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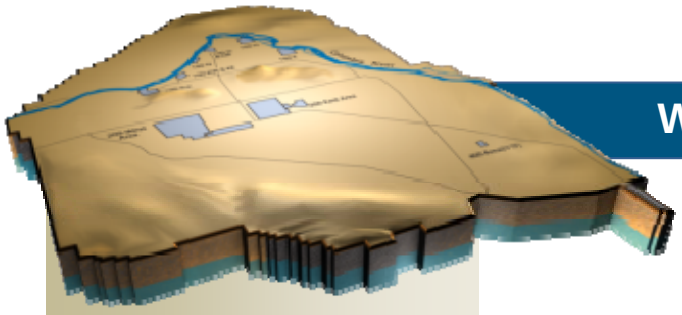
Plateau Remediation Company

ARRA Weekly Report



Week Ending October 16, 2009

October 20, 2009
Contract DE-AC06-08RL14788
Modification M047
CHPRC0910-22

Contents

ACCOMPLISHMENTS

RL-0011 Nuclear Materials Stabilization & Disposition

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

Preparations are complete for removal of four glove boxes in room 146 of the Plutonium Finishing Plant's (PFP) former Analytical Laboratory, including removal of five 26" vacuum pipe stubs, installation of special port covers, and application of contamination fixative to the glove box internal surfaces. The glove boxes will be removed after modifications to widen the doorway leading out of the room are completed.

An initial wipe down and vacuuming of accessible surfaces throughout room 221E in PFP's former Standards Laboratory were also completed to support the beryllium control strategy for cleanout and removal of three laboratory hoods in this room.

In the former production areas of the 234-5Z building, waste seal-outs were completed in room 235B to close out work in glove boxes HA-20MB and HA-21I until the background dose can be reduced through cleanout of other nearby glove boxes. New inlet filters were installed to support the removal of process equipment on adjacent glove boxes HA-19B1, HA-19B2, and HA-28, and work began on reactivation of glove ports. In room 230C, chemical decontamination is still continuing in an effort to decontaminate one final "hot spot" inside former process glove box HC-230C-3. Radiological survey measurements have been re-scheduled to be conducted at the end of October.

D&D Preparations

The field work team and supporting specialists conducted extensive preparations for the upcoming startup of decontamination and decommissioning (D&D) work to remove the heavily contaminated process vacuum system from throughout the 234-5Z and 291-Z buildings. This includes coordinating detailed work plans with the preparation of criticality safety documentation, demonstration of various pipe cutting methods, and field walk-downs of the initial work areas. Insulators also continued asbestos removal in the 234-5Z building, bringing the total removed with funding from the American Recovery and Reinvestment Act of 2009 (Recovery Act) to more than 4,600 feet.

Work was initiated on deactivating non-essential systems in the former PFP storage vault complex. The initial cold and dark work is focused on de-energizing, isolating, and removing hazardous materials from security systems that are no longer required following de-inventory of nearly 10 tons of plutonium-bearing material previously stored in some of the facilities. Workers from the Mission Support Alliance Security Systems Maintenance organization, who previously maintained the systems, are supporting PFP in this effort.

Photo 1

A radiological control technician and nuclear chemical operator survey a valve on the process vacuum system. Preparations have begun to remove the process vacuum system from the 234-5Z and 291-Z buildings. The system is one of the several hazards that will be removed, with funds from the Recovery Act, to prepare the buildings for demolition.

Photo 2

A radiological control technician conducts a survey in the 242-B corridor in the 234-5Z building in preparation for planning the removal of over 5,000 feet of the process vacuum piping throughout the facilities.

RL-0013 Solid Waste Stabilization & Disposition

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

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

- 522 m³ of the 1,800 m³ have been shipped to date including:
  - 217.8 m³ of low-level waste (LLW) have been treated and disposed
  - 304.2 m³ are at off-site treatment facilities awaiting processing. Treatment is scheduled for FY 2010.

Five shipments of waste were sent out for treatment and/or disposal this week. All shipments were sent to Perma-Fix Northwest (PFNW) to undergo different treatment processes:

- 4 empty, radioactively contaminated boxes (19.4 m³) were shipped on Oct. 13 from the Central Waste Complex (CWC) and will be broken down and repackaged into disposal containers at Hanford's Mixed Waste Disposal Units.
- 33 drums (6.9 m³) of LLW containing miscellaneous debris-type waste and radioactively contaminated soils were shipped on Oct. 14 from the CWC. This waste will be inspected for non-

conforming waste items, reduced by compaction and/or vacuum thermal desorption, and packaged for disposal at Hanford's Mixed Waste Disposal Units.

- 5 drums (1 m^3) of Toxic Substances and Control Act (TSCA) regulated remote-handled MLLW debris were shielded down to contact-handle levels in order for contamination levels to be as low as reasonably achievable. These five drums shipped on Oct. 14 will be non-thermally treated and grouted or encased in a special concrete, a process called macro encapsulation.
- 17 drums (13.2 m^3) of TSCA-regulated MLLW debris were shipped on Oct. 14 and will be treated through macro encapsulation.
- 25 drums (5.2 m^3) of MLLW containing miscellaneous debris-type waste (many with non-conforming waste items identified) were sent out on Oct. 15. The waste will be inspected and sorted by PFNW workers and then treated through macro encapsulation, while the non-conforming waste items will be disposed of as required by regulatory disposal requirements.

Photo 3

Two shipments consisting of mixed low-level and low-level waste being loaded onto a truck at the Central Waste Complex. Thirty-eight drums (7.9 m^3) were included in the shipments and will be treated at Perma-Fix Northwest.

Photo 4

Mixed low-level waste debris is ready for non-thermal treatment at Perma-Fix Northwest. The waste will be grouted or encased in a special concrete, a process called macro encapsulation.

Photo 5

Mixed low-level waste debris undergoes macro encapsulation, a process in which the waste is grouted or encased in a special concrete at Perma-Fix Northwest.

2025ED Load-In Modification

An engineering study was developed to evaluate the modification to the 200 Area Effluent Treatment (ETF) Tanker Load-In Facility. The engineering study developed by sub-contractor Techno-General Services has been reviewed by CHPRC and comments have been returned.

Environmental Restoration Disposal Facility (ERDF) "Self Perform"

The ERDF "Self Perform" project began placing CHPRC roll-off cans into service during the week of Oct. 12. The team will continue to introduce new cans into the process during the week of Oct. 19. Staff hiring and training will continue for the next several weeks. The "Self Perform" project will help facilitate the disposal of the extensive amount of waste being generated by CHPRC's accelerated, stimulus-funded cleanup across the Central Plateau.

Photo 6

The first filled roll-off can for the Environmental Restoration Disposal Facility (ERDF) "Self Perform" Project. The project provides CHPRC the resources and equipment needed to help deliver CHPRC-generated waste to ERDF.

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

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

- 296 m³ have been removed and are staged, pending shipment.
- 426 m³ have been shipped to a treatment, storage or disposal facility.

Removal activities continued in 3A Trench 17 with workers continuing to fabricate a cover box for Box 82 and backfilling the east side of Box 27 to allow for cover installation. The work planning, Automated Job Hazard Analysis meetings, and final draft of the work package to deploy cover boxes for Boxes 27 and 80 was completed. The set-up of the Box 82 disassembly mock-up in the Simulation Test Site trench was also completed. This mock-up allowed for the testing of long-reach tools and the training of operators who will use the tools. These operators were also able to become familiar with the procedure and work package that will be used to repackage both Boxes 80 and 82.

Work continued in 4B Trench 11 as well: one lathe box (37.6 m³) was shipped to the CWC and four waste containers were removed. Two of the waste containers were duct pieces and the other two were small metal boxes.

Photo 7

A lathe box shipment removed from a trench is heading to the Central Waste Complex where it will be stored until it can be shipped to a facility that has the capability to reduce its size. This lathe box is designated as transuranic waste and needs to be put into containers that can be accepted by the Waste Isolation Pilot Plant for final disposal.

Alpha Caisson Retrieval Project

The Alpha Caisson Retrieval Project Management Group continued developing the approach for implementing the Technology Readiness Assessment. They reviewed the Project Review Board charter and checklist with management and the general concept was accepted. The team issued the Functional Design Criteria for review and comment and continued developing the Acceptable Knowledge documentation. The group also started outlining the Conceptual Design narrative and completing the administrative baseline change request, which will be submitted for implementation in October.

The waste retrieval system was presented with three concepts for the design of the retrieval system by the ARES Corporation. The current approach will retrieve waste from the lower section of the access chute, which was originally used to load waste into the caisson.

AREVA revised the general layout of the facility based on previous design review meetings for the waste processing system project team. AREVA is performing shielding calculations to establish the thickness of the Mobile Hot Cell (MHC) walls. They are trying to determine how thick the steel walls should be in order to protect workers as they remotely handle waste from behind the walls.

Drum Repackaging
Of the 1,210 drums (400 m³) planned to be characterized and repackaged in FY 2010:

- 171 drums have been quick-scanned to date.
- Corrective actions for 190 drums have been developed.

Central Characterization Project Support for Contact-Handled TRU Waste
Since June 11, 2009, the Central Characterization Project (CCP) has taken over responsibilities for the characterization and certification of Hanford's TRU waste, which is disposed of at the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. The CCP is responsible for the characterization and certification of TRU waste at all other U.S. Department of Energy (DOE) facilities across the country. The CCP, funded by Recovery Act dollars from Carlsbad, will now support Hanford's retrieval and repackaging, another stimulus-funded effort, and help make the characterization and certification process nationally uniform.

During the transition, Hanford's TRU Program has been facilitating site training for the CCP group. In addition, they have been assisting in procedure and waste stream development. They are also aiding in the development of the certification process. The goal for this transition will be complete once the CCP process is audited and certified by the Environmental Protection Agency and the New Mexico Environment Department.

Currently, CCP Support is performing certification activities and performing visual examination of the TRU waste being generated at PFP. CCP Support will expand to include additional waste streams, characterization, and transportation activities at the Waste Receiving and Packaging Facility. The TRU Program will provide ongoing support and guidance to Hanford projects that will be generating TRU waste beyond the end of the Recovery Act funding duration.

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 and along the River Corridor, with drilling operations underway for four new wells in the 100-BC-5 area and 171 new wells in 100-NR-2 Operable Unit (OU) Areas. The wells within the 100-NR-2 OU are necessary to remediate strontium-90, which found its way into the groundwater system due to cooling water from the reactor's primary cooling loop and spent fuel storage basins entering the soil from the cribs and trench liquid waste disposal facility. From 1995 to March 2006, a pump-and-treat system operated between the 116-N-1 Facility and the Columbia River to reduce the amount of contamination. Because strontium-90 binds to sediment, the pump-and-treat system was not effective in cleaning up the aquifer. The DOE Richland Operations Office began to implement an in situ remedial action, apatite sequestration, in 2006. Apatite-forming chemicals were injected into the aquifer during the summers of 2006, 2007, and 2008. The apatite binds to the strontium-90, locking it into the soil. The new wells will extend the current apatite barrier by 600 feet with the expectation of containing the contaminated plume to protect the Columbia River.

Additionally, Recovery Act funding continued to support the construction of two groundwater treatment facilities and numerous wells. In the 100-HR-3 (D Area), the construction of the new DX groundwater treatment facility continued with the preparation for and placing of the concrete foundations. In addition to ongoing civil site preparations, the construction of road crossings is 80% complete, installation of high-density polyethylene piping is 43% complete, and the fabrication of electrical power racks is 100% complete. For the 200-ZP-1 groundwater treatment facility in the 200 West Area, drilling activities continued on six wells with four wells drilled to total depth and under construction; the others are in the process of being drilled to total depth. The Request for Proposals for 11 wells for 200-ZP-1 was issued.

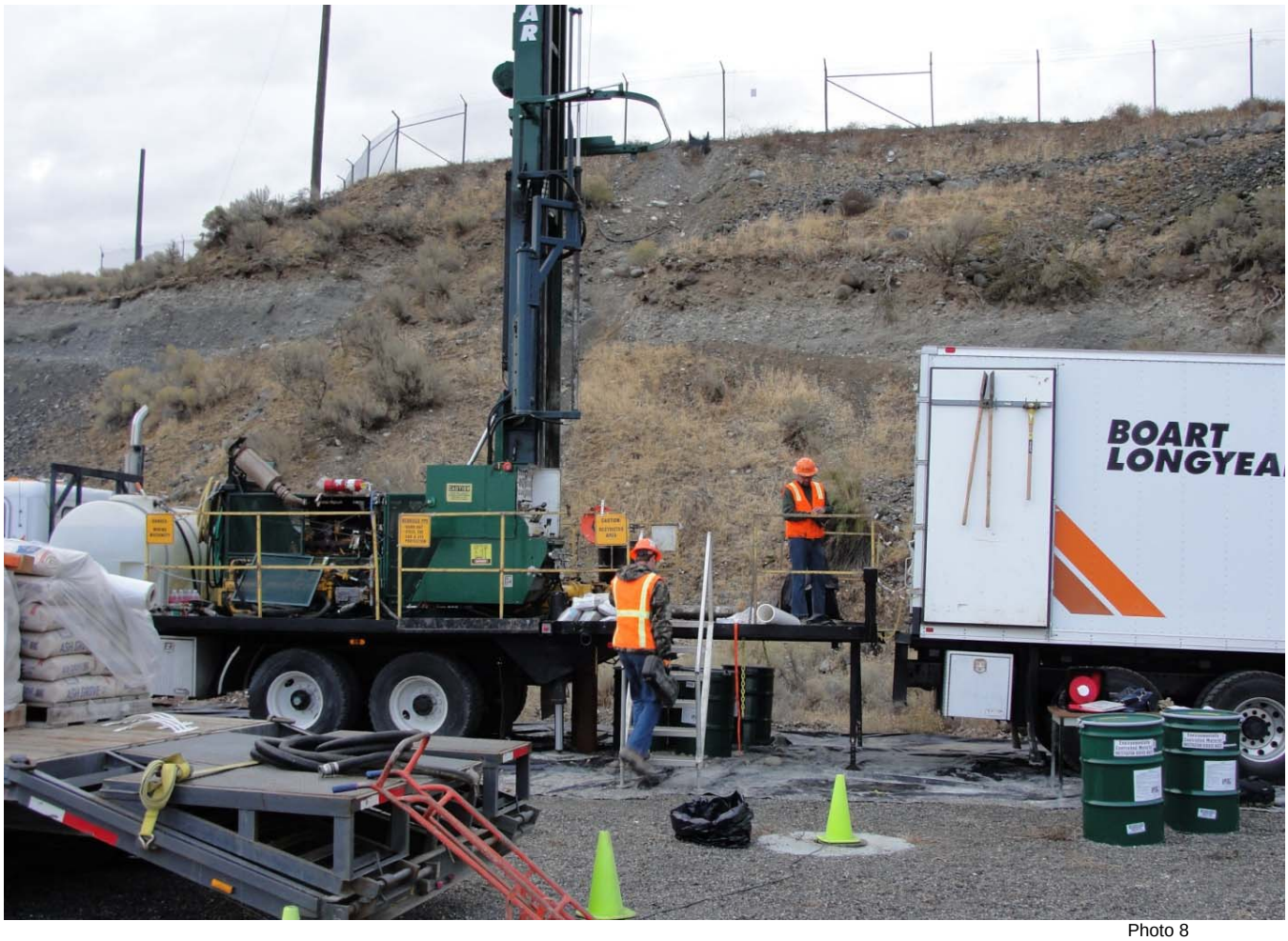


Photo 8

Workers prepare to begin drilling operations for wells at the 100-NR-2 operable unit. The wells will extend the current apatite barrier by 600 feet to address strontium-90 in the 100 North Area. The apatite binds to the strontium-90, locking it into place while allowing water to pass through.

Photo 9

Workers begin drilling operations at the 100-NR-2 Operable Unit, where 171 new wells will be drilled to expand an apatite barrier in the soil and clean up the aquifer.

Photo 10

The concrete foundation for the DX groundwater treatment facility, which will treat hexavalent chromium in the soil at the 100-HR-3 Area.

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

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

Asbestos abatement work continued at U Plant Ancillary Facilities, 224-U and 224-UA, and at the U Plant Canyon, the comprehensive chemical inventory was completed. With the U Canyon railroad tunnel door returned to service, a major effort was initiated on housekeeping and radiological controls within the tunnel. In addition to cleaning out years of accumulated dirt and excess materials, workers are decontaminating, applying fixative and/or re-posting radiologically contaminated areas within the tunnel. When the U Plant Canyon was in operation, the tunnel was the entry point for railcars and trucks delivering materials and equipment to be used within the canyon. The canyon crane was used to remotely lift the equipment into the canyon. With repair of the crane optics now complete, the crane can be used to help lift needed equipment onto the canyon deck and to place excess equipment and materials now stored on top of the deck into the concrete cells beneath.

In the 200 East Area, planning for cleanout and hazard reduction at the 209-E building, Hanford's former Critical Mass Laboratory, is continuing. Initial facility entries have also begun at the 200 East Area core industrial buildings at and around the 200E powerhouse, to support facility characterization, upcoming cold and dark isolation, and D&D planning activities.

With the exception of two restroom trailers and one shower trailer, all of the 30 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 final three trailers should be completed soon.

Procurement of heavy equipment to accelerate facility D&D continued. A small front-end loader was received, a kickoff meeting was held for modification of a newly acquired 90-ton excavator, and bids for a heavy-haul low-boy trailer were reviewed.

Photo 11

Asbestos abatement is continuing on the 224-U building exterior piping and duct work. The 224-U, 224-UA, and 203-UX buildings are the last of five ancillary facilities at U Plant that will be demolished with Recovery Act funds. The other facilities—the 211-U and 211-UA tanks—were demolished over the summer.

Photo 12

Workers conduct chemical inventory inside the U Plant Canyon. As part of the effort to prepare the U Plant Canyon for demolition, over 150 photos were taken of chemical storage locations throughout the canyon building.

Photo 13

Radiological control technicians complete and document a radiological survey in the U Plant Canyon. Before demolition of the canyon building can begin, the interior of the canyon will be sprayed with a contamination fixative and equipment on the canyon deck will be relocated into process cells below the deck.

Photo 14

Photo 15

The U Plant Canyon tunnel door before and after clean out. Workers removed dirt and excess materials that had accumulated over the years. The tunnel was the entry point for railcars and trucks delivering material.

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

Facility D&D
Demolition on the 212-R and 212–P basin sub-structures continued. Water previously removed from 212-N, -P, and -R has been proof-tested and the liquid will be pumped into a tanker for shipment to the 200 Area ETF next week.

Preparations for demolition of excess facilities on the Arid Lands Ecology (ALE) Reserve on Rattlesnake Mountain are continuing, with five of six planned temporary crew and restroom trailers now in place. Work is also continuing on utility isolations, with four buildings at ALE now certified cold and dark. Cold and dark isolation was also completed and certified for the 614 building, southeast of 200 East Area.

Waste Sites
Remediation of the BC Control Area continued using dump trucks procured with Recovery Act funds. Approximately four acres were down-posted based on results from the aerial survey conducted in September. CHPRC is remediating the remaining spots, identified by the survey, throughout the 13-square-mile site.

Photo 16
CHPRC is excavating soil from the BC Control Area in the 200 East Area. Aerial survey results allowed CHPRC to down-post four acres of the 13-square-mile site and identify remaining spots that CHPRC is now remediating.

Photo 17

An excavator moves soil in a load-out trench near the BC Control Area. The soil will be loaded into one of the recently procured dump trucks and transferred 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

Workers began removing the roof panels from the 117KE Exhaust Air Filter Building. The 117KE building is one of several that will be demolished using Recovery Act funds in the 100K Area in preparation for the disposition of two reactors, K East and K West. Recovery Act dollars were also at work in the 100K Area supporting the continued characterization of the 183KW Complex, which comprises several large structures that will be demolished with stimulus funds.

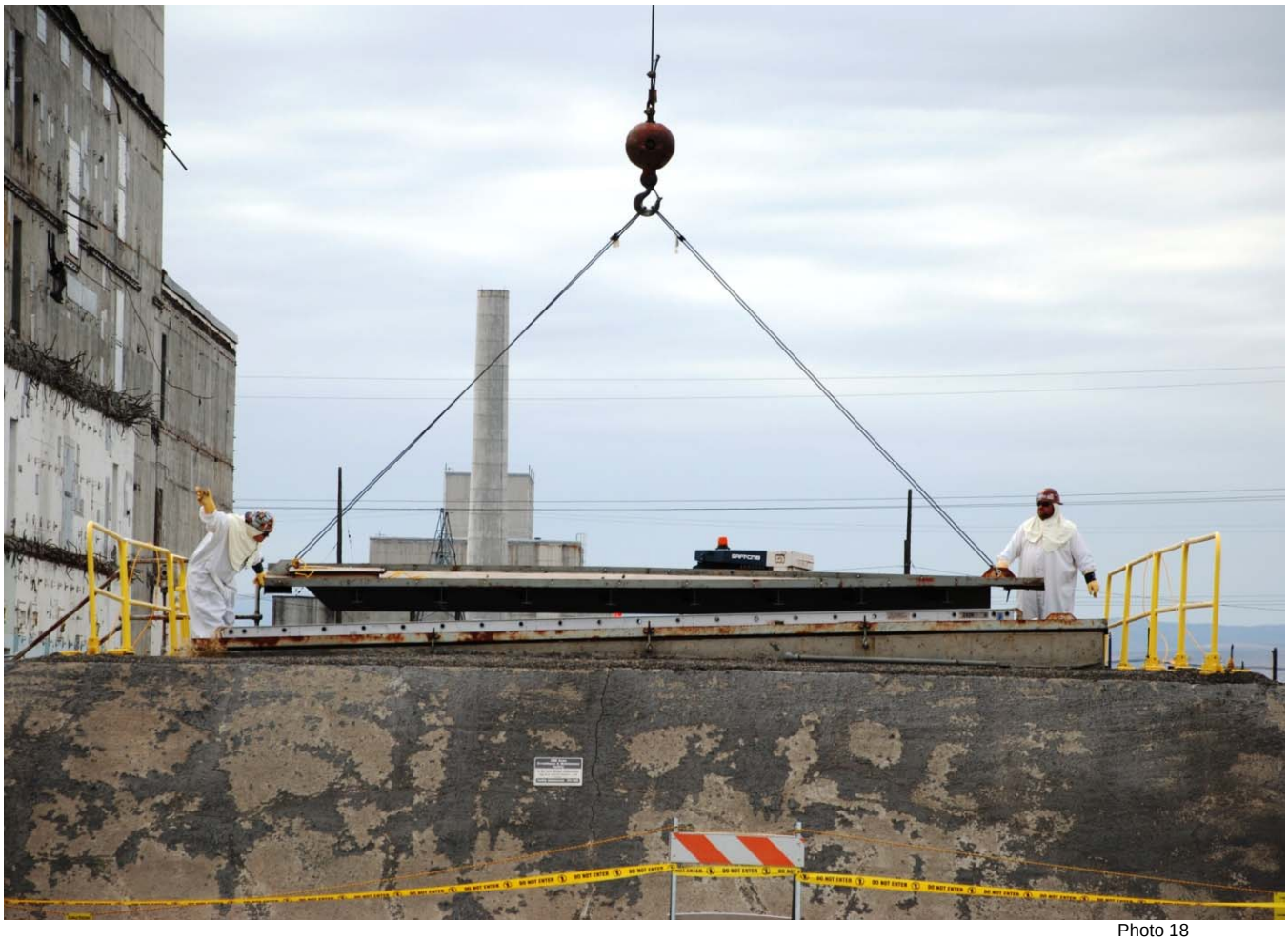


Photo 18

Workers guide the roof panel from an exhaust air filter building. The building is one of 12 facilities in the 100K Area that will be removed with Recovery Act funds.

Photo 19

A worker directs the crane operator lifting the roof panel off of the 117KE Exhaust Air Filter Building. As facilities such as the exhaust air filter building are being removed from the 100K Area, CHPRC is preparing for the disposition of the K East and K West reactor.

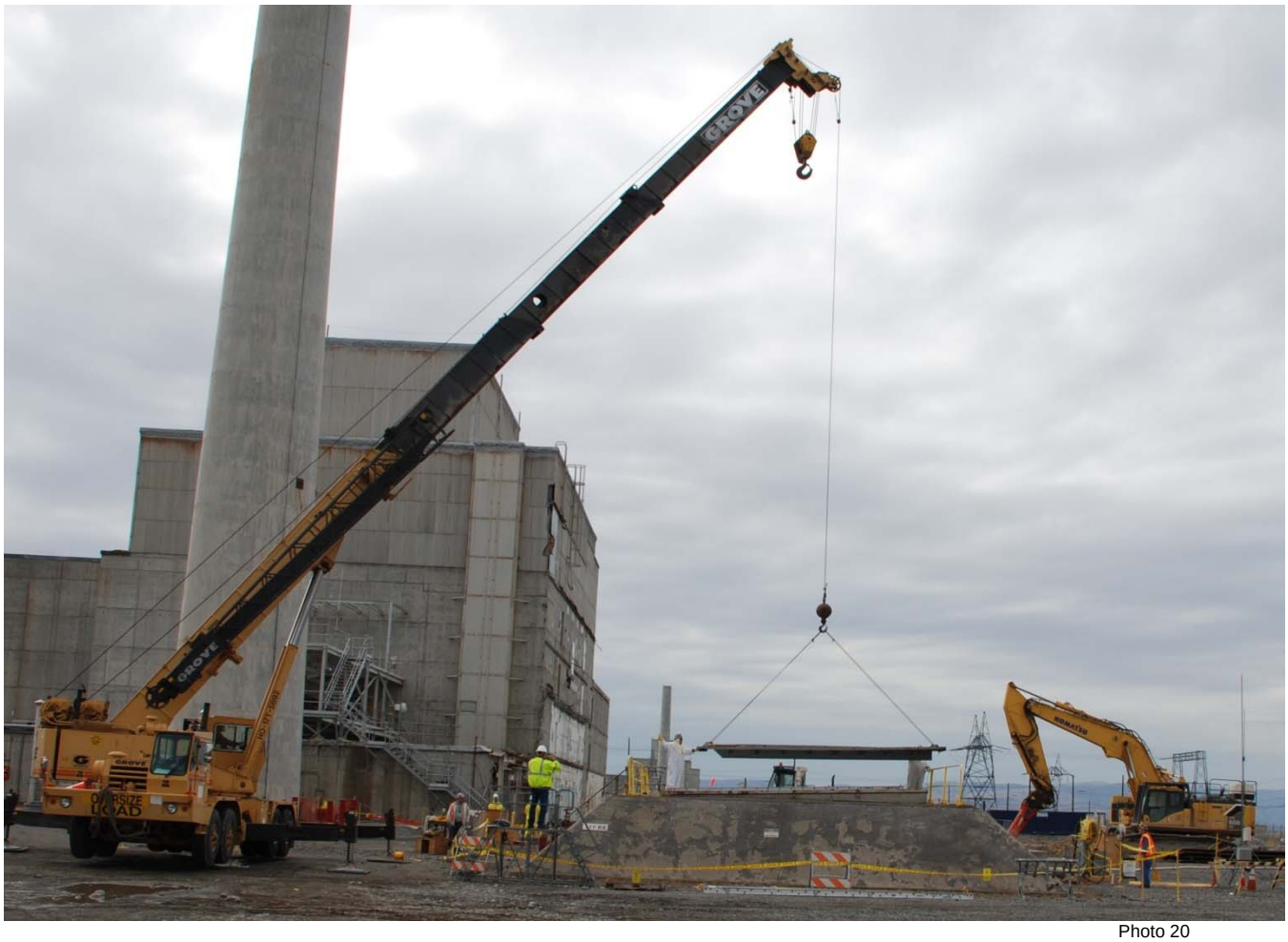


Photo 20

A crane lifts the roof panel from the exhaust air filter building, with the K East reactor in the background.

Waste Sites

Recovery Act funding continued to benefit the protection of the Columbia River by continuing remediation activities at the UPR-100-K-1 waste site, which includes the soils beneath the former K East Basin. Activities included the characterization and remediation of contaminated soil, as well as the loading of the waste into containers for delivery to ERDF. As a result of contamination levels in the soil, waste shipping requirements continue to restrict quantities in the waste containers, slowing the planned remediation of the waste site.

Photo 21

CHPRC continues to excavate soil from the 100-UPR-K-1 waste site, beneath the former fuel storage basin. The soil was contaminated when water leaked from the basin in the 1970s and 1990s.

Photo 22

Workers survey a container of waste removed from the 100-UPR-K-1 waste site. During the week ending Oct. 16, CHPRC continued remediating, characterizing, and loading the waste for disposal.

Photo 23

A truck lifts a roll-off container full of waste removed from the 100-UPR-K-1 waste site near the K East reactor. The waste will be disposed of in the Environmental Restoration Disposal Facility.

UPCOMING EVENTS

RL-0011 Nuclear Materials Stabilization & Disposition

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

- Widen the doorway in Room 146 to accommodate glove box removal; remove four glove boxes.
- Begin removal of equipment interfering with hood removals from Room 221E in Standards Lab.
- Complete decontamination of glove box HC-230C-3.
- Complete process equipment removal from glove box HC-60.
- Initiate process equipment removal from glove boxes HA-19B1, HA-19B2, and HA-28.
- 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.
- 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 85 drums (17.7 m^3) of LLW.

RL-0013C:R1.2: TRU Waste

- 3A Trench 17 Removal:
  - Complete fabrication of cover box for Box 80 and continue fabrication for Box 82.
  - Complete work package and deploy cover boxes over Boxes 27 and 80.
  - Excavate around Boxes 3 and 12 and assess potential for removing these damaged boxes.
  - Complete Box 81 disassembly mock-up exercise in the STS trench.
- Continue excavation and removal of containers in 4B Trench 11.
- Receive four concrete-shielded overpacks; plan for fabrication of dividers and shield rings.
- Take SUMMA canister samples in 3A Trenches 5 and 8.
- Alpha Caisson Retrieval:
  - Second design review meeting for the waste retrieval system schedule for Oct. 22.
  - Preliminary Hazards Analysis working session scheduled for the week of Oct. 26.

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, 100-BC-5, and 100-NR-2.
- Continue development of decision documentation.
- Mobilization of 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 preparations for demolition of 224-U, 224-UA, and 203-UX.
- Complete reactivation of U Canyon support systems, and continue preparations for applying contamination fixative in the canyon and 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.

RL-0040.R1.2: Outer Zone

- Complete demolition of the 212-R and 212-P building basins and soil removal.
- Complete surveys and inspection of all three 212 building sites to support closure.
- Continue preparations for demolition of the 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 the UPR-100-K-1 (Fuel Storage Basin) waste site.
- Continue mechanical, electrical isolation, and characterization of the 183KW Complex.
- Continue debris removal from the KW basin.