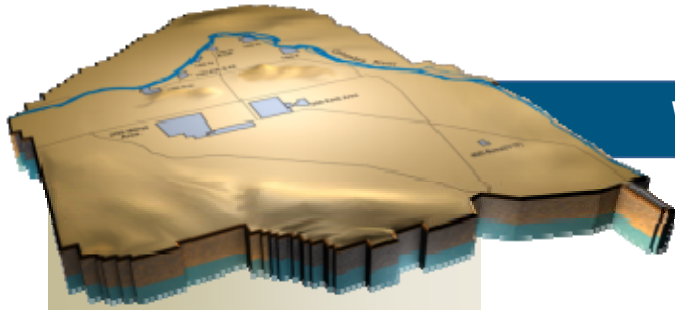


# ARRA Weekly Report



**Week Ending October 9, 2009**

October 13, 2009  
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## ACCOMPLISHMENTS

### RL-0011 Nuclear Materials Stabilization & Disposition

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

#### *Glove box/hood removal*

Piece by piece and system by system, workers are continuing to prepare glove boxes for removal from several areas of the Plutonium Finishing Plant (PFP). To date, 22 glove boxes have been removed and CH2M HILL Plateau Remediation Company (CHPRC) will remove a total of 174 glove boxes/hoods with funds from the American Recovery and Reinvestment Act of 2009 (Recovery Act). Through openings that were cut last week in the wall behind the glove boxes, five short sections of piping were removed to isolate four glove boxes from the process vacuum system in room 146 of the 234-5Z building. An adjacent ventilated chemical storage cabinet as well as ventilation components were also removed. Glove bag mockup training was also conducted for the crew responsible for the upcoming removal of process vacuum piping glove boxes in room 136.

#### *Decontamination*

In room 235B of the 234-5Z building, final decontamination actions were completed in glove boxes HA-20MB and HA-21I and this work will now be suspended while process equipment and residual plutonium contamination is removed from adjacent glove boxes HA-19B1, HA-19B2, and HA-28. This will reduce the room's background dose to levels permitting effective radiological surveys to verify the equipment has been decontaminated to low-level waste (LLW) standards. In room 230C, chemical decontamination continued on one final "hot spot" inside former process glove box HC-230C-3. Radiological survey measurements are scheduled to be conducted next week and are expected to confirm the box meets LLW criteria. A glove bag was also installed to support isolation of the process drain for glove box HC-60, the last action required to complete process equipment removal from this box.

#### *D&D Preparations*

Work planning was completed, radiological and beryllium controls were established, and equipment installation was initiated to support the kickoff of decontamination and decommissioning (D&D) work in the former PFP Standards Laboratory. This work, which will begin with three laboratory hoods in room 221-E, will be performed in parallel with ongoing D&D in the Analytical Laboratory and the former RMA/RMC production lines.

Removal of glycols, oil and other regulated materials from room 321 of the 234-5Z building and several inactive ancillary facilities is continuing. Insulators also continued asbestos removal in the 234-5Z building, bringing the total removed under Recovery Act funding to more than 4,400 feet.



Photo 1

*A section of wall between two rooms in the Analytical Laboratory was removed to provide workers access to disconnect the glove box from vacuum system piping. The original defense production facilities were not designed with future decontamination and decommissioning in mind, posing challenges to today's workers as they remove the large equipment and associated systems.*



Photo 2

Operators and radiological control technicians prepare to seal out highly contaminated waste from a glove box in the 234-5Z building. The waste resulted from chemical decontamination, in which workers wipe down the interior of the glove box with decontamination chemicals to reduce the quantity of plutonium contamination to levels permitting on-site disposal as low-level waste.



Photo 3

*Operators and radiological control technicians seal out decontamination waste through a glove port in a glove box. Workers will create a sealed containment around the materials and then remove them through the port, ensuring worker protection while removing materials for disposal.*

## 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:

- 476.5 m<sup>3</sup> of the 1,800m<sup>3</sup> have been shipped to date including:
  - 217.8 m<sup>3</sup> of LLW have been treated and disposed
  - 258.7 m<sup>3</sup> are at off-site treatment facilities awaiting processing. Treatment is scheduled for FY 2010.

One shipment of LLW liquids and solids containing Toxic Substances and Control Act polychlorinated biphenyls (PCBs) was sent out for treatment this week. This shipment consisted of 85 waste containers (17.8 m<sup>3</sup>) from the Central Waste Complex (CWC) and was shipped on Oct. 7 to Energy Solutions – Clive (ES-Clive). This waste will be treated through vacuum thermal desorption, and the resulting condensate will be shipped to a hazardous waste facility and incinerated to thermally destroy the PCBs.

### *2025ED Load-In Modification*

An engineering study was developed to evaluate the modification to the 200 Area Effluent Treatment Facility Tanker Load-In Facility, which receives waste water from well drilling. The engineering study developed by sub-contractor Techno-General Services was reviewed by CHPRC and comments were returned. The modifications to the tanker load-in facility will allow for complete enclosure of the tanker during load-in and support a more efficient transfer.

### *ERDF "Self Perform"*

The Environmental Restoration and Disposal Facility (ERDF) "Self Perform" Project is underway to provide CHPRC the resources and equipment to deliver CHPRC-generated waste to the ERDF. The project includes the purchase of ten "super dump trucks" that will be deployed for use to different projects, a fleet of 14 haul trucks, 400 roll-off cans, and a team to operate and maintain the equipment. Three dump trucks were placed into service at the BC Control Area during the week of Oct. 5. The trucks will initially be used for non-Department of Transportation regulated wastes and can hold almost twice the weight of a roll-off container. The roll-off team completed a demonstration dry run and an independent management assessment of the program on Oct. 7-8. Three trucks and 200 cans are available for use and the initial deployment to CHPRC projects will begin the week of Oct. 12.



Photo 4

Workers survey a "super dump truck" at the BC Control Area. The dump trucks are part of the Environmental Restoration and Disposal Facility (ERDF) "Self Perform" Project, in which CHPRC will coordinate the procurement, management, and transportation of its waste to the ERDF.

**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:

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

Removal activities continued in 3A Trench 17 with workers removing three waste boxes (17.4 m<sup>3</sup>) and continuing the fabrication of cover boxes for Boxes 80 and 82. Work continued in other trenches as well: one waste box (37.6 m<sup>3</sup>) was removed from 218-W-4B Trench 11, three waste boxes were assayed at 218-W-3A and two additional concrete-shielded over packs for high-dose containers were received. Nineteen waste boxes (227.7 m<sup>3</sup>) were shipped to the CWC; 11 boxes were removed from 218-W-3A, and eight were removed from 218-W-4B. This large number/volume of waste shipped reflects completion of the month's preparations (e.g., building shoring boxes for deteriorated 3A boxes, coating the 4B boxes, over packing boxes) to ensure acceptable waste containment for both shipping and storage at the CWC.



Photo 5

*A lathe box being removed from a trench in the 200 West Area. Waste in the trench is included in the suspect transuranic (TRU) waste retrieval work scope. The waste was buried in the 1970s when it became required for suspect TRU waste to be retrievably stored. Once this waste is removed, it must be assayed to determine if it is low-level or TRU waste.*



### *Alpha Caisson Retrieval Project*

The project management group for the Alpha Caisson Retrieval Project has been developing their approach for implementing the Technology Readiness Assessment, researching prerequisites for the Project Review Board Meeting scheduled in December 2009 and continuing the development of the Functional Design Criteria. They conducted the first Safety Design Integration meeting, held their second monthly risk review meeting and continued the development of Acceptable Knowledge documentation. The group also met with the Defense Nuclear Facilities Safety Board to provide an overview of the project and with Central Characterization Project to discuss methods for developing Acceptable Knowledge for certifying waste to meet the Waste Isolation Pilot Plant's (WIPP) requirements.

The waste retrieval system awarded a contract to the ARES (Applied Research and Engineering Sciences) Corporation for the development of the conceptual design, held the design kick-off meeting, and started the concept drawing preparation.

The waste processing system project team completed the first in-process design review of the general arrangement drawings and identified areas for cost avoidance. The cost avoidance areas included reducing in-process storage requirements and combining two sorting areas into a combined sorting area to reduce the total square footage. This reduced the amount of shielding and eliminated the duplication of equipment in several areas. The general layout of the facility is near completion for this design phase.

### *Drum Repackaging*

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

- 96 drums have been quick-scanned to date.
- Corrective actions for 153 drums have been developed.

Before drums can be shipped to the WIPP, which can handle TRU waste, the contents need to be verified as TRU waste and they must meet specific packaging criteria. Drums undergo quick scans to determine if they were packaged according to WIPP waste acceptance and transportation standards. These quick scans use x-ray technology to produce images of the inner contents of drums enabling workers to visualize the contents of each drum. Quick scans can determine the presence of prohibited items such as liquid or pressurized containers. If drums are found to contain prohibited items or prohibited packaging, the TRU project support team develops container repackaging instructions based on the specific failures. The quick scans are also used to select the most suitable repack facility. Repackaging instructions inform the repack facility personnel of remediation requirements on a per-container basis. Each week, drums are scanned to determine their status and to further the cleanup process, which ends in their ultimate disposal at the WIPP. This week 64 drums were scanned and the TRU project support team was able to determine the correct course of action for 146 drums. Recovery Act funding enabled this process to occur much sooner than originally planned and without the funding many of these drums would still be in storage.

### *T Plant Training*

Nuclear chemical operators and radiological control technicians continued on-the-job training and have repackaged 22 TRU waste drums into 29 new "daughter" drums. T Plant is currently running two repackaging lines for training, which allows workers to practice performing processes in a controlled situation. Once training requirements are completed, these workers will be able to perform their field work independently. They will be repackaging barrels that will be sent to the WIPP. Recovery Act funding has allowed the T Plant Project and its repackaging activities to move forward at a much quicker rate than initially projected by funding the hiring and training of more personnel.



Photo 6

*New nuclear chemical operators perform drum repackaging as part of their on-the-job training inside the T Plant Canyon. T Plant is currently running two repackaging lines for training, allowing workers to practice performing actual processes in a controlled situation.*

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

RL-0030.R1: Central Plateau Soil & Groundwater

Recovery Act dollars are at work across the Central Plateau, constructing two groundwater treatment facilities and numerous wells that will be used for monitoring, extracting, and remediating groundwater near the Columbia River. In the 100-HR-3 (D Area), the construction of the new DX groundwater treatment facility continued with the pouring of concrete for the facility footings. In addition to the ongoing civil site preparations, the construction of road crossings is 69% complete, installation of high-density polyethylene (HDPE) piping is 41% complete, and the fabrication of electrical power racks is 98% complete. Additionally, at 100-HR-3 (H Area) 12 initiated wells have been constructed and developed, signifying the wells are ready for operation, pending quality assurance acceptance. The wells, road crossings, and HDPE will support the DX facility, which will treat hexavalent chromium-contaminated groundwater. For the 200-ZP-1 groundwater treatment facility, located in the 200 West Area, drilling activities continued on six wells with three wells drilled to total depth and under construction; the others are in the process of being drilled to total depth. In total, the Drilling Program currently has approximately 230 wells under contract and documentation is continuing for drilling wells at 100-HR-3 (D area), 100-NR-2, 200-BP-5, and 200-ZP-1 sites.



Photo 7

*Workers pour concrete for the facility footing of the DX groundwater treatment facility that will be constructed in the 100-HR-3 D Area. When finished, the pump-and-treat system will treat hexavalent chromium in the groundwater.*



Photo 8

*Workers pour concrete for the footing of the groundwater treatment facility that will support the ongoing effort to protect the Columbia River by pumping contaminated water from the ground and removing multiple chemical and radioactive contaminants.*



Photo 9

Workers are developing the facility footing for the groundwater treatment facility in the 100-HR-3 Area, which is one of two systems under construction with Recovery Act funds. The facilities will be supported by over 200 wells that will be used to monitor, extract, and remediate groundwater near the Columbia River.

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

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

Asbestos abatement work is continuing at U Plant Ancillary Facilities, 224-U and 224-UA. At U Canyon, the rail/vehicle tunnel door has now been reactivated, and repair of the optics on the canyon crane is nearing completion. The lifting yokes for relocation of excess equipment on the canyon deck have been test-fitted and staged for use. A package is being prepared to document the yoke inspection and approval for use. A chemical inventory of the canyon has started with the taking of 150 pictures of the various locations and contents of chemical storage locations. Application of contamination fixative inside the canyon is awaiting receipt of an acceptable man-basket or development of an alternative method of application.

#### *209-E building*

Detailed planning continued for cleanout and hazard reduction at the 209-E building, Hanford's former Critical Mass Laboratory. Designs were completed for the greenhouses needed to remove the most highly contaminated equipment, several saws were procured to support the mockup of the work, and the environmental staff are continuing their review of existing environmental documentation to determine what housekeeping and cleanup actions can be authorized in the near term.

### Staffing and Equipment

With the exception of three restroom trailers and two shower trailers, all of the 32 temporary office, crew, restroom, and shower trailers needed to support accelerated D&D on the Central Plateau are now installed and approved for use. Sanitization, inspections, and acceptance of the remaining restroom and shower trailers are in progress. Procurement of heavy equipment to accelerate D&D is also continuing at a rapid pace with the support of Recovery Act funding. Since April, the site has procured:

- two new 45-ton demolition excavators
- large front-end loader
- four water trucks
- six job-site equipment storage trailers
- 60-ton excavator with multi-processor and hydraulic hammer
- eight new shuttle trucks
- an additional “Guzzler” truck for soil excavation

Procurement actions are also in progress for

- 120-ton high-reach excavator
- multi-processors
- hydraulic hammers
- heavy-haul low boy trailer
- mechanic’s truck
- 90-ton high reach excavator
- small front-end loader
- back-hoe
- shower trailers to support asbestos abatement

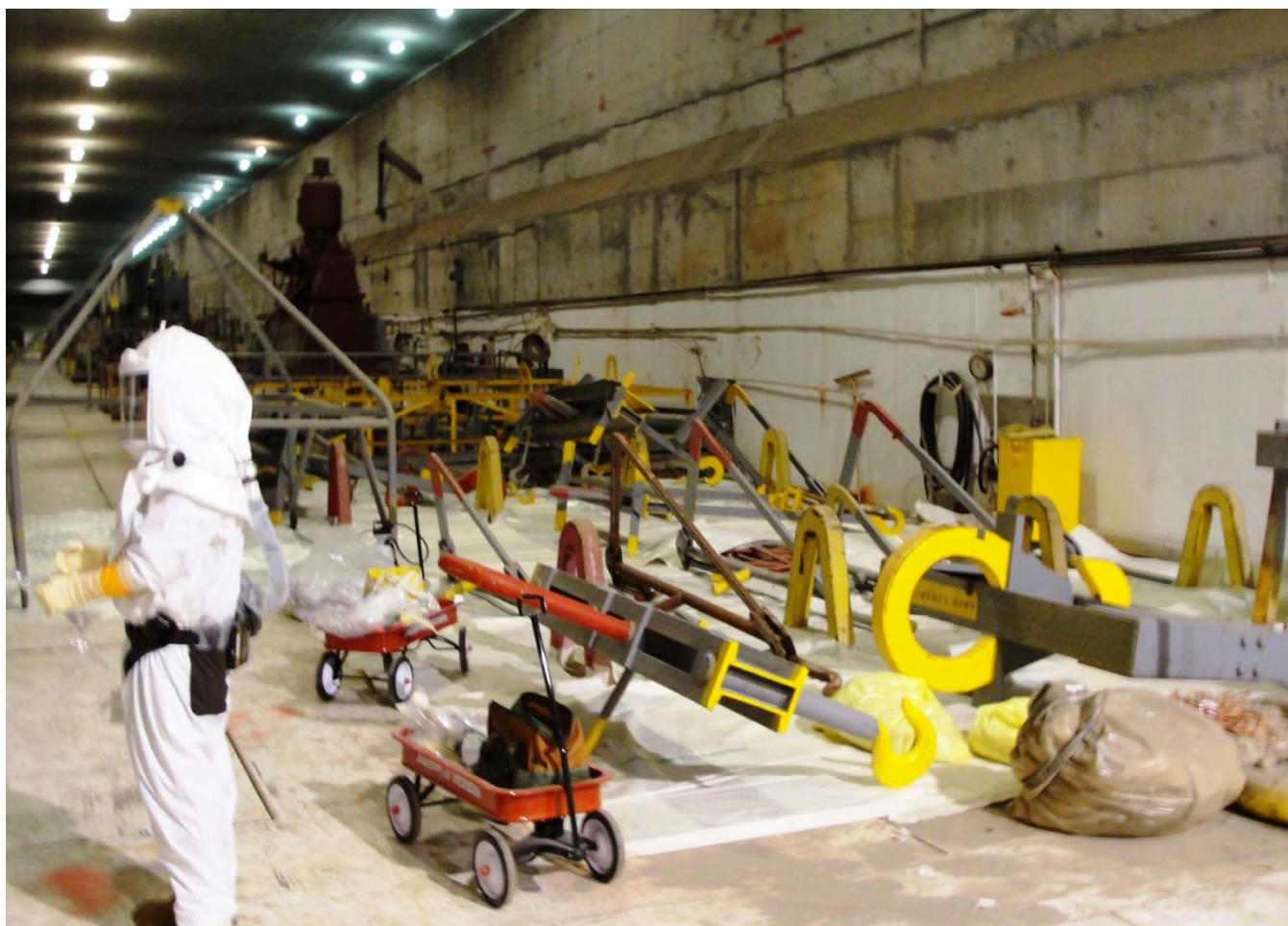


Photo 10

*Inside the U Canyon, which will be “demolition ready” by September 2011 with Recovery Act funds. Before demolition, debris will be cleared from the canyon deck and relocated to within process cells below the canyon deck.*



Photo 11

*Newly procured trucks arrive to support accelerated demolition across the Central Plateau. The equipment allows CHPRC to efficiently perform Recovery Act work in addition to its baseline work.*

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

##### *Facility D&D*

Removal of demolition debris was completed at the former site of the 212-N building in the 200 North Area, and a final survey/inspection plan is being prepared. Demolition of the superstructure at 212-P was also completed, and work has started on the substructure. Continued demolition on the 212-R basin substructure is awaiting repair of heavy equipment.

Preparations for demolition of excess facilities on the Arid Lands Ecology (ALE) Reserve on Rattlesnake Mountain are continuing. Controlled burning was completed at lower ALE facilities to minimize fire hazards during D&D. Radiological surveys continued at the lower ALE facilities, with minor contamination identified and areas posted in a few areas at 6652-C. Radiation was also detected in a few areas at 6652-G but may be from naturally occurring isotopes in the ceramic sinks/fixtures; areas were posted pending further investigation. The 6652-H and -I facilities were determined to be free of contamination and released from controls. Electrical tie-ins of the new temporary work trailers, restroom, and shower facilities was deferred to next week as a result of a hold on lock and tag work.

### *Waste Sites*

As a result of the Bell 412 helicopter surveys conducted Sept. 21-29, approximately four acres of the BC Control Area have been radiologically down posted, signifying that specific area is free of radiological contamination. Additionally, remediation began on Oct. 5 and the first shipment of waste occurred Oct. 6, using dump trucks procured with Recovery Act funds. CHPRC will clean up the 13-square-mile BC Control Area, located in the 200 East Area.

An internal review of the Response Action Completion Report (RACR) continued for the 200-E-110 and UPR-600-21 waste sites. The document includes closure documentation necessary for closing out the waste sites. In the 200 North Area, preparation for the 216-N-1 Confirmatory Sample Results continued in order to “remove, treat and dispose” of the site. The 216-N-1 site is one of nine CW-3 waste sites in the 200 North Area. The site received basin overflow cooling water from fuel storage in buildings 212-N, 212-P, and 212-R.



Photo 12

*A newly procured “super dump truck” arrives at the BC Control Area. In comparison to roll-off containers, the dump trucks hold more material and move directly between a waste site and the Environmental Restoration Disposal Facility with limited handling.*



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

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

#### *Facility D&D*

With the support of Recovery Act funds, workers continued the mechanical and electrical isolation of the 183 KW Sedimentation Basin Complex. The complex includes basins, a headhouse, reservoirs, and clearwells, all of which will be removed with Recovery Act funds. Scaffolding installation in the 183.1-KW Headhouse continued to support asbestos removal activities. The headhouse was the water quality center in the 100K Area. A Facility Hazard Categorization workshop was also held to determine inputs to the 105 KE Reactor characterization plan. Over 90% of the Recovery Act new hires (131 of 138) for the 100K project are on site in 16 mobile offices to support accelerated demolition of 12 structures and remediation of 49 waste sites

#### *Waste Sites*

Remediation activities resumed at the UPR-100-K-1 waste site following an accident on Sept. 29. A critique was held and corrective actions implemented with work resuming on Oct. 5. The injured worker was examined at AdvanceMed Hanford and returned to work with restrictions the same day.

As a result of contamination levels in the soil, waste shipping requirements are restricting quantities in the waste containers to approximately one-half of their available capacity. This restriction, combined with a maximum availability of 15 containers per day, has slowed remediation of the UPR-100-K-1 waste site, which includes the soil beneath the former K East Basin. The Safety Evaluation Report for implementing the Documented Safety Analysis in the basin was issued by U.S. Department of Energy Richland Operations Office this week with a requirement to implement the Document Safety Analysis within 60 days. An implementation meeting to begin planning is scheduled for next week.



Photo 13

*In the temporary container transfer area, a crew from the subcontractor Federal Engineers & Constructors prepares to perform safety oversight of containers at the 100K Area where CHPRC is remediating soils beneath the former K East Basin.*

## UPCOMING EVENTS

### RL-0011 Nuclear Materials Stabilization & Disposition

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

- Complete isolation, application of fixative and removal of the four glove boxes in room 146
- Initiate equipment removal from the former PFP Standards Laboratory, room 221-E.
- 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 decontamination of glove box 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 25 m<sup>3</sup> of radioactively contaminated waste. The shipment consists of four old discarded boxes that will be sent to Perma-Fix Northwest (PFNW) to be cut up and repackaged in disposal containers at Hanford's Waste Disposal Units on Oct. 13.
- Planned shipment of 14.2 m<sup>3</sup> of MLLW containing miscellaneous debris-type waste. The shipment consists of 22 drums and will be sent to PFWN for macro encapsulation on Oct. 14.
- Planned shipment of 6.9 m<sup>3</sup> of LLW containing miscellaneous debris-type waste and radioactively contaminated solids. The shipment consists of 33 drums and will be sent to PFWN for inspection of non-conforming waste items, volume reduction and packaging for disposal in Hanford's Mixed Waste Disposal Units on Oct. 14.
- Planned shipment of 8.6 m<sup>3</sup> of MLLW containing miscellaneous debris-type waste. The shipment consists of 37 drums and will be sent to PFWN for macro encapsulation on Oct. 15.

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

- 3A Trench 17 Removal:
  - Continue fabrication of cover box for Box 82.
  - Continue fabrication of the roof for Box 2; install walls and roof if schedule permits.
  - Set up Simulation Test Site for mock-up of Box 82 disassembly.
- Continue excavation and removal of waste containers at 218 -W -3A and 218 -W-4B.
- Receive four concrete-shielded over packs
- Award contract for concrete-shielded over pack dividers and shield rings.
- Alpha Caisson Retrieval:
  - The Project Chief Engineer and Operations Manager will be visiting AREVA's Mobile Hot Cell operation in France to evaluate the functionality as it applies to the project here at Hanford. They will participate in the second design review meeting for the waste retrieval system on Oct. 22.
  - Functional Design Criteria submitted for review.
  - Select conceptual general arrangement of the waste retrieval system.

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

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

- Continue drilling at 200-ZP-1, 100-HR-3-H and 100-BC-5.
- Continue development of decision documentation.
- Initiate drilling for 171 wells at 100-NR-2.
- 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

- Award contracts for and receive 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.

- Complete reactivation of the U Canyon support systems, and continue preparations for applying contamination fixative in the canyon and relocating equipment on the canyon deck into the cells.
- Initiate preparations for demolition of the 200 East Area core industrial complex, including the 200E powerhouse.
- Complete planning for cleanout of the 209-E building.

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

- Complete demolition of the 212-R building basin and soil removal.
- Complete demolition of the 212-P sub-structure, the last of three interim fuel storage basin facilities in the 200 North Area.
- Complete surveys and inspection of all three 212 building sites to support closure.
- Continue preparations for demolition of excess facilities at the ALE reserve on Rattlesnake Mountain.

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

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

- Continue remediation of the UPR-100-K-1 (Fuel Storage Basin) waste site.
- Removal of 117KE Exhaust Air Filter Building Roof Panels.
- Continue mechanical and electrical isolation of the 183KW Complex.
- Continue characterization of the 183KW Complex.
- Continue Preliminary Design activities for the 105KE reactor core disposition.
- Continue debris removal from the KW Basin.
- Performing the reactor Graphite Tumble Test to obtain dusting properties of the reactor graphite.