Expansion	PMB	6,574	129,336	156,847
RL-0041.R2	River Corridor Soil & Groundwater (618-10)	PMB	1,486	50,399	76,754
Sub Total		PMB	8,060	179,735	233,601
Fee			576	16,692	
Total			8,636	196,427	

* PMB = Performance Measurement Baseline.



ERDF

Super Cells 9 and 10 Construction

In February, Washington Closure Hanford (WCH) and subcontractors TradeWind Services and DelHur Industries completed construction of super cells 9 and 10 at the Environmental Restoration Disposal Facility (ERDF). Waste disposal began in super cell 9 in February and in super cell 10 in August.

The addition of the super cells increased ERDF's 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 at the Environmental Restoration Disposal Facility has disposed of a record 2.1 million tons of waste so far this fiscal year. The previous record was 1.6 million tons, set last year. (Photo 1)

ERDF (Continued)



Waste material is dumped for disposal in super cell 10 at the Environmental Restoration Disposal Facility. In the foreground are pumps from the water intake structures at K Area. (Photo 2)

ERDF (Continued)



The Waste Operations team prepares to grout railcars for disposal at the Environmental Restoration Disposal Facility. (Photo 3)

Facility and Equipment Upgrades

WCH and subcontractor ELRFowler completed construction of ERDF's new maintenance facilities and operations center earlier this month. 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 alleviates severe overcrowding of personnel and also accommodates new employees hired to handle the increasing waste volumes.

Grant Construction, a local construction company, continues work to upgrade a section of 13th Street and the Route 4N intersection at 100-N Area. Road improvements will allow for safe and efficient transport of waste material to ERDF.

ERDF (Continued)

Upcoming Activities

- Continue road upgrade work on 13th Street and 4N at 100-N Area.



618-10 Burial Ground

Trench Remediation Project

WCH is preparing to resume excavation of the waste trenches at the 618-10 Burial Ground. As of August 25, a total of 44,931 bank cubic meters (69% of target) has been removed.

To date, the project team has unearthed 73 drums. Many of the drums contain radioactively-contaminated shavings, oil, and miscellaneous debris. About 30 drums are concrete-lined and were typically used to dispose of radioactive liquids. Workers also have found 200 bottles containing liquids that will be evaluated and treated before disposal.

Work continues to develop and implement an “in trench” bottle-processing system that will make the work safer for our employees and will allow cleanup to be completed more efficiently. The system, which was approved by the U.S. Environmental Protection Agency, allows the project team to place bottles containing up to 1 gallon of liquid waste into a tray containing soil inside the excavated area. The bottles can then be broken with construction equipment and the liquid waste absorbed into the soil in the tray. Then the soil can be treated with grout and shipped to ERDF for disposal.

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.

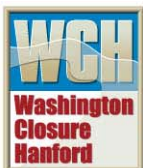
In September 2010, WCH completed intrusive characterization field operations at the burial ground. Test pits were dug through a subset of disposal trenches, unearthing a limited number of drums to verify the condition and types of wastes that were disposed.

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 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

- Anticipate excavation of waste trenches and processing of anomalies.



618-11 Burial Ground

In June, WCH and subcontractor North Wind Inc. completed nonintrusive characterization of the 50 vertical pipe units (VPUs) at the 618-11 Burial Ground. A workshop was held in late August to review data gathered during nonintrusive characterization activities.

The purpose of nonintrusive characterization is to characterize the burial ground's contents without opening or exposing them to workers or the surface environment. The data collected will be used to help plan remediation strategies.

The 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.

Upcoming Activities

- Prepare for infrastructure work.



100-F Area

WCH and subcontractor Ojeda Business Ventures continued with the remediation of 19 waste sites at 100-F Area. The final site to be excavated, 100-F-57, consists of stained concrete and soil containing hexavalent chromium.

The project team began stockpiling about 22,000 tons of chrome-contaminated material removed from the 35-foot excavation level of the site. The material can be transported to the Environmental Restoration Disposal Facility (ERDF) using truck and pups, which will shorten the load-out schedule by more than a week.

The project team also encountered green-stained concrete in the northeast corner of the upper portion of the layback area for material from the 35-foot excavation level. The stained concrete was demolished.



100-F Area (Continued)



Washington Closure Hanford subcontractor Ojeda Business Ventures continues excavation at 100-F-57, a site that contains hexavalent chromium. (Photo 4)

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. (Photo 5)

In early August, 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. In February, the sodium dichromate was safely and efficiently secured from pipelines at site 100-F-26:7, preventing potential leaking and groundwater contamination.

The following sites have had the soil excavated and loaded out:

- 100-F-26:4 (process sewer pipeline section)
- 100-F-26:7 (sodium dichromate pipeline)
- 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 Area (Continued)

- 100-F-51 (fish laboratory footprint, pipelines)
- 100-F-55 (contaminated ash layer)
- 100-F-56 (surface debris/stains)
- 100-F-57 (water pumphouse debris)
- 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)
- 600-351 (stained soil site).

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 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 stockpiling.
- Plume from 100-F-57 to 35 feet for truck-and-pup loadout campaign.
- Begin truck-and-pup shipping to ERDF.
- Sample the bottom of the 35-foot excavation level.

Video

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



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

Contracting Actions

- No significant contracting actions this week.

Media, Visits, Press Releases

Tom D'Agostino, Under Secretary for Nuclear Security and Administrator, visited ERDF as part of a Hanford Site tour. D'Agostino and his group were briefed on the facility's operations and procedures by the acting director for WCH's Waste Operations organization.

Two groups of attendees from the DOE Integrated Safety Management Champions Workshop visited ERDF as part of a Hanford Site tour. The visitors were briefed on facility operations and procedures.



Jeff Armatrout, left, acting director for WCH's Waste Operations organization, briefs Tom D'Agostino, Under Secretary for Nuclear Security and Administrator. Other members of the tour are, from left, Matt McCormick, DOE-RL Manager, and Joe Franco, DOE-RL Assistant Manager for the River Corridor. (Photo 6)