

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 (DOE) 2015 vision and shrink the Hanford Site cleanup footprint.

RL-0011 Nuclear Materials Stabilization & Disposition

CHPRC is accelerating critical decontamination and decommissioning (D&D) work that will help prepare the Plutonium Finishing Plant (PFP) for demolition to slab-on-grade three years ahead of the Tri-Party Agreement Milestone of September 2016. The highest priority scope includes removing over 170 glove boxes/laboratory hoods and other highly contaminated equipment from the 234-5Z building, the largest facility at Hanford for plutonium production and processing.

RL-0013 Solid Waste Stabilization & Disposition

Recovery Act funds are allowing CHPRC to accelerate retrieval of 2,500 m³ of suspect transuranic (TRU) waste, eliminate 1,800 m³ of mixed low-level and low-level waste (MLLW and LLW), and accelerate the overall cleanup of legacy waste and fuels on the Hanford Site.

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

In the ongoing effort to protect the Columbia River, CHPRC is using Recovery Act funding to construct two groundwater treatment facilities and drill 344 wells that will be used for monitoring, extracting, and remediating groundwater.

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

Across the Central Plateau and along the outer zone of the Hanford Site, CHPRC is accelerating the demolition of facilities to reduce mortgage costs on buildings that are no longer of service and provide access to waste sites located underneath.

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

In the 100K Area along the Columbia River, CHPRC is demolishing 12 buildings and remediating 49 wastes sites to clear the area and prepare for the disposition of two reactors, K East and K West.

ACCOMPLISHMENTS

RL-0011 Nuclear Materials Stabilization & Disposition

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

Of the 174 glove boxes and hoods to be removed by September 2011 with support from the Recovery Act, 38 have been cleaned out, isolated, and removed and 31 have been shipped for treatment and disposal. Recovery Act funds are supporting glove box/hood preparation and removal throughout the former laboratories and process areas of the 234-5Z building:

- *Laboratories* – In the former Analytical Laboratory, D&D crews completed the removal of laboratory equipment from inside three glove boxes in room 136, including exhaust filters and shelving. Preparations are underway to perform non-destructive assay of the boxes and begin chemical decontamination. In room 149, a crew completed external mechanical isolation of external systems from three glove boxes, including removal of the inlet HEPA filters, disconnect of process water supply piping, and removal of a process drain line. Preparations continued for the removal and sampling of legacy chemicals solutions staged in room 144. In the former Standards Laboratory, preparations continued for external mechanical isolation of the D-5 glove box, the first of five to be removed from room 221D.
- *Processing areas* – Crews continued process equipment removal in multi-story glove boxes HA-19B1 and B2 and chemical decontamination of glove box HC-60. Analysis of the Surface Contaminated Object survey results from glove box HC-230C-3 continued to determine if the glove box can be disposed of as LLW without additional work. Preparations continued for the isolation and cleanout of glove box HA-46. Removal of asbestos insulation in room 232 was completed and external mechanical isolation of the glove box and activation of glove ports began. Installation of a large area containment was also initiated in room 235-D to support cleanout and removal of glove boxes and prevent the work from impacting other activities under way in adjacent areas of the building.

Throughout 234-5Z building and related structures such as the 291-Z building, work is continuing on removal of hazardous materials and deactivation of cross-cutting process support systems including safety showers and eyewash stations as well as the steam, process vacuum, and dry air systems. A deactivated steam turbine controller and approximately half of the steam piping was also removed from the 291-Z building to provide access to equipment requiring D&D.

Preparations continued for removing the process vacuum system from throughout the 234-5Z and 291-Z building and insulators removed asbestos from more than 100 feet of piping in radiologically controlled areas, bringing the total removed with Recovery Act support to nearly 7,000 feet.

The PFP Solid Waste Operations staff, with support from the Waste and Fuels Management Project, continued preparations for packaging and shipment of three hoods to ERDF using the Contaminated Equipment – Special Package Authorization (CE-SPA) process. The Transportation Implementation Verification Review was completed and the Work Site Assessment was initiated in support of plans to ship the glove boxes next week. Fourteen containers of LLW were also loaded and shipped to Perma-Fix Northwest (PFNW) for volume reduction prior to disposal at ERDF.



Photo 1

Solid Waste Operations staff at the Plutonium Finishing Plant load 14 containers of low-level waste onto a trailer for shipment to PermaFix-Northwest, where the waste will be volume reduced to approximately two to three boxes of waste that will be disposed of in the Environmental Restoration Disposal Facility.



Photo 2

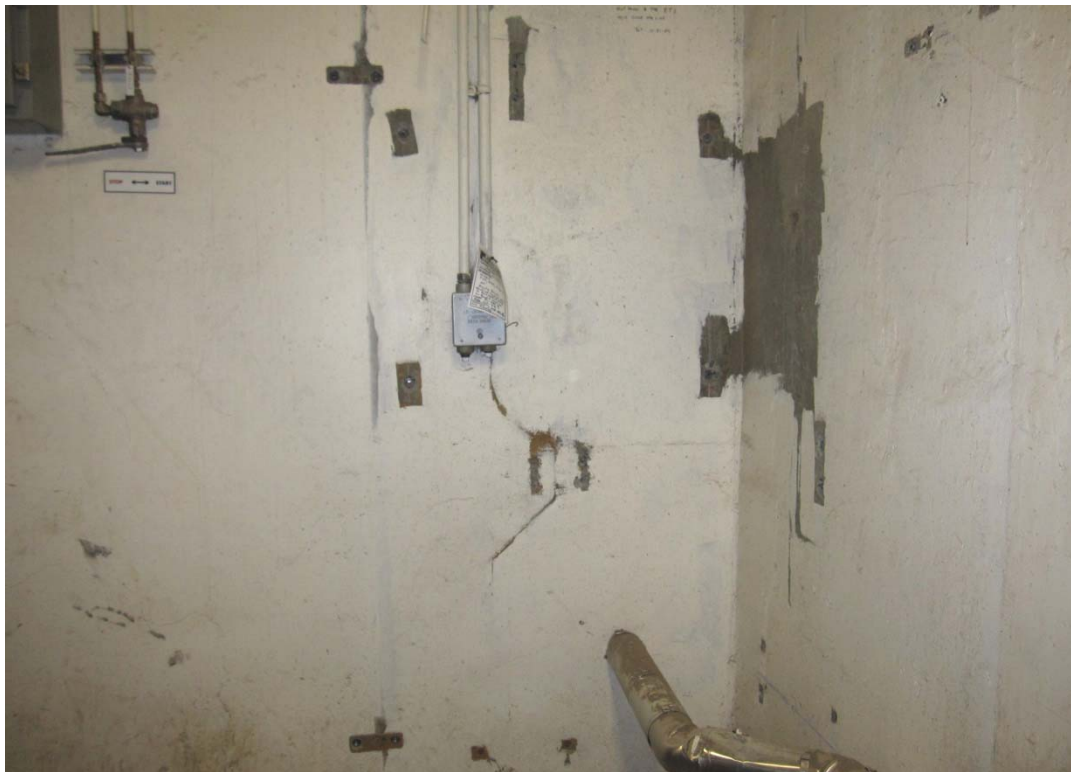


Photo 3

A deactivated steam turbine controller before (photo 2) and after (photo 3) removal from the 291-Z building at the Plutonium Finishing Plant. CHPRC is removing equipment like the turbine controller to provide access to other areas planned for equipment removal prior to demolition.



Photo 4

A boilermaker removes panel shelves from inside a glove box in room 136. D&D crews are at work on the three glove boxes in this room, preparing them for decontamination in the upcoming weeks.

RL-0013 Solid Waste Stabilization & Disposition

RL-0013C:R1.1: MLLW Treatment

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

- 783 m³ of MLLW and LLW have been shipped to date including:
 - 330 m³ that have been treated and disposed.
 - 453 m³ at off-site treatment facilities awaiting processing. Treatment is scheduled for FY10.

Two shipments of waste were sent out for treatment this week. Eighty-seven drums (18.1 m³) of LLW debris were shipped from the Central Waste Complex (CWC) to PFNW on Jan. 26. The waste will be volume-reduced, stabilized, and packaged for disposal in Hanford's Mixed Waste Disposal Units. The second shipment, containing 17 drums (3.5 m³) of LLW debris previously classified as TRU waste, was also sent to PFNW. The waste was shipped from the Waste Receiving and Processing Facility on Jan. 28 and will also be disposed of in Hanford's Mixed Waste Disposal Units.

Environmental Restoration Disposal Facility "Self Perform"

Work continued on the Container Maintenance Facility with the installation of the exterior siding, roofing, insulation, and interior sheet rock. Approximately 117 yards of concrete were poured, leveled,

and finished to begin forming the exterior pad that will be used to perform welding tasks and minor repairs. It will also serve as a staging area for roll-on/roll-off containers. The vehicle hot starts were positioned and set in concrete and all the yard light poles on the west side of the facility were raised and set in place. Electricians began the installation of the building electrical components while the design drawings for the new access road were finalized and issued.



Photo 5

Construction workers pour, level, and finish concrete for the exterior pad outside of CHPRC's Container Maintenance Facility. Over 117 yards of concrete were poured. The exterior pad will be used for welding tasks and minor repairs and will also serve as a staging area for containers being brought to the facility for gasket replacement.

RL-0013C:R1.2: TRU Waste

Of the 2,500 m³ of suspect TRU waste planned for retrieval under the Recovery Act:

- 17.1 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 excavated to the bottom of Box 82 and removed the west wall. A heavy equipment operator graded the 3A road and the area outside of the radiological buffer area next to Trench 6 to prepare for the receipt of the containment structure that will be used for Boxes 80 and 82. Onsite assembly of the structure is required. Workers also placed fire retardant plywood around Box 3 in preparation for lifting the box.

The geophysical survey results from 3A Trench 8 were reviewed with the contractor and the logistics drawing is being updated to reflect the results. Work continued elsewhere with the installation of the mask station storage structure, which is now 90 percent complete. The structure provides climate-controlled respirator equipment storage.

The setup of the Mobile Decontamination Unit (MDU) trailer continued and a 90-day waste drum shipment was sent out. Authorization to resume removal operations in 4B Trench 11 was received and removal began with workers replenishing operating supplies, tools, and laundry.

To support retrieval activities, proposals for metal weather covers for use over the metal waste containers were received and a large fiberglass-reinforced plywood box lifting fixture was sent to the shop for repairs. The new 4B/4C area restroom trailer also arrived and setup is in progress.



Photo 6

The mask station storage structure that will be climate controlled to meet the manufacturer's temperature requirements for storing powered air-purifying respirators. The respirators are used by workers during entry into the trenches to perform waste retrieval.

Alpha Caisson Retrieval Project

CHPRC completed the Conceptual Design Report and it is being routed for approval and document release. Both ARES and AREVA completed all contract activities in support of the conceptual design review.

TRU Project Drum Repackaging

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

- 658 drums (136.9 m³) were repackaged.
- 1,142 drums (237.5 m³) have been quick-scanned to date.
- Repack instructions (corrective actions) for 1,220 drums (253.8 m³) have been developed.

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

RL-0030.R1: Central Plateau Soil & Groundwater

Recent drilling progress includes (listed by operable unit):

- *100-NR-2* – Drilling on 171 wells to expand the apatite barrier continued with 72 wells in process, 72 wells drilled to total depth, and 32 wells constructed and developed. Development of the remaining shallow wells will continue when the river elevation is sufficient.
- *100-HR-3* – In the D Area, a total of 14 wells will be drilled to support the new DX Groundwater Treatment Facility. To date, all 14 wells are in process with 13 of the wells drilled to total depth and 11 wells constructed and developed.
- *200-BP-5* – Drilling on the three planned wells continued last week.
- *200-ZP-1 Expansion* – Drilling operations continued on 17 wells in support of the new 200 West Groundwater Treatment Facility with eight wells in process, of which five wells have been drilled to total depth and two have been constructed and developed.
- *100-BC-5* – Drilling continued on all four of the four planned wells. To date, two wells have been drilled to total depth and the other two wells are at approximate depths of 58 and 190 feet.

In the 100-HR-3 D Area, construction of the new DX Groundwater Treatment Facility is in progress. CHPRC is constructing the facility with \$20 million of Recovery Act funds to treat hexavalent chromium contamination in the groundwater and protect the Columbia River. The construction of the outer steel shell of the main process building and the two transfer buildings is complete, and the construction crews are installing interior electrical and mechanical equipment. Last week, the influent and effluent tanks were also placed in the process and transfer buildings.



Photo 7

Workers prepare to install lighting within the process building for the DX Groundwater Treatment System. With the outer shell complete for both the process and transfer buildings, workers are installing lighting and equipment throughout.



Photo 8

Civil site surveyors locate groundwater wells installed in the 100-HR-3 D Area using Global Positioning System, or GPS, coordinates. Surveyors use the coordinates to maintain the location of groundwater wells and to efficiently relocate wells when modifications are required.



Photo 9

Installation of a well casing at the 200-ZP-1 site, located in the northern part of Hanford's 200 West Area. The well will support the 200 West Groundwater Treatment Facility that is being constructed with Recovery Act funding to reduce carbon tetrachloride in the groundwater.

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

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

U Canyon

Maintenance activities were completed on the canyon crane, including brake adjustments and wire rope inspections. Re-grading of the access road to the railroad tunnel is also complete. Equipment placement

and size reduction continued. Approximately 65 percent of the large mapped items have been placed. Five bids on the grout conveyance process are under evaluation and determination of the preferred option will be made next week. Disposition of the D-10 tank in Cell 30 is being evaluated. The tank contains liquids and solids that may require special processing and disposal. Issues on transportation, packaging, and storage are being addressed. The plan for disposing of chemicals in the canyon is being developed with a focus on sampling of unknowns.

U Plant Ancillary Facilities

In the 224-UA building, work is currently concentrated on asbestos removal from the calciner area. At 224-U, asbestos abatement preparation continued. Cleanup in the 224-U tower was completed. Asbestos containment preparation continued in the cell area. Scaffold erection began in D Cell.

200 East Core Industrial Area

Work planning for demolition preparations, asbestos abatement, and cold and dark isolations continued. Cold and dark isolations were completed for the 2101M building. Power to trailers MO-104 and MO-840 was isolated and demolition preparation activities were initiated. Asbestos abatement was initiated in the 272E building.

209-E Criticality Mass Laboratory

The design of a containment structure to support size reduction of the slab tanks within the 209-E facility was completed. Procurement of the containment structure and the ventilators will begin next week. The activities for the Documented Safety Analysis, waste documentation, and the environmental documentation continue. Hazards analysis meetings are planned for next week to support completion of these documents and to ensure that they are consistent. Beryllium sampling was performed to support planned entry activities. As soon as sample results are obtained, entry for additional radiological characterization will begin.

Heavy Equipment Procurements

A high-reach demolition excavator was received this week, bringing the total of heavy equipment procured and received to 39 pieces. A heavy haul truck, two demolition hydraulic hammers, and two trailers remain to be received. Scheduled delivery varies but is expected to be complete in March 2010.

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

Facility D&D

Environmental media samples analysis is ongoing at the sites of the former 200 North Area buildings (212-N, -P, and -R).

The number of buildings demolished on the lower Arid Lands Ecology (ALE) Reserve climbed to five last week, with the demolition of buildings 6652G, 6652M, and 6652J. The debris is being loaded into roll-on/roll-off containers. Cold and dark isolation activities of structures on upper ALE and cleanup of debris sites throughout the reserve are ongoing.



Photo 10

Demolition of the 6652G building begins. The building previously served as a field storage building and is one of three buildings demolished last week on the lower Arid Lands Ecology Reserve.



Photo 11

The remains of the 6652G building after demolition. With Recovery Act funds, CHPRC D&D teams are making their way through the facilities on the lower Arid Lands Ecology Reserve, having removed five structures in two weeks.

Waste Sites

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

- *200-MG-1* – Remediation of the 600-36 waste site continued with approximately 3,400 tons of contaminated soil delivered to ERDF. Preparations and field remediation continued for waste sites 600-218, 600-38, 600-275, and 600-40. The development and processing of the Response Action Completion Reports for closing waste sites 200-E-110, 600-21, and 600-51 continued.
- *200-CW-3* – Remediation of the 216-N-1 waste site was completed pending the sampling results. The instructions necessary to obtain sampling results for the 216-N-1 waste site were approved. Remediation continued at the 216-N-4 waste site with approximately 2,300 tons of contaminated soil shipped to ERDF. Super dump trucks are being utilized to transport the contaminated soil to ERDF, including an additional truck that was recently procured and put to service at the site.
- *BC Control Area* – Remediation continued with approximately 29,000 tons of contaminated soil having been shipped to ERDF. An additional super dump truck is now on site to support remediation in the BC Control Area.



Photo 12

A super dump trucks exit the survey tent at the BC Control Area. Approximately, 29,000 tons of contaminated soil removed from the waste site have been remediated and delivered to the Environmental Restoration Disposal Facility.

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

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

Facility D&D

Demolition continued on the 183.2KW Sedimentation Basin. Most of the internal structures and the east exterior wall have been demolished, leaving the focus on the west exterior wall of the approximately 300,000-square-foot structure. Demolition preparations for 183.1KW Headhouse were completed. Asbestos removal in 183.7KW Pipe Tunnel continued and should be complete next week.

Cultural reviews are in progress to ensure the 100K Area River Water Isolation project will not disturb cultural sites. The project will isolate the current 100K Area water systems and establish a water line from the 100B area for potable water and fire protection to support the 100K Area as demolition progresses.

Asbestos abatement preparations in 115KE building are continuing. Analysis of the additional characterization samples of the 117KE filters is also continuing. The results will be used to determine worker protection controls needed during demolition.

Removal and packaging of debris from the 105KW Basin continued with 17 debris units removed during this reporting period.

Electrical circuit tracing is ongoing to complete the isolation of the 105KE Reactor building. When the electrical isolation is complete, the 105KE Reactor can be declared cold and dark. The electrical outage necessary to complete the electrical isolation of the 105KE building is scheduled for Feb. 12. Preliminary Design activities for the disposition of the 105KE Reactor continued. The draft Equipment Testing List is being independently reviewed. Dry runs for the next phase of sampling are scheduled for the week of Feb. 8, 2010. These dry runs will use the recently fabricated glove box mock-ups.

Also in the K East area, a Statement of Work for characterization and demolition of the 116KE building, the reactor exhaust stack, has been prepared. Asbestos removal preparations are ongoing for the below-grade structures of the 1706KE building.



Photo 13

An archeologist from Pacific Northwest National Laboratory sifts through soil while another archeologist digs an approximately two-foot-deep area in the 100 Area as part of a cultural review process to ensure CHPRC's upcoming work will not disrupt cultural sites.



Photo 14

Archeologists from the Pacific Northwest National Laboratory review soil for cultural artifacts. The team reviewed over 100 sites along a two-mile stretch where CHPRC plans to install support systems for the 100K Area. The cultural reviews are conducted to ensure CHPRC will not disrupt cultural sites while rerouting utilities to the 100K Area.

Waste Sites

Recent progress in remediation at 100K Area waste sites includes (listed by operable unit or site):

- *UPR-100-K-1* – Work in the waste site beneath the former 105KE Fuel Storage Basin included moving material from nearby stockpiles to pad the area around the load-out ramp. A clean ramp was required to provide access to concrete pad structures located just west of the load-out ramp. Demolition of the concrete pads is in progress and is expected to be complete next week.
- *100-K-56, 100-K-3, and 100-K-47 Pipelines* – Removal of overburden continued to truncate lines that potentially feed the 100K outfall from the 105KE area. The pipelines will ultimately be removed.
- *100-K-63 and 100-K-64* – A draft document containing the rationale to modify the status of 100-K-63 (western flood plain) and 100-K-64 (eastern flood plain) was drafted and reviewed. The document was returned from the DOE Richland Operations Office with comments. Laboratory sample results from both sites indicate levels exceeding Contaminants of Potential Concern and Remedial Action Goals.

UPCOMING EVENTS

RL-0011 Nuclear Materials Stabilization & Disposition

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

- Complete chemical decontamination of three glove boxes in room 136 and initiate preparations for removal.
- Complete process equipment removal from three glove boxes in room 149 and initiate chemical decontamination.
- Complete process equipment removal on glove boxes HA-19B1 and HA-19B2.
- Complete chemical decontamination of glove box HC-60.
- Initiate process equipment removal from glove boxes HA-46, HC-227T, and GB400.
- Load and ship three glove boxes to ERDF using the CE-SPA process.
- Assess the radiological status of and determine a disposition path for decontaminated glove box HC-230C-3 and three additional glove boxes previously removed from room 137 of the Analytical Laboratory.
- Complete deactivation and isolation of excess safety showers, eyewash stations, and lights.
- Complete removal of sections of deactivated steam piping in the 291-Z building.
- Initiate removal of the process vacuum system from throughout the 234-5Z and 291-Z buildings.
- Complete electrical and mechanical isolation and removal of the storage tank on the 2731-ZA nitrogen generator facility.
- Initiate work on the disposition of hazardous materials and deactivated air dryers in room 321.

RL-0013 Solid Waste Stabilization & Disposition

RL-0013C:R1.1: MLLW Treatment

- Planned shipment of 11 m³ (1 large box) of MLLW Toxic-Substances and Control Act debris on Feb. 3 from the CWC to PFNW.
- Planned shipment of 18.3 m³ (88 drums) of LLW debris on Feb. 4 from CWC to PFNW.
- ERDF "Self Perform":
 - Container Maintenance Facility:
 - Pour, level, and finish concrete for the exterior pad.
 - Install building doors.
 - Set east side yard light poles.
 - Work interior electrical.

RL-0013C:R1.2: TRU Waste

- Award contract for metal weather covers for retrieved metal waste containers.
- Remove the west wall of Box 82 and fog the exposed waste contents.
- Complete the weld repair of the large fiberglass-reinforced plywood box lift fixture.
- Perform a test lift and place Box 3 on the base plate in preparation for removal from the trench.
- Complete the setup of the 4B/4C area restroom trailer and place it into service.
- Complete installation and electrical tie-in of the new mask station storage container.
- Continue setup/startup of MDU.
- Resume removal activities in 4B Trench 11 including re-establishing trench slopes, trench egress, and re-mobilize support equipment and facilities.
- Alpha Caisson Retrieval:

- Initiate definitive design for the Waste Retrieval System and the preliminary design for the Waste processing System.
- Issue Conceptual Safety Design Report on March 31.

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

RL-0030.R1: Central Plateau Soil & Groundwater

- Continue construction of the DX Pump-and-Treat Facility.
- Continue drilling at 200-ZP-1, 100-HR-3-H, 100-HR-3-D, 100-BC-5, and 100-NR-2.

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

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

- Receive delivery of the remaining D&D heavy equipment being procured.
- Continue asbestos abatement and demolition preparations for U Plant ancillary facilities.
- Continue relocating equipment from the canyon deck into the process cells.
- Complete radiological surveys and initiate cold and dark isolation of the nine 200 East Area core industrial complex buildings.
- Begin additional radiological characterization of 209-E criticality mass laboratory.
- Perform demolition preparation activities, asbestos abatement, cold and dark isolations, and walk downs in the 284E building.

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

- Backfill and re-vegetate the former 212-NPR building sites.
- Continue demolition of the lower ALE facilities.
- Continue removal of debris sites throughout the ALE Reserve.
- Continue cold and dark isolations of upper ALE facilities.
- Continue remediation at the BC Control Area, 200-MG-1, and 200-CW-3 waste sites.

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

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

- Continue demolition of the 183.2KW Sedimentation Basin.
- Begin demolition of the 183.1KW Headhouse.
- Continue debris removal from the KW basin.
- Continue Preliminary Design activities for the disposition of the 105KE Reactor.
- Perform formal 105KE Reactor characterization efforts.
- 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).