

# ARRA Weekly Report



**Week Ending October 30, 2009**

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## ACCOMPLISHMENTS

### RL-0011 Nuclear Materials Stabilization & Disposition

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

Four glove boxes in room 146 of the Plutonium Finishing Plant's (PFP's) former Analytical Laboratory were isolated from the building ventilation system, removed from the room through a recently enlarged doorway, and temporarily staged across the hall for turnover to Solid Waste Operations for disposal. Removing these glove boxes, as well as several others from rooms throughout the PFP Analytical Laboratory and Standards Laboratory, is part of CH2M HILL Plateau Remediation Company's (CHPRC's) accelerated effort to clean out PFP and prepare the facility for demolition.

In the former Standards Laboratory, preparations were completed for the application of fixative on the interior of three hoods in room 221E, and a hot water heater was deactivated, size reduced, and removed from the area to avoid interference with future hood removal. Preparations are continuing for the removal of process equipment from large glove box 146-5 and from six high-dose glove boxes in room 139.

In the former production areas of the 234-5Z building, the furnace control panel and all external induction furnace cooling and power lines were removed from glove boxes HA-19B1 and HA-19B2. In room 230C, chemical decontamination were completed on former processing glove boxes HC-230C-3 and C-5. Final survey documentation and resolution of outstanding issues with the Surface Contaminated Object process are pending.

Funds from the American Recovery and Reinvestment Act of 2009 (Recovery Act) are also at work at the 234-5Z building, supporting preparations for the removal of the highly contaminated process vacuum system from the 234-5Z building. Removal is expected to begin November. Removal of hazardous materials from the 234-5Z building continued, with the last of the lead weights removed from scales in room 337. Insulators removed asbestos from another 190 feet of piping, bringing the total removed with Recovery Act funds to nearly 5,000 feet. Modifications to the 234-5Z building are nearly complete to provide a second change area, an Access Control Entry System station, and an access route to the newly consolidated backside Contamination Area. The new access route will be placed into use next week.

Two waste shipments from PFP to the Central Waste Complex (CWC) were completed this past week, including 28 drums of transuranic (TRU) waste. More than 17,000 cubic feet of controlled waste has been shipped out of PFP since April with Recovery Act funds, including nearly 1,200 cubic feet of TRU waste. The third shipment of Standard Waste Boxes procured with Recovery Act funds for more efficient disposal of TRU waste was received at the 400 Area warehouse, bringing the total received to date to 120 of the 212 ordered.



Photo 1

After positioning a lift below the glove boxes, workers remove the legs from the structure. Once all the legs are removed and the glove boxes are isolated from the building's ventilation system, the lift lowers the boxes and they are wheeled out of the room for disposal. With Recovery Act funds, CHPRC removed these four glove boxes and is in the process of removing several more from throughout the PFP facilities.



Photo 2

*A worker creates a sealed containment to separate a glove box from the building ventilation system in room 146 of PFP's Analytical Laboratory. A total of four glove boxes were isolated and removed from the room.*



Photo 3

Four glove boxes isolated and ready for removal from room 146 in PFP's Analytical Laboratory. Last week, workers expanded the doorway so that the glove boxes could be removed as a unit, which limits handling and the need for size reduction.

## RL-0013 Solid Waste Stabilization & Disposition

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

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

- 538.9 m<sup>3</sup> of the 1,800 m<sup>3</sup> have been shipped to date including:
  - 246.5 m<sup>3</sup> of low-level waste (LLW) have been treated and disposed
  - 323.9 m<sup>3</sup> are at off-site treatment facilities awaiting processing. Treatment is scheduled for FY 2010.

Four shipments of waste were sent out this week to undergo different treatment processes:

- 32 drums (6.762 m<sup>3</sup>) of legacy Toxic Substances and Control Act (TSCA) LLW containing liquids and solids were shipped Oct. 26 from the CWC to Energy Solutions – Clive (ES-Clive). This waste will be treated through the vacuum thermal desorption (VTD) process and the resulting condensate will be shipped to a hazardous waste facility and incinerated to thermally destroy the polychlorinated biphenyls (PCBs).
- 8 drums (1.664 m<sup>3</sup>) of legacy TSCA-MLLW containing liquids and solids were shipped on Oct. 26 from the CWC to ES-Clive. This waste will be treated through the VTD process and the

resulting condensate will be shipped to a hazardous waste facility and incinerated to thermally destroy the PCBs.

- 11 drums and 1 box (9.362 m<sup>3</sup>) of legacy TSCA-MLLW containing miscellaneous debris waste items were shipped on Oct. 29 from the CWC to Perma-Fix Northwest (PFNW). This waste will be non-thermally treated and grouted or encased in a special concrete, a process called macro encapsulation.
- 62 drums (12.668 m<sup>3</sup>) of legacy TSCA-LLW containing miscellaneous debris waste items were shipped on Oct. 29 from the CWC to PFWN. This waste will be non-thermally treated and processed by macro encapsulation.



Photo 4

*A worker assists with the loading of shipments containing Toxic Substances and Control Act-regulated low-level and mixed low-level waste. The shipments left the Central Waste Complex to be shipped to Perma-Fix Northwest, where they will be non-thermally treated and grouted or encased in a special concrete.*



Photo 5

A shipment loaded onto on a 53' soft-side trailer for shipment to Perma-Fix Northwest. The shipment included 63 drums of Toxic Substances and Control Act-regulated waste and 10 drums and one box of mixed low-level waste.

#### *Environmental Restoration Disposal Facility (ERDF) "Self Perform"*

The ERDF "Self Perform" project began retrieving roll-off cans from the 100K Area. Over the next several weeks the project will continue to ramp up by adding other CHPRC project sites. Also beginning this week the roll-off cans with the identified weld issue will be shipped off-site to be repaired and re-certified by the vendor.

#### 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:

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

Removal activities continued in 3A Trench 17 with workers completing the fabrication of cover boxes for Boxes 27 and 80 and excavating to allow for the inspection and evaluation of Boxes 3 and 12 for removal. Workers also continued incorporating their experience from the disassembly mock-up into the disassembly work package for Boxes 80 and 82 and initiated procurement of additional tools identified during the mock-up. In addition to this work, the final three of 21 concrete-shielded overpack containers were received.



### *Alpha Caisson Retrieval Project*

The Alpha Caisson Retrieval Project Management Group proposed work products that will be reviewed at the December project review board and were submitted to the chairperson for consideration. A Lessons Learned trip is being planned to observe remote-handled (RH) TRU hot cells at Oak Ridge National Laboratory following several teleconferences and a risk review meeting held with the CHPRC risk lead. A meeting was also held with the 222-S on-site laboratory to discuss sampling, transportation, interfacing, and analysis needs for the project.

### *TRU Project Drum Repackaging*

Of the 1,210 drums (400 m<sup>3</sup>) planned to be characterized and repackaged in fiscal year 2010:

- 305 drums have been quick-scanned to date.
- Corrective actions for 407 drums have been developed.

### *Fiber Optic Cable Installation*

While accelerated waste retrieval continued in the trenches, Recovery Act funds also sped up work in a series of trailers. Fiber optic cable was installed for trailers MO264 and MO760 to provide a much needed upgrade and provide the Waste Retrieval team the up-to-date technology necessary for performing their administrative work.



Photo 6

Workers install fiber optic cable upgrades to trailers in the 200 West Area. The upgrades will provide the Waste Retrieval team in the trailers with up-to-date technology necessary to support their work.

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

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

A major piece of the DX pump-and-treat facility was completed last week - the concrete slab for the processing building was poured and finished ahead of schedule. Workers performed the work in the early morning and poured approximately 250 cubic yards of cement. Construction of the structure is expected to begin in the coming weeks. Recovery Act funding has allowed CHPRC to prioritize the DX project and accelerate its construction, whereas it might not have started until much later under base funding. The DX pump-and-treat system is being designed to help protect the Columbia River by cleaning up chromium-contaminated groundwater in the 100 Area.

Recovery Act funding is being used across the Hanford Site to prepare for the drilling of numerous wells that will be used for monitoring, extracting, and remediating groundwater. Recent progress includes:

- *100-HR-3* - In the D Area, 12 wells have been drilled, constructed, and developed. The documentation to initiate drilling on the next 14 wells is in process. Drilling at three of the 14 wells has been initiated, and the remaining wells are awaiting approval from the State Historic Preservation Officer.
- *100-BC-5* – Drilling continued on two wells. Both wells have been drilled to approximately 120 feet.
- *200-ZP-1 Expansion* – Drilling continued on six wells. One of the six wells is being developed, two of the six wells are under construction, and three of the six wells continue to be drilled.
- *100-NR-2* – Drilling on the 171 wells for the expansion of the apatite barrier continued with 11 wells in process. Four more wells have been drilled to total depth and constructed.



Photo 7

*Reinforcements for the concrete slab foundation for the DX pump-and-treat processing building. The facility will be almost 11,500 square feet in size and operate at a rate of 600 gallons per minute to address hexavalent chromium contamination in the groundwater.*



Photo 8

*A worker directs concrete being placed for the slab of the future DX pump-and-treat process building on the morning of Oct. 30. Approximately 250 cubic yards of cement were poured to finish the slab. Recovery Act funds have accelerated the construction of the DX facility, which is expected to be complete in 2010, to help clean up contaminated groundwater at the Hanford Site.*

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

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

Preparations continued toward the application of contamination fixative throughout the U Plant Canyon and equipment relocation was initiated, with fuel racks relocated from the deck into cell 3. The area over cell 4 was cleared of unnecessary equipment and materials, and fixative was applied to the cell 4 cover blocks. Housekeeping was completed, new stairs were installed, and a step-off pad was established to provide additional routine access into the canyon at door 20.

Planning, hazards analysis, and development of models and mock-ups continued in preparation for deactivation work at the 209-E building. Engineering to support electrical isolation was also initiated.

Six pieces of equipment obtained on excess from the U.S. Department of Energy's Yucca Mountain site were received at Hanford this week, including a flatbed truck, a front-end loader, three electric man lifts and a skid-steer loader. A new back hoe and an extended forklift were also delivered to the site from the manufacturers this past week. Modification of a 90-ton excavator for Hanford demolition applications and fabrication of a 120-ton high-reach excavator are continuing at the manufacturers' facilities.



Photo 9



Photo 10

*The area above cell 4 in the U Plant Canyon before and after housekeeping. To create a safe and clutter-free work environment, workers removed equipment and materials that had accumulated over the years before recent work in the canyon began. After completing housekeeping, workers applied contamination fixative to the cell 4 cover blocks.*



Photo 11



Photo 12

*The area in front of door 20 in the U Plant Canyon before and after housekeeping. Before beginning work in the area, workers removed excess materials and installed new stairs and a step-off pad to provide safe access to the location.*

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

*Facility D&D*

Demolition of the 212-NPR interim fuel storage building complex in the 200 North Area is nearing completion: Demolition of the 212-P basin is nearly complete, final debris load-out is underway at 212-R, and confirmatory surveys are being conducted at the former 212-N building site.

On Rattlesnake Mountain, the last trailer was delivered and final punch list items are being completed on the installation of six temporary crew and restroom trailers. The facilities will support workers performing the D&D of excess facilities on the Arid Lands Ecology (ALE) reserve. Preparations for electrical and mechanical isolations of the structures on the lower ALE site continued this past week, and asbestos sampling was completed on 6652-C.



Photo 13

*Remaining section of the 212-R basin, where workers are performing load-out of the final debris. When finished, CHPRC will have completed demolition and load-out of debris from two of three interim storage buildings in the 200 North Area, an accomplishment funded by the Recovery Act.*



Photo 14

Workers demolish the last section of the 212-P basin, the last of the 212-NPR basins to be demolished at the 212-NPR complex in the 200 North Area. CHPRC has demolished the above- and below-ground structures for both 212-N and 212-R and is nearly finished with 212-P.

#### *Waste Sites*

Preparation of the Response Action Completion Report for waste sites 200-E-110, 600-21, and 600-51 is in process. The document includes closure documentation necessary for closing out the waste sites, which are located in the 200-MG-1 operable unit. Completion of this activity signifies the contaminants within the waste sites are below the allowable limits. A field survey of waste site 600-36, also in the 200-MG-1 operable unit, is complete and planning for retrieve, treat, and dispose activities is beginning.

For remediation in the BC Control Area, trailer mobilization is in process and shipping of remediated waste to ERDF is ongoing. Three trucks are in service with approximately 3,600 tons of soil deposited at ERDF and procurement for more super-dump trucks is in process. An investigation of the most significant spot detected by the helicopter survey in Zone C indicated cleanup is required for an area of approximately 30 square meters.



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

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

#### *Facility D&D*

Across the 100K Area, Recovery Act funds are accelerating the preparation of buildings for demolition to grant workers access to remediate contaminated soils nearby or underneath. Workers completed the mechanical and electrical isolation of four of the seven areas of the 183 KW Sedimentation Basin complex, achieving the cold and dark condition that will allow physical remediation to begin. The other cold and dark portions of the 183KW complex are the 183.2-KW Sedimentation Basin, the 183.3-KW Basin/Filters and the 183.7-KW Pipe Tunnel. Also at the 183KW complex, scaffolding installation in the 183.1-KW Headhouse continued to support asbestos removal activities. Recovery Act funds will be used to demolish all of the structures in the complex by the end of FY2010.

Cold and dark conditions were achieved on trailers MO048 and MO969 and structure demolition began. Removal of these offices will provide the D4 and the Soil and Groundwater Remediation team access to the 115KE Gas Recirculation Facility, which is scheduled for demolition in FY2010.

Debris removal from the 100KW Fuel Storage Basin also made progress this week. Removal will continue at a reduced rate for the next several months while KW Basin Sludge Treatment Plant (STP) operations in the basin integrate with the debris removal campaign. The baseline-funded STP operations will continue while debris removal will slow as planned during this period. Recovery Act funds allowed CHPRC to begin work in the KW basin ahead of schedule, accelerating the cleanup of facilities in the 100K Area.

The Preliminary Design review workshop was held for 100K Area River Water Isolation, Electrical Power Isolation, and the KW Basin Airborne Contamination remediation projects. Comment resolution will occur over the next few weeks.

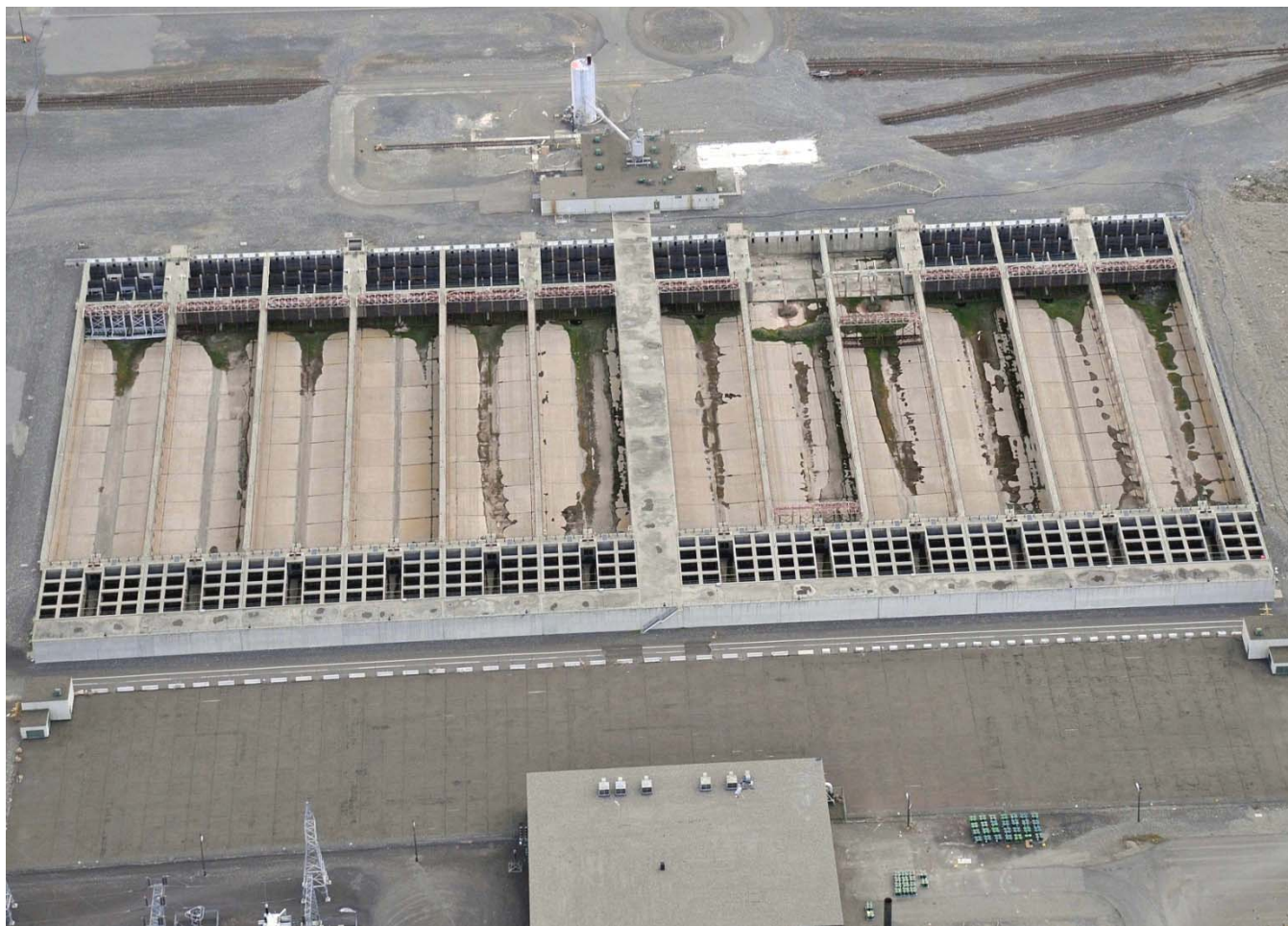


Photo 15

*Aerial view of the 183KW complex. The chemical storage silo and headhouse (top) await asbestos removal prior to demolition. The chemical mixing inlets (upper middle), sedimentation basins (middle,) and outlet filters (bottom) await final characterization to determine the extent of structure demolition required. The white rectangular area (top right) is the Chlorine Vault Building Slab, which was removed with Recovery Act funding earlier this year after this photograph was taken. Removal of all of these structures will provide access for soil and groundwater remediation efforts.*

#### *Waste Sites*

As high contamination levels in the soil continue to impact remediation in the UPR-100-K-1 waste site, work will resume or preparatory work will begin, pending approval, for other 100K Area waste sites, including the 100-K-47, 100-K-56, and 100-K-3 Pipelines. 100-K-56 is a 72-inch diameter primary effluent pipeline that discharged reactor cooling water from the 105KE Reactor. 100-K-47 pipeline consists of multiple pipes that drained various facilities or areas and dumped directly into the outfall or retention basins. 100-K-3 pipeline mixed water to simulate outfall conditions in support of laboratory studies for the effects of radiologically contaminated water discharges. Recovery Act funds are being used to remediate these sites as well as others – for a total of 49 waste sites – in the 100K Area.



Photo 16

*An excavator loads out debris into ERDF containers. The debris consists of concrete and metal fencing that was removed to establish access into wastes sites at the 100K Area.*



Photo 17

*An excavator loads out debris into ERDF containers to provide access into wastes sites at the 100K Area. CHPRC will begin or resume remediation of the pipeline waste sites 100-K-47, 100-K-56, and 100-K-3.*

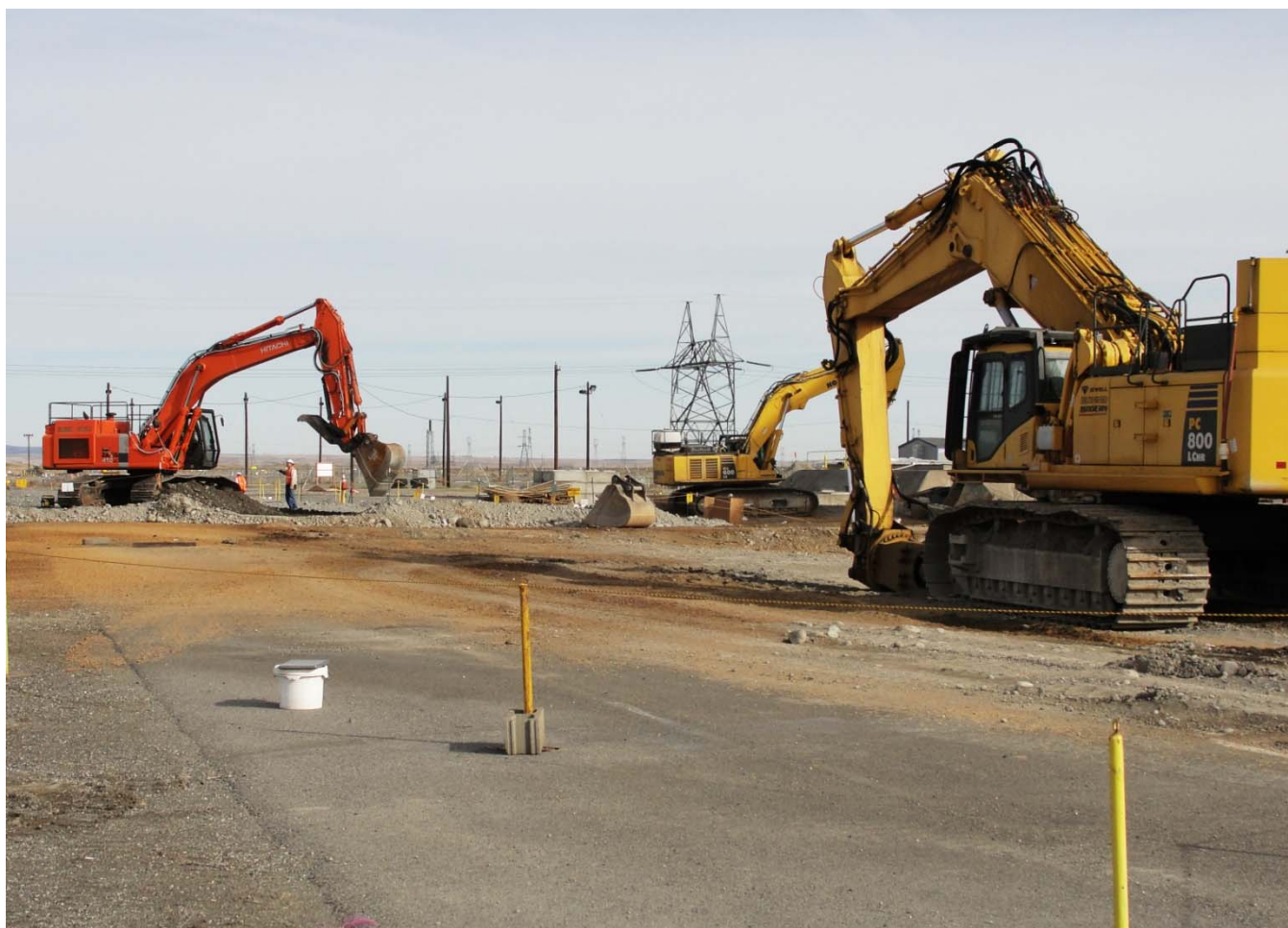


Photo 18

An excavator removes clean padding material from UPR-100-K-1 load out ramp to establish access to waste sites 116-KE-3, 100-K-69, 100-K-71, part of the 49 waste sites that CHPRC will remediate using Recovery Act funds.

## UPCOMING EVENTS

### RL-0011 Nuclear Materials Stabilization & Disposition

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

- Apply fixative to three hoods in room 221E in preparation for hood removal.
- Deliver four glove boxes from room 146 to Solid Waste Operations and containerize them for disposal; begin D&D of the 146-5 glove box.
- Complete process equipment removal from glove box HC-60; initiate chemical decontamination.
- Continue D&D of the HA-19B1 and B2 glove boxes and begin D&D of the HC-227S glove box.
- Approve and issue the work package for cleanout, isolation, and removal of the first five hoods to be removed from PFP's former Plutonium Process Support Laboratory, room 187.
- 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 removal/return of the 2734-ZJ nitrogen storage tank to the vendor and remove remaining appurtenances to slab-on-grade.
- Initiate removal of the 26" process vacuum system from throughout 234-5Z building.

## RL-0013 Solid Waste Stabilization & Disposition

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

- Planned shipment of 13.5 m<sup>3</sup> (65 drums) of MLLW debris on Nov. 3 from the Waste Receiving and Processing Facility (WRAP) to PFNW.
- Planned shipment of 4.4 m<sup>3</sup> (21 drums) of MLLW debris on Nov. 5 from the WRAP to PFNW.
- Planned shipment of 2 m<sup>3</sup> (10 drums) of MLLW and TSCA-MLLW containing liquids and solids on Nov. 5 from the CWC to Perma-Fix East.
- Planned shipment of 0.2 m<sup>3</sup> (one box) of MLLW and TSCA-MLLW containing liquids and solids on Nov. 5 from T Plant to Perma-Fix East.

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

- 3A Trench 17 Removal:
  - Install cover boxes on Boxes 27 and 80.
  - Excavate around Boxes 3 and 12; inspect and perform screw tests evaluation to assess potential for removing these damaged boxes.
  - Complete disassembly work package and prepare for Hazard Review Board.
  - Begin site preparation excavation for Box 82 disassembly.
- Alpha Caisson Retrieval:
  - Interview with retired Hanford employees that generated Alpha Caisson waste.
  - Waste Retrieval System and Waste Processing System interface identification and resolution meeting.
  - Technology Readiness Level assessment meeting.
  - Meet with AREVA to identify principle enabling assumptions for conceptual design.
- TRU Program:
  - WRAP training.
  - Value Engineering Workshop.

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

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

- Continue construction of the DX Pump-and-Treat Facility with the placing of the foundation.
- Continue drilling at 200-ZP-1, 100-HR-3-H, 100-BC-5, and 100-NR-2.
- Continue development of decision documentation.
- Mobilize drilling subcontractors at 100-HR-3-D and 200-BP-5.

## 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.
- Complete the application of contamination fixative in the U Plant Canyon.
- Continue relocating equipment on the canyon deck into the cells.
- Complete preparations for demolition of the 200 East Area core industrial complex.
- Complete detailed planning for cleanout of the 209-E building.
- Continue remediation of BC Control Area.

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

- Complete demolition of the 212-P building basin and dispose of all demolition debris and soil from 212-R and 212-P.
- Complete surveys and inspection of all three 212 building sites to support closure.
- Continue preparations for demolishing excess facilities at the ALE reserve.

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

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

- Continue remediation of pipeline waste sites: 100-K-47, 100-K-56, and 100-K-3.
- Continue characterization of 117KE Exhaust Air Filter Building.
- Initiate asbestos removal from 183.1-KW Headhouse.
- Continue characterization of the 183KW Complex.
- Continue Preliminary Design activities for the 105KE Reactor Core Removal.
- 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.
- Perform the reactor Graphite Tumble Test to obtain dusting properties of the reactor graphite.