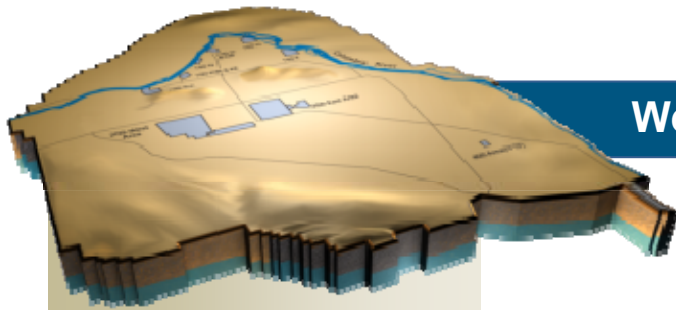


# ARRA Weekly Report



**Week Ending September 25, 2009**

September 29, 2009  
Contract DE-AC06-08RL14788  
Modification M047  
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## ACCOMPLISHMENTS

### RL-0011 Nuclear Materials Stabilization & Disposition

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

Eight ventilated sample storage cabinets were removed from vault 174 in the 234-5Z building and released to solid waste operations for disposal. Glove ports were also activated to support future removal of four glove boxes in room 146 and six glove boxes in room 139 of the Analytical Laboratory. The chemical decontamination of process glove boxes HA-20MB and HC-230C-3 continued this week. In HA-20MB, fissile inventory was down posted based on assay values from measurements taken last week, which reduces the frequency of required waste seal outs. Small electrically powered scraping tools that were implemented last week have been effective in removing residual materials in hard to reach corners and crevices. In glove box HC-230C-3, a number of internal supports were size reduced and removed after it was discovered that contamination that could not be accessed for cleaning was lodged in these supports. Insulators removed an additional 190 feet of asbestos insulation from piping in the 234-5Z building, bringing the total removed with funding from the American Recovery and Reinvestment Act of 2009 (Recovery Act) to more than 4,100 feet.

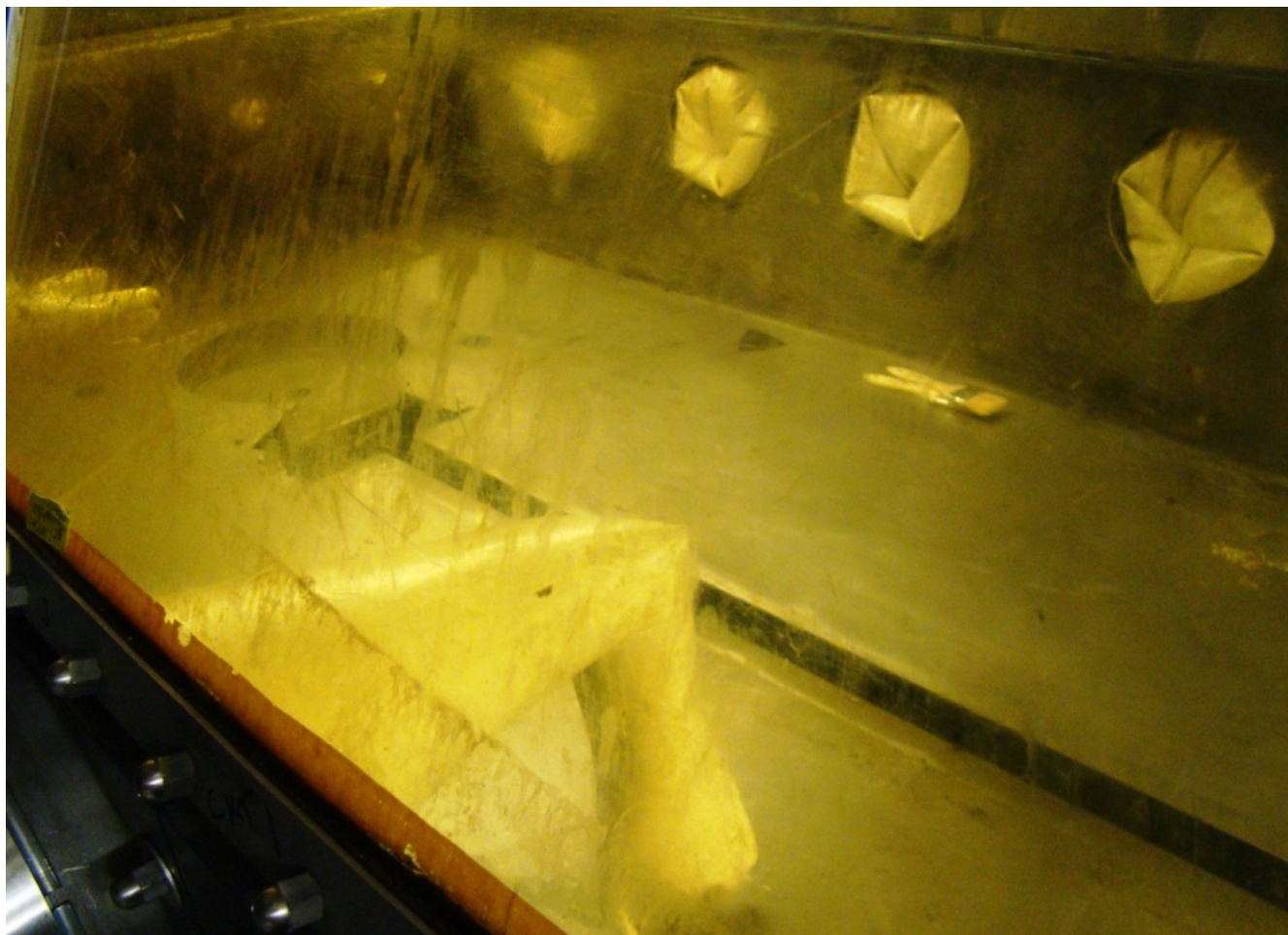


*Workers prepare waste in the HC-230C-3 glove box for seal out. Internal supports had to be size reduced and removed because they could not be adequately accessed for cleaning.*





*The fieldwork team performs a walk down as part of the job hazard analysis for cleanout of the HA-28 conveyor. The walk down supports the work control document for isolating the conveyor's utility systems and removing internal equipment in order to start chemical decontamination of the internal surfaces. The conveyor is connected to several glove boxes in Room 235B, including the four-level HA23S glove box shown in the background, which will also be removed with the support of Recovery Act funds.*



*The interior of the HA-20MB glove box during final decontamination. Workers are continuing to perform decontamination on former process glove boxes throughout the 234-5Z building at PFP.*

## RL-0013 Solid Waste Stabilization & Disposition

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

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

- 406.1 m<sup>3</sup> of the 1,800m<sup>3</sup> have been shipped to date including:
  - 197.1 m<sup>3</sup> of low-level waste (LLW) have been treated and disposed.
  - 209 m<sup>3</sup> are at off-site treatment facilities for processing. Treatment is scheduled for FY2010.

Three shipments of waste were sent out on Sept. 25. Two of the three shipments were sent to Perma-Fix East (PFE) to undergo thermal treatment. These two shipments included 16 drums (3.6 m<sup>3</sup>) of TSCA (Toxic Substances Control Act) MLLW and 25 drums (5.2 m<sup>3</sup>) of TSCA-LLW in both solid and liquid form. Solid TSCA waste sent to PFE will be treated through vacuum thermal desorption (VTD) and liquid TSCA waste sent to PFE will be incinerated in an industrial boiler. Any remaining residues will be packaged and shipped back to the Hanford Site and placed in the Mixed Waste Trench. In addition to these two shipments, 20 drums (4.2 m<sup>3</sup>) of MLLW were sent to Perma-Fix Northwest (PFNW) to be grouted or encased in special concrete, a process called macro encapsulation.





*An operator at the Central Waste Complex prepares to transport drums of mixed low-level waste that were placed in overpack drums to meet Department of Transportation regulations.*



*A Cavanagh Services Group shipper completes paperwork prior to releasing the shipment of containers to Perma-Fix Northwest for macro encapsulation.*





*A commercial transporter ensures that the load is secured before transporting the waste to Perma-Fix Northwest.*

#### RL-0013C:R1.2: Transuranic (TRU) Waste:

Of the 2,500 m<sup>3</sup> of suspect TRU waste planned for retrieval under the Recovery Act:

- 215.5 m<sup>3</sup> have been removed and are staged, pending shipment.
- 149.6 m<sup>3</sup> have been shipped to a treatment, storage or disposal facility.

Removal activities continued in 3A Trench 17 with workers continuing to assemble a shoring base, walls and a roof for Box 28, in addition to applying fire-resistant paint to the box's stud support walls that were added during removal. Workers completed minor repairs on Box 79 (readying it for shipment), continued fabricating cover boxes for Boxes 27 and 82, continued excavating small fiberglass reinforced plywood (FRP) Boxes 4-11, overpacked two group Boxes 4-11 into DOT 7A Type A containers and reviewed and revised critical lift documents to capture lessons learned during the shipment of Box 29.

Work continued in other areas as well: two waste boxes (8.6 m<sup>3</sup>) were removed from 218-W-3A, 20 drums (4.2 m<sup>3</sup>) were shipped to PFNW, a contract for dividers and shield rings for the concrete-shielded overpacks was awarded, the excavation of 4B Trench 11 continued with duct pieces and metal boxes being uncovered, and six drums in the Mobile Drum Venting System were vented. Workers also began backfilling 4B Trench 7, Modules 7-11, which will reduce required on-going radiological surveys, and waste in these modules will be removed using Next Generation Retrieval techniques.





*A metal waste container, to be removed from 218-W – 4B Trench 11, is engineered to handle the lathe (~25,000 pounds) that is inside. This non-standard waste container required the Engineering Group to evaluate its integrity to ensure it is sound for lifting and/or needs repairs. The Engineering Group will work with the Hoisting/Rigging Group to determine how to lift the box from the trench.*



*Two-foot diameter duct sections that have yet to be removed from 218-W - 4B Trench 11. These containers must undergo the same evaluation process as other standard waste containers but may require different overpacks to accommodate their abnormal shape.*

#### *Training for T Plant continues*

Nuclear chemical operators and radiological control technicians continuing on-the-job training are now performing fieldwork in the repackaging areas under the instruction of qualified individuals. T Plant is currently running two repackaging lines for training, which allows workers to gain experience performing actual processes in a controlled situation. Once training requirements are completed, these workers will be able to perform their fieldwork independently. They will be repackaging barrels that will be sent to the Waste Isolation Pilot Plant in Carlsbad, New Mexico.

### **RL-0030 Soil & Groundwater Remediation, Groundwater/Vadose zone**

RL-0030.R1: Central Plateau Soil & Groundwater

In the 100-HR-3 (D Area), the construction of the new groundwater treatment facility was initiated with the excavation and staking of the facility footprint. The purpose of the facility is to treat hexavalent chromium-contaminated groundwater to meet the requirements set forth in the Record of Decision of 1996 (and amended in 1999) to protect aquatic receptors in the river bottom substrate and human health, to provide information leading to a final remedy, and to meet Tri-Party Agreement Milestones.



For the 200-ZP-1 groundwater treatment system already under construction, drilling activities continued on five wells with two drilled to total depth. CHPRC began construction of the 200-ZP-1 groundwater treatment system, or the 200 West Groundwater Treatment Facility, on July 23. The project will use approximately \$80 million of Recovery Act funding and is expected to be operational by 2012. The new treatment systems, the 200-ZP-1 and DX, will pump contaminated water from the ground and remove multiple chemical and radioactive contaminants.

Additionally, at 100-HR-3 (H Area) 11 wells were initiated and three of the wells were developed. Completion of the development stage signifies the wells are ready for operations, pending quality assurance acceptance. The contract for the drilling vendor for 100-HR-3 (D Area), 100-BC-5, and 200-BP-5 (K well) was awarded. Overall, work continues toward completing documentation for drilling wells at 100-HR-3 (D area), 100-NR-2, 100-BC-5, 200-BP-5, and 200-ZP-1 sites. Overall, the Drilling Program currently has approximately 230 wells under contract.



*Workers stake the boundary for the DX groundwater treatment facility, which is one of two pump-and-treat systems that will be constructed with funds from the Recovery Act.*





Workers from the subcontractor Blue Star add a casing to a well for the 200-ZP-1 system, for which two wells were recently drilled to total depth.



Workers from the subcontractor Water Development prepare to backpull a casing for construction of a well supporting the 200-ZP-1 groundwater treatment facility.

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

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

Asbestos abatement is continuing on both the 224-U and 224-UA buildings. In 224-U, glove bag installation on the east-side piping continued, and abatement is expected to begin next week following installation of scaffolding. Containment installation continued in the calciner area of 224-UA and abatement should begin next week on the Hammer mill/towers. For the 221-U building, sample results

from the D-10 tank in cell 30 have been received and assessed. The D-10 tank, which was moved to the U Plant from the Redox facility in the 1960s, contains liquids and solids that may require special processing and disposal. A presentation on the analysis of the contents and recommended disposition method will be made to DOE on Sept. 28. The recommendation will likely be to grout the material in place.

Work on reactivation of the rail/vehicle tunnel door is expected to resume next week as the needed tool has been fabricated. The crane optics are still being repaired. A canyon entry was also made to evaluate the lifting yokes needed for relocation of equipment on the canyon deck and to begin chemical inventory in the canyon. Application of contamination fixative in the canyon is awaiting delivery of a man basket.

Delivery of 30 office, crew, restroom and shower trailers to support D&D on the Central Plateau is now complete, with 16 of these occupied or approved for occupancy. Installation of furniture, equipment and electrical hookups for the remaining facilities should be completed within the next few weeks. Procurement of heavy equipment to accelerate D&D of facilities on the Central Plateau is also continuing and bids were awarded for a 90-ton high reach excavator and additional asbestos shower trailers. Assembly of previously ordered equipment is proceeding as planned, with a number of heavy equipment items scheduled for delivery within the next four weeks.

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

##### *Facility D&D*

Basin demolition and soil excavation were completed at the 212-N building in the 200 North Area, and a survey/inspection plan is being prepared. Disposal containers have not been available from the Environmental Restoration Disposal Facility (ERDF), and waste disposal of debris and soils from 212-N and 212-R has been temporarily suspended. Heavy equipment from 212-N is being relocated to 212-P to begin demolition of that facility.

The first three of six trailers and a number of portable toilets were delivered to the lower Arid Lands Ecology (ALE) reserve site this past week to support accelerated D&D on Rattlesnake Mountain. Controlled burning and tumble weed removal were initiated to reduce fire hazards in the area. Radiological surveys were performed on Building 646 and the area was sprayed and fogged for insects. An air dryer was removed from 6652-H and staged outdoors pending recovery of the refrigerant. Intrusive electrical investigations continued at 6652-C, and a walk down was completed to support trailer installation and mechanical isolations near the 6652-K building. Engineering also continued document reviews and walk downs to locate the access ports on several underground fuel tanks.





*Trailers are arriving to the Arid Lands Ecology site to support the staff that will be supporting the project to demolish facilities and cleanup debris areas.*



*Workers coordinate the positioning of a trailer. While the trailers are being set up, preparations for demolition are already in progress, including controlled burning, weeding, and spraying or fogging for insects.*





Workers perform adjustments on one of the mobile offices mobilized to support D&D on Rattlesnake Mountain.

### Waste Sites

A Bell 412 helicopter conducted an aerial survey of ground contamination in the BC Control Area (BCCA) and West Lake on Sept. 21-29. The data will be evaluated to identify areas of contamination. By taking only days instead of months to conduct, the survey will allow the accelerated Recovery Act-funded soil remediation at the BCCA to begin months ahead of schedule. Aerial technology also allowed CHPRC to survey the 15-square-mile area with reduced risk to the environment and the Hanford work force.

The BCCA is part of the 200-UR-1 Unplanned Release Waste Group Operable Unit located south of the 200 East Area. Animal intrusion and wind dispersion of contaminants from the BC Cribs and Trenches resulted in shallow soil contamination. West Lake, also included in the 200-UR-1 operable unit, is a naturally occurring 1.5-acre seasonal, saline pond. While the unit never received direct discharges of contaminated effluents, the West Lake's occurrence as a waste site was related to the historic high groundwater table resulting from large volume water discharges in the 200 Areas that began in the early 1950s and continued into the 1980s.

The helicopter arrived at the Pasco International Airport on Sept. 21. A test flight was conducted at Army Loop Road to evaluate the flight for dust emissions and to monitor the flight for potential impacts to workers and the environment near the survey locations. The survey was performed Sept. 25, 26, 28 and



29. Results from the survey will be compared to a previous aerial survey conducted in 1996 and will include coordinates of areas requiring remediation.



*The survey was conducted at 80 miles per hour, 50 feet above ground level, to evaluate shallow soil contamination.*



*The aerial technology reduces the time it will take to survey the BC Control Area while also reducing worker risks, taxpayer costs, and environmental impacts.*





*The Bell 412 helicopter that performed the survey uses detectors and electronics software to address contamination levels and provide geographic global positioning coordinates of the contamination.*

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

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

With the 105KE fuel storage basin (FSB) gone, workers can now access and initiate remediation of contaminated soils underneath, an important TPA milestone and another task facilitated by Recovery Act funding. After workers completed the removal of the basin on Sept. 9, access was granted on Sept. 23 to begin remedial action on the UPR-100-K-1 waste site. This site consists of the soils beneath the basin that were contaminated by water that leaked from the concrete basin between the 1970s and 1990s.

To begin remediation, remedial action crews down-posted the Airborne Radiation Area and established a clean pad from which to apply a bonded-fiber matrix fixative to the remainder of the waste site. The fixative and a remotely acquired civil survey were conducted on Sept. 24 allowing crews to begin installing a clean barrier into the basin for the purpose of substantially reducing the radiation dose rate in the area as well as providing positive contamination control. The Nuclear Safety Final Hazard Categorization document was approved by the Department of Energy, and other Nuclear Safety documents are being modified to initiate remedial action work in the waste site. The documents were modified, radiological work permits were issued, and a Hazards Review Board was completed. As a result of professional personnel being diligent in preparing for remediation of the basin, activities were scheduled to commence on Sept. 26.

Recent D&D progress near the K East (KE) Reactor included completed demolition of the 118KE Horizontal Control Rod Storage Cave entrance structure and storage tube. The waste is staged for loading and shipment to ERDF. Once the waste is shipped, the area will be available for waste site remediation. D&D efforts also include a DQO/Sampling Workshop held by the KE Reactor Core Removal team with 25 effected participants. This workshop tallied the sampling and analysis requirements and confirmed that the proposed sampling locations and the sample size and forms satisfied the data requirements of all of the participants. The final updated report will be used to build the Scope of Work for the sampling subcontractor.

Staffing for the 100K project funded by Recovery Act funds is also progressing with over 90% of the staff (131 of 138) on site as well as 16 of 19 mobile offices scheduled for occupancy by Oct. 1. Recovery Act scope for FY10 and FY11 includes accelerated demolition of 11 structures, accelerated remediation of 49 waste sites, and the removal of the KE Reactor Core.



*A rock truck dumps dirt that will be used to fill the UPR-100-K-1 waste site.*





*A bulldozer pushes clean fill into the UPR-100-K-1 waste site to create a clean pad that will support the basin remediation efforts.*



*Workers apply fixative to the contaminated soil beneath the 105KE Fuel Storage Basin.*





*Application of this fixative is part of the effort on the 100K project to ensure positive contamination control to protect people, the environment and equipment during remedial action work beneath the basin.*

## UPCOMING EVENTS

### RL-0011 Nuclear Materials Stabilization & Disposition

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

- Commence glove box removal work for the four glove boxes in Room 146
- Reassess the radiological status and determine a disposition path for six glove boxes previously removed from rooms 131 and 137 of the Analytical Laboratory
- Complete decontamination of glove boxes HA-20MB and HC-230C-3
- Complete process equipment removal from glove box HC-60

### RL-0013 Solid Waste Stabilization & Disposition

RL-0013C:R1.1: MLLW Treatment

- Planned shipment of 13.4 m<sup>3</sup> of TSCA-MLLW. The shipment consists of 64 containers and will be sent to ES-Clive for VTD on Sept. 28
- Planned shipment of 4 m<sup>3</sup> of MLLW debris. The shipment consists of 16 drums and will be sent to PFNW for macro encapsulation on Sept. 28

- Planned shipment of 18.9 m<sup>3</sup> of TSCA-LLW. The shipment consists of 83 drums and will be sent to EnergySolutions-Clive for VTD on Sept. 29

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

- 3A Trench 17 Removal:
  - Lift Box 28 and complete assembly of its shoring box and roof; complete work packages and critical lift plans for shipping and unloading Box 28 at the CWC; prepare to ship
  - Ship Box 79 to the CWC
  - Continue fabrication of temporary roof for Box 2; install walls and roof if schedule permits
  - Complete cover box for Box 82 and 27; for Box 27, apply fire-resistant coating
  - Continue excavating, removing and overpacking Boxes 4-11; prepare to assay, ship and unload to the CWC
- Ship drums to the CWC
- Continue Portable Box Assay campaign
- Continue excavation of 4B Trench 11 and removal of boxes
- Receive additional two concrete shielded overpacks for high-dose containers

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

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

- Continue civil site preparations and road crossings for the DX Groundwater Treatment Facility
- Continue placement and bonding of HDPE
- Continue drilling at 200-ZP-1, and 100-HR-3-H
- Continue development of decision documentation
- Mobilize drilling subcontractors at 100-NR-2, 100-HR-3-D, 100-BC-5, and 200-BP-5

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

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

- Continue asbestos removal and other preparations for demolition of 224-U, 224-UA and 203-UX
- Complete reactivation of U Canyon support systems and continue planning for canyon cleanout

##### RL-0040.R1.2: Outer Zone

- Initiate demolition on the above-grade portion of 212-P.
- Complete disposal of waste resulting from demolition of the 212-N building basin.
- Complete demolition of the 212-R building basin and soil removal.
- Continue preparations for remediating the 200-MG-1, BCCA and the 200 North CW-3 waste sites

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

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

- Removal of 117KE Exhaust Air Filter Building Roof Panels.
- Continue mechanical, characterization, and electrical isolation of the 183KW complex
- Continue Preliminary Design activities for the 105KE Reactor Core Removal
- Continue debris removal from the KW basin
- Continue remediation of the UPR-100-K-1 waste site