

ARRA Weekly Report



Week Ending December 18, 2009

December 22, 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.....9

 RL-0013C:R1.2: TRU Waste.....10

 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.....17

 RL-0041 Nuclear Facility D&D – River Corridor Closure Project.....18

 RL-0041.R1.1: 100K Area Remediation.....18

UPCOMING EVENTS.....23

 RL-0011 Nuclear Materials Stabilization & Disposition.....23

 RL-0011.R1: Plutonium Finishing Plant D&D.....23

 RL-0013 Solid Waste Stabilization & Disposition.....24

 RL-0013C:R1.1: MLLW Treatment.....24

 RL-0013C:R1.2: TRU Waste.....24

 RL-0030 Soil & Groundwater Remediation, Groundwater/Vadose Zone.....24

 RL-0030.R1: Central Plateau Soil & Groundwater.....24

 RL-0040 Nuclear Facility D&D – Remainder of Hanford.....24

 RL-0040.R1.1: U Plant/Other D&D.....24

 RL-0040.R1.2: Outer Zone D&D/Waste Sites.....24

 RL-0041 Nuclear Facility D&D – River Corridor Closure Project.....24

 RL-0041.R1.1: 100K Area Remediation.....24

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 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

Note: No report will be issued on Dec. 29 or Jan. 5. The next report will be issued on Jan. 12.

RL-0011 Nuclear Materials Stabilization & Disposition

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

On Dec. 18, the 2734-ZJ nitrogen storage tank was loaded on a trailer and returned to the vendor, and the structural support was removed, returning the site to slab-on-grade and clearing a pathway out of the 234-5Z building.

Inside the PFP facilities, D&D field work teams are continuing to clean out and remove plutonium processing and laboratory equipment from throughout the 234-5Z building. Eight ventilated sample storage cabinets removed earlier from room 174 were shipped to Perma-Fix Northwest for size reduction prior to final disposal at the Environmental Restoration Disposal Facility (ERDF). Nine additional glove boxes and hoods previously removed from rooms 146, 187, and 221-E were also loaded into a single IP-2 container for shipment to ERDF on Dec. 29.

Two of five hoods in room 187 of the Plutonium Process Development Laboratory were isolated from building ventilation, removed, and transferred to waste operations. Groutable port covers were installed on the remaining three hoods, and contamination fixative was applied to their interiors to prepare the hoods for isolation from the ventilation system.

Analysis of radiological survey data was completed for the last glove box in room 146 of the Analytical Laboratory, and fixative was applied to prepare the glove box for removal. Also in the Analytical Laboratory, mechanical isolations and process equipment removal was initiated on three glove boxes in room 136.

Modifications to the Standards Laboratory were initiated to remove portions of walls and enlarge doorways to facilitate removal of hoods and glove boxes from rooms 221-C and D. Also in the Standards Laboratory, a crew completed the deactivation and isolation of safety showers, assuring that this work will not conflict with removal of the remaining hoods and glove boxes from this location.

In the former production areas of 234-5Z building, crews completed mechanical isolation and initiated process equipment removal on glove box HA-19 while another crew continued reactivating glove ports to prepare for process equipment removal from glove box HA-46. Decontamination also continued on glove box HC-230C-3. Design of glove bags and containment structures to support upcoming work in rooms 227 and 235D also continued. Elsewhere in the 234-5Z building,

Insulators continued removing asbestos from throughout the facility and have now surpassed their first quarter goal to remove insulation from 2,000 feet of piping.



Photo 1

A worker directs a crane as it loads a laboratory hood into a container for shipment to the Environmental Restoration Disposal Facility. During the week ending Dec. 18, CHPRC workers at the Plutonium Finishing Plant loaded nine glove boxes and hoods as well as eight ventilated storage cabinets into containers for shipment and disposal.



Photo 2

Workers load a laboratory hood into a container for shipment to and disposal at the Environmental Restoration Disposal Facility. The container was loaded with a total of nine hoods previously removed from rooms 146, 187, and 221-E.



Photo 3

Outside of the 243-5Z building at the Plutonium Finishing Plant, workers direct a crane lifting a nitrogen storage tank. The tank was removed and loaded onto a trailer to be returned to the vendor on Dec. 18.



Photo 4

A nitrogen storage tank is loaded onto a trailer for shipment to the vendor. The approximately 15-foot tank was removed to help clear the way for the demolition of the 234-5Z building at the Plutonium Finishing Plant complex.

RL-0013 Solid Waste Stabilization & Disposition

More than 50 Recovery Act-funded nuclear chemical operators (NCO) will hit the ground running on the Waste and Fuels Management Project (W&FMP) thanks to a week-long forklift training initiative at the HAMMER campus. The recently hired NCOs participated in forklift drills and obstacle course maneuvers in the "Forklift Rodeo" during the week of Dec. 14. The training was conducted in two bays and multiple training pads as well as parking lots at the HAMMER training facility.

This partnership of W&FMP and HAMMER allowed CHPRC to train workers without disrupting or intruding on facility and project operations. It also allows CHPRC to send fully qualified forklift operators to the facilities, which helps keep workers safe. The forklift operators will be supporting both the MLLW and TRU waste groups.



Photo 5

Newly trained nuclear chemical operators participate in forklift training activities at the HAMMER training facility. More than 50 Recovery Act new hires participated in the week-long event.

RL-0013C:R1.1: MLLW Treatment

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

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

One shipment of waste was sent out for treatment on Dec. 14. Eighty drums (17.1 m³) of MLLW debris containing Toxic Substances and Control Act polychlorinated biphenyls (PCBs) were shipped from the Central Waste Complex to Energy Solutions – Clive. This waste will be treated through the vacuum thermal desorption process and the resulting condensate will be shipped to a hazardous waste facility and incinerated to thermally destroy the PCBs.

Environmental Restoration Disposal Facility “Self Perform”

Design documentation for the ERDF container stands was finalized and turned over for fabrication. The stands must safely support the weight of containers while providing access to the underside for repairs. The facility electrical drawings and the electrical specification for the container maintenance facility were also finalized and issued. Their release allows the construction sub-contractor to move ahead with ordering equipment. Excavation work for the facility foundation was interrupted due to freezing

temperatures. The contractor overcame the interruptions with the use of external head and ground covers. The final shipment of roll-on/roll-off containers was received for a total inventory of 400 containers and the first of six new super dump trucks was delivered on Dec. 18.



Photo 6

One of six new super dump trucks recently procured for use in the Environmental Restoration Disposal Facility (ERDF) "Self Perform" project. The use of super dump trucks allows for direct disposal at ERDF, which limits handling and increases worker safety.

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 staging equipment and materials and installed sheet piling shoring braces and a temporary wooden cover for the disassembly of Box 82. For Box 3, workers continued fabricating the shoring box roof and prepared to assemble the shoring box walls. The critical lift plan and work package change notice were completed for the assembly of Box 3 in a shoring box.

Work also continued in 3A Trench 8 and 4B Trench 11. The preliminary logistics drawing and procedure/permit review for 3A Trench 8 were completed and are in the revision process. The ground-penetrating radar mapping (GPRM) survey was rescheduled for the week of Jan. 4. In 4B Trench 11,

plywood and tarps were put into place to protect a damaged box while activities are on hold pending the resolution of Trench 10 containers.

Workers performed a walk down for locating the Mobile Radioactive Decontamination Unit at the 4C Process Area to identify a specific location for the trailer. Also, a contract was awarded for the fabrication of dividers and shield rings for use in the concrete-shielded over packs.



Photo 7

Workers install supports and plywood over a damaged box in the 200 West Area in preparation for installing a tarp that will protect the box from adverse weather conditions.



Photo 8

Workers install a tarp over a damaged box to protect it from adverse weather conditions until it can be retrieved as part of CHPRC's Recovery Act-funded effort to accelerate the removal of waste from the Hanford Site.

TRU Project Drum Repackaging

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

- 462 drums (96 m³) were repackaged.
- 784 drums (163 m³) have been quick-scanned to date.
- Repack instructions (corrective actions) for 939 drums (195 m³) 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, CHPRC is continuing construction of the main process building and two groundwater transfer buildings for the DX Groundwater Treatment Facility, which is being built with Recovery Act funds to treat hexavalent chromium contamination in the groundwater and protect the Columbia River. The outer shell of the main process building is 87% complete, the shell of the first transfer building is 60% complete, and the shell of the second transfer building is 25% 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 24 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, 11 wells are in process with eight of the 11 wells being drilled to total depth and seven of the 11 wells also being constructed and developed. The remaining well locations are being prepared for drilling activities.
- *200-BP-5*: Drilling on two of the three planned wells continued last week with current depths of 213 and 318 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 256 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 one well has been constructed.



Photo 9

Workers add casing to a well in the 200-ZP-1 area, where CHPRC is using Recovery Act funds to drill 20 wells to support the 200 West Groundwater Treatment Facility, a pump-and-treat system under construction with Recovery Act funding.



Photo 10

Workers pull casing from one of two wells under construction in the 100-BC-5 area. With Recovery Act funds, four wells will be installed in the 100-BC-5 area to characterize the extent of hexavalent chromium contamination.

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

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

Inside the U Plant Canyon, workers continued relocating equipment from the canyon deck into the process cells. Some of the equipment must be size reduced before it will fit into the cells, particularly cells containing complex piping or internal structures. Loading of the fourth cell was completed and the fifth cell should be completed by the week's end. Application of bulk fixative was completed and the footprints from the equipment moves are being spot painted. Several bidders were onsite last week to

observe the process and constraints for how grout will be delivered to the process cells. Workers also continued re-grading the access road to the railroad tunnel to support future transfers in and out of the canyon. Outside of U Plant, asbestos abatement work continued at U Plant Ancillary facilities 224-U and 224-UA, although external activities were slowed due to the weather.



Photo 11

A worker applies contamination fixative to equipment within the U Plant Canyon. The fixative was applied to control surface contamination within the canyon, particularly on the equipment and approximately eight feet high on the canyon walls.



Photo 12

A view of the interior of the U Plant Canyon deck and equipment coated with fixative to contain surface contamination.

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

Facility D&D

Workers continued planning for the environmental sampling of the 200 North Area building sites (212-N, P, and R). Demobilization and relocation of equipment to other demolition projects is continuing, including demobilization to the Arid Lands Ecology (ALE) reserve where demolition crews are preparing to begin demolition of the lower and upper ALE structures. Planning is also in progress for the cleanup of the 168 debris sites throughout the ALE reserve.

Waste Sites

Recent progress in the 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 are complete and comments continue to be incorporated; the RACR for waste site 600-51 is being prepared. The ground scan to evaluate potential objects within waste site 600-275 was completed. Cultural walk downs were performed for eight of the next waste sites expected to be remediated in the 200-MG-1 site.
- **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 1,100 tons of soil have been removed and disposed of in ERDF. Preparations for remediating waste site

216-N-4, another pond, continued with the erection of scaffolding that will allow workers to perform radiological surveys of the 200-CW-3 waste sites.

- *BC Control Area:* Weather conditions prohibited shipment of remediated soil to ERDF. Additional super dump trucks are being procured to increase the capacity of the remediation effort.
- *Multi-Incremental Sampling:* Analysis of soil sampling of the 216-S-19 waste site continued to determine the level of contamination within the waste site. Remediation preparations also continued with the erection of scaffolding to support radiological surveys.

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

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

Facility D&D

Despite the recent rain, snow, and sleet, demolition continued in the 183.2 KW Sedimentation Basin. Roughly 40% of the internal structures and fixtures have been demolished or removed since demolition began in November. Demolition preparations continued in 183.1 KW Headhouse for the removal of the liquid alum lines. Asbestos removal also continued in the 183.7 KW Pipe Tunnel and asbestos removal preparations continued for the below-grade structures of the 1706KE building. Asbestos removal is required before the Soil and Groundwater Remediation team can begin final waste site disposition.

Initial characterization of 115KE Gas Recirculation Facility started with sampling to determine worker hazards expected to be encountered in the characterization scheduled for next week.

Electrical circuit tracing continued in support of isolating the 105KE Reactor building. When the electrical isolation is finished, the K East Reactor will be declared cold and dark. Preliminary Design activities for the disposition of the 105KE Reactor core also continued. The reactor graphite tumble test to obtain dusting properties of the reactor graphite was completed and the data is being evaluated for inclusion in the test report. A workshop was held to independently and formally evaluate project-generated alternative graphite removal methods. The recommendations resulting from the workshop will be incorporated into the preliminary design. A facility inspection was provided to regulatory compliance personnel to assist in their development of documentation packages for the disposition of the reactor core.



Photo 13

An excavator shear demolishes a wall between two of the six bays within the 183.2 KW Sedimentation Basin. Since demolition began in November, approximately 40 percent of the internal structures and fixtures have been demolished or removed.



Photo 14

A ramp that was recently constructed to provide access to the west side of the 183.2 KW Sedimentation Basin and to three more sedimentation bays within the basin. The D&D crews demolished part of the west basin wall to provide access for workers to accelerate demolition activities in the basin.



Photo 15

Demolition continues in the 183.2 KW Sedimentation Basin to provide access for the sampling team and equipment. The sampling will determine disposal requirements for waste and debris generated from the demolition activities.



Photo 16

Workers prepare to enter the 115KE Gas Recirculation Facility to perform initial characterization to determine what protective measures will be necessary to protect workers during the detailed characterization activities to be performed in the upcoming weeks.

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-4



Photo 17

Remediation continues in the UPR-100-K-1 waste site, which consists of the soils 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 from glove boxes HC-230C-2, HA-19B1, HA-19B2, 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

- No planned shipments due to the holiday.
- ERDF “Self Perform”
 - Training for the super dump truck drivers is scheduled for Dec. 29.
 - Delivery schedule for the remaining five super dump trucks is scheduled for next week.

RL-0013C:R1.2: TRU Waste

- 3A Trench 17 Removal:
 - Complete hand excavation of the bottom of Box 3 to allow for the installation of support plates needed to lift the box and complete the engineering evaluation.
 - Complete the pre-assembly of shoring walls and the fabrication of the roof for Box 3.
 - Remove Box 3, assemble the shoring box, and prepare the box for shipment.
 - Excavate around the bottom of Box 12 and perform an engineering evaluation.
 - Disassemble the lid and wall sections of Box 82.
- Complete preparations for GPRM of 3A Trench 8.
- Continue developing site logistics drawing and revision of excavation permit and operating procedures for 3A Trench 8 removal activities.

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.
- 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 on 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 remediation of 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 disposition of the 105KE Reactor core.
- Perform the first formal 105KE Reactor characterization efforts.
- Continue debris removal from the KW 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.