

ARRA Weekly Report



Week Ending February 12, 2010

February 16, 2010
Contract DE-AC06-08RL14788
Modification M047
CHPRC1002-02

Contents

OVERVIEW.....	3
ACCOMPLISHMENTS.....	4
RL-0011 Nuclear Materials Stabilization & Disposition.....	4
RL-0011.R1: Plutonium Finishing Plant D&D.....	4
RL-0013 Solid Waste Stabilization & Disposition.....	6
RL-0013C:R1.1: MLLW Treatment.....	6
RL-0013C:R1.2: TRU Waste.....	8
RL-0030 Soil & Groundwater Remediation, Groundwater/Vadose Zone.....	9
RL-0030.R1: Central Plateau Soil & Groundwater.....	9
RL-0040 Nuclear Facility D&D – Remainder of Hanford.....	10
RL-0040.R1.1: U Plant/Other D&D.....	10
RL-0040.R1.2: Outer Zone D&D/Waste Sites.....	14
RL-0041 Nuclear Facility D&D – River Corridor Closure Project.....	15
RL-0041.R1.1: 100K Area Remediation.....	15
UPCOMING EVENTS.....	17
RL-0011 Nuclear Materials Stabilization & Disposition.....	17
RL-0011.R1: Plutonium Finishing Plant D&D.....	17
RL-0013 Solid Waste Stabilization & Disposition.....	18
RL-0013C:R1.1: MLLW Treatment.....	18
RL-0013C:R1.2: TRU Waste.....	18
RL-0030 Soil & Groundwater Remediation, Groundwater/Vadose Zone.....	18
RL-0030.R1: Central Plateau Soil & Groundwater.....	18
RL-0040 Nuclear Facility D&D – Remainder of Hanford.....	18
RL-0040.R1.1: U Plant/Other D&D.....	18
RL-0040.R1.2: Outer Zone D&D/Waste Sites.....	18
RL-0041 Nuclear Facility D&D – River Corridor Closure Project.....	18
RL-0041.R1.1: 100K Area Remediation.....	18

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 PFP used for plutonium production and processing.

RL-0013 Solid Waste Stabilization & Disposition

Recovery Act funds are allowing CHPRC to accelerate retrieval of 2,500 m³ of suspect transuranic (TRU) waste, eliminate 1,800 m³ 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 and drill 344 wells that will be used for monitoring, extracting, and remediating groundwater.

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

The PFP Solid Waste staff, supported by the Waste and Fuels Management project and teamsters from Mission Support Alliance, successfully loaded and shipped three hoods to the Environmental Restoration Disposal Facility (ERDF) using the Contaminated Equipment–Special Package Authorization process, which provides special controls for shipping materials that marginally exceed normal shipping criteria.



Photo 1

A box containing three glove boxes is loaded onto a truck for shipment to the Environmental Restoration Disposal Facility. This is the first shipment of glove boxes made using the Contaminated Equipment–Special Package Authorization, an alternative process for shipping low-level waste that slightly exceeds normal shipping criteria. The shipment was made under a rolling road closure with a speed limit of 10 miles per hour.

Laboratory areas

In support of the new combustible control program, glove boxes in rooms 180 and 188 of the Plutonium Process Support Laboratory were reactivated and removal of combustibles was completed in three glove boxes.

As a result of the new criticality safety controls and emergency preparedness procedures implemented last week, D&D crews in the former Analytical Laboratory were able to continue work uninterrupted.

Previously, work in some areas of the laboratory had to be suspended during entries into highly contaminated areas of the adjoining buildings.

In the former Standards Laboratory, fixative was applied to the inside of glove box 221D-5, and the crew began preparing the glove box for isolation from building ventilation.

Plutonium processing areas

During process equipment removal on multi-story glove boxes HA-19B1 and B2, crews encountered a large diameter, 1-inch thick steel plate that will need to be size-reduced because it is too large for removal through any of the seal-out ports and too heavy for the crew to safely manipulate. Chemical decontamination of glove box HC-60 was temporarily halted while the crew removed remnants of piping and tubing that surveys indicated were still contaminated to levels above LLW criteria.

Eighteen gallons of process water were discovered in a tank assembly behind glove box HA-46. The water had to be sampled and drained before gloves could be installed to begin cleanout of the glove box.

In the former Radioactive Acid Digestion Test Unit, installation of a large-area containment was completed to support mechanical isolation and internal process equipment removal from glove box 400. The containment will allow the D&D crew to post and control their work area as an Airborne Radioactivity Area without impacting nearby areas, which are used as the primary route for removing waste containers from the 234-5Z building.

Infrastructure

After removing a sink in room 159 and a safety shower in room 166, an infrastructure D&D crew removed a sink in room 228C to continue clearing paths for future removal of glove boxes from the laboratory and processing areas.

Throughout the 234-5Z and 291-Z buildings, insulators removed asbestos insulation from 175 feet of pipe, including 80 feet from radiologically controlled areas, bringing the total to 7,200 feet of insulation removed with Recovery Act funding.

Construction is also under way for installing a large roll-up door and truck seal on the exterior of the 234-5Z building to accelerate loading of waste into large containers. The new door will allow for most glove boxes and waste containers to be rolled directly into end-loading cargo containers rather than rolled out of the building, transported across the yard with a forklift, and top-loaded into containers with a crane.



Photo 2

Pipefitters steady a shower draining assembly and pull the handle to drain the shower and prepare it for removal from the 243-5Z building at the Plutonium Finishing Plant. Removal of equipment such as showers and sinks will clear paths for future removal of glove boxes from the laboratory and processing areas.

RL-0013 Solid Waste Stabilization & Disposition

RL-0013C:R1.1: MLLW Treatment

Of the 1,800 m³ of MLLW and LLW planned for treatment and disposal under the Recovery Act:

- 839 m³ of MLLW and LLW have been shipped to date including:
 - 372 m³ that have been treated and disposed.
 - 467 m³ at off-site treatment facilities awaiting processing. Treatment is scheduled for FY10.

Four shipments of waste were sent out for treatment this week. Forty-one drums (12.6 m³) of MLLW and Toxic Substances Control Act MLLW and LLW solids were sent out on Feb. 9 to be volume-reduced and to undergo macro-encapsulation. A shipment containing 20 drums (6.3 m³) of MLLW, previously classified as TRU waste, was sent out on Feb. 10 to undergo macro-encapsulation. The third shipment, sent on Feb. 9, contained 23 drums (4.9 m³) of LLW debris that will be volume-reduced, stabilized, and packaged for disposal in Hanford's Mixed Waste Disposal Units. All three shipments were sent from the Waste Receiving and Processing Facility to Perma-Fix Northwest (PFNW). The fourth shipment, shipped from the Central Waste Complex to PFWN on Feb. 11, contained 17 drums (3.5 m³) of LLW debris and will be volume-reduced, stabilized, and packaged for disposal in Hanford's Mixed Waste Disposal Units.



Photo 3

Radiation Control personnel perform a radiological survey of a shipping vehicle containing 20 drums of mixed low-level waste debris being shipped from the Waste Receiving and Processing Facility to Perma-Fix Northwest. The waste was previously classified as transuranic waste but after non-destructive assay confirmed the waste can be classified as mixed low-level waste, the waste can now be treated through macro-encapsulation and disposed of on the Hanford Site.

Environmental Restoration Disposal Facility "Self Perform"

Work on the facility access road continued with the completion of the structural fill. The facility power pole and overhead lines were installed and workers performed electrical tie-ins at the utilities pole. Interior electrical finishes continue and ecology blocks were placed at the facility property edge. Additional concrete pours were performed on the exterior concrete pad.



Photo 4

Work on the access road for the Container Maintenance Facility continues as workers level the structural fill. The road will provide an alternate route for heavy machinery to arrive at the facility.

RL-0013C:R1.2: TRU Waste

Of the 2,500 m³ of suspect TRU waste planned for retrieval under the Recovery Act:

- 17.1 m³ are staged, pending shipment.
- 428.6 m³ have been shipped to a treatment, storage, or disposal facility.

Workers relocated 12 ecology blocks to the 3A Burial Grounds to support the sheet piling around Box 82 in Trench 17 during the removal of the box walls. Ecology blocks are large concrete blocks used to stabilize a waste box after the surrounding dirt is removed to provide access to the walls. Repackaging of the box and its waste are also in progress.

The installation of the 4B/4C restroom trailer MO-2323 continued and a review of the 4C Process Area shipping procedures and other related procedures was initiated. The transfer of inventory was completed and the new mask station storage structure is now in service.

Two proposal evaluations were completed, one for metal covers/bases for over-packing waste boxes from the trenches and another for pre-fabricated wooden over-pack containers for protecting some of the retrieved fiberglass-reinforced plywood boxes stored at the Central Waste Complex.

An electrical outage was completed on Feb. 13 to support the power tie-in for the Container Maintenance Facility.

Alpha Caisson Retrieval Project

The final design kickoff meeting was held with ARES on Feb. 11.

TRU Project Drum Repackaging

Of the 850 m³ planned to be characterized and repackaged under the Recovery Act:

- 742 drums (154.4 m³) were repackaged.
- 1,362 drums (283.3 m³) have been quick-scanned to date.
- Repack instructions (corrective actions) for 1,555 drums (323.4 m³) have been developed.

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

RL-0030.R1: Central Plateau Soil & Groundwater

Recovery Act funds are being utilized to design the 200 West Groundwater Treatment Facility, the new treatment facility that will remove several chemical and radioactive contaminants, including the primary contaminant of concern – carbon tetrachloride. To observe the latest water treatment technologies being designed for the facility and to better understand how specific systems operate, workers conducted site visits to operating water treatment facilities located in Duval, WA and Henderson, NV. Participants in the tour included design engineers, construction engineers, and DOE's technical expert.

In the 100-HR-3 D Area, recent construction activities at the DX Groundwater Treatment Facility, another pump-and-treat system under construction with Recovery Act funding, included mobilization of electrical and process equipment to the process and transfer buildings. The installation of the electrical and mechanical equipment will continue as equipment is received and staged at the construction site.



Photo 5

Workers review plans for electrical and mechanical equipment installation in the process and transfer buildings of the DX Groundwater Treatment Facility, which is under construction with Recovery Act funding to support groundwater remediation efforts in the 100-HR-3 operable unit on the Hanford Site.

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

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

U Canyon

Size reduction and hand disposition of smaller items in the canyon continued. To date, approximately 70 percent of the larger mapped items have been placed in the cells. Additional continuous air monitors were moved into the canyon to support process cell activities. Additional housekeeping and fixative application in the rail tunnel were also completed. The work instructions, parts, and equipment are staged and work started on Feb. 11 to replace the wheel and bearing on the canyon crane. Ongoing activities to support canyon demolition also included disposition of various chemicals in the canyon and evaluation of grout conveyance bids and plans for the disposition of the D-10 tank in Cell 30.



Photo 6

Workers begin repairing the wheel on the U Canyon crane. Work began on Feb. 11 to replace the approximately 600-pound wheel and bearing and return the crane to its primary task of relocating equipment from the canyon deck into the below-grade process cells.



Photo 7

The interior of the U Plant rail tunnel, where workers are performing housekeeping, removing miscellaneous materials, and applying contamination fixative. The tunnel once served as the entry point for railcars and trucks delivering materials and equipment to the canyon.

U Plant Ancillary Facilities

Asbestos abatement 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. In the 224-U building, crews are nearing completion of the asbestos containment for the cell area. Demolition planning for both buildings is ongoing.

200 East Core Industrial Area

Asbestos abatement continued in the 272-E fabrication shop. Isolation of mobile unit MO-405 and the 275-E carpenter shop was completed. Entries into the 284-E Powerhouse continued in preparation of the Waste Identification Form and cold and dark activities. Biohazard cleanup of the building was initiated and will continue next week. During the cleanup, radiological contamination was found and the work packages were modified to incorporate that hazard. Radiological sampling was performed to determine constituents of the radiological contamination. Beryllium sampling and down posting discussions for the 284-E building also continued.



Photo 8

The 284-E Powerhouse, where workers are conducting biohazard cleanup to identify hazards to be included in the work package for future demolition activities. The approximately 61,974-square-foot building is one of nine core industrial buildings in the 200 East Area being prepared for demolition with Recovery Act funding to help reduce the Hanford Site cleanup footprint and remove facilities that are no longer of service.

209-E Criticality Mass Laboratory

The development of safety basis and environmental documents continue. Final documents for the procurement of 60 waste boxes were submitted and procurement began for a scale and radiation control equipment. Preliminary beryllium samples were received on Feb. 2 and indicated levels below threshold values in the office part of the facility. Confirmatory final results will allow for personnel entries into the facility to begin miscellaneous waste removal and removal of Halon compounds associated with the fire suppression system. The containment structure is in the final design stage and procurement is expected to begin next week.

Heavy Equipment Procurements

The 1200 high-reach excavator was moved from the assembly location in 200 West to the 272-E building. The excavator was procured with Recovery Act funding to support U Canyon demolition activities.

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

Facility D&D

Following the recent demolition of seven buildings, demolition activities on the lower Arid Lands Ecology (ALE) Reserve are continuing with the load out of debris 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. Sixty debris sites have been completed.

Waste Sites

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

- *200-MG-1* – Remediation continued for the 600-36 waste site. Preparations and field remediation continued on waste sites 600-218, 600-38, 600-275, and 600-40. Development and processing continued for the Response Action Completion Reports for waste sites 200-E-110, 600-21, and 600-51 continued.
- *200-CW-3* –The sampling instructions necessary to obtain sampling results for the 216-N-1 waste site were approved. Remediation continued at the 216-N-4 waste site with four super dump trucks delivering approximately 5,340 tons of contaminated soil to ERDF.
- *BC Control Area* – Remediation of Zone A of the BC Control Area continued with approximately 40,000 tons of contaminated soil having been shipped to ERDF. In total, six super dump trucks are on site for use in the BC Control Area. Additionally, in Zone B, remediation of the remaining radiological spots resumed.



Photo 9

An excavator removes soil from the 216-N-4 waste site, where CHPRC has removed and disposed of 5,300 tons of contaminated soil using four Recovery Act-funded super dump trucks.

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

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

Facility D&D

Demolition continued on the 183.2KW Sedimentation Basin. Most of the internal structures and the east and west exterior walls have been demolished. Rubble is being relocated from the basin floor to a storage pile for separating the rebar from the concrete. Roll-on/roll-off containers are being loaded with the metal debris in preparation for shipment to ERDF. Demolition preparations for the 183.1KW Headhouse are complete with demolition expected to start in late February.

Work crews are being identified and materials are being procured for the 105KW air handling unit upgrade, which is scheduled to be complete by Sept. 30, 2010 and will improve the 105KW Basin work environment by allowing work to be performed with fewer personal protective equipment requirements.

Preliminary Design activities for disposition of the 105KE Reactor continued. The independent review of the draft Equipment Testing List continued. The work document for core sampling is being developed. The work instructions are being validated as dry runs are performed using the recently fabricated glove box for mock-up training. Materials for fabricating the actual glove box for the sampling were received.

Isolation of 100K Area utilities continued in support of cold and dark conditions for buildings, structures, and waste sites that are planned for D&D and remediation. This includes replacing portions of the current electrical and water supply systems with temporary systems to limit restrictions on demolition and remediation activities. Contracts have been awarded for construction of a temporary underground water line, microfiltration unit, and a skid-mounted electrical substation. A cultural and ecological review of the locations for the water line and microfiltration unit are nearing completion.



Photo 10

A mock-up glove box that is being used to train workers for upcoming core sampling activities at the K East Reactor. The mock-up glove box provides a controlled, non-radiological environment that simulates conditions workers will encounter during the actual sampling.

Waste Sites

Recent progress in remediation at 100K Area waste sites includes (listed by operable unit or site):

- *100-K-3, 100-K-47, and 100-K-56 Pipelines* – Removal of overburden continued in order to truncate pipelines that potentially feed the 100K outfall, an area where pipelines previously drained during reactor operations. Truncating the lines will ensure that, as the pipeline waste sites are remediated, water will not have a direct path to the outfall.
- *100-K-63 and 100-K-64* – Review of the draft document containing the rationale to change the status of 100-K-63 (western flood plain) and 100-K-64 (eastern flood plain) continued. The document was returned from DOE Richland Operations Office with comments.



Photo 11

An excavator removes soil from the 100-K-3 pipeline waste site to provide access to truncate the pipelines and ensure that water will not have a direct path from the pipelines to the 100K outfall. During excavation activities, the site is restricted to personnel to ensure worker safety as heavy equipment removes soil from around the pipelines.

UPCOMING EVENTS

RL-0011 Nuclear Materials Stabilization & Disposition

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

- Isolate glove box 221D-5 and remove it from the Standards Laboratory.
- Complete chemical decontamination of glove box HC-60 and three glove boxes in room 136.
- Complete process equipment removal from five glove boxes; initiate chemical decontamination.
- Initiate process equipment removal from glove boxes HA-46, HC-227T, 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.
- Complete electrical/mechanical isolation and removal of the storage tank on the 2731-ZA nitrogen generator facility.
- Initiate disposition of hazardous materials and air dryers in room 321 of the 234-5Z building.

RL-0013 Solid Waste Stabilization & Disposition

RL-0013C:R1.1: MLLW Treatment

- Planned shipment of 11.3 m³ (1 large box) of MLLW debris on Feb. 16 to PFNW.
- Container Maintenance Facility:
 - Finish access road.
 - Set facility storage box.
 - Complete the final concrete pour.
 - Apply building epoxy floor coating.
 - Finish electrical work.

RL-0013C:R1.2: TRU Waste

- Continue Mobile Radioactive Decontamination Unit set-up/startup.
- Complete set-up of the 4B/4C restroom trailer and place into service.
- Complete the review/revision of the 4C process Area procedures.
- Alpha Caisson Retrieval - Issue Conceptual Safety Design Report on March 31.

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.
- 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-vegetate the former 212-NPR building sites.
- 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.

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

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

- Continue debris removal from the K West basin.
- Continue Preliminary Design activities for the disposition of the 105KE Reactor.
- Perform formal 105KE Reactor characterization efforts.
- Continue remediation of the UPR-100-K-1, pipeline, and flood plain waste sites.