

ARRA Weekly Report



Week Ending December 11, 2009

December 15, 2009
Contract DE-AC06-08RL14788
Modification M047
CHPRC0912-10

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.....	8
RL-0013C:R1.1: MLLW Treatment.....	8
RL-0013C:R1.2: TRU Waste.....	9
RL-0030 Soil & Groundwater Remediation, Groundwater/Vadose Zone.....	12
RL-0030.R1: Central Plateau Soil & Groundwater.....	12
RL-0040 Nuclear Facility D&D – Remainder of Hanford.....	15
RL-0040.R1.1: U Plant/Other D&D.....	15
RL-0040.R1.2: Outer Zone D&D/Waste Sites.....	19
RL-0041 Nuclear Facility D&D – River Corridor Closure Project.....	23
RL-0041.R1.1: 100K Area Remediation.....	23
UPCOMING EVENTS.....	25
RL-0011 Nuclear Materials Stabilization & Disposition.....	25
RL-0011.R1: Plutonium Finishing Plant D&D.....	25
RL-0013 Solid Waste Stabilization & Disposition.....	26
RL-0013C:R1.1: MLLW Treatment.....	26
RL-0013C:R1.2: TRU Waste.....	26
RL-0030 Soil & Groundwater Remediation, Groundwater/Vadose Zone.....	26
RL-0030.R1: Central Plateau Soil & Groundwater.....	26
RL-0040 Nuclear Facility D&D – Remainder of Hanford.....	26
RL-0040.R1.1: U Plant/Other D&D.....	26
RL-0040.R1.2: Outer Zone D&D/Waste Sites.....	27
RL-0041 Nuclear Facility D&D – River Corridor Closure Project.....	27
RL-0041.R1.1: 100K Area Remediation.....	27

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's 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 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

D&D field work teams are deployed and working concurrently in all three of the former PFP laboratories. In the past week, the first two of five hoods in room 187 in PFP's former Plutonium Process Development Laboratory were removed. This brings the number of glove boxes and hoods removed from the 234-5Z building with Recovery Act support to 31 out of 174 scheduled to be removed. These two hoods, along with three others removed from room 221E in the Standards Laboratory and four removed from room 146 in the Analytical Laboratory, were all loaded into a single IP-2 container for transport to and disposal at the Environmental Restoration Disposal Facility (ERDF).

Eight ventilated sample storage cabinets previously removed from room 174 in the 234-5Z building were also loaded into two shipping containers and prepared for transfer to Perma-Fix Northwest (PFNW) for size reduction prior to disposal at ERDF. Decontamination and characterization were completed on three glove boxes removed earlier this year from room 131 as well as the last glove box in room 146, which should be removed by the year's end.

In the former plutonium production areas of the 234-5Z building, mechanical isolations, process equipment removal, and decontamination continued in parallel on seven glove boxes in the RMA/RMC Lines. External mechanical isolations were completed on glove boxes HC-230C-2, HC-60, and HA-19. Efforts to decontaminate glove box HC-230C-3 continued while other crews continued activating glove ports on glove box HA-46 and designing containments for glove boxes in rooms 227 and 235D.

Elsewhere in the 234-5Z building, crews continued work planning and preparations to deactivate excess safety showers and lights beginning in January, remove deactivated air dryers in room 321, and begin the removal of 5,500 feet of highly contaminated process vacuum lines from the facility in early February. To date, non-destructive assay has been completed on approximately 3,000 feet of the vacuum system. Insulators also removed asbestos from an additional 330 feet of piping, bringing the total removed to date with Recovery Act funds to more than 6,300 feet.

Final preparations were completed for loading and returning the 2734-ZJ nitrogen storage tank to the vendor. Work is also under way for performing D&D on a separate nitrogen generator facility near the 2731-ZA building.

Walk downs were completed to evaluate safety, environmental, and waste issues for preparing three recently vacated Patrol facilities for demolition.



Photo 1

Two of three laboratory hoods removed from room 221E in the Standards Laboratory are tied down on lift tables in preparation for removal and transfer to waste operations. These hoods, as well as six other glove boxes and hoods removed from the Plutonium Finishing Plant's former laboratories, were loaded into a single container for shipment to and disposal at the Environmental Restoration Disposal Facility.



Photo 2

A close-up of one of three laboratory hoods recently removed from room 221E in the Standards Laboratory. The hood is positioned on a lift table to allow workers to remove the equipment from the building.



Photo 3



Photo 4

Piping in room 265 in the 234-5Z building before and after asbestos removal (marked in pink). CHPRC insulators have removed asbestos from more than 6,300 feet of piping in the 234-5Z building. Asbestos is one of several hazards that must be removed before the demolition of the Plutonium Finishing Plant complex can begin.

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:

- 690 m³ have been shipped to date including:
 - 271 m³ of LLW have been treated and disposed.
 - 419 m³ are at off-site treatment facilities awaiting processing. Treatment is scheduled for FY 2010.

Three shipments of waste were sent out for treatment on Dec. 9. Two drums and one box (8.8 m³) of MLLW soils were shipped from the Central Waste Complex (CWC) to PFNW where the soils will be sampled to confirm they meet disposal restrictions. The sampling and analytical results will determine the final disposition path. Sixty-five drums (21 m³) of MLLW debris (previously classified as suspect transuranic waste) were shipped from the Waste Receiving and Processing Facility to PFNW and will be non-thermally treated and grouted or encased in a special concrete, a process called macro encapsulation. Three drums (1 m³) of LLW debris were shipped from CWC to PFNW to be volume reduced and packaged for disposal in Hanford's Mixed Waste Disposal Units.



Photo 5

A worker loads 65 drums (21 m³) of mixed low-level waste debris for shipment from the Waste Receiving and Processing Facility to Perma-Fix Northwest on Dec. 9.



Photo 6

Drums containing mixed low-level waste and low-level waste debris are blocked, braced, and ready for shipment to Perma-Fix Northwest. The containers are secured to ensure they do not move during transit.

Environmental Restoration Disposal Facility "Self Perform"

The pre-engineered building was ordered and the drawings for the concrete foundation were issued for the container maintenance facility. George Grant Construction, the sub-contractor for Ojeda Business Ventures, is mobilizing for the foundation pour. A field walk down of the proposed access road to the facility was performed with all affected parties, including representatives from the Waste Retrieval and the Soil and Groundwater Remediation groups as well as facility personnel (teamsters, supervisors, safety, management, etc.). Collected input will be included in the road design.

RL-0013C:R1.2: TRU Waste

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

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

Removal activities continued in 3A Trench 17 where workers finished backfilling the site and staged equipment and materials for the disassembly of Box 82. The team reviewed changes to the Box 82 disassembly work package following the initial Hazard Review Board meeting. Changes were approved as presented and the work package for the disassembly of Boxes 80 and 82 was released.

For Box 3, another box of suspect TRU waste in the trench, vendors fabricated extended-reach hand-held tools for excavating under the box. Workers also began fabricating a shoring box that will protect Box 3 during removal from the trench.

Work also continued in 3A Trench 8 and 4B Trenches 10 and 11. Workers continued preliminary work on logistics, procedure, and permit reviews for 3A Trench 8 waste removal. A ground-penetrating radar mapping (GPRM) survey of 3A Trench 8 is scheduled for Dec. 18. Mitigation activities, including the patching of three waste containers, were performed in 4B Trench 11. This trench will be in stand-by pending the resolution of Trench 10 containers.



Photo 7

The east end of a waste trench in the 200 West Area where CHPRC used excavation and backfilling to prepare the area for the disassembly of Boxes 80 and 82. The site now provides improved access for equipment being used to remove the boxes from the trench.



Photo 8

Box 80, located in a waste trench in the 200 West Area, enclosed by a temporary wooden cover box. The cover box protects the waste box from weather during the repackaging of the waste contents. All boxes that are deteriorated and require in-trench repackaging are provided with a temporary cover box.

Alpha Caisson Retrieval Project

The Alpha Caisson Retrieval Project Management Group consolidated independent project review ratings and issued a presentation for the Project Review Board (PRB) meeting on Dec. 14. The group also continued modifying the estimate template for the Conceptual Design Report (CDR) and continued holding daily review meetings. Also, the Functional Design Criteria is in the release cycle. The Waste Retrieval System (WRS) group received 60% of the design review submittal and the contracts group issued a request for proposals on Dec. 9 to ARES for the definitive design. The Waste Processing System (WPS) group finished incorporating comments into their statement of work on the follow-on design and provided it to the contracts group for placement on Dec. 17. Both the WRS and WPS groups continued preparing for the conceptual design.

TRU Project Drum Repackaging

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

- 414 drums (86 m³) were repackaged.
- 680 drums have been quick-scanned to date.
- Corrective actions for 842 drums have been developed.

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

RL-0030.R1: Central Plateau Soil & Groundwater

In the 100-HR-3 D Area, construction of the new DX Groundwater Treatment Facility is in progress. CHPRC is constructing the facility with \$20 million of Recovery Act funds to treat hexavalent chromium contamination in the groundwater and protect the Columbia River. After completing the main process building foundation and slab in October, crews began constructing the outer shell of the building. Currently, the outer shell is 75% complete. In addition to the main process building, two groundwater transfer buildings are being constructed to support the facility. The foundation and slab of each building are complete and the erection of the first transfer building is 75% complete and the second transfer building is 15% complete.

Recent drilling progress includes (listed by operable unit):

- *100-NR-2*: Drilling on 171 wells to expand the apatite barrier continued with 43 wells in process, 43 wells drilled to total depth, and 16 wells constructed and developed. Development of the shallow wells will continue when the river elevation is sufficient.
- *100-HR-3*: In the D Area, a total of 14 wells will be drilled to support the new DX Groundwater Treatment Facility. To date, nine wells are in process with seven of the nine wells being drilled to total depth and eight of the nine wells being constructed and developed. The remaining well locations are being prepared for the drilling activities.
- *200-BP-5*: Drilling on two of the three planned wells continued last week with current depths of 193 and 315 feet, respectively.
- *200-ZP-1 Expansion*: Drilling continued on six wells. Two of the six wells have been developed, three of the six wells are under construction, and one of the six wells is being drilled (current depth is 223 feet). Due to subsurface geological issues, workers are currently making a third attempt to drill to the required depth (approximately 500 feet).
- *100-BC-5*: Drilling continued on two of the four planned wells. To date, both wells have been drilled to total depth and are under construction.



Photo 9

A well under construction in the 100-HR-3 D Area, where CHPRC is using Recovery Act funds to drill 14 wells that will support the new \$20 million DX Groundwater Treatment Facility and be used to remediate chromium-contaminated groundwater.



Photo 10

The outer shell of one of two transfer buildings being constructed to support the DX Groundwater Treatment Facility in the 100-HR-3 D Area of the Hanford Site. The DX facility is expected to be operational in 2010.

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

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

Recent work within the U Plant Canyon focused on applying contamination fixative to surfaces within the canyon. Cold weather conditions limited the fixative application process and approximately 90% of the area planned to be painted was completed. This includes the canyon deck, cover blocks, equipment staged on the canyon deck, and approximately eight to ten feet high on the sidewalls of the canyon.

The 10-ton canyon crane resumed work after maintenance was completed and continued relocating equipment from the canyon deck into the below-grade cells. The third cell was completed and setup to begin loading the fourth cell is ongoing.

Asbestos abatement work continued at the U Plant Ancillary facilities, 224-U and 224-UA, to prepare them for demolition later this fiscal year. At 224-UA, work is currently concentrated on asbestos removal from the calciner area. At 224-U, glove bag installation and asbestos removal continued on the south side piping and external activities were slowed due to the sub-zero temperatures.

Preparations for cleaning out the 209-E building continued, including development of the safety basis documents, fire hazards analysis, environmental documents, waste profile, and procedures. The engineering design is complete for the ventilated enclosures that will be used during waste removal. The design package was submitted to the vendor for construction review and incorporation of an “over-roof” to prevent snow or ice from interfering with the system’s performance. The inventory for the safety analysis and environmental documentation was determined, issues were evaluated, and it was confirmed that no additional controls will be required with the increased inventory assigned to the building.

Fabrication also continued on the remaining heavy equipment being procured for accelerated D&D on the Central Plateau. The heavy haul trailer that will move the large excavators from jobsite to jobsite was received this week.



Photo 11

Workers install rigging equipment on a transformer to allow the canyon crane to hoist the transformer and place it into a cell beneath the U Plant Canyon deck. To date, CHPRC has filled three cells with equipment previously located on the canyon deck.



Photo 12

Workers monitor the relocation of a transformer into one of 40 process cells beneath the U Plant Canyon deck. The equipment will be grouted into place within the cells and left for long-term disposal as the above-ground portion of the canyon is demolished and covered with a protective barrier.



Photo 13

A high-reach excavator under construction by the manufacturer. The excavator is one of several pieces of equipment recently procured with Recovery Act funds to support accelerated demolition across the Central Plateau.



Photo 14

A high-reach excavator being fabricated by the manufacturer to support accelerated demolition on the Central Plateau. CHPRC is using Recovery Act funds to procure and fabricate equipment to help demolish and remove ancillary or excess facilities on the Hanford Site.

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

Facility D&D

An environmental sampling plan is being prepared to support future backfilling and re-vegetation of the former sites of the 212-N, -P, and -R interim fuel storage buildings. Demobilization and relocation of equipment to other demolition projects is continuing. On the Arid Lands Ecology (ALE) reserve, mobilization activities are continuing with demolition crews moving equipment and supplies to the staging areas. Demolition preparations and asbestos abatement activities are ongoing on the lower ALE structures and cold and dark isolation activities are ongoing on the upper ALE structures. Workers are also planning for the cleanup of the 168 debris sites throughout the ALE reserve.

Waste Sites

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

- *200-MG-1:* Review of the Response Action Completion Reports (RACR) for waste sites 200-E-110 and 600-21 was completed and comments are being incorporated and the RACR for waste site 600-51 is in process. The ground scan continued for evaluating potential objects within waste site 600-275, which is located beneath the former site of seven army “igloos” or storage areas near the 200 West Area. Cultural walk downs were performed for eight of the next waste sites that CHPRC will remediate. Cultural walk downs are performed to ensure that culturally sensitive areas or items will not be disturbed or destroyed by remediation activities.
- *200-CW-3:* Remediation continued at the 216-N-1 waste site, which is one of three ponds that once received releases from the 212-NPR interim fuel storage buildings. Approximately 1,000 tons of soil have been removed and disposed of in ERDF. Preparations for initiating remediation of waste site 216-N-4 continued.
- *BC Control Area:* Soil remediation continued. Approximately 14,300 tons of soil have been removed and disposed of in ERDF. Additional super dump trucks are being procured to increase the capacity of the remediation effort.
- *Multi-Incremental Sampling:* Soil sampling of the 216-S-19 waste site continued. The sampling will be used to determine the level of contamination within the waste site and determine the final remedial actions needed to close the waste site. In addition to the sampling, scaffolding was constructed to support the upcoming remediation of the site.



Photo 15

Remediation continues at the 216-N-1 waste site, located in the 200 North Area. 216-N-1 is one of three ponds in the area that once received releases from the former 212-NPR interim fuel storage basins and now requires remediation. Cleanup of the waste site is being performed with Recovery Act-funded super dump trucks, which can carry more material than traditional roll-on/roll-off containers and allow for direct dumping into the Environmental Restoration Disposal Facility.



Photo 16

Soil sampling of the 216-S-19 waste site continues in order to determine the level of contamination within the waste site. The waste site is being sampled as part of the Multi-Incremental Sampling Project, which is comparing sampling designs on selected waste sites near the 200 West Area.

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

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

Demolition of the 183.2 KW Sedimentation Basin continued. Roughly one fourth of the internal structures and fixtures have been demolished or removed. Packaging of debris removed from the basin is expected to begin next week. Also at the 183KW complex, asbestos removal is in progress in the 183.7 KW Pipe Tunnel.

Characterization preparations for the 115KE gas recirculation building continued and characterization is expected to begin in the next week. Preliminary Design activities for the disposition of the 105KE reactor core continued and electrical system walk downs were performed to complete the isolation of the 105KE reactor building. Efforts to identify methods to reduce worker exposure and physical hazards are ongoing to prepare for work to be performed in the 105KE reactor building. The reactor graphite tumble test was completed and the data is being evaluated for inclusion in the test report. The test was used to obtain dusting properties of the reactor graphite.



Photo 17

Workers build a ramp to access the west side of the 183.2 KW Sedimentation Basin, providing access from two directions. CHPRC will demolish part of the west basin wall to provide access for workers to accelerate demolition activities in the basin.



Photo 18

Demolition of the 183.2 KW Sedimentation Basin continues with approximately one-fourth of the interior structures removed since demolition began on Nov. 18. CHPRC is using Recovery Act funds to demolish the approximately 300,000-square-foot basin that once processed water used to cool the reactor.

Waste Sites

Remediation is in progress for the UPR-100K-1 waste site beneath the former K East Fuel Storage Basin and the pipeline waste sites 100-K-56, 100-K-3, and 100-K-47.



Photo 19

Soil remediation crews open an air gap in pipeline 100-K-47 to contain dust suppression water from the demolition activities. With Recovery Act funding, remediation is being performed in parallel in the 100K Area pipeline waste sites and the waste site beneath the former K East Fuel Storage Basin.

UPCOMING EVENTS

RL-0011 Nuclear Materials Stabilization & Disposition

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

- Remove the fifth and last glove box from room 146.
- Initiate process equipment removal from within the glove box in room 136.
- Complete cleanout, apply contamination fixative, and remove three glove boxes in room 187.
- Complete disposition of three glove boxes removed from room 131.
- Complete decontamination of glove box HC-230C-3 and initiate decontamination of HC-60.
- Initiate process equipment removal on glove boxes HC-230C-2, HA-19B1, and HA-19B2.
- Initiate process equipment removal from glove boxes HA-46 and HC-227S.

- Reassess the radiological status of and determine a disposition path for three glove boxes previously removed from room 137 of the Analytical Laboratory.
- Initiate deactivation of excess safety showers and lights in the 234-5Z building.
- Complete removal/return of the 2734-ZJ nitrogen storage tank to the vendor and remove remaining appurtenances to slab-on-grade.

RL-0013 Solid Waste Stabilization & Disposition

RL-0013C:R1.1: MLLW Treatment

- Planned shipment of 80 drums (17.1 m³) of MLLW debris containing Toxic Substances and Control Act Polychlorinated Biphenyls on Dec. 14 from CWC to Energy Solutions - Clive.

RL-0013C:R1.2: TRU Waste

- 3A Trench 17 Removal:
 - Disassemble the lid and collapsed wall sections of Box 82.
 - Complete hand excavation at the bottom of Box 3 to allow for the installation of support plates to assist in lifting the box out of the trench.
 - Pre-assemble a shoring box and roof, assemble the shoring box around Box 3, remove the box from the trench, and prepare the box for shipment.
 - Excavate around the bottom of Box 12 and perform an engineering evaluation of the box.
- Complete GPRM of 3A Trench 8.
- Perform waste shipments scheduled for Dec. 16.
- Alpha Caisson Retrieval:
 - The PRB meeting is scheduled for Dec. 14.
 - Issue the Technical Readiness Report on Dec. 17.
 - Issue the CDR for review on Dec. 21.
 - Finalize CDR and release documents on Jan. 31.

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

RL-0030.R1: Central Plateau Soil & Groundwater

- Continue construction of the DX Pump-and-Treat Facility.
- Continue drilling at 200-ZP-1, 100-HR-3-H, 100-HR-3-D, 100-BC-5, and 100-NR-2.
- Continue developing decision documentation.

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 removal and other preparations for demolishing the U Plant ancillary facilities.
- Complete the application of contamination fixative within the U Plant Canyon and continue relocating equipment from the canyon deck into the cells.
- Complete radiological surveys and initiate cold and dark isolation of the nine 200 East Area core industrial complex buildings.
- Complete detailed planning for cleanout of the 209-E building.

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

- Complete surveys and environmental sampling at the former 212-NPR building sites, backfill the excavations, and re-vegetate the areas.
- Complete asbestos abatement and preparations for demolishing the lower ALE facilities.
- Continue cold and dark isolations of upper ALE facilities.
- Continue remediation at the BC Control Area and 200-CW-3 waste sites.

RL-0041 Nuclear Facility D&D – River Corridor Closure Project**RL-0041.R1.1: 100K Area Remediation**

- Continue remediating the soils beneath the former K East Fuel Storage Basin and the pipeline waste sites (100-K-47, 100-K-56, and 100-K-3).
- Continue demolition of the 183.2 KW Sedimentation Basin.
- Continue asbestos removal from 183.1 KW Headhouse.
- Continue Preliminary Design activities for the 105KE reactor core removal.
- Continue mock-up glove bag work planning for K East reactor characterization efforts.
- Continue debris removal from the K West basin.
- Complete comment resolution for River Water Isolation, Electrical Power Isolation, and the KW Basin Airborne Contamination Remediation projects.
- Complete the reactor graphite tumble test report.