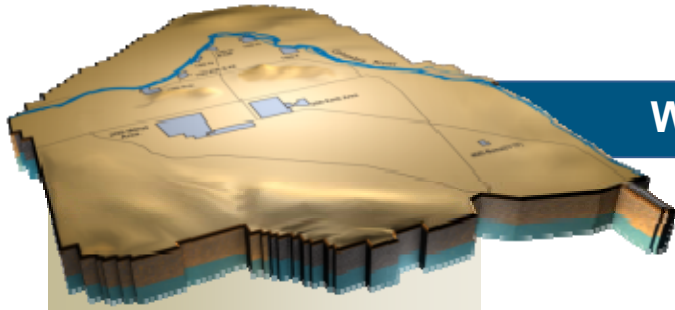


# ARRA Weekly Report



**Week Ending February 26, 2010**

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## OVERVIEW

CH2M HILL Plateau Remediation Company (CHPRC) is using funds from the American Recovery and Reinvestment Act (Recovery Act) to accelerate cleanup and demolition efforts across the Central Plateau and along the river corridor to help pursue the U.S. Department of Energy (DOE) 2015 vision and shrink the Hanford Site cleanup footprint.

### RL-0011 Nuclear Materials Stabilization & Disposition

CHPRC is accelerating critical decontamination and decommissioning (D&D) work that will help prepare the Plutonium Finishing Plant (PFP) for demolition to slab-on-grade three years ahead of the Tri-Party Agreement Milestone of September 2016. The highest priority scope includes removing over 170 glove boxes/laboratory hoods and other highly contaminated equipment from the 234-5Z building, the largest facility at Hanford for plutonium production and processing.

### RL-0013 Solid Waste Stabilization & Disposition

Recovery Act funds are allowing CHPRC to accelerate retrieval of 2,500 m<sup>3</sup> of suspect transuranic (TRU) waste, eliminate 1,800 m<sup>3</sup> of mixed low-level and low-level waste (MLLW and LLW), and accelerate the overall cleanup of legacy waste and fuels on the Hanford Site.

### RL-0030 Soil & Groundwater Remediation, Groundwater/Vadose Zone

In the ongoing effort to protect the Columbia River, CHPRC is using Recovery Act funding to construct two groundwater treatment facilities, install over 300 wells that will be used for monitoring, extracting, and remediating groundwater, and decommission 350 wells that are no longer of service.

### RL-0040 Nuclear Facility D&D – Remainder of Hanford

Across the Central Plateau and along the outer zone of the Hanford Site, CHPRC is accelerating the demolition of facilities to reduce mortgage costs on buildings that are no longer of service and provide access to waste sites located underneath.

### RL-0041 Nuclear Facility D&D – River Corridor Closure Project

In the 100K Area along the Columbia River, CHPRC is demolishing 12 buildings and remediating 49 wastes sites to clear the area and prepare for the disposition of two reactors, K East and K West.

## ACCOMPLISHMENTS

### RL-0011 Nuclear Materials Stabilization & Disposition

#### RL-0011.R1: Plutonium Finishing Plant D&D

A contract modification was received from DOE Richland Operations Office and a Baseline Change Request has been processed to use Recovery Act funds for additional accelerated D&D work at PFP in fiscal years (FY) 2010 and 2011. The selected work includes preparing the former PFP vault complex (2736-Z/ZB) for demolition by fall of 2010 and cleaning out glove boxes and other process equipment from the 242-Z Americium Recovery Facility. Funding was available to include this work scope as a result of under-runs on work performed at PFP in FY 2009, reduced estimates for selected scope in 2010 and 2011, and unrealized risks. Reporting on these new activities will begin next week.

#### *Laboratory areas*

Final preparations for removing glove box 221D-5 from the Standards Laboratory were initiated and the glove box was separated from building ventilation. Decontamination of three glove boxes in room 136 of the Analytical Laboratory was completed. Radiological surveys indicated contamination remains in the vicinity of the glove ports and work is under way to change out the gloves and determine whether the glove box will meet LLW criteria.

#### *Plutonium processing areas*

D&D crews completed the removal of legacy combustible waste from the last two of 17 glove boxes and hoods in the 234-5Z building. The crews are now fully engaged in cleaning out the former RMA/RMC Line processing areas and the Radioactive Digestion Test Unit (RADTU) area. In the RMA Line, after completing the last waste seal-out from multi-story glove boxes HA-19B-1 and B-2, a crew began external mechanical isolation and process equipment removal from conveyor glove box HA-28. In the RMC Line, a crew completed the removal of external piping stubs from the outside of glove box HC-60, and the glove box will be re-surveyed to determine if it qualifies for disposal as LLW. In the former RADTU area, the crews began replacing filters and installing gloves in preparation for process equipment removal from glove box 400.



Photo 1

*A worker installs a glove bag for removing pipe stubs from glove box HC-60 at the Plutonium Finishing Plant. After the pipe stubs are removed, the glove box will be re-surveyed to determine whether it qualifies for disposal as low-level waste.*





Photo 2

Workers seal out waste from the multi-level HA-19B1 and -B2 glove boxes. With all of the waste removed from these glove boxes, crews began external mechanical isolation and process equipment removal from a nearby conveyor glove box.

#### *Infrastructure systems and equipment removal*

Facility modifications were completed, additional staffing is in place, and a new, larger mask issue station is operating to eliminate delays experienced in issuing respiratory protection to the many D&D teams working concurrently throughout the PFP complex.

An additional 225 feet of asbestos insulation was also removed from piping throughout the 234-5Z building, bringing the total removed with Recovery Act funds to more than 7,600 feet.

Several dozen ecology blocks the formerly served as vehicle barriers around the PFP Protected Area have been removed at no cost to the PFP Project. These and hundreds of other blocks and jersey barriers will be reused by the Waste and Fuels Project and by Mission Support Alliance Safeguards and Security.

The PFP Solid Waste Operations staff packaged and shipped containers of waste to Perma-Fix Northwest (PFNW) and the Central Waste Complex (CWC), bringing the total waste shipped out of PFP with Recovery Act funds to 693 cubic meters of LLW and 102 cubic meters of TRU waste.



Photo 3

*Solid Waste Operations personnel at the Plutonium Finishing Plant prepare a Standard Waste Box of transuranic waste for shipment to the Central Waste Complex.*

## RL-0013 Solid Waste Stabilization & Disposition

RL-0013C:R1.1: MLLW Treatment

Of the 1,800 m<sup>3</sup> of MLLW and LLW planned for treatment and disposal under the Recovery Act:

- 876 m<sup>3</sup> of MLLW and LLW have been shipped to date including:
  - 398 m<sup>3</sup> that have been treated and disposed.
  - 478 m<sup>3</sup> at off-site treatment facilities awaiting processing. Treatment is scheduled for FY10.

One shipment of 37 drums (8.3 m<sup>3</sup>) of LLW debris was sent from the CWC to PFNW to undergo volume reduction, stabilization, and packaging for disposal. Two shipments were sent to PFNW to be non-thermally treated by macro-encapsulation and packaged for disposal:

- 51 drums (15.3 m<sup>3</sup>) of MLLW debris (previously classified as TRU waste)
- 8 drums (2.7 m<sup>3</sup>) of MLLW debris (previously classified as TRU waste).





Photo 4

*A CHPRC teamster loads and secures a shipment of 37 drums (8.3 cubic meters) of legacy low-level waste that will be shipped to Perma-Fix Northwest for volume reduction, stabilization, and packaging for disposal.*





Photo 5

*Teamsters load a shipment of eight drums (2.7 cubic meters) of mixed low-level waste that will be shipped to Perma-Fix Northwest for macro-encapsulation. The waste was previously considered transuranic waste until non-destructive assay confirmed the waste met low-level waste criteria.*

*Environmental Restoration Disposal Facility "Self Perform"*

A protective non-slip coating was applied to the facility floor. Final touches including fencing and equipment labeling were completed. A formal walk-down with operations, engineering, safety, and fire protection personnel was performed.



Photo 6

*Fencing was installed along the west side of the Container Maintenance Facility, which is being constructed with Recovery Act funding to serve as the central storage and maintenance facility for CHPRC's roll-on/roll-off containers.*

**RL-0013C:R1.2: TRU Waste**

The Waste Retrieval Project operations have been impacted by degraded container conditions and unknown waste configurations. The condition of containers being retrieved from the waste trenches has degraded from intact boxes and drums to rotted and/or shredded structures or container frames and numerous breached containers. The project also located waste items in unexpected configurations such as a glove box buried without an outer container. The project is mitigating these hazards by reworking its process, planning, and technical approaches - such as those being used on Boxes 80 and 82.

To support staff at the 3A burial grounds, managers, planners, safety, and engineering personnel performed walk-downs for the placement of the bathroom, change room, and personnel trailers.

Engineering and safety personnel also performed walk-downs for the installation of a SWITS (Solid

Waste Information and Tracking System) skid. SWITS is a database that contains container information and tracks location and shipping information. The skid will facilitate wireless communication between the field (e.g., trenches or Process Area) and the database.

## RL-0030 Soil & Groundwater Remediation, Groundwater/Vadose Zone

RL-0030.R1: Central Plateau Soil & Groundwater

### *DX Groundwater Treatment Facility*

In the 100-HR-3 D Area, construction of the buildings for the DX Groundwater Treatment Facility is in progress. Electrical, mechanical, and process equipment is being mobilized to the process and transfer buildings. The progress of equipment installations is listed in the table below.

Equipment installation status for the DX Groundwater Treatment buildings

Building	Electrical Equipment (% complete)	Mechanical Equipment (% complete)
<b>Process</b>	15%	20%
<b>Transfer (M1)</b>	20%	20%
<b>Transfer (M2)</b>	10%	12%

### *Well Drilling & Decommissioning*

With Recovery Act funding, CHPRC is installing wells to monitor, extract, and remediate contaminated groundwater while also decommissioning or closing wells that are longer of service to support reduction of the Hanford Site cleanup footprint. The following table showcases recent progress listed by operable unit and the number of wells that have been decommissioned to date.

Operable Unit	Scope (Wells to be drilled with Recovery Act funding)	In progress	Drilled to Total Depth <sup>1</sup>	Developed <sup>2</sup>
<b>100-NR-2</b>	Expand the apatite barrier to better contain a strontium-90 plume along the Columbia River (171 wells)	91	91	60
<b>100-HR-3</b>	Support the DX Groundwater Treatment Facility that will treat hexavalent chromium contamination in the groundwater (14 wells)	14	14	14
<b>100-BC-5</b>	Support characterization of the aquifer (4 wells)	4	3	3
<b>200-BP-5</b>	Support characterization of the aquifer (3 wells)	3	2	1
<b>200-ZP-1</b>	Support the 200 West Groundwater Treatment Facility that will primarily treat carbon tetrachloride contamination in the groundwater (17 wells)	9	6	5
<b>Site-wide</b>	Decommission wells that are no longer of service <sup>3</sup> (350 wells)	15		

<sup>1</sup> Wells are drilled to varying depths to address contaminants at different depths in the soil.

<sup>2</sup> When a well is developed, the well screen and riser pipe are placed in the hole, filter pack material is placed around the screen, and the well has been surged and pumped to establish good communication between the well and the surrounding soil.

<sup>3</sup> Wells that are inactive or no longer of service are filled with grout (or other materials such as sand or clay), the casing is removed, and a cap or marker is installed to indicate where the well was previously located.





Photo 7

Employees from the subcontractor Boart Longyear set up a drilling rig in preparation for installing another well in the 100-NR-2 area, located along the banks of the Columbia River. CHPRC is using Recovery Act funding to install a total of 171 wells to expand a chemical barrier in the soil that will better contain a contamination plume in the 100 North Area of the Hanford Site.

## RL-0040 Nuclear Facility D&D – Remainder of Hanford

RL-0040.R1.1: U Plant/Other D&D

### *U Canyon*

Work is in progress to repair the electrical collectors that feed power to the U Canyon crane. The crane wheel/bearing issue has been resolved and equipment placement is expected to resume next week. Application of fixative was initiated on the “R” access doors of the canyon. Size reduction activities and chemical disposition continued. Evaluations of grout conveyance bids and plans for disposition of the D-10 tank in Cell 30 are ongoing.





*Following the application of contamination fixative, workers in the U Canyon remove the cover from an "R" door to gain access to the stairwell.*

Photo 8

#### *U Plant Ancillary Facilities*

Asbestos abatement and demolition preparations continued at the 224-U and 224-UA buildings, which are two of three remaining U Plant ancillary facilities that CHPRC is preparing for demolition.

#### *200 East Core Industrial Area*

Asbestos abatement continued in the 272-E Fabrication Shop. Entries into the 284-E Powerhouse continued in preparation of the Waste Identification Form and cold and dark activities. Biological hazard cleanup and beryllium sampling are continuing.

### *209-E Criticality Mass Laboratory*

The results from the planning walk-down of the facility are being used to update the schedule and the planned disposition for material removed from the facility. Preparation of the safety basis, environmental, and waste documents continued.

### RL-0040.R1.2: Outer Zone D&D/Waste Sites

#### *Facility D&D*

Debris from the recently demolished facilities on the lower Arid Lands Ecology Reserve (ALE) is being loaded into roll-on/roll-off containers for disposal at ERDF. Cold and dark isolation activities of structures on upper ALE and cleanup of debris sites throughout the reserve are ongoing. Eighty nine debris sites have been removed.

#### *Waste Sites*

Recent progress in remediating the outer zone waste sites includes (listed by operable unit or site):

- *200-MG-1* – Sampling instructions for waste sites 600-38 and 600-40 were issued; sampling of the waste sites will be initiated next week. Sampling instructions are being prepared for the 600-36, 600-275, 200-W-33, 200-37, and UPR-600-12 waste sites. Additional sampling was completed for waste site 600-218 and preliminary results indicate that the retrieve, treat, and dispose cleanup method may be required. Development and processing continued for the Response Action Completion Reports (RACR) for closing waste sites 200-E-101 and 600-51. The RACR for 200-E-110 and 600-21 was completed and forwarded to the DOE. In addition to the RACR documents, cultural reports for waste sites 600-220, 600-222, 600-226, and 600-228 were submitted to the DOE.
- *200-CW-3* – Remediation continued at the 216-N-4 waste site with three super-dump trucks delivering approximately 7,700 tons of contaminated soil to ERDF. Development of the RACR continued for waste sites 2607-N, -P, and -R, which are associated with the former 212-N, -P, and -R interim fuel storage buildings. Sampling results confirmed the sites require no further remedial action. The RACR contains the closure documentation necessary for closing out the waste sites.
- *BC Control Area* – Remediation of Zone A continued with six super dump trucks delivering approximately 49,000 tons of contaminated soil to ERDF. In Zone B, remediation of the remaining contaminated spots continued.



Photo 9

One of three super dump trucks in operation at the 216-N-4 waste site. Recovery Act funding is being used to remediate the 216-N-4 waste site in the 200 North Area. The super dump trucks have delivered approximately 7,700 tons of contaminated soil from the waste site to the Environmental Restoration Disposal Facility.

## RL-0041 Nuclear Facility D&D – River Corridor Closure Project

RL-0041.R1.1: 100K Area Remediation

### *Facility D&D*

Demolition of the 183.1KW Headhouse was initiated and all of the structures are at ground level. The remaining debris is being size reduced. The approximately 16,900-square-foot supported the 183KW water treatment facility, which treated river water that was used for cooling the K West plutonium production reactor. Removing this facility will provide access to contaminated soils underneath. With the headhouse removed, demolition crews will continue demolishing the floor of the 183.2KW Sedimentation Basin.

Debris in the 105KW Fuel Storage Basin was staged for removal and packaging. A total of 261 debris units have been removed to date. The amount of debris that will ultimately be removed is under review and will be determined based on end-point criteria and As Low As Reasonably Achievable considerations. Preparations for upgrading the 105KW air handling unit continued with work document preparation and materials procurement.



In the 100K East Area, asbestos abatement was initiated in the 115KE Gas Recirculation building and isolation activities continued in preparation for demolition of the 117KE Exhaust Air Filter building.

Preliminary Design activities for disposition of the 105KE Reactor continued, including independent review of the draft Equipment Testing List and development of work documents for core sampling. Additional dry runs are being performed using the glove box for mock-up training and validation of work instructions.

Isolation of 100K Area utilities continued in support of cold and dark conditions for buildings, structures, and waste sites planned for D&D and remediation. A total of 16,500 feet – more than three miles – of piping arrived for the water line that will be constructed to ease restrictions on work activities in the 100K Area. Planned construction sites are being scanned with ground-penetrating radar to support safe excavation. Engineering and electrical utilities organizations are reviewing modifications to the electrical system. Cultural and ecological reviews of locations for the water line and microfiltration unit are in progress.



Photo 10

*An excavator shear removes structures from the roof of the 183.1KW Headhouse. Demolition began during the week of Feb. 22 and within days, the entire 16,900-square-foot building was a pile of debris.*





Photo 11

*Demolition in progress on the east side of the 183.1KW Headhouse. Removal of the approximately 16,900-square-foot building will provide access to contaminated soils underneath and ultimately help shrink the Hanford Site cleanup footprint.*



Photo 12

*The remains of the 183.1KW Headhouse. The debris is being size reduced and prepared for disposal at the Environmental Restoration Disposal Facility. The headhouse is just one of several structures that supported the 183KW water treatment facility – all of which CHPRC plans to demolish with support from Recovery Act funding.*





Photo 13

*Workers prepare for glove box mock-up exercises that will support upcoming characterization activities for the K East Reactor. The characterization will help determine disposition plans for the reactor.*



Photo 14

One of twelve truck loads arrives with piping that will be used to construct a water line in the 100K Area. The water line will ease restrictions on demolition and remediation activities planned in the 100K Area over the next several years.

### Waste Sites

Recent progress in remediation of the 100K Area waste sites includes (listed by waste site):

- *100-K-3, 100-K-47, and 100-K-56 Pipelines* – The pipelines associated with waste sites 100-K-3, 100-K-47, and 100-K-56 are potential sources to the KE outfall. To ensure water does not have a direct path to the KE outfall, the associated pipelines were air gapped by cutting and filling the pipelines with grout. The 100-K-3 pipeline was also capped after water began flowing from the pipeline. A flush was conducted by facilities on the pipeline and the cap was observed during the flush; the cap held and no water was released from the pipeline. Work on the 100-K-3 waste site, the 1706KE Fish Pond Heat Exchanger Pit and Pump Pit, began this week in areas not associated with the capped pipeline.
- *100-K-53* – The pipelines associated with the 100-K-53 waste site were utilized during reactor operations to transport glycol. The pre-job briefing and site walk down were conducted in anticipation of field work.





Photo 15

*Remediation of the pipeline waste sites (equipment on the left) and the fuel storage basin waste site (equipment on the right) is continuing in parallel in the 100K Area.*



Photo 16

CHPRC is remediating three pipeline waste sites concurrently in the 100K Area. The pipelines were contaminated during reactor operations as they carried effluents to and from the K Reactors.

## UPCOMING EVENTS

### RL-0011 Nuclear Materials Stabilization & Disposition

#### RL-0011.R1: Plutonium Finishing Plant D&D

- Remove glove box 221-D-5 from the Standards Laboratory.
- Complete chemical decontamination of glove box HC-60, three glove boxes in room 136, and three glove boxes in room 149; initiate preparations for removal.
- Remove glove box HC-230C-2 from the RMC Line.
- Initiate process equipment removal from glove boxes HC-227S and GB400.
- Assess the radiological status of and determine a disposition path for decontaminated glove box HC-230C-3 and three glove boxes from room 137 of the Analytical Laboratory.

### RL-0013 Solid Waste Stabilization & Disposition

#### RL-0013C:R1.1: MLLW Treatment

- Planned shipment of one large box (13 m<sup>3</sup>) box of MLLW debris over-packed into a larger shipping container sent from the CWC to PFNW.
- Planned shipment of one box (6.4 m<sup>3</sup>) of MLLW debris shipped from the Waste Retrieval Project to PFNW.
- ERDF “Self Perform” Project - Container Maintenance Facility:
  - Install asphalt entrances off Dayton Street.
  - Install a permanent facility air compressor.



- Complete “as-built” drawings that will detail changes made during construction.
- Issue Facility Fire Hazard Analysis and Occupancy Permits.

#### RL-0013C:R1.2: TRU Waste

- Continue set-up/startup of the Mobile Decontamination Unit.
- Complete occupancy inspection for the new 4C area restroom facility and place into service.
- Complete review/revision of 4C Process Area procedures.
- Ship one drum of secondary waste (waste generated during retrieval activities, such as personal protective equipment).

#### RL-0030 Soil & Groundwater Remediation, Groundwater/Vadose Zone

##### RL-0030.R1: Central Plateau Soil & Groundwater

- Continue construction of the DX Groundwater Treatment Facility.
- Continue drilling at 200-ZP-1, 100-HR-3-H, 100-HR-3-D, 100-BC-5, and 100-NR-2.

#### RL-0040 Nuclear Facility D&D – Remainder of Hanford

##### RL-0040.R1.1: U Plant/Other D&D

- Receive delivery of the remaining D&D heavy equipment being procured.
- Perform wire rope inspection and HEPA filter testing.
- Continue asbestos abatement and demolition preparations for U Plant ancillary facilities.
- Continue relocating equipment from the canyon deck into the process cells.

##### RL-0040.R1.2: Outer Zone D&D/Waste Sites

- Backfill and re-contour the former 212-NPR building sites.
- Continue demolition and waste load out of the lower ALE facilities.
- Continue removal of debris sites throughout the ALE Reserve.
- Continue cold and dark isolations of upper ALE facilities.
- Continue remediation at the BC Control Area, 200-MG-1, and 200-CW-3 waste sites.
- Continue developing and processing the RACR waste sites 200-E-101 and 600-51.
- Develop the RACR for closing the 2607-N/P/R waste sites.

#### RL-0041 Nuclear Facility D&D – River Corridor Closure Project

##### RL-0041.R1.1: 100K Area Remediation

- Continue demolition of the 183KW Sedimentation Basin structures.
- Continue demolition preparation activities for the 115KE and 117KE buildings.
- Continue debris removal from the KW basin.
- Continue activities for upgrading the 105KW air handling unit.
- Continue Preliminary Design activities for the disposition of the 105KE Reactor.
- Perform formal 105KE Reactor characterization efforts.
- Continue activities for isolating 100K Area utilities to support of cold and dark preparations.
- Continue remediating soils beneath the former K East Fuel Storage Basin and the pipeline waste sites (100-K-47, 100-K-56, and 100-K-3).