

ARRA Weekly Report



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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 2015 vision and shrink the Hanford Site cleanup footprint.

RL-0011 Nuclear Materials Stabilization & Disposition

CHPRC is accelerating critical decontamination and decommissioning (D&D) of the Plutonium Finishing Plant (PFP), a task that includes removing over 170 glove boxes/laboratory hoods and other highly contaminated equipment that once supported 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 to 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

One of the new D&D field work teams deployed at PFP with Recovery Act funds removed all three laboratory hoods in room 221E of the former PFP Standards Laboratory and released them to Solid Waste Management for interim storage, where they are pending shipment to the Environment Restoration Disposal Facility (ERDF). These were the first glove boxes and hoods PFP that needed to be cleaned out, isolated, and removed under stringent beryllium controls. Removal of these hoods brings the number of glove boxes and hoods removed from PFP with Recovery Act funds to 29, or approximately 15% of the total 174 boxes/hoods remaining in 234-5Z building.

In PFP's Plutonium Process Support Laboratory, one of the new, Recovery Act-funded teams disconnected electrical power and removed a chiller from room 187. The team also completed removal of fire suppression lines, 17-inch vacuum lines, and air sample heads.

In the Analytical Laboratory, process equipment removal and gross decontamination were completed in glove box 146-5, the last of the glove boxes in room 146. Nondestructive assay measurements were also completed on three glove boxes previously removed from room 131, and the glove boxes can likely be disposed of as low-level waste (LLW) as originally planned through the Contaminated Equipment Special Packaging Authorization process.

In the former production areas of 234-5Z building, mechanical isolations, process equipment removal, and decontamination continued in parallel on seven glove boxes in the RMA/RMC Lines. Mechanical isolation of glove box HC-230C-2 is nearly complete, as is decontamination of glove box HC-230C-3.





One of three hoods recently isolated from building ventilation and removed from room 221E of the Plutonium Finishing Plant Standards Laboratory. The hoods were released to Solid Waste Management for interim storage, where they are awaiting shipment to the Environment Restoration Disposal Facility. With Recovery Act funding, CHPRC has removed 29 of 174 glove boxes and hoods remaining in the 234-5Z building.

RL-0013 Solid Waste Stabilization & Disposition

RL-0013C:R1.1: Mixed Low-Level Waste (MLLW) Treatment

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

• 659 m³ have been shipped to date including:



- o 270 m³ of LLW have been treated and disposed.
- o 389 m³ are at off-site treatment facilities awaiting processing. Treatment is scheduled for FY 2010.

One shipment of waste was sent out for treatment last week. Twenty-one drums (4.4 m³) of MLLW (previously suspect TRU waste) were shipped on Dec. 1 from the Waste Receiving and Processing Facility (WRAP) to Perma-Fix Northwest (PFNW) and will be non-thermally treated and grouted or encased in a special concrete, a process called macro encapsulation.

2025ED Load-In Modification

An engineering study was completed to evaluate modifications to the 200 Area Effluent Treatment (ETF) Tanker Load-in Facility. The modifications will allow for complete enclosure of the tanker during load-in and support a more efficient transfer of waste water from well drilling activities. The final engineering study report was developed by subcontractor Techno-General Services and submitted on Nov. 16. Resources have been assigned to begin work planning and develop necessary work controls to repair the protective coating on the ETF tank containment berms. The ETF tank containment berms are reinforced concrete barriers lined with an epoxy-based special protective coating. The coating protects the concrete from chemical degradation and also provides a protective barrier in the event of spills or leakage from the dilute chemical storage tanks. The protective coating is peeling and the concrete berm requires the application of a new protective top coat. The deteriorated coat will be removed and a new protective top coat will be applied. Work planning is expected to be complete by mid-January 2010. Field work is expected to be complete by February 2010.

Environmental Restoration Disposal Facility (ERDF) "Self Perform"

The ERDF "Self Perform" project continues retrieving roll-on/roll-off cans from the 100K and the 200N areas. Site preparation for the container maintenance facility is complete and the contractor has been released to begin concrete work. The container maintenance facility will be the central storage and maintenance facility for the ERDF "Self Perform" roll-on/roll-off containers.





A worker prepares the site where the container maintenance facility will be built to serve as the central storage and maintenance facility for CHPRC's recently procured roll-on/roll-off containers. As part of the Environmental Restoration Disposal "Self Perform" project, CHPRC is procuring 400 new roll-on/roll-off containers to transport its increasing waste streams.

RL-0013C:R1.2: Transuranic (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 completed the excavation of the ramp on the east end, continued to backfill the site for the disassembly of Box 82, and incorporated comments from the Hazard Review Board (HRB) meeting on the disassembly of Boxes 80 and 82.

Work also continued in 3A Trench 8 and 4B Trenches 10 and 11. Workers outlined the preliminary logistics and initial activities for the 3A Trench 8 removal start-up and issued the statement of work for ground-penetrating radar mapping (GPRM) survey of the area. The team packed five filter boxes into an over-pack box in preparation for shipping to PFNW, packed a high-dose container into a concreteshielded over-pack container, and shipped two secondary waste roll-on/roll-off containers to ERDF. The 4B Trench 11 stabilization plan was also presented and received approval pending the resolution of the new containers in 4B Trench 10.



On Dec. 3, workers also continued taking SUMMA canister samples in the risers next to the waste trenches to test for volatile organic chemicals. The sampling will support future retrieval activities funded by the Recovery Act to accelerate cleanup of buried waste on the Hanford Site.



Workers draw samples from one of several SUMMA canisters near a waste trench in the 200 West Area. The SUMMA canister pulls gases from risers next to the trench to test for volatile organic chemicals. The sampling will support future retrieval activities and is part of the stimulus-funded effort to accelerate cleanup of buried waste on the Hanford Site.





A radiological control technician and an industrial hygienist sample soil to identify any concerns prior to spreading and compacting the soil at the end of the ramp. The soil will be used to build a ramp in a trench in the 200 West Area to provide better access for workers and equipment being used to remove a deteriorating box of suspect transuranic waste. The boxes can require a range of equipment and additional shoring before they can be safely removed from the trench.



A worker levels soil to build a ramp that will provide better access and improved maneuverability of equipment being used to remove damaged boxes of suspect transuranic waste from a waste trench in the 200 West Area.

Alpha Caisson Retrieval Project

The Alpha Caisson Retrieval Project Management Group developed an upper-level estimate template for the Conceptual Design Report (CDR) and initiated daily review meetings. The final review meeting on the Technical Readiness Assessment Report was held and comments are being incorporated. The Functional Design Criteria were approved and are in the release cycle. An independent project review was ongoing all week for the Project Review Board (PRB) meeting to be held on Dec. 14. The Safety Design Integration Team performed a week-long hazards analysis on the waste retrieval design and approved and submitted the statement of work for definitive design for placement on Nov. 27. AREVA presented the final design review package on Dec. 2, which will be incorporated into the CDR. The mechanical drawings were considered acceptable for this phase of the project.

TRU Project Drum Repackaging

Of the 1,210 drums (400 m³) planned to be characterized and repackaged in fiscal year 2010:

- 611 drums have been quick-scanned to date.
- Corrective actions for 807 drums have been developed.

T Plant management worked with the EnRep, Inc. training coordinator to develop a systematic approach



to expedite training and indoctrination for the third line at T Plant. After completing site-specific training at HAMMER, a new group of nuclear chemical operators (NCO) arrived at T Plant where they began the systematic approach that includes facility-specific training, on-the-job training, and gradual, focused integration with the workforce. The new NCOs completed their facility-specific qualification in approximately four months. This process has proven to be efficient with fully integrated and qualified NCOs beginning work only three to four months after their initial arrival at T Plant.

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

RL-0030.R1: Central Plateau Soil & Groundwater

Construction continues on the DX Groundwater Treatment Facility. After completing the main process building foundation and slab, crews began constructing the outer shell of the building. Currently, the structural steel of the outer shell is 60% 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 was completed and the erection of the first transfer building is 15% complete.

Recent drilling progress includes (listed by operable unit):

- 100-NR-2: Drilling continued with 34 wells in process, 34 wells drilled to total depth, and 11 wells constructed and developed. Development of the shallow wells will continue when the river elevation is sufficient. Using Recovery Act funds, CHPRC will drill a total of 171 wells in the 100-NR-2 area to expand the apatite barrier and better contain a strontium-90 plume.
- 200-BP-5: Drilling on two of three wells continued last week with current depths of 47 and 300 feet, respectively. The K well required the construction of a containment structure in the event that contamination was encountered.
- 100-HR-3: In the D Area, a total of 14 wells will be drilled in support of the new DX Groundwater Treatment Facility. To date, six wells have been drilled to total depth and four have been constructed and developed. The remaining well locations are being prepared to initiate the drilling activities.
- 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 500 feet).
- 100-BC-5: Drilling continued on two of the four planned wells. To date, one of the wells has been drilled to total depth and the other is at 192 feet.





Photo 6

Workers continue construction of the outer shell for the DX Groundwater Treatment Facility, one of two pump-and-treat systems being constructed with Recovery Act funds on the Hanford Site. The facility will be approximately 11,500 square feet in size and operate at a rate of 600 gallons per minute.



The outer shell for the DX Groundwater Treatment Facility located in the 100-HR-3 D Area. The facility is being constructed with Recovery Act funds to help treat hexavalent chromium contamination and protect the groundwater in the 100 Area of the Hanford Site.



Drilling continues on a well in the 200-BP-5 area, where CHPRC is drilling a total of three wells that will support characterization of a contamination plume.

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 the application of contamination fixative to surfaces within the canyon while maintenance work was performed on the 10-ton canyon crane. By the end of the week, contamination fixative was applied to approximately 75% of the area planned to be painted. 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. Repairs to the crane were successfully completed late in the week, and work to relocate equipment from the canyon deck into the below-grade cells was scheduled to resume on Dec. 7.

Meanwhile, asbestos abatement work continued at U Plant ancillary facilities 224-U and 224-UA to prepare for demolition later this fiscal year. In the 224-UA building, work is currently concentrated on asbestos removal from the calciner area. At the 224-U building, glove bag installation and asbestos removal continued on the south side piping, and work was completed on residual acid removal from the C Cell tanks.

Walk downs and engineering continued to support work planning for cold and dark isolation of the nine buildings to be demolished in the 200 East core industrial area during FY 2010, including the large 284-E Powerhouse. Cleanout preparations of the 209-E building included development of the safety basis documents, fire hazards analysis, environmental documents, waste profile and procedures, and design for the PERMACON structures that will be used for waste removal.

Fabrication also continued on the remaining heavy equipment being procured for accelerated D&D on the Central Plateau, most of which is scheduled for delivery this month.



Workers perform a walk down inside the 200 East Area powerhouse. The powerhouse is one of nine buildings that CHPRC will soon be demolishing in the 200 East core industrial area.





Photo 10
Workers perform a walk down inside the 200 East Area powerhouse. CHPRC is preparing to demolish the powerhouse and eight other buildings in the 200 East Area in a Recovery Act-funded effort to remove buildings that are no longer of service on the Hanford Site





Workers prepare to perform lock-out/tag-out for maintenance work on the U Plant Canyon crane. The crane was reactivated in October and is now being used to lift cell cover blocks and place excess equipment and materials into the concrete cells beneath the canyon deck.

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

Facility D&D

With debris and soil removal completed at all three former 200 North Area building sites (212-N, -P, and R), an environmental sampling plan is being prepared to support future backfilling and re-vegetation of the sites. Demobilization and relocation of equipment to other demolition projects is in progress.

Mobilization activities are also continuing on the Arid Lands Ecology Reserve (ALE) with demolition crews moving equipment and supplies to the staging areas. Cold and dark isolation of the structures on the upper ALE site was initiated, and asbestos abatement activities are ongoing. Planning was also initiated for cleanup of the 168 debris sites throughout the ALE reserve. The sites are divided into four classes in accordance with the Supplemental Cultural Resources Review requirements.

Waste Sites

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

200-MG-1: For waste sites 200-E-110 and 600-21, review of the Response Action Completion Reports (RACR) was completed and forwarded to the Department of Energy where it continues



- to be reviewed. The RACR for waste site 600-51 is in process. The field survey for waste site 600-36 is complete, and planning for the remediation of the waste site is continuing.
- 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 650 tons of soil have been removed and disposed of in ERDF.
- *BC Control Area:* Soil remediation continued. Approximately 12,700 tons of soil have been removed and disposed of in ERDF.
- *Multi-Incremental Sampling*: Soil sampling of the 216-S-19 waste site was initiated to determine the level of contamination within the waste site.



An excavator removes soil at the 216-S-19 waste site, where CHPRC is sampling soil to determine the level of contamination within the waste site.

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

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

Work continued in the 183KW Sedimentation Basin, where workers are demolishing the interior structures of the approximately 300,000-square-foot basin. Approximately one sixth of the internal structures and fixtures have been demolished or removed.

Also in the 100K Area, Preliminary Design activities for disposition of the 105KE reactor core continued.



Electrical system walk downs were performed to complete the isolation of the 105KE reactor building. After the electrical isolation is complete, the KE Reactor will be declared to be cold and dark. In preparation for performing characterization in the KE reactor building, workers are using mock-up glove bag configurations to identify methods to reduce worker exposure and physical hazards in a non-radioactive environment. The findings will be incorporated into the final work planning and depending upon the changes needed, the mock-up efforts may be repeated until the planned work can be executed safely and effectively.



Photo 13

An excavator shear removes debris from the 183KW Sedimentation Basin, which is an approximately 300,000-square-foot structure that CHPRC is using Recovery Act funds to demolish in the 100K Area of the Hanford Site.





The interior of a bay in the 183KW Sedimentation Basin. The basin comprises six bays that are each approximately 50,000 square feet in size and, during reactor operations, processed over 150,000 gallons per minute to prepare river water for use as reactor cooling water.





Photo 15 In a non-radiological mock-up glove bag, a worker practices placing a mock contamination swipe in a container for transport to the analytical laboratory for analysis.





In a mock-up setting, a worker attaches a glove bag to a mock reactor face. Mock-ups allow workers to practice operations in a clean, non-radioactive environment before performing work in the actual reactor building.

Waste Sites

Remediation is in progress for the UPR-100-K-1 waste site beneath the former K East Fuel Storage Basin and the pipeline waste site 100-K-56. Work also continued in the 100-K-3 and -47 pipeline waste sites. The work plans for pipeline waste site 100-K-3 were completed and the field activities resumed. At 100-K-47, excavation away from the identified line was initiated to sever the 100-K-47 lines from the outfall effluent line. The planning, review, and approval for this activity continued last week.





Photo 17

An excavator prepares to remove soil from the waste site beneath the former K East Fuel Storage Basin. Remediation of the waste site began in late September after CHPRC completed demolition of the basin on Sept. 9.





An excavator removes soil to provide access to the 100-K-47 pipelines. The pipeline waste sites are part of the 49 waste sites in the 100K Area that CHPRC is remediating with the support of Recovery Act funds.

UPCOMING EVENTS

RL-0011 Nuclear Materials Stabilization & Disposition

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

- Complete chemical decontamination and radiological surveys of glove box 146-5.
- Complete process equipment removal from laboratory cabinets in room 136.
- Complete disposition of three glove boxes removed from room 131.
- Continue decontamination of glove box HC-230C-3 and initiate decontamination of HC-60.
- Complete mechanical isolation and initiate process equipment removal on the HC-230C-2, HA-19B1, and HA-19B2 glove boxes.
- Complete preparations for and 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.
- Complete removal/return of the 2734-ZJ nitrogen storage tank to the vendor and remove remaining appurtenances to slab-on-grade.
- Initiate deactivation of excess safety showers and lights in 234-5Z building.

RL-0013 Solid Waste Stabilization & Disposition

RL-0013C:R1.1: MLLW Treatment

- Planned shipment of 1 m³ (3 drums) of LLW debris on Dec. 9 from the Central Waste Complex (CWC) to PFNW.
- Planned shipment of 8.8 m³ (2 drums, 1 box) of MLLW soils on Dec. 9 from the CWC to PFNW.
- Planned shipment of 21 m³ (65 drums) of MLLW debris on Dec. 9 from the WRAP to PFNW.
- Planned shipment of 17.1 m³ (80 drums) of MLLW debris containing Toxic Substances and Control Act Polychlorinated Biphenyls on Dec. 10 from the CWC to Energy Solutions Clive.

RI -0013C:R1.2: TRU Waste

- 3A Trench 17 Removal:
 - O Complete hand excavation around the bottom of Box 3 to allow for the installation of support plates for lifting the box as well as the engineering evaluation and critical lift plans to allow for lifting the container onto a shoring box base and lifting the shored box out of the trench.
 - o Add soil as necessary to seal around the bottom of Box 27's temporary wooden cover.
 - o Excavate around the bottom of Box 12 and perform an engineering evaluation on the box.
 - o Set up a HRB follow-up meeting for the disassembly of Boxes 80 and 82 to integrate comments into the work documents.
 - o Complete site preparation (backfill, gravel, compact) for the disassembly of Box 82.
 - o Begin disassembly of Box 82 lid and collapsed wall sections.
- Schedule GPRM of 3A Trench 8.
- Draft site logistics drawing for 3A Trench 8 and begin a review of operating procedures.
- Stabilize 4B Trench 11 pending the resolution of the 4B Trench 10 containers.
- Alpha Caisson Retrieval:
 - o The PRB meeting is scheduled for Dec. 14.
 - o Issue the Technical Readiness Report on Dec. 15.
 - o Issue the CDR for review on Dec. 21.

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 development of 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 to be procured.
- Continue asbestos removal and other preparations for demolition of U Plant ancillary facilities 224-U, 224-UA and 203-UX.



- Week Ending Dec. 4, 2009
- 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

- Complete surveys and environmental sampling at the site of the former 212 buildings, backfill the excavations, and re-vegetate the areas.
- Complete asbestos abatement and cold and dark isolations and begin preparations for demolishing the lower ALE facilities on Rattlesnake Mountain.
- 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 183KW Sedimentation Basin.
- Continue asbestos removal from 183.1 KW Headhouse.
- Continue Preliminary Design activities for the disposition of the 105KE Reactor Core.
- Continue mock-up glove bag work planning for KE 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 to obtain dusting properties of the reactor graphite.

