

Hanford Advisory Board Hanford Update

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U.S. DEPARTMENT OF
ENERGY

Richland
Operations Office

20 Years of Cleanup Progress

- **We have made progress in reducing environmental risk and have eliminated some of the most urgent risks**
 - **2,300 tons of corroding spent nuclear fuel dried, moved to safe storage in the Central Plateau**
 - **20 tons of unstable plutonium in various forms stabilized, packaged and shipped off site**
 - **Treating 50 million gallons of contaminated groundwater each month**
 - **48,000 out of 70,000 drums worth of solid, radioactive waste (transuranic) retrieved**
 - **Demolished 187 out of 625 facilities along the Columbia River, 5 of 8 reactors placed in interim safe storage**
 - **Cleaned up 446 of ~800 waste sites along the Columbia River**
 - **Disposed of 8.3 million tons of waste in the Environmental Restoration Disposal Facility**





The 2015 Vision

Hanford Site Cleanup

Safe and Effective Cleanup that Protects the Columbia River

Richland Operations Office

- 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



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

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

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

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
- ✓ Interim Safe Storage of K East Reactor Complete
- ✓ K West Sludge Removed from the River Corridor
- ✓ 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
- ✓ 2300 Tons of Scrap Nuclear Fuel Removed
- ✓ 109 Facilities Demolished
- ✓ 2 Waste Sites Remediated
- ✓ ~361,000 Tons of Soil Removed

200 Area

200 West, 200 East, ERDF

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
- ✓ PFP Complex Reduced to Slab on Grade
- ✓ 18 Facilities Demolished

400 Area

- ✓ Fast Flux Test Facility in Surveillance and Maintenance

400 Area

300 Area

Energy Northwest, PNSO Operations

300 Area

- ✓ All 300 Area Final ROD Remedial Actions Complete and TSD Units Closed
- ✓ All 300 Area Groundwater Remedies Implemented
- ✓ 186 Facilities Demolished
- ✓ 95 Waste Sites Remediated
- ✓ ~923,000 Tons of Soil Removed
- ✓ Final Remediation of 618-10 & 618-11 Burial Grounds Complete

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

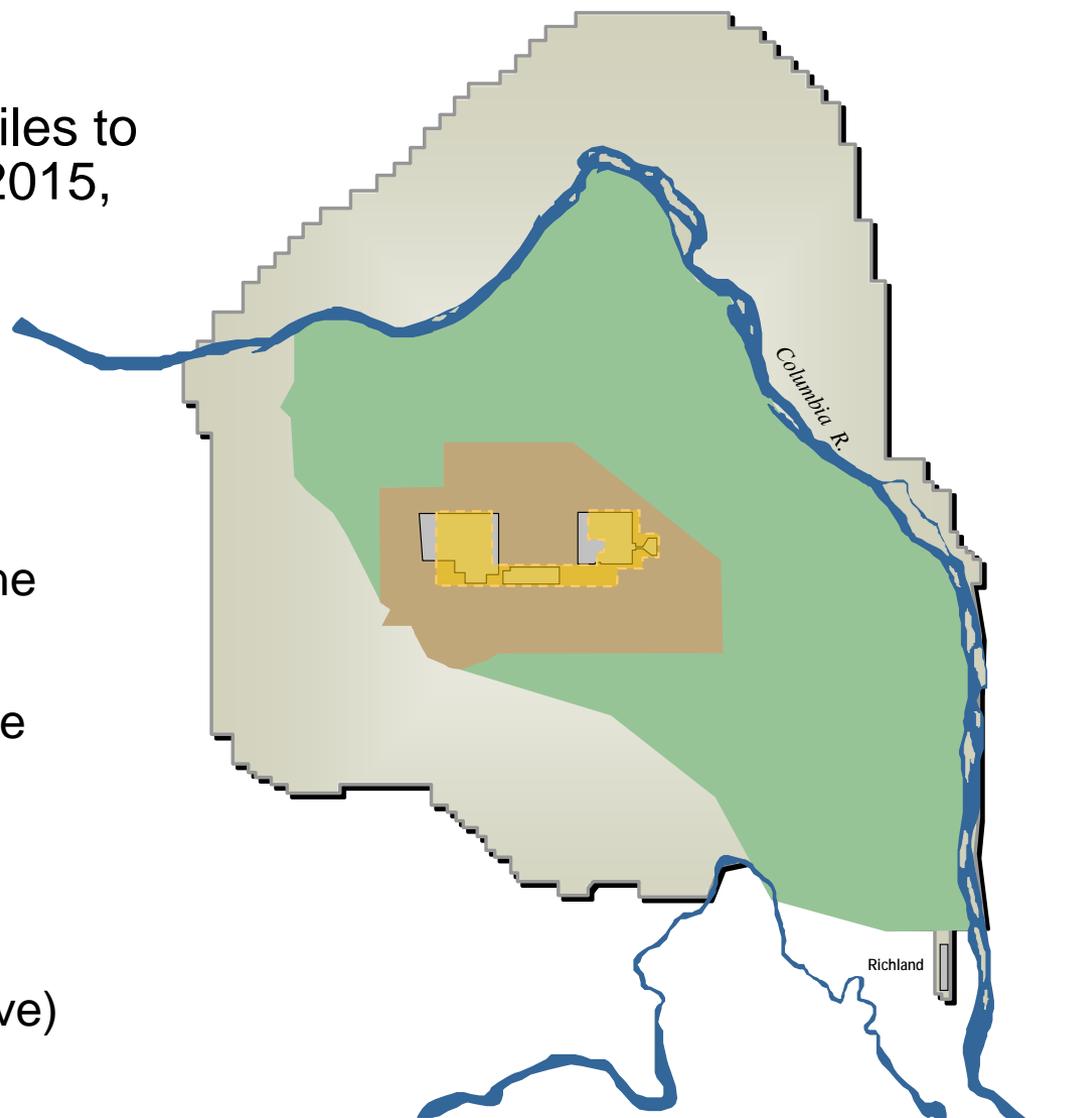
* Does not reflect all work

Strategy for Cleanup – Shrinking the Footprint

Reduce the active cleanup footprint from 586-square miles to 75-square miles or less by 2015, then to 10 square miles

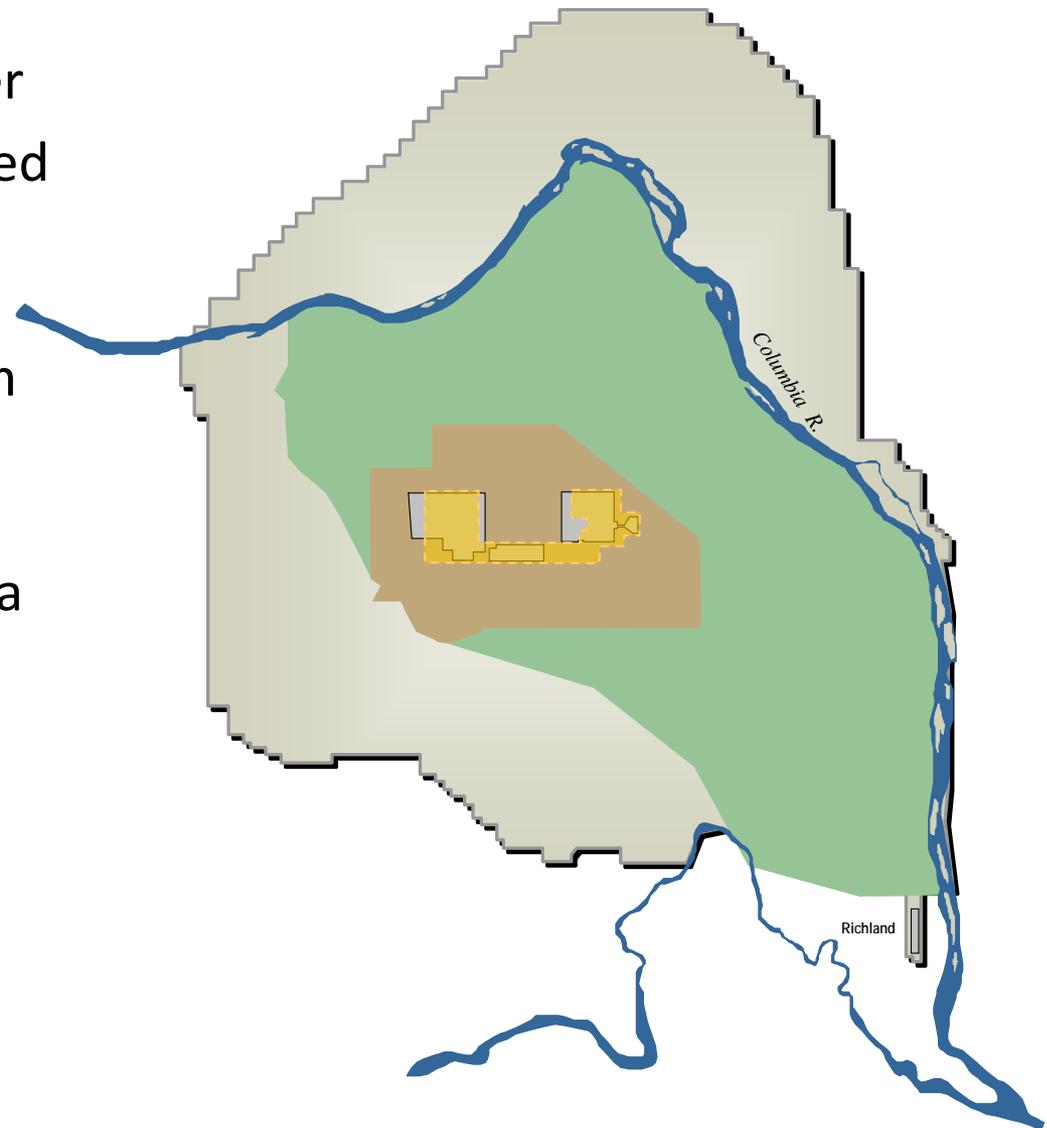
Work in four areas

-  River Corridor
(~210 sq. miles)
-  Central Plateau, Outer Zone
(~65 sq. miles)
-  Central Plateau, Inner Zone
(~10 sq. miles)
-  Hanford Reach National Monument
(~300 sq. miles, including Arid Lands Ecology Reserve)



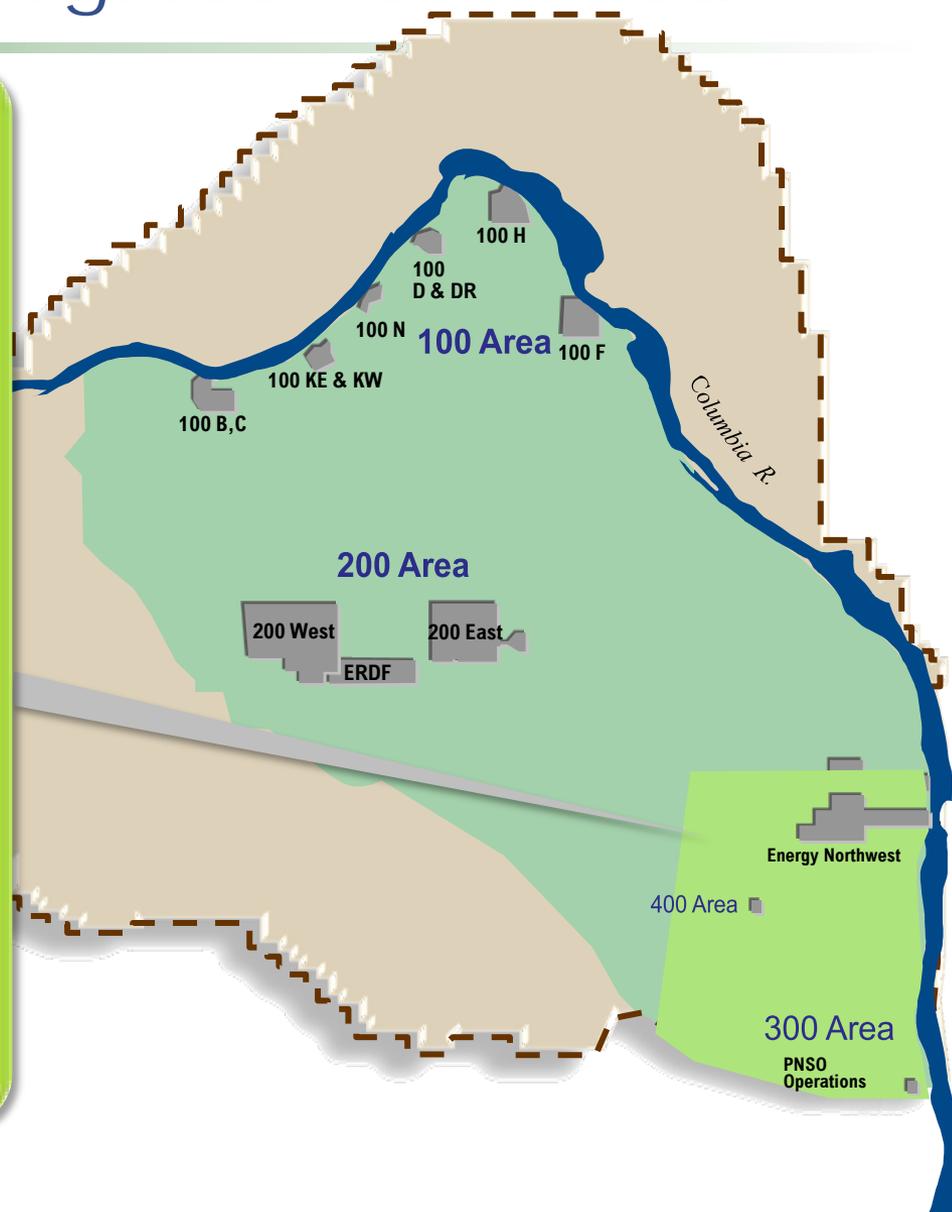
Strategy for Cleanup – Priorities

- Protect the Columbia River
- Contain/treat contaminated groundwater
- Clean out and demolish the high-hazard Plutonium Finishing Plant
- Remediate waste sites in Central Plateau Outer Area
- Retrieve buried, solid radioactive waste (transuranic waste)



2015 Vision FY09 Progress - 300 Area

- All 300 Area Groundwater Remedies Implemented
 - *Natural attenuation and monitoring determined not adequate*
 - *Remedial technologies to sequester technologies are being tested*
 - *Uranium geochemistry and transport research underway - funded by DOE Office of Science*
- 16 Facilities Demolished
- 3 Waste Sites Remediated
- 134,549 Tons of Soil Removed
- Non-intrusive Sampling Underway at 618-10 Burial Ground, Plans Underway for 618-11



300 Area Progress Photos



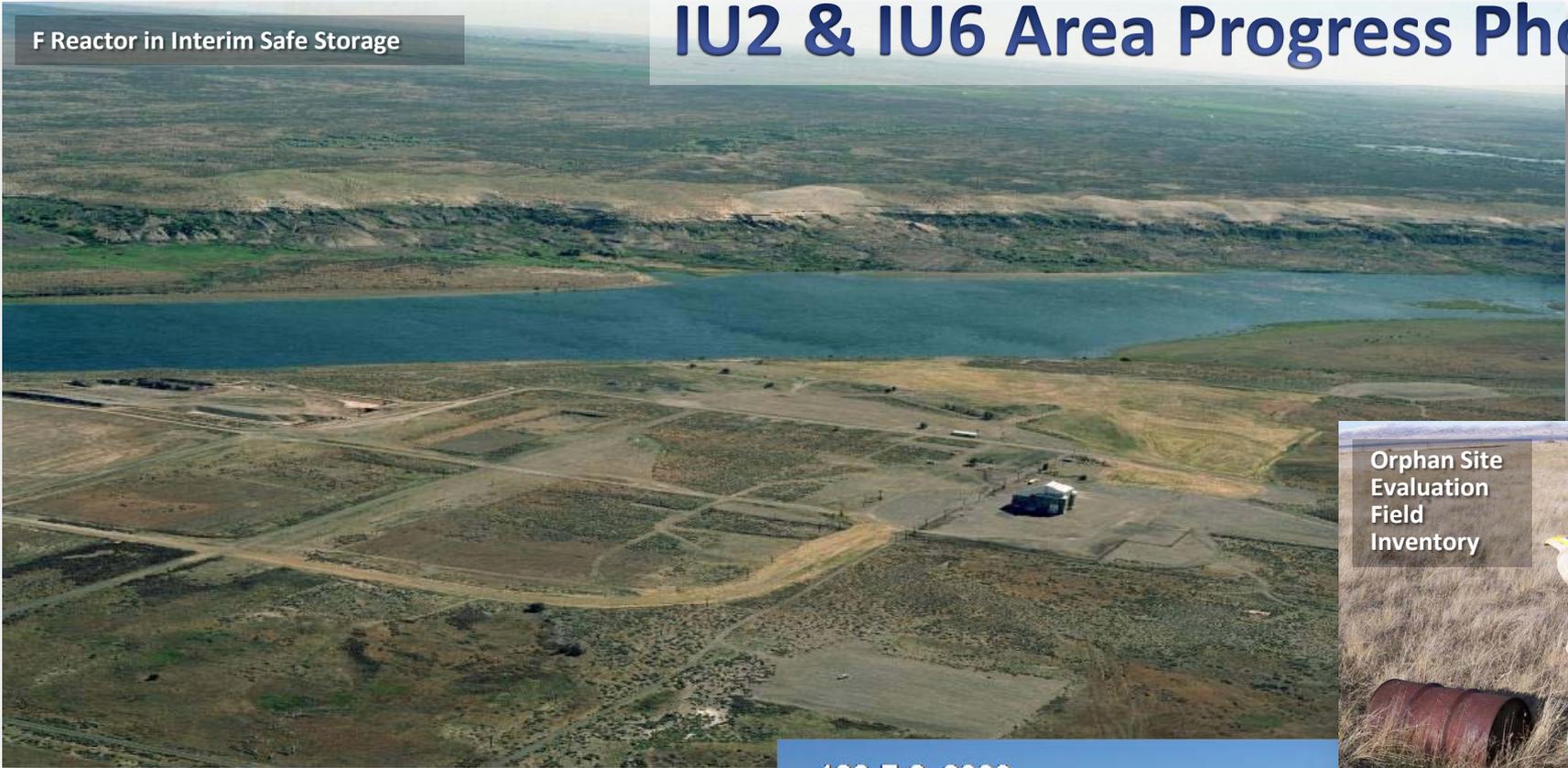
2015 Vision FY09 Progress - IU2 & IU6 Area

- 1 Facility Demolished
- 3 Waste Sites Remediated
- 49 tons of Soil/ Debris Removed
- Orphan Site Evaluation Field Inventory continued. A total of 9,595 acres covered has yielded 58 new waste sites.



F Reactor in Interim Safe Storage

IU2 & IU6 Area Progress Photos



Orphan Site
Evaluation
Field
Inventory



128-F-2, 2009

AFTER

BEFORE



Excavation of 128-F-2 burn pit, August 2007



2015 Vision FY09 Progress - D & H Area

- All D & H Area Groundwater Remedies Implemented
 - *Completed expansion of HR-3 Pump & Treat system*
 - *Design for expanding 100-D Pump & Treat system in progress*
- 4 Facilities Demolished
- 2 Waste Sites Remediated
- 426,729 Tons of Soil Removed



D & H Area Progress Photos



Excavating 118-H-2 Burial Ground Vaults – May 2009



116-DR-5 Pipe Demolition – April 2009



100-D-31 Overburden Excavation – April 2009



Load out of Overburden and dust control at 100-D-31
June 2009

2015 Vision FY09 Progress - N Area

- All N Area Groundwater Remedies Implemented
 - *Experimenting with apatite barrier*
- 4 Facilities Demolished
- 1 Waste Site Remediated
- 37,215 Tons of Soil Removed



107-N demolition



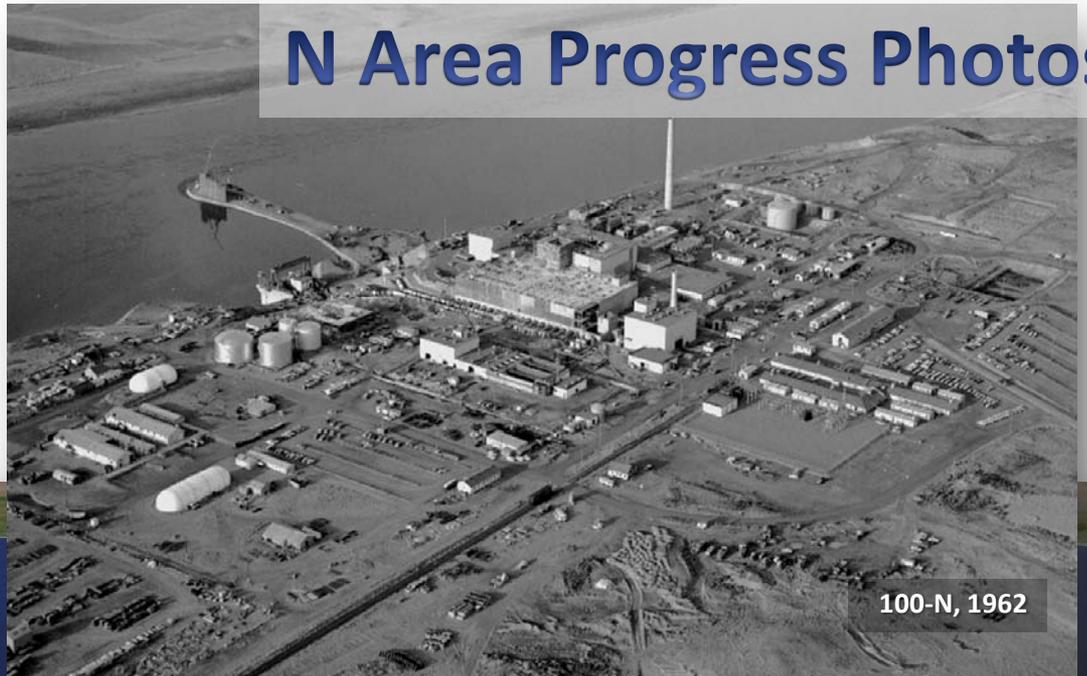
107-N demolition



107-N demolition



N Area Progress Photos



100-N, 1962



100-N, 2009

2015 Vision FY09 Progress - B & C Area

- B Reactor Designated as a Museum or Interim Safe Storage

- *Designated a National Historic Landmark, National Park Service preservation study in progress*
- *Provided 94 public tours for 3,800 individuals*

- 1 Waste Site Remediated
- 33,287 Tons of Soil Removed





B Reactor designated as a National Historical Landmark

B & C Area Progress Photos

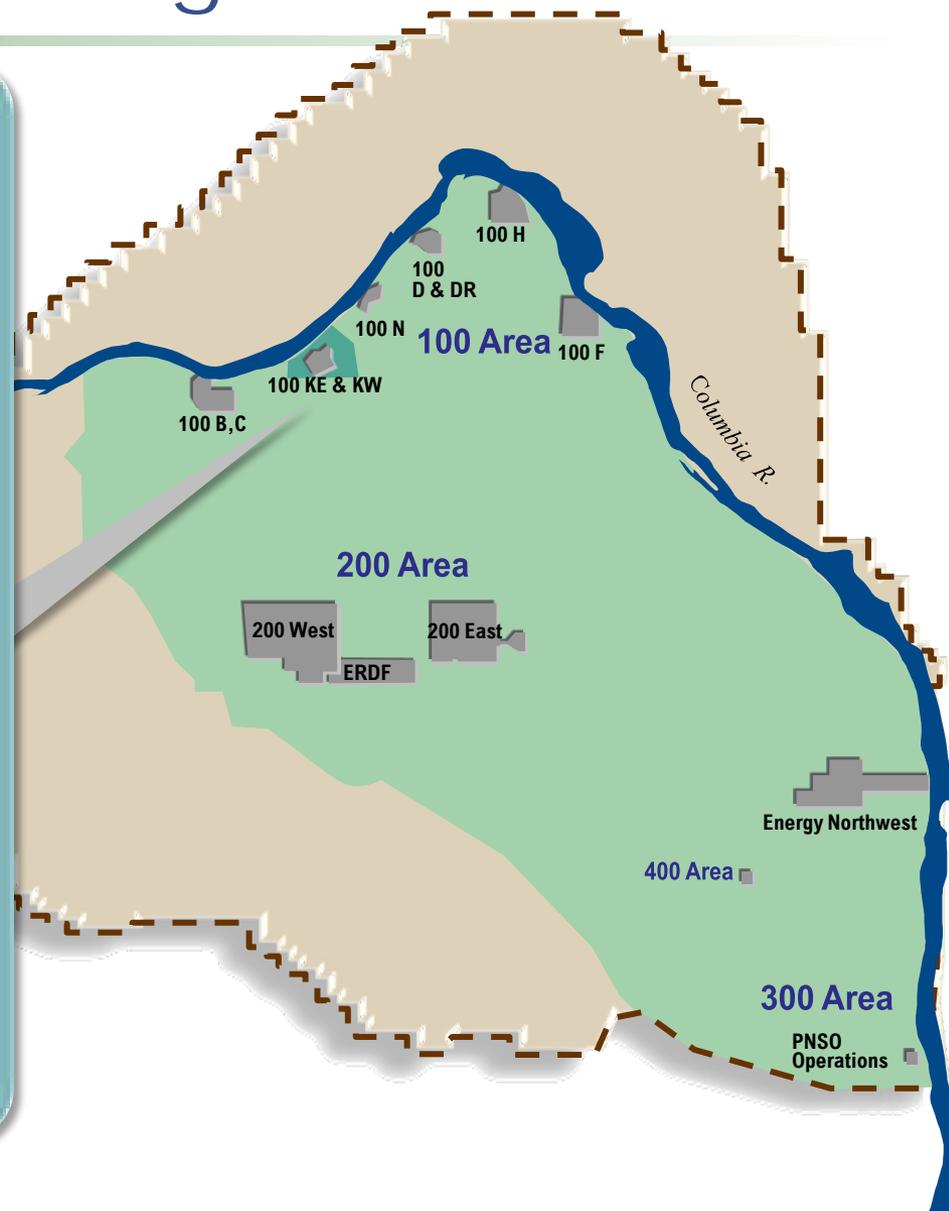


B Reactor Tour

2015 Vision FY09 Progress - K Area

- Demolished K East Basin in FY2009*
 - *Filled more than 1,000 ERDF containers with debris*
- Will initiate remediation of soil under the K East Basin this month
- Expanded 100 K Area groundwater treatment system
 - *New facility began operating*
 - *Treatment capacity at 100 K tripled to 35 million gallons per month*
 - *Installed 24 new wells for injection and extraction to support the expansion of treatment capability*
- 1 Waste Site Remediated
- 11 Facilities Demolished
- 35,000 Tons of Soil/Debris Removed

*99% complete as of Sept. 1



K East Basin March 2009



K East Basin Demolition

K East Basin Demolition



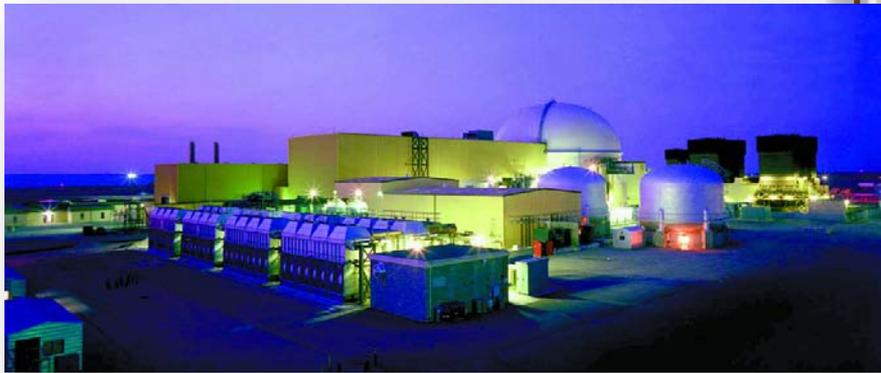
K Basins Groundwater Pump & Treat System

K Area Progress Photos

2015 Vision FY09 Progress - 400 Area

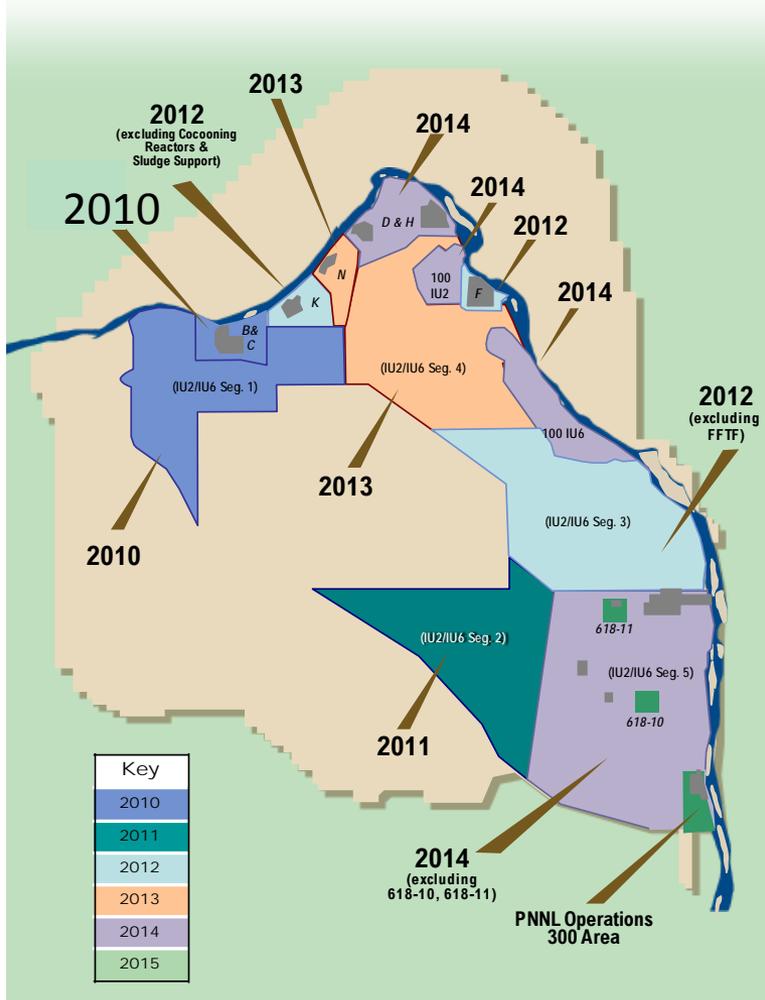


Fast Flux Test Facility in Surveillance and Maintenance

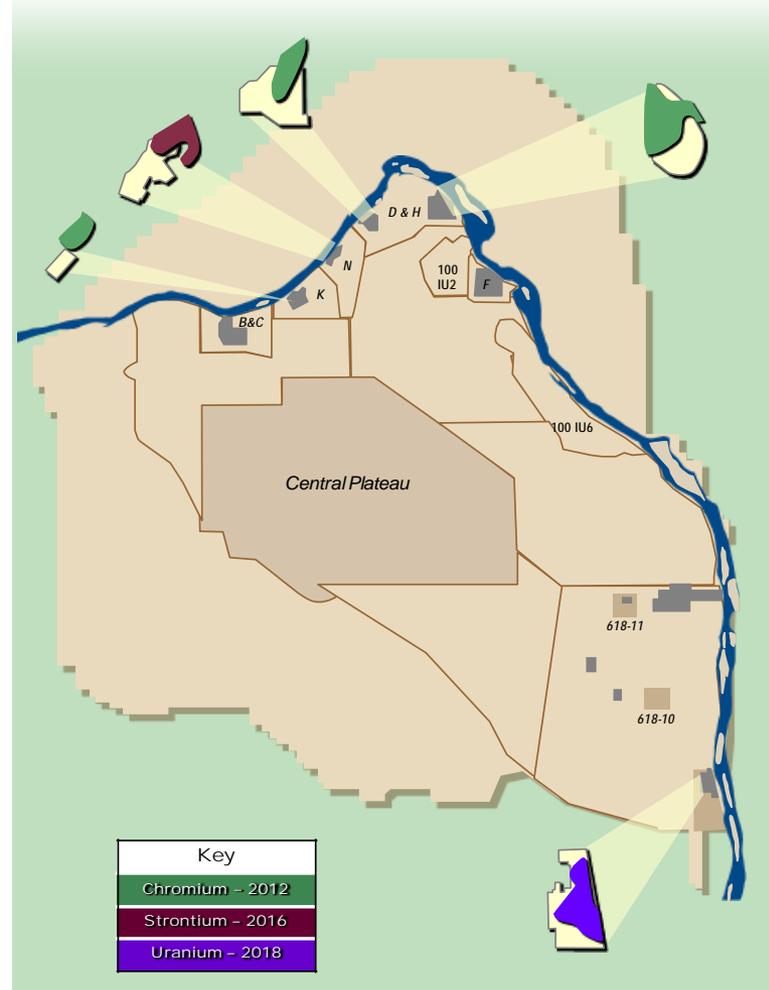


River Corridor Cleanup

Waste Site and D&D Completion

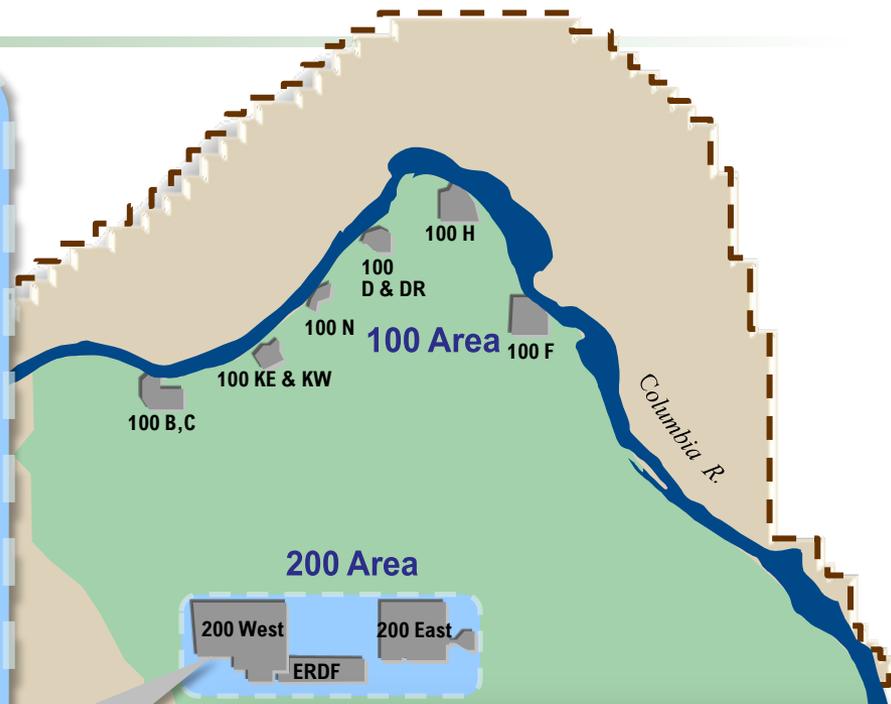


Containment of Key Groundwater Contaminants



2015 Vision FY09 Progress - Central Plateau

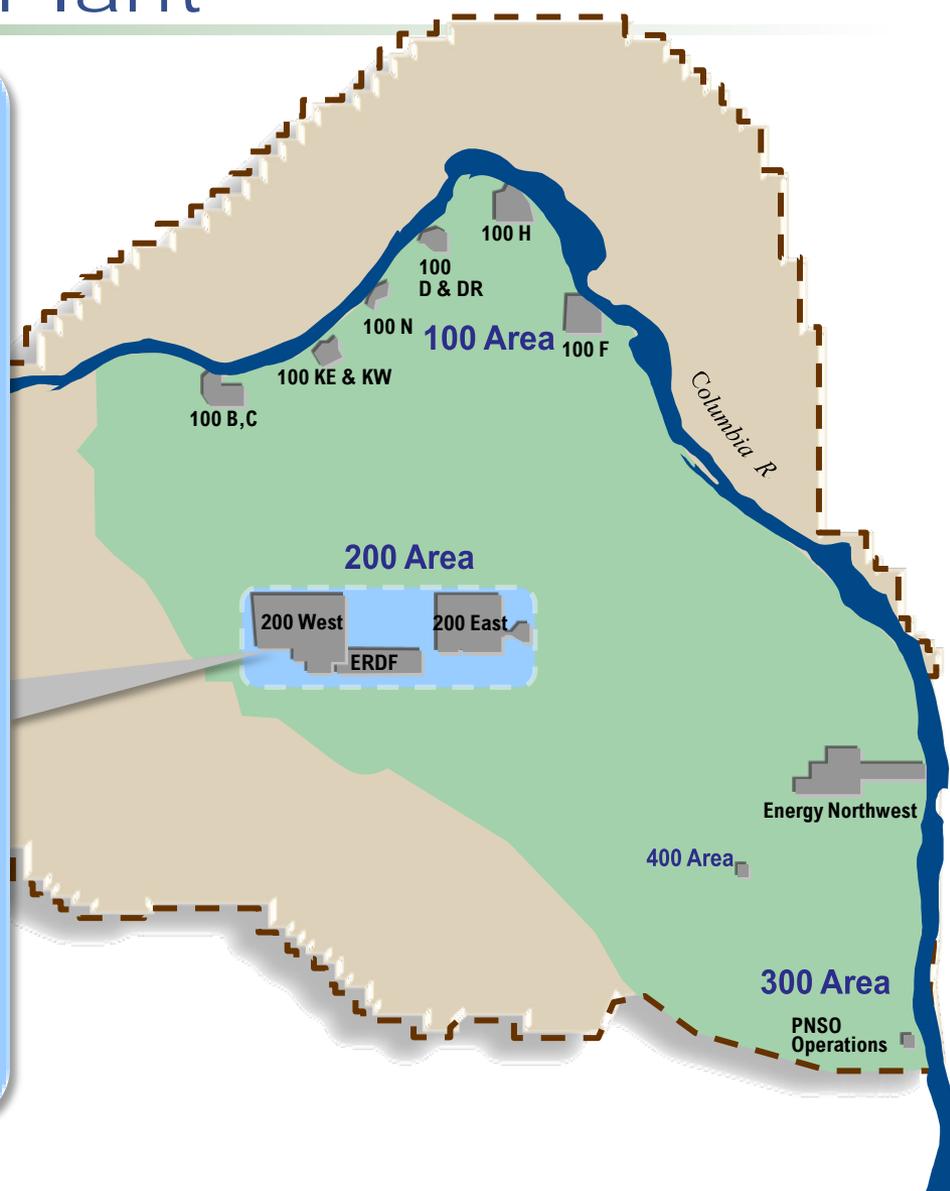
- All 200 West Carbon Tetrachloride, Uranium and Technetium 99 Groundwater Remedies Implemented
 - *Design 60% complete for new 200 West (ZP-1) Pump & Treat system*
 - *6 new wells drilled to support the new 200-West (ZP-1) Pump & Treat system*
 - *This new system will begin treating carbon tetrachloride, TC-99 nitrate, TCE and chromium by 12/31/2011*



2015 Vision FY09 Progress - Plutonium Finishing Plant

De-inventory of PFP

- Continued offsite shipments, on schedule to complete by 9/30/09
- On schedule to move material onsite and remove Protected Area designation by 12/31/09
- PFP Complex Slab on Grade
 - *37 glove boxes or laboratory hoods removed*
 - *24 ERDF roll-off boxes of combustible materials removed*
 - *On schedule to complete by 9/30/16*



Plutonium Finishing Plant Progress Photos



Hood Removal Room 153 Before and After

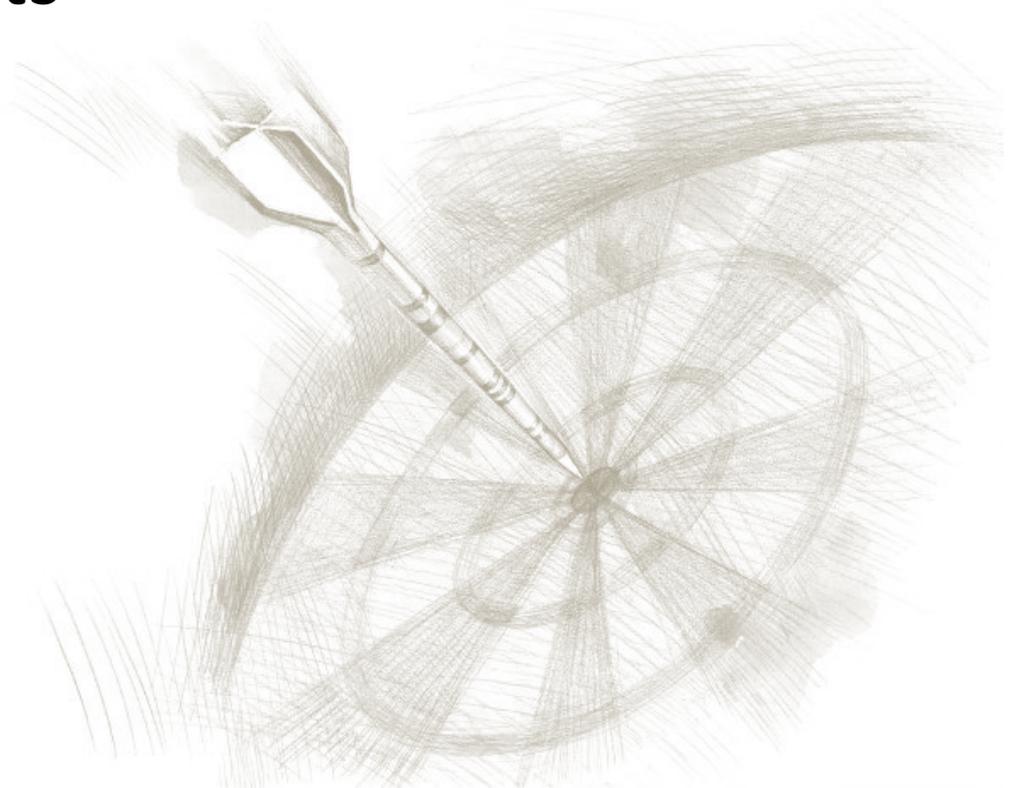


Hood Removal Room 156 Before and After ARRA Funding



Goals of American Reinvestment and Recovery Act Funding

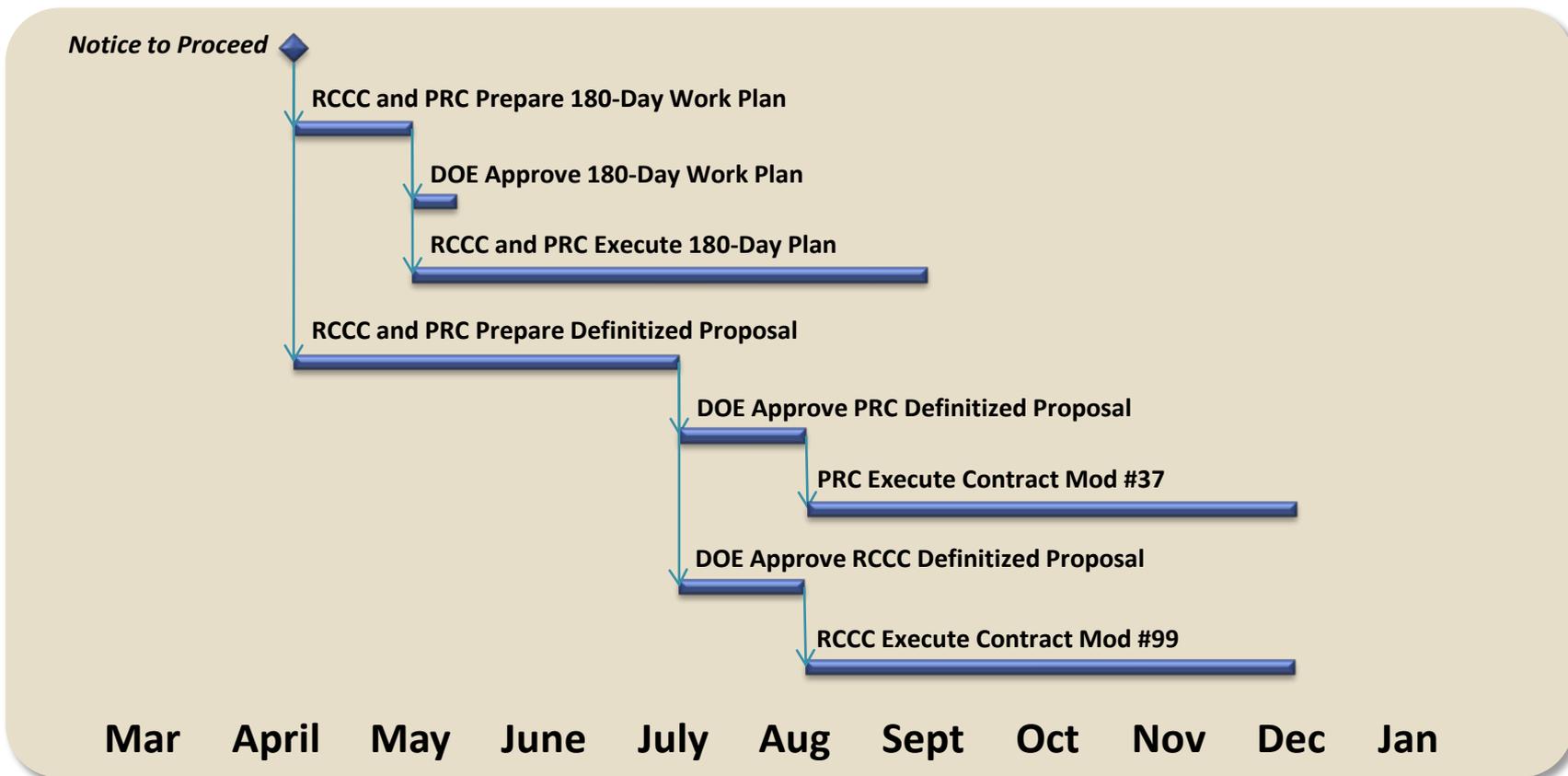
- Save and create jobs
- Reduce the active cleanup footprint
- Reduce lifecycle costs



Recovery Act Update

- DOE Richland Operation Office apportionment totals \$1.635 billion
 - To date, 80 percent of funding has been provided and is being applied to contracts with CH2M HILL Plateau Remediation Company and Washington Closure Hanford
- DOE authorized work to begin in April
- For FY09, only 30% of the total funding can be costed until contractors complete work planning and work scope is finalized
- Approximately 2,700 people are working on Hanford ARRA projects (headcount of people at least partially funded through DOE-RL contracts including those needed to fill material and service orders)
- Work on several major projects underway, some activities already completed
- Contractors hiring, training, and issuing procurements

ARRA Work Plan & Implementation



RCCC=River Corridor Closure Contractor

PRC=Plateau Remediation Contractor

Note: Some work scope currently planned and contracted has begun and will proceed in parallel with the 180-Day and Full Work Planning Processes

Recovery Act Highlights

- D&D work at PFP, 14 glove boxes or laboratory hoods removed from main building (234-5Z)



Recovery Act Highlights

- Demolished superstructures of 2 of 3 spent fuel facilities in 200 North Area, demolishing fuel basins

Workers demolished the 212-R facility



Began demolition of the 212-R basin



Recovery Act Highlights

- D&D of ancillary facilities near K Reactors, removing equipment/debris from K West Reactor Basin



Removing chlorine vault slab near K West Reactor (background)



K West Basin debris removal: cutting up long-handled tools



Recovery Act Highlights

- Installing wells for new 200 West Area groundwater treatment system

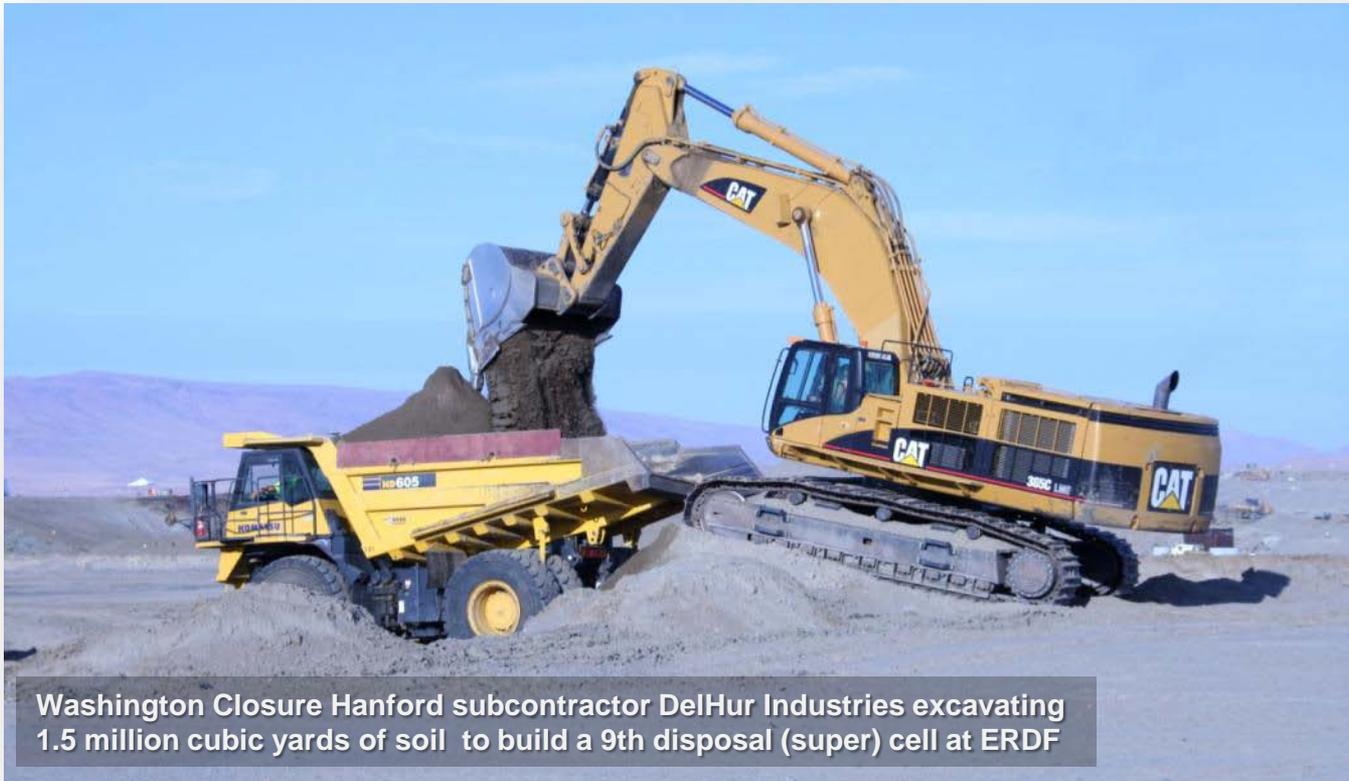


CH2M HILL subcontractor Blue Star drilling a well (background) to support groundwater treatment



Recovery Act Highlights

- Expanding disposal facility for cleanup debris, Environmental Restoration Disposal Facility



Washington Closure Hanford subcontractor DelHur Industries excavating 1.5 million cubic yards of soil to build a 9th disposal (super) cell at ERDF



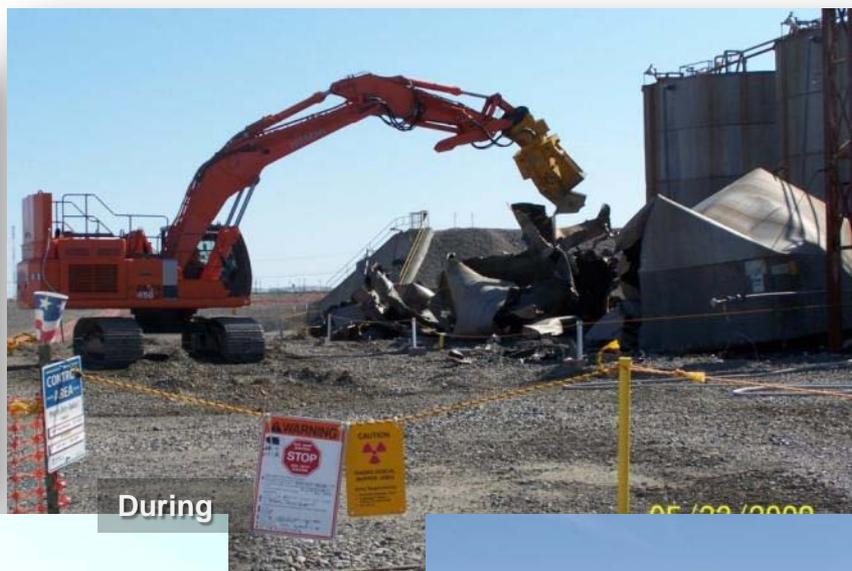
Recovery Act Highlights

- Characterizing one of Hanford's most challenging waste sites in the River Corridor (618-10 Burial Ground)



Recovery Act Highlights

- Demolished 15 large chemical tanks near U Canyon



ARRA Base WBS Chart

