

# **ARRA** Weekly Report



October 12, 2010
Contract DE-AC06-08RL14788
Modification M047
CHPRC1010-01

# **Contents**

OVERVIEW	3
ACCOMPLISHMENTS	4
RL-0011 Nuclear Materials Stabilization & Disposition	4
RL-0011.R1: Plutonium Finishing Plant D&D	4
RL-0013 Solid Waste Stabilization & Disposition	7
RL-0013C:R1.1: MLLW Treatment	7
RL-0013C:R1.2: TRU Waste	7
RL-0030 Soil & Groundwater Remediation, Groundwater/Vadose Zone	9
RL-0030.R1: Central Plateau Soil & Groundwater	9
RL-0040 Nuclear Facility D&D – Remainder of Hanford	103
RL-0040.R1.1: U Plant/Other D&D	103
RL-0040.R1.2: Outer Zone D&D/Waste Sites	14
RL-0041 Nuclear Facility D&D – River Corridor Closure Project	14
RL-0041.R1.1: 100K Area Remediation	14
UPCOMING EVENTS	19
RL-0011 Nuclear Materials Stabilization & Disposition	19
RL-0013 Solid Waste Stabilization & Disposition	20
RL-0030 Soil & Groundwater Remediation, Groundwater/Vadose Zone	20
RL-0040 Nuclear Facility D&D – Remainder of Hanford	20
RL-0041 Nuclear Facility D&D – River Corridor Closure Project	21



#### **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 to prepare the Plutonium Finishing Plant (PFP) for demolition three years ahead of the Tri-Party Agreement milestone of September 2016. The work scope includes removing over 174 glove boxes/laboratory hoods and other highly contaminated equipment from the 234-5Z, 242-Z, and 2736-ZB buildings as well as preparing the former special nuclear material storage structures and other ancillary buildings for demolition.

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, install over 265 wells that will be used for monitoring, extracting, and remediating groundwater, and decommission 280 wells that are no longer of service.

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 34 facilities to reduce mortgage costs on buildings that are no longer of service and complete the remediation of 24 waste sites.

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

In the 100K Area along the Columbia River, CHPRC is demolishing 15 buildings and sampling and/or remediating 23 waste 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

A new, streamlined process for removing process vacuum system piping was deployed after several months of development, facilitating a five-fold increase in the rate of removal. Two hoods decontaminated with RadPro® did not reach LLW criteria and will need to be size reduced for disposal as TRU. Fifty-two drums of TRU and TRU mixed waste were shipped from PFP to the Waste Receiving and Processing (WRAP) facility this week, along with one roll-on/roll-off container of LLW shipped to the Environmental Restoration and Disposal Facility (ERDF).

Structures, equipment, waste disposition	Total to Date (since April 2009)
Glove boxes/hoods removed	75 glove boxes/hoods
MLLW/LLW shipped	2,058 m <sup>3</sup>
TRU shipped	198 m³
Non-radioactive waste shipped	22 m <sup>3</sup>
Process transfer piping removed	189 feet
Process vacuum system piping removed	182 feet
Asbestos removed	10,879 feet
Ancillary structures demolished or removed	22 fuel vaults & ancillary buildings prepared for demolition



Photo

Workers check waste drums being loaded for shipment to the Waste Receiving and Processing facility. Last week, CHPRC shipped a total of 52 drums of transuranic and transuranic mixed waste from the Plutonium Finishing Plant.



#### Laboratory & Processing Areas

Chemical decontamination of the first two of six hoods in room 139 of the Analytical Laboratory was completed, and the crew moved on to the next pair of hoods. Contamination levels on the first two hoods could not be reduced to levels where they could qualify for onsite disposal as LLW, so they will need to be size reduced and disposed of as TRU waste. The last of three inter-connected hoods previously removed from room 137 of the Analytical Laboratory was received by waste operations and packaged for disposal as TRU waste. Equipment removal began on hood 144-9. In the Plutonium Process Support Laboratory, the crew began reactivation of glove box 179-5 in room 185 and received approval for work packages to clean out and remove five of eight additional glove boxes in room 179.

In the RMC Line, crews finished painting the interiors of glove boxes HC-230C-3, C-4, and C-5, and initiated isolations to remove them from building ventilation. Other crews continued work to mechanically isolate glove box HA-46 in the RMA Line and to prepare for the application of contamination fixative within glove boxes HA-22, HA-21I, and HA-20MB. Work also continued to mechanically isolate glove box 200 in the Radioactive Acid Digestion Test Unit area.



Glove box 137-3 is ready to be loaded into a standard waste box for shipment and disposal.





Photo 3

Glove box 137-3 is loaded into a standard waste box for shipment and disposal as transuranic waste.

#### 2736-Z/ZB Vault Complex

Mechanical isolations continued on glove box 642-E, the fifth of nine boxes to be removed from the 2736-ZB Vault Support Facility. Equipment removal was initiated in room 641.

#### 242-Z Americium Recovery Facility

Additional entries were made into the 242-Z control room without incident. The crew conducted smoke testing to update ventilation flow patterns, continued general area decontamination, and initiated preparations for D&D of the WT-2 glove box.

#### Infrastructure, process support systems, and equipment removal

Using the new process, the process vacuum system D&D crew was able to remove and package 60 feet of piping. Meanwhile the transfer line removal crew dispositioned 66 feet of pipe and insulators removed asbestos from nearly 100 feet of piping and ductwork. Cumulatively, 182 feet of process vacuum piping, 189 feet of process transfer lines, and nearly 11,000 feet of asbestos have now been removed with support from Recovery Act funds. Installation of the new Mobile Decontamination Facility and a 3-wide trailer to house the PFP Tool Crib are nearly complete. The Tool Crib inventory and staff will be relocated out of the 234-5Z building later in October, leaving only the PFP Shift Office and the Operations Storeroom housed in the facility.





A section of process vacuum system piping is transferred to a standard waste container for disposal. Last week, crews at the Plutonium Finishing Plant began using a new, streamlined process for removing the highly contaminated process vacuum system piping, facilitating a five-fold increase in the rate of removal.

# RL-0013 Solid Waste Stabilization & Disposition

RL-0013C:R1.1: MLLW Treatment

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

- 1,010 m<sup>3</sup> of MLLW and LLW have been shipped to date including:
  - 861 m³ that have been treated and disposed.
  - 149 m<sup>3</sup> at off-site treatment facilities awaiting processing. Treatment is scheduled for FY11.

Shipments scheduled for this week were delayed due to offsite treatment facility acceptance issues. The originally planned shipment for this week will be rescheduled within the next 30 days.

RL-0013C:R1.2: TRU Waste

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

- 103 m<sup>3</sup> are staged, pending shipment.
- 698 m<sup>3</sup> have been shipped to a treatment, storage, or disposal facility.

In the 3A burial ground, Culvert 40 (7.2 m<sup>3</sup>) was excavated and removed along with two other culverts (2.9 m<sup>3</sup> each) from Trench 8. Excavation continued east toward remaining boxes in Trench 8. The



installation of the Trench 8 high-radiation area concrete block walls was completed. Workers continued excavating around Boxes 12, 13, and 16-27 in Trench 17. In the 4B burial ground, a kick-off meeting was held for the Trench 11 Retrieval Plan development and mock-up training was completed for excavator interrogation of the Trench 11 event site. The validation of the Mobile Radioactive Decontamination Unit (MDU) operating procedure was completed. In the 12B burial ground, procedure SW-100-198 and the ANTECH Mobile Passive/Active Neutron (PAN) Assay system operating procedure were approved and the drum venting system 2 (SW-100-183) was issued for approval. Onsite construction forces completed the conveyor extension into the north storage area and the contractor mobilized to add gravel for the north lag storage pad and Radiological Survey Booth. The contractor completed the north lag storage pad.

#### TRU Project Drum Repackaging

Of the 850 m<sup>3</sup> planned to be characterized and repackaged with funding from the Recovery Act:

- 1,844 drums (398.4 m³) have been repackaged.
- 94 TRUPACT-II shipments [1,343 55-gallon drums, 24 standard waste boxes (SWBs), two tendrum over-packs, 456 85-gallon over-packs and 382 drums over-packed into 107 SWBs (501.01 m<sup>3</sup> total)] have been shipped.



Drums of transuranic waste (front) are staged for loading into a ten-drum over-pack container (back) that will eventually become part of a TRUPACT-II shipment.



#### Suspect TRU Waste Shipments

Of the 637 m<sup>3</sup> of suspect TRU waste planned for shipment under the Recovery Act:

- 109.2 m<sup>3</sup> have been shipped to date (40 m<sup>3</sup> were shipped using Base funding).
- 109.2 m<sup>3</sup> have been repackaged into WIPP-certifiable packages.

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

RL-0030.R1: Central Plateau Soil & Groundwater

#### Well Drilling & Decommissioning

CHPRC initiated drilling of 3 of 15 wells that will be installed with Recovery Act funding in the 100-HR-3 H Area. The wells will support a remedial investigation/feasibility study of the area to determine the extent of contamination and cleanup needs. The following table showcases CHPRC's recent progress in well drilling and decommissioning.

Operable Unit	Scope (Wells to be drilled with Recovery Act funding)	In progress	Drilled to Total Depth <sup>1</sup>	Completed or Developed <sup>2</sup>
100-BC-5	Support characterization and removal of chromium (6 wells)	3	2	2
100-KR-4	Support characterization of the vadose zone and aquifer (13 wells)	8	6	6
100-HR-3	H Area: Support the optimization of removal of chromium (40 wells)	40	40	37
100-HR-3	H Area: RI/FS Hanford Formation (15 wells)	3	-	-
100-FR-3	Support for Remedial Investigation/Feasibility Study characterization (3 wells)	2	2	-
200-ZP-1	Support the 200 West Groundwater Treatment Facility that will primarily treat carbon tetrachloride contamination in the groundwater (17 wells)	17	15	15
300-FF-5	Support characterization of the aquifer (11 wells)	6	4	4
Site-wide	Decommission wells that are no longer of service <sup>3</sup>			176

Wells are drilled to varying depths to address contaminants at different depths in the soil.

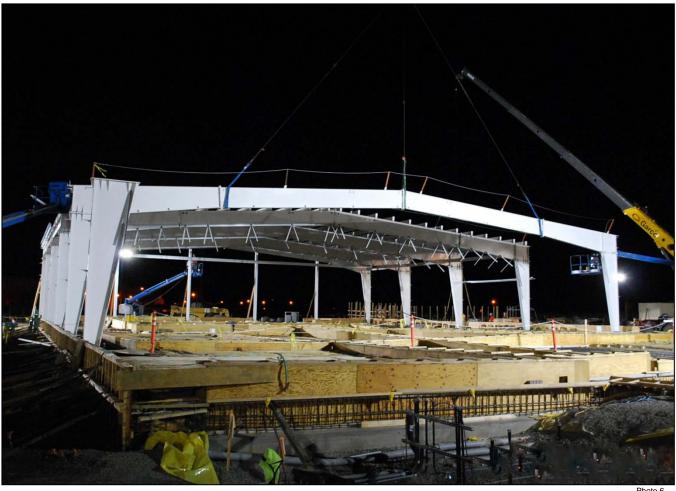
#### 200 West Groundwater Treatment Facility

Approximately 580 cubic yards of concerete were placed, bringing the project-to-date total to approximately 2,650 cubic yards. The general contractor, Skanska USA Build Inc., and their subcontractors completed the third of five slab-on-grade pours; the remaining two pours are scheduled for next week. Approximately 50 cubic yards of concrete were placed for the four transfer buildings under construction by subcontractor George A. Grant. For the nine accelerated Phase II road crossings under construction, seven are complete with one under construction and one on hold for driller completion.



<sup>&</sup>lt;sup>2</sup>When a well is developed, the well screen and riser pipe are placed in the hole, filter pack material is placed around the screen, and the well has been surged and pumped to establish good communication between the well and the surrounding soil.

<sup>3</sup>Wells that are inactive or no longer of service are filled with grout or other materials, the casing is removed, and a cap or marker is installed.



Construction of the structural steel for the Radiological Building continues. The building is one of two main process buildings that will make up the 200 West Groundwater Treatment Facility.

#### DX Groundwater Treatment Facility

Acceptance testing continued. Progress also included ranging of process instruments. Electrical and mechanical equipment installation is approximately 45 and 80 percent complete, respectively, for the Chemical Addition building.

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

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

#### **U** Canyon

Post-fixative application surveys are complete and the data is being evaluated for possible down-posting of the canyon. Replacement of the wire rope on the 10-ton hook is in progress. Shielding is being placed around Cell 30 in anticipation of tank preparation activities on the D-10 tank in October. DOE Richland Operations Office approval of the documented safety analysis (DSA) for removal of the D-10 tank is continuing Video equipment is being set up to record the structural integrity of the tank for future handling activities. Temporary electrical modifications for grout placement are in progress. Grout preparation efforts continued with the approval of several more contractor submittals. Grout batch plant siting radiological surveys are complete. Contracts have been awarded for core drilling and haul road installation.

#### **U Plant Ancillary Facilities**

Debris from the demolition of the 224-U and 224-UA buildings continues to be size reduced and loaded for disposal at ERDF.

#### 200 East Core Industrial Area

Final cleanup and demobilization continued at the site of the former 272-E Fabrication Shop. Demolition of the crusher house and conveyor system in the 284-E Powerhouse complex is in progress. Construction of the asbestos abatement containment in the Powerhouse is nearing completion. Demolition preparations and removal of items that need to be removed before demolition of the building are complete. A contract for the explosive demolition of the 284-E Powerhouse stacks was awarded.





The site of the former 272-E Fabrication Shop after demolition and cleanup. CHPRC demolished the approximately 20,735square-foot facility with Recovery Act funding to help reduce mortgage, surveillance, and maintenance costs on facilities that are no longer of service on the Hanford Site. The building was one of nine facilities scheduled for demolition in the 200 East Area.

#### 200 West Area Industrial Facilities

Planning, characterization, and radiological surveys are ongoing for the six industrial structures planned for demolition. Asbestos abatement was initiated on the 2902W Elevated Water Storage Tank.



Asbestos abatement begins on the 200W Elevated Water Storage Tank. The approximately 140-foottall structure was built in the 1950s with a 100,000 gallon storage capacity. It has been out of service since 1998.

Photo 8

#### 209-E Criticality Mass Laboratory

Installation of the support trailers is complete and occupancy permits were obtained. Work continued on activation of glove ports to support removal activities. The DSA and environmental documents approval is ongoing. Planning began on the DSA implementation and implementation validation review process, pending approval of the DSA. Efforts continued on contracting for non-destructive assay support – the contract is in final technical review.



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

#### Arid Lands Ecology Reserve (ALE) D&D

Overall debris site cleanup is approximately 97 percent complete. Demolition of the 6636 Columbia Communications Building is complete. Cold and dark isolation and waste characterization are complete on the 623A Plant Radio Relay Building. Debris pile cleanup continued on lower ALE. Demobilization activities are ongoing and include relocating materials and equipment to the 200 West Area.

#### North Slope Debris Removal

Cleanup of North Slope debris continues in Area 15 of the Hanford Reach National Monument, where Sealaska Environmental Services, a subcontractor to CHPRC, is mobilizing and will perform a substantial portion of the debris removal. Ecological and cultural reviews are in progress for removing debris from other areas on the North Slope.

#### D&D of Railcars Located on the 212-R Rail Spur

The Action Memorandum and the Removal Action Work Plan documents for D&D of the railcars on the 212-R rail spur are being routed through regulatory review. The contract for performing the railcar disposition activities was awarded and resources are being secured.

#### Waste Sites

The following table showcases CHPRC's recent progress in outer zone waste remediation:

Waste Site in Progress	Tons of Contaminated Soil Removed		
waste site in Frogress	Week Ending Oct. 8, 2010	Total to Date	
600-286-PL	1,780	2,660	
BC Control Area	5,700	229,000	

Recent activities regarding the outer zone waste sites also includes (listed by operable unit or site):

- 200-MG-1
  - o 216-S-26: Selection of a vendor is anticipated this week.
  - o 600-36: Remediation field work is complete. Sample analyses are acceptable. The Remediation Action Report (RAR) is being prepared.
- 200-CW-3
  - o 216-N-4: Sample results indicate remediation is complete; the RAR is being prepared.
  - o 216-N-6: Excavation is complete, initial screening was performed, and detailed down-post-surveys are complete. Sampling is complete and analyses are under way.
  - o 600-286-PL: Remediation is in process with ongoing shipments to ERDF.
  - o 600-287-PL: Remediation preparations are complete; overburden removal is under way.
- BC Control Area
  - o For Zone A, approximately 72 acres have been excavated and surveyed.
  - o For Zone B, radiological down-posting surveys are in process.

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

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

#### Facility D&D

Demolition continued on the 183.2 KW Sedimentation Basin. Demolition and debris load-out was completed for the above-grade portion of the 115KE Gas Recirculation Building. The below-grade portions of the 115KE and 117KE Buildings will be demolished and removed concurrently with waste remediation in the area east of the 105KE Reactor. Demolition started on the west side of the 105KE Reactor Building. Asbestos abatement continued in the 190KE Main Pump House.





The site of the 115KE Gas Recirculation Building since the above-grade portion of the building has been demolished and debris removed for disposal.



Demolition begins on the west side of the 105KE Reactor Building.

Comments are being incorporated on the preliminary design documents for disposition of the 105KE Reactor. A multi-day design review meeting will convene in November. Preparation of the characterization report continued.

Upgrades to the 105KW Fuel Storage Basin facility heating, ventilation, and cooling system are nearing completion. Condensate lines and thermostats are being installed, insulation is being placed on the exterior ducting, and punch list items are being worked. Construction completion documents are being prepared.



Upgrades to the 105KW Fuel Storage Basin facility heating, ventilation, and cooling system are in progress and nearing completion. The air handling units shown here connect to about 800 feet of ducting inside the building that was installed with Recovery Act funding. The upgrade will improve working conditions in the 105KW facility during future decommissioning and demolition activities.

#### *Infrastructure Utilities Upgrade Project*

Installation of the fire water and potable water lines in the 100K Area is complete up to the tie-in points. Preparations are being made for connecting the new fire water and potable water lines to the facilities in the 100K Area. Bollards are being placed around 105KW fire hydrants. Punch list items are being addressed. Construction closeout documents for the Import Water Line were approved and signed. Construction closeout documents are being prepared for other portions of the fire water and potable water upgrades in the 100K Area.

Construction of the Water Treatment Facility continued with installation of process piping, interior electrical rough, and conduit, as well as site finish grading and top gravel placement. Final electrical terminations were made and the motor control center panel and master plant control panel were energized. Building interior and exterior lights were energized. Start-up of the water filtration equipment began. Fire Marshal approval is being obtained for the fire pump, fire suppression, fire detection, fire wall, and fire distribution system.





The Water Treatment Facility under construction in the 100K Area of the Hanford Site with Recovery Act funding. Process piping, electrical components and conduit are being installed inside the treatment building.

Punch list items are being worked and construction closeout paperwork is being prepared for the A9 Substation Refurbishment and for the 13.8KV re-route.

#### Waste Sites

Crews mobilized to the area of the 115-KE, 117-KE, and 116-KE-1 waste sites. Planning is in progress for remediation of the 100-K-57 waste site (107-KE Drainage Ditches).



Excavators prepare the site to provide access for removing subgrade structures from the 115KE and 117KE buildings and contaminated soil from the 116-KE-3 waste site.

### **UPCOMING EVENTS**

# RL-0011 Nuclear Materials Stabilization & Disposition

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

- Complete decontamination of the remaining four glove boxes/hoods in room 139.
- Complete the disposition of remaining chemicals from room 144.
- Clean out and initiate decontamination of five remaining glove boxes/hoods in room 144.
- Initiate D&D work on glove boxes in room 185.
- Isolate and remove the second of six glove boxes from room 642 of the 2736-ZB building.
- Complete the application of contamination fixative in glove boxes HC-230C-3, -4, and -5; remove them from building ventilation; and transfer them to waste operations for disposal.
- Complete external isolations and initiate decontamination of glove boxes 100A and HA-46.
- Continue removing process vacuum and process transfer piping.
- Begin isolation and cleanout of glove box WT-2 in 242-Z building.
- Authorize use of Aspigel® as an alternate decontamination process and deploy it to the field for chemical decontamination.



# RL-0013 Solid Waste Stabilization & Disposition

RL-0013C:R1.1: MLLW Treatment

• Planned shipment of 13 drums (2.7 m<sup>3</sup>) of MLLW from CWC to PFNW.

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

- TRU Retrieval
  - o 3A burial ground:
    - Issue Trench 17 Box 12 work package 2X-10-2586 and remove box from trench.
    - Continue work planning for Trench 17 Box 27 removal and shipment.
    - Continue excavating Trench 17 to expose sides of waste containers.
    - Develop and review operating documentation for the portable containment enclosure in preparation for repackaging of Box 80 in Trench 17.
    - Continue excavation and retrieval of Trench 8 containers.
    - Complete assay campaign for retrieved Trench 8 containers.
  - o 4B/4C burial grounds:
    - Complete initial disinfection and filling of the MDU with potable water.
    - Prepare for and conduct a Hazard Review Board meeting for excavator interrogation of the 4B Trench 11 event site.
    - Approve the operating procedure and fill/remove water work package for the MDU.
  - o 12B burial ground:
    - Continue mock-up retrieval activities for contact-handled and high-dose waste drums in the Simulation Test Site Trench.
    - Complete all remaining construction upgrades.
    - Complete calibration, confirmation, and verification of the PAN assay system.
    - Complete the acceptance and operational tests for drum venting system 3.
    - Complete the operational test on the real-time radiography/drum warming unit.
    - Validate and approve remaining operating procedures for the Next Generation Retrieval Project.
    - Complete training of the real-time radiography contractor personnel to recently issued operational procedures.
- TRU Repack
  - o No planned TRUPACT-II shipments.
- Suspect TRU Waste Shipments
  - One planned shipment this week.

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

RL-0030.R1: Central Plateau Soil & Groundwater

- Continue construction of the 200 West and DX Groundwater Treatment Facilities.
- Continue decommissioning wells across the site.
- Continue drilling at 100-BC-5, 100-HR-3, 100-KR-4, 100-FR-3, 200-ZP-1, and 300-FF-5.

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

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

- Complete debris load-out of the 224-U and 224-UA facilities.
- Continue asbestos abatement in the U Canyon galleries.
- Continue demolition preparations for the 284-E Powerhouse.



- Continue demolition of the crusher house and conveyor building at the 284-E Powerhouse.
- Complete final cleanup and demobilization at the site of the former 272-E Fabrication Shop.
- Continue preparations for demolition of the 209-E Criticality Mass Laboratory.
- Continue demolition planning, characterization, and asbestos abatement activities for the 200
  West Area industrial facilities.

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

- Continue demolition of upper ALE communication facilities.
- Continue debris pile cleanup activities on lower ALE.
- Continue demobilization activities on the ALE Reserve.
- Continue removing debris and processing cultural and ecological reviews for removing debris from the North Slope.
- Continue planning, document preparation, and compilation of characterization information for the railcars in the 200 North Area.
- Continue remediating contaminated soil from 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.
- Complete activities for upgrading the 105KW HVAC system.
- Continue preliminary design and review activities for disposition of the 105KE Reactor.
- Continue with the Infrastructure Utilities Upgrade Project activities.
- Continue remediating contaminated soil from waste sites.

