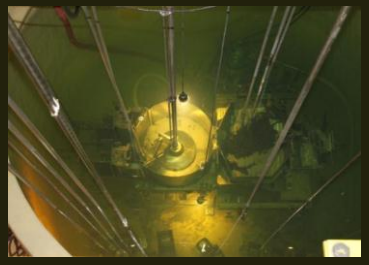
U.S. DEPARTMENT OF ENERGY | Richland Operations Office

Hanford Advisory Board
DOE-RL Update

Jonathan "JD" Dowell

Assistant Manager for River and Plateau

February 7, 2013



River Corridor

300 Area

River Corridor: 300 Area Continued Significant Progress

The 308A TRIGA test reactor was transported to ERDF for disposal

- Significant progress continues in the 300 Area
  - Training Research and Isotope Production General Atomics (TRIGA) test reactor shipped to ERDF
  - Backfilling of 300 Area waste sites north of Apple Street completed
  - 329 Building above-grade demolition completed

River Corridor: 618-10 Burial Ground Retrieval

- 618-10 waste trench remediation stopped in December due to NDA data issues for concreted drums only. Restart planned in February.
- Over 97,000 tons of waste from trenches disposed at ERDF
- Over 500 drums removed
- 72 drums sent to Perma-Fix for processing
- Planning to complete trench excavation in 2013

Workers excavating, removing contaminated soil and debris at 618-10

Workers sampling drums retrieved from one of the trenches

River Corridor: F Reactor
First Reactor Area to be Cleaned Up

- Backfill and revegetation completed
- F Area cleaned up to interim action ROD requirements

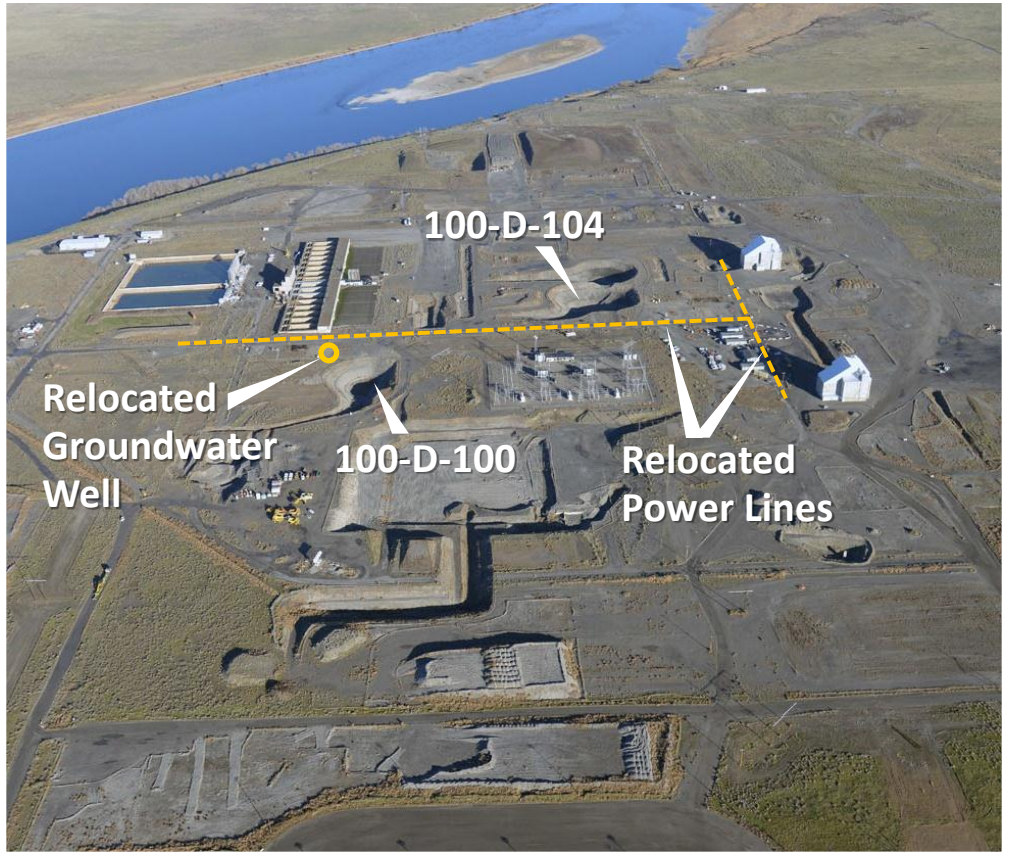
100-F Area revegetation activities

100-F Reactor Area during operations

100-F Area in 2012

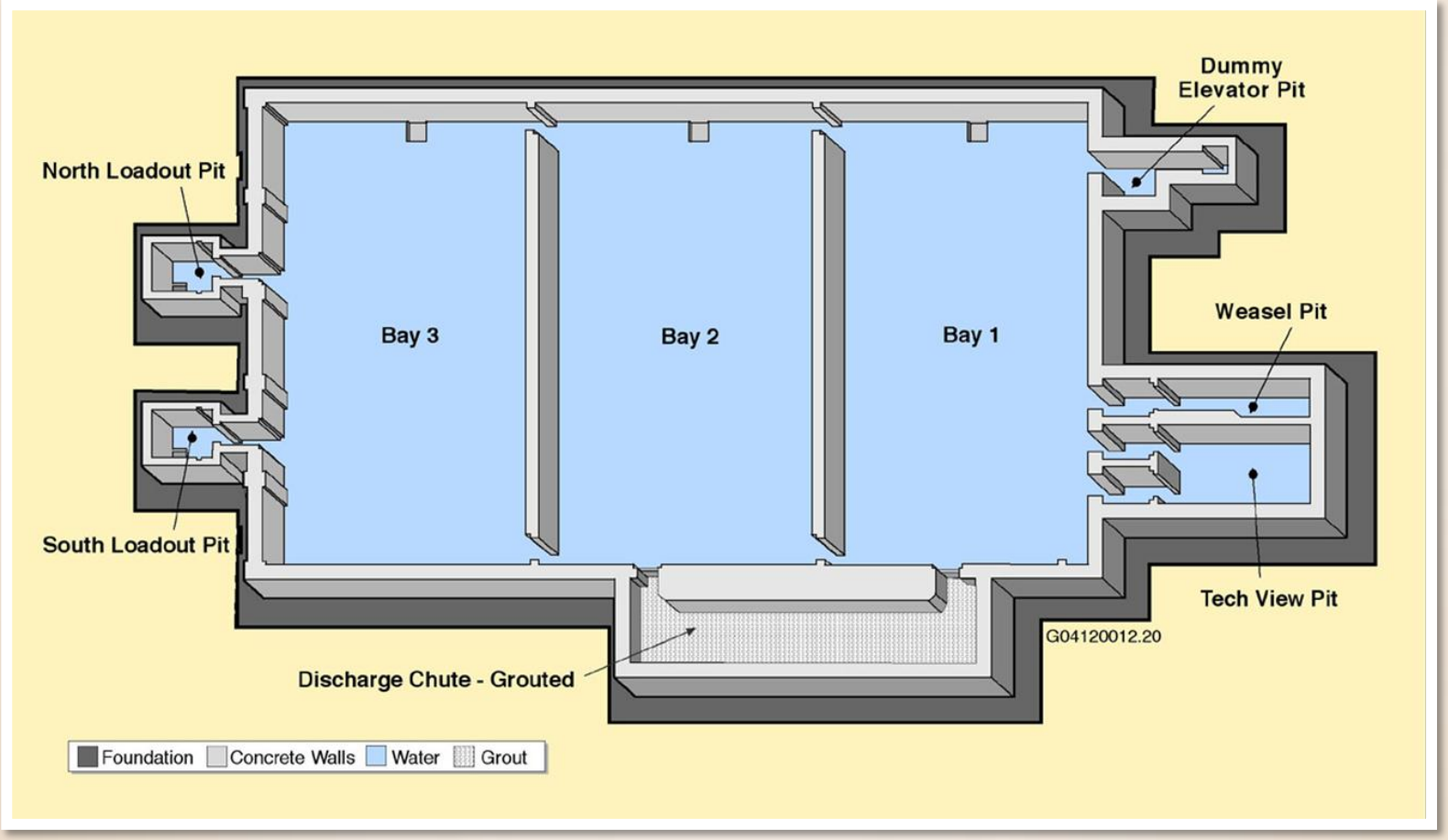
River Corridor: D/H Reactor Chasing Chromates to the Source

- Remediation of 100-D-100 deep chromium contamination under way and scheduled for completion in late 2013
  - Relocated power lines and groundwater wells
- Remediation of other deep chromium contamination will start later this year and finish in 2014



River Corridor: 100-K Area 105KW Annex Modification

River Corridor: 100-K Area
100K West Fuel Storage Basin



River Corridor: 100-K Area Found Fuel

- Three small pieces (ranging from 0.5 to 1.5 inches in width) of N Reactor Spent Nuclear Fuel (SNF) scrap have been found
- Discovery of the scrap pieces was aided by greatly improved water clarity and using advanced high definition color television cameras/monitors and lighting systems developed for the recent Knock-Out Pot sludge processing campaign
- The prior 2010 Basin floor inspections for SNF used the best available black and white television cameras and lighting systems
- These small pieces found have been segregated and placed in a canister located in the Basin West Bay

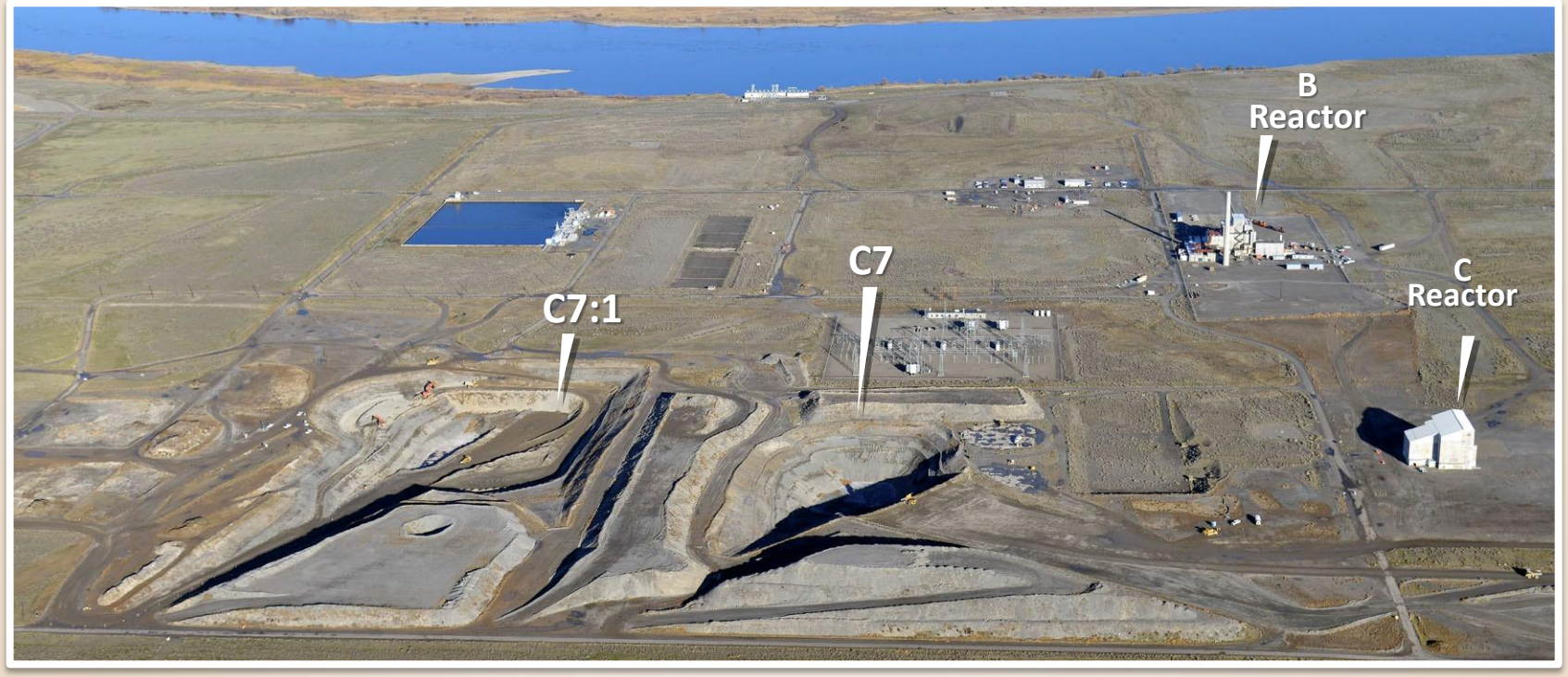
N Reactor Spent Nuclear Fuel (SNF) scrap

River Corridor: N Reactor Waste Sites, Bioremediation and Barrier

- In-situ bioremediation system to treat vadose zone petroleum contamination installed and operational
- Extensive remediation of waste sites adjacent to N Reactor due to radioactive contamination

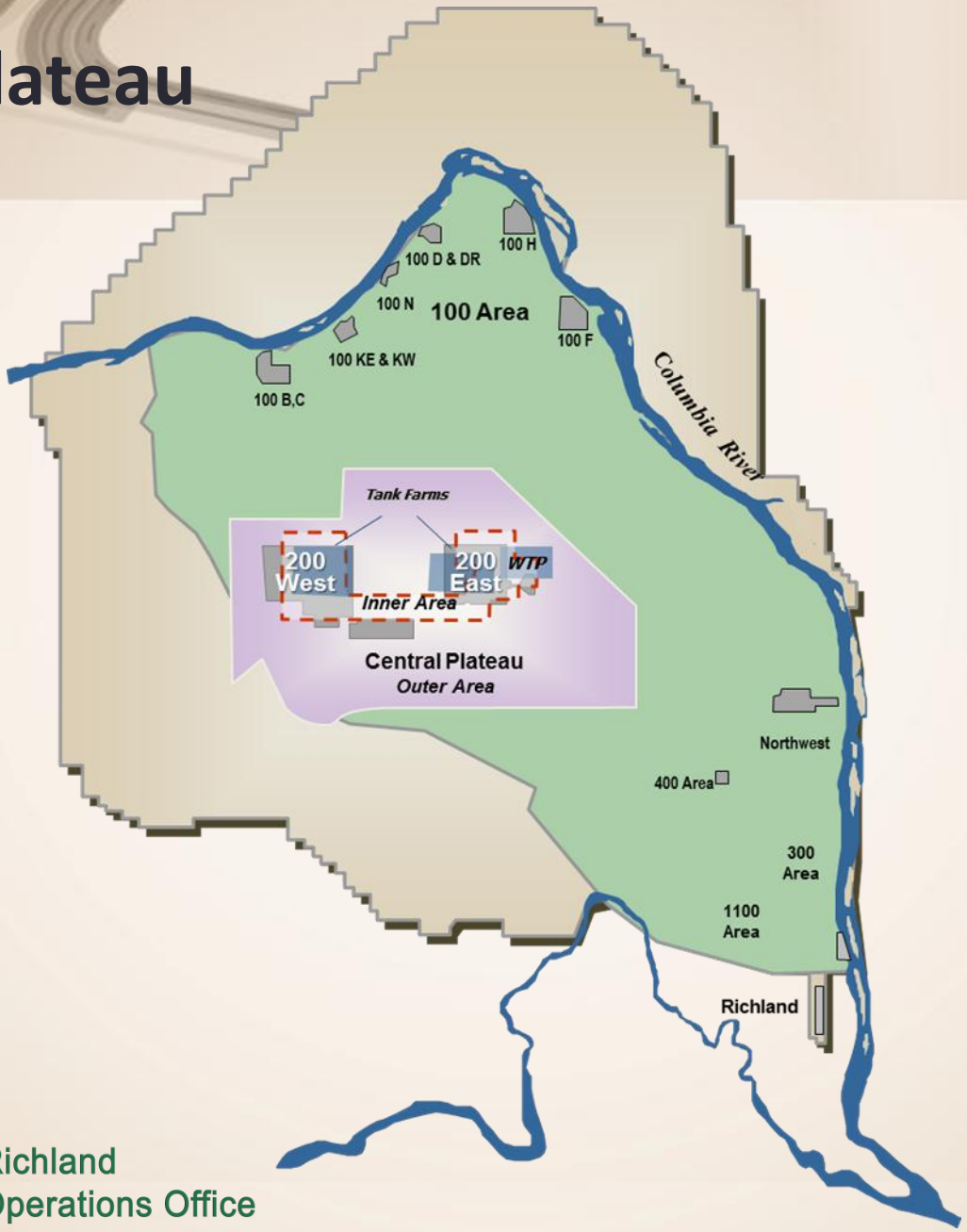
River Corridor: B/C Waste Sites
One down . . . One to go!

- Remediation of sidewall contamination at 100-C-7:1 restarted and expected to be completed February 2013



River Corridor: B/C Waste Sites Closing up C:7

Central Plateau



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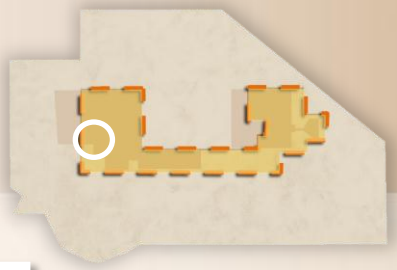
Central Plateau: Groundwater Treatment Solid Operations; Balance Challenges

- Central Plateau:
  - Performing operational testing at 200 West Pump and Treat facility
  - Continued meeting all cleanup levels specified in Record of Decision
  - Treated 1.7 billion gallons of groundwater to date

200 West Pump and Treat Facility

- River Corridor:
  - Reached treatment system capacity goal of 2,500 gallons per minute
  - Treated 5.2 billion gallons of groundwater to date

Central Plateau
Inner Area: Plutonium Finishing Plant



- Shipped multi-story, 10-ton HA-23S Glove Box to Perma-Fix for disposal
- Removed 184 of 238 glove boxes
- Removed 110 of 196 highly contaminated pencil tanks
- Demolished 55 of 81 facilities

PFP workers in Room 235B: HA-23S separation of upper section from lower section (10-ton, two-story glove box)

Central Plateau Inner Area: Plutonium Finishing Plant Issues

- Plutonium Reclamation Facility
  - 3-month down time
  - Multiple events
  - Return to service this week
- Room 235A-3 Exposure
  - 4 of 10 exposed
  - 2 with very low dose– highest being 3mrem lifetime

PRF worker repairing canyon crane limit switch through glove ports, canyon area in background

PFP workers in Room 235A-3: glove box HA-9A prior to exposure event (mezzanine level)

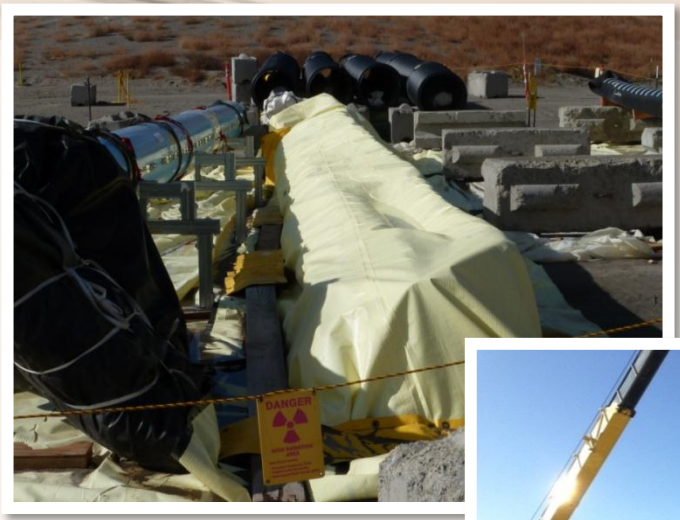
Central Plateau: Environmental Restoration Disposal Facility (ERDF)

The TRIGA test reactor was transported from the 300 Area to ERDF for disposal

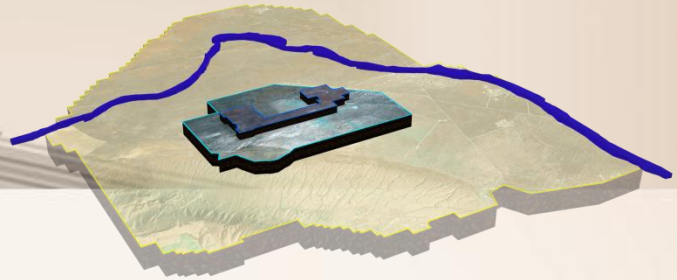
- Since November
  - Nearly 11,000 waste containers disposed
  - Approximately 230,000 tons of waste disposed
  - Interim cover installed for cells 5 and 6

Central Plateau: Environmental Restoration Disposal Facility (ERDF), cont.

- Macroencapsulation of equipment outside ERDF cells
- Increases risk to workers and the environment
- DOE working with EPA to obtain approval to resume in-trench treatment



News Across the Site

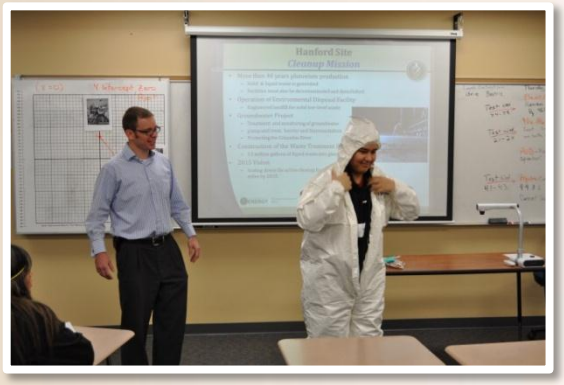


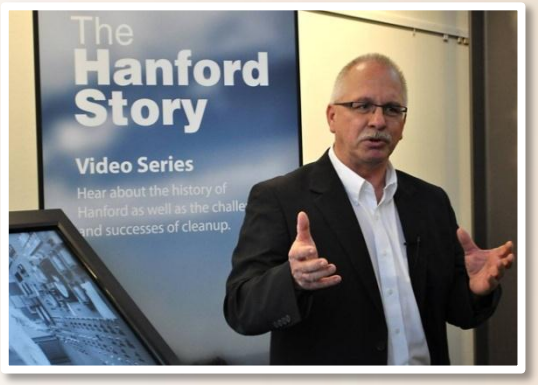
- Transitions at DOE
- Tri-Party Agreement Draft Change Package comment period ended (December 10, 2012 through January 24, 2013)
  - Received 71 comments
  - Some comment themes
    - Future options for the canyon building
    - 324 building regulatory process and acceleration
    - Delays related to budget
    - Need honest information on timing and cleanup costs
    - Cleanup work to accelerate

News Across the Site (cont.)

- Slip Simulator
  - Goals of new slip simulator training at HAMMER are to reduce slips and falls at the Hanford Site by 70 percent and drive down costs associated with slips and falls, which can be up to $28,000 per fall

Outreach: Speakers Bureau, Tours, & Hanford Story





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2015 Vision

Hanford Site Cleanup

Safe and Effective Cleanup that Protects the Columbia River

- *Reduces the Active Site Footprint of Cleanup to 75 Square Miles (586 to 75)*
- *Significantly Reduces Long-Term Mortgage Costs*
- *At Completion, Shifts Emphasis and Resources to Full Scale Cleanup of the Central Plateau (75 square miles)*
- *Reduces Costs by "Right Sizing" Hanford's Infrastructure via a Mission Support Contract*
- *Minimizes Injury to Natural Resources*

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N Area

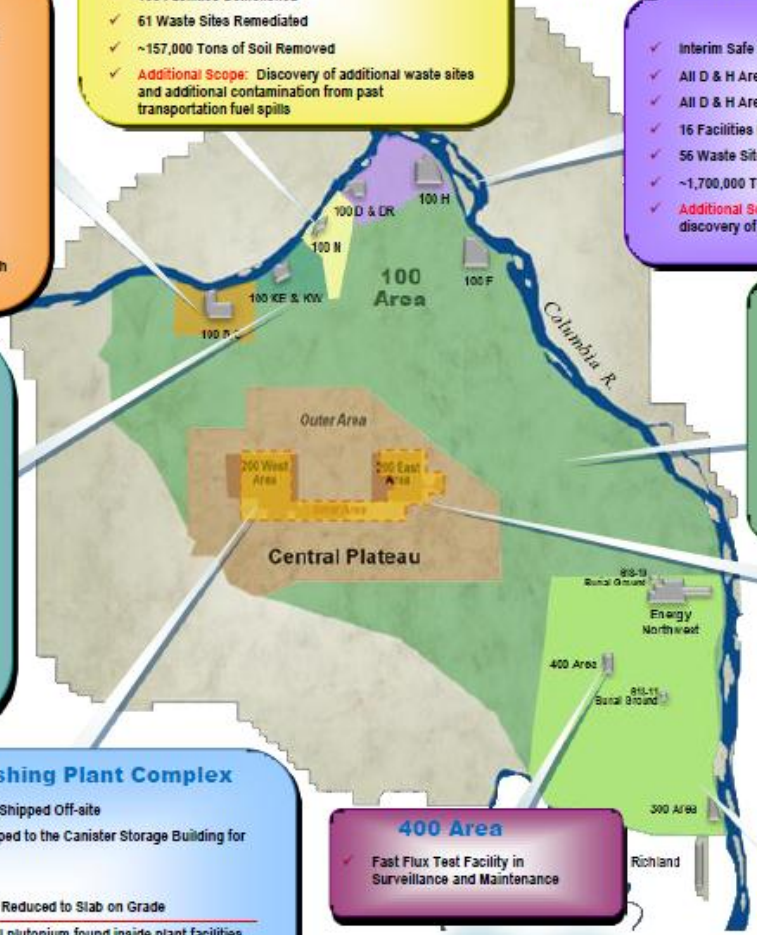
- ✓ Interim Safe Storage of N Reactor Complete
- ✓ All N Area Final ROD Remedial Actions Complete and TSD Units Closed
- ✓ All N Area Groundwater Remedies Implemented
- ✓ 108 Facilities Demolished
- ✓ 61 Waste Sites Remediated
- ✓ ~157,000 Tons of Soil Removed
- ✓ Additional Scope: Discovery of additional waste sites and additional contamination from past transportation fuel spills

B & C Area

- ✓ Interim Safe Storage of C Reactor Complete
- ✓ B Reactor Designated as a Museum or Interim Safe Storage Complete
- ✓ All B & C Area Final ROD Remedial Actions Complete
- ✓ All B & C Area Groundwater Remedies Implemented
- ✓ 6 Facilities Demolished
- ✓ 40 Waste Sites Remediated
- ✓ ~381,000 Tons of Soil Removed
- ✓ Additional Scope: Extensive Chromium Contamination at the B/C Area (C-7), dug trench to groundwater to removed source

D & H Area

- ✓ Interim Safe Storage of D, DR, and H Reactors Complete
- ✓ All D & H Area Final ROD Remedial Actions Complete
- ✓ All D & H Area Groundwater Remedies Implemented
- ✓ 16 Facilities Demolished
- ✓ 56 Waste Sites Remediated
- ✓ ~1,700,000 Tons of Soil Removed
- ✓ Additional Scope: More extensive chromium contamination and discovery of additional waste sites



IU2 & IU6 Area

- ✓ Interim Safe Storage of F Reactor Complete
- ✓ All IU2 & IU6 Area Final ROD Remedial Actions Complete
- ✓ All IU2 & IU6 Area Final ROD Groundwater Remedial Actions Complete
- ✓ 1 Facility Demolished
- ✓ 50 Waste Sites Remediated
- ✓ ~962,000 tons of Soil Removed

K Area

- ✓ K East Basin Demolished
- ✓ CHALLENGE: Interim Safe Storage of K East Reactor
- ✓ CHALLENGE: K West Sludge Removed from basin
- ✓ Interim Safe Storage of K West Reactor Initiated
- ✓ All K Area Final ROD Remedial Actions Complete and TSD Units Closed with the exception of those associated with K West
- ✓ All K Area Groundwater Remedies Implemented
- ✓ 2,300 Tons of Scrap Nuclear Fuel Removed
- ✓ 109 Facilities Demolished
- ✓ 2 Waste Sites Remediated
- ✓ ~361,000 Tons of Soil Removed
- ✓ Additional Scope: Additional waste sites and contamination resulting from past operations.

Central Plateau Cleanup

- ✓ All 200 West Carbon Tetrachloride, Uranium and Technetium 99 Groundwater Remedies Implemented
- ✓ Conduct Additional Cleanup as Funds Become Available

Plutonium Finishing Plant Complex

- ✓ All Special Nuclear Material Shipped Off-site
- ✓ Slightly Irradiated Fuel Shipped to the Canister Storage Building for Safe Guarding
- ✓ 18 Facilities Demolished
- ✓ CHALLENGE: PFP Complex Reduced to Slab on Grade
- ✓ Additional Scope: Additional plutonium found inside plant facilities and found adhered to piping, process equipment, exhaust ducts, and filters. (~10kg) The details of challenges include:
  - ~10 Kilograms of plutonium holdup remaining in process equipment, exhaust ducts and filters, in the Plutonium Reclamation Facility, piping, drain lines, etc.
  - Residual acids and hazardous chemicals in pipes and tanks

400 Area

- ✓ Fast Flux Test Facility in Surveillance and Maintenance

300 Area

- ✓ All 300 Area Final ROD Remedial Actions Complete and TSD Units Closed
- ✓ All 300 Area Groundwater Remedies Implemented
- ✓ CHALLENGE: 186 Facilities Demolished
- ✓ 95 Waste Sites Remediated
- ✓ ~923,000 Tons of Soil Removed
- ✓ CHALLENGE: Final Remediation of 618-10 & 618-11 Burial Grounds
- ✓ Additional Scope: Discovery of high-level radioactive contamination below 324 Building

IU = Isolated Unit
ROD = Record of Decision
TSD = Treatment, Storage, Disposal

Progress

Richland Operations Office

- Placed 78 percent (7 of 9) of nuclear reactors in Interim Safe Storage/Dispositioned
- Demolished 72 percent (378 of 522) of contaminated/excess facilities and 70% of Category II/ Category III nuclear facilities
- Remediated 72 percent (720 of 995) of waste sites
- Disposed of 14.5 million tons of contaminated waste in Environmental Restoration Disposal Facility
- 100-K Reactors; 100 percent of Knock-Out Pot material in interim storage; remainder of radioactive sludge is 100 percent containerized; design/test systems and components to transfer the sludge to the Central Plateau for interim storage is 85 percent complete.
- Treated 6.9 billion gallons of contaminated groundwater, removing more than 30 tons of contaminants
- Completed 60 percent of Plutonium Finishing Plant decommissioning, including 100 percent of special nuclear material shipped offsite, 232 of 238 glove boxes dispositioned, 110 of 196 pencil tanks removed, and exceeded goal of 46% by demolishing 55 facilities
- Reduced active cleanup footprint by 73 percent (425 of 586 square miles)

100-C-7 Backfill Complete