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**ENERGY**

Richland Operations  
Office

# Hanford Site: Integrating the Base Cleanup Program with Other Challenges

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Weapons Complex Monitor  
Waste Management & Cleanup Decision Maker's Forum  
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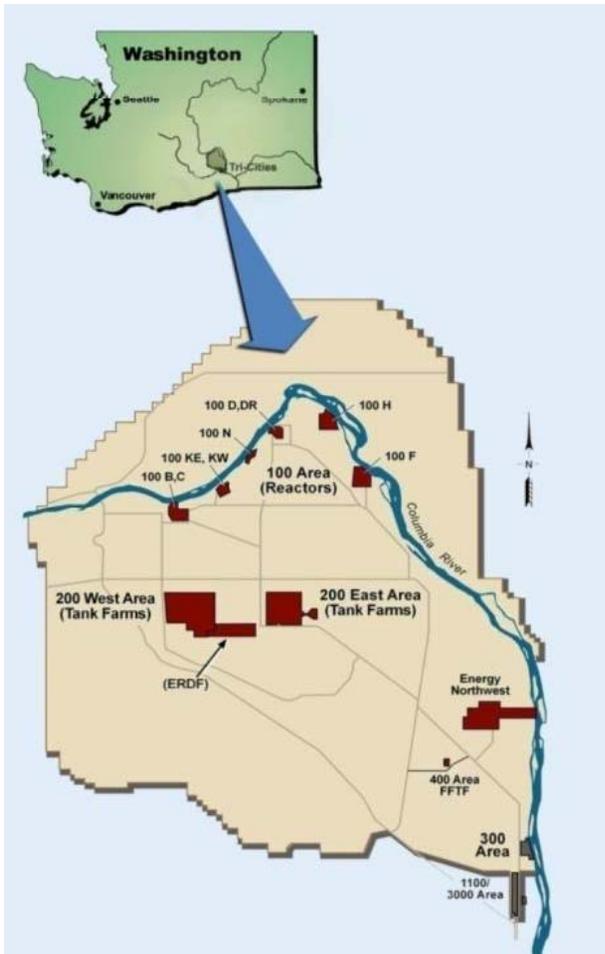
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# The Hanford Site



- 586 square miles (half the size of Rhode Island)
- 50 miles of the Columbia River runs through Hanford
- Constructed in WWII as part of the Manhattan Project, also operated during the Cold War
- Former mission: Produce plutonium
- Produced approx. two-thirds of nation's supply of plutonium, 1944-1989
- Peak employment was 50,000 during construction
- Current employment: 11,500



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## 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; K East Basin removed
  - 20 tons of unstable plutonium in various forms stabilized, packaged and shipped off site
  - Treating 50 million gallons of contaminated groundwater each month
  - 49,000 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 approx. 800 waste sites along the Columbia River
  - Disposed of 8.5 million tons of waste in Environmental Restoration Disposal Facility



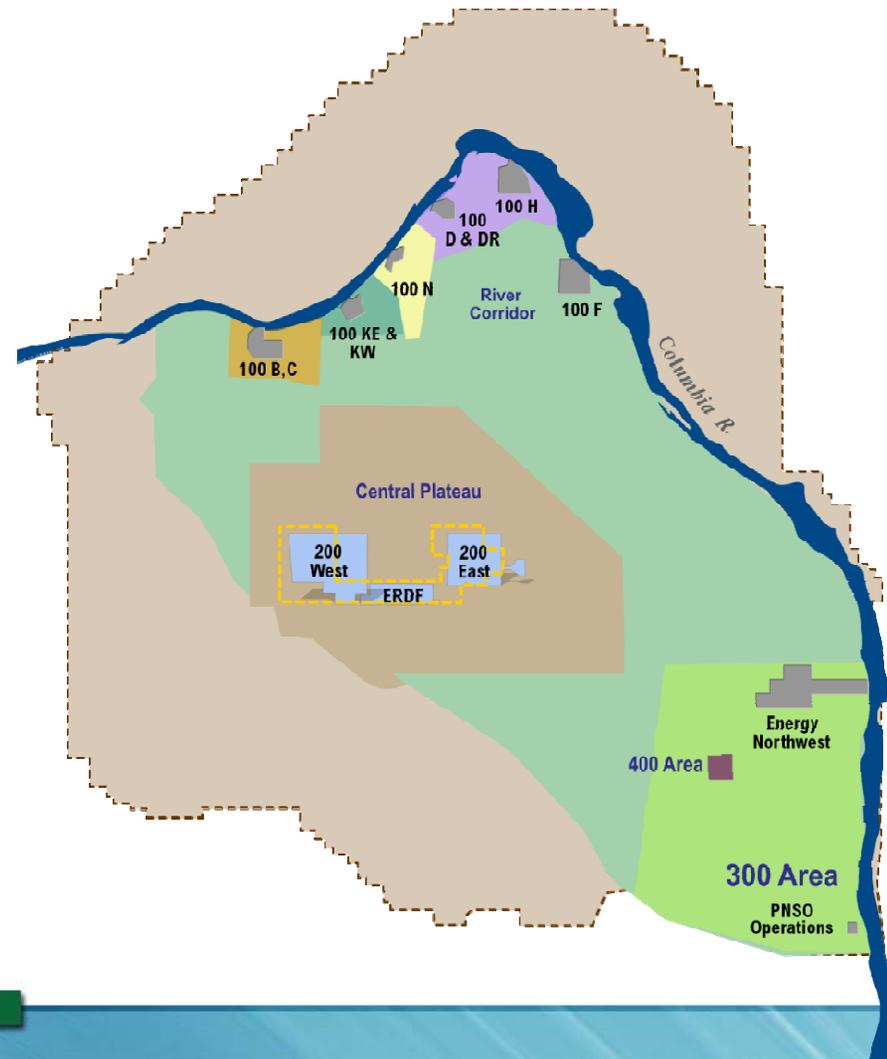
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# The Next 20 Years – DOE's Vision

- 2015 Vision is to shrink active cleanup footprint to 75 square miles in Central Plateau
- Establish a vision for what the Central Plateau looks like when cleanup is done
- Establish overall strategy, goals, objectives and principles to guide cleanup decisions
- Provide basis for future funding requests





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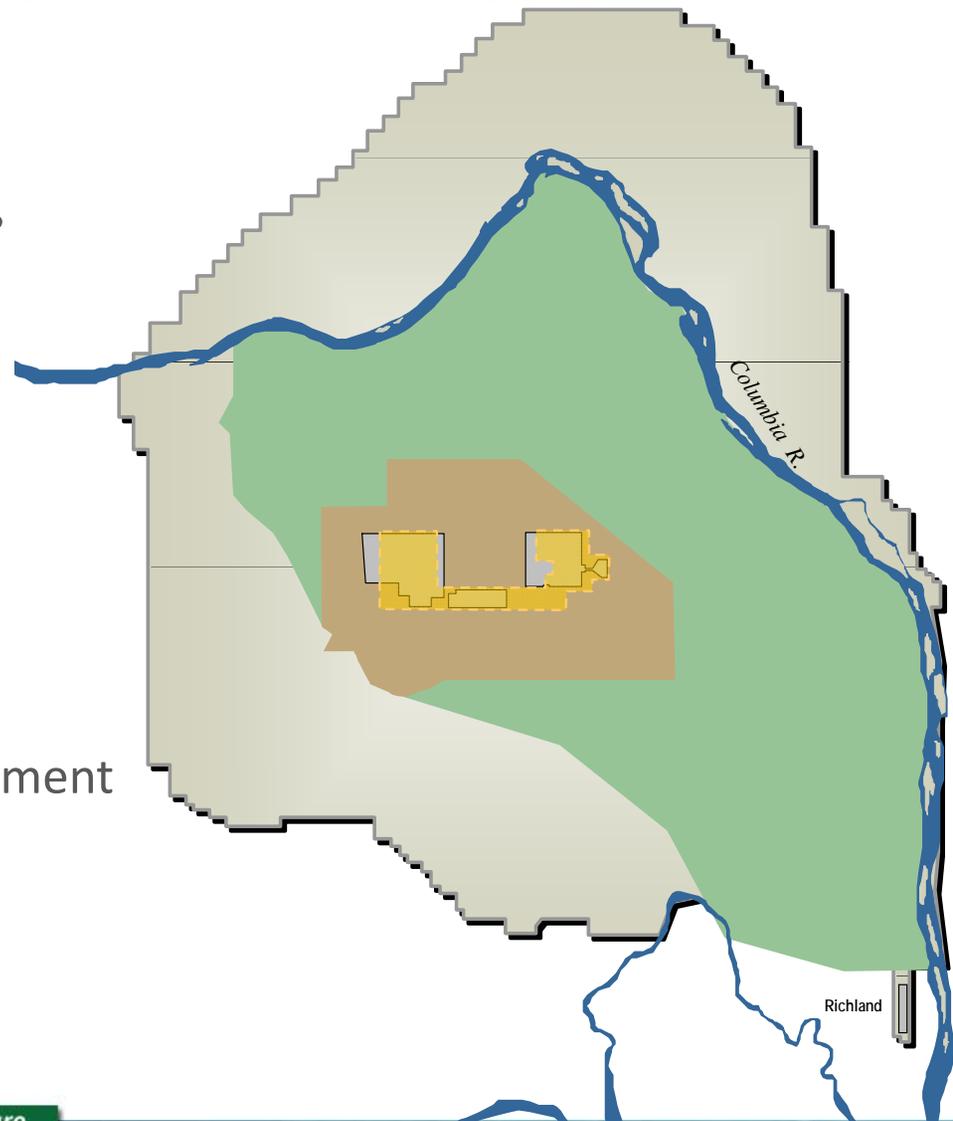
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# Cleanup Strategy

*Go from 586-square-mile site 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)



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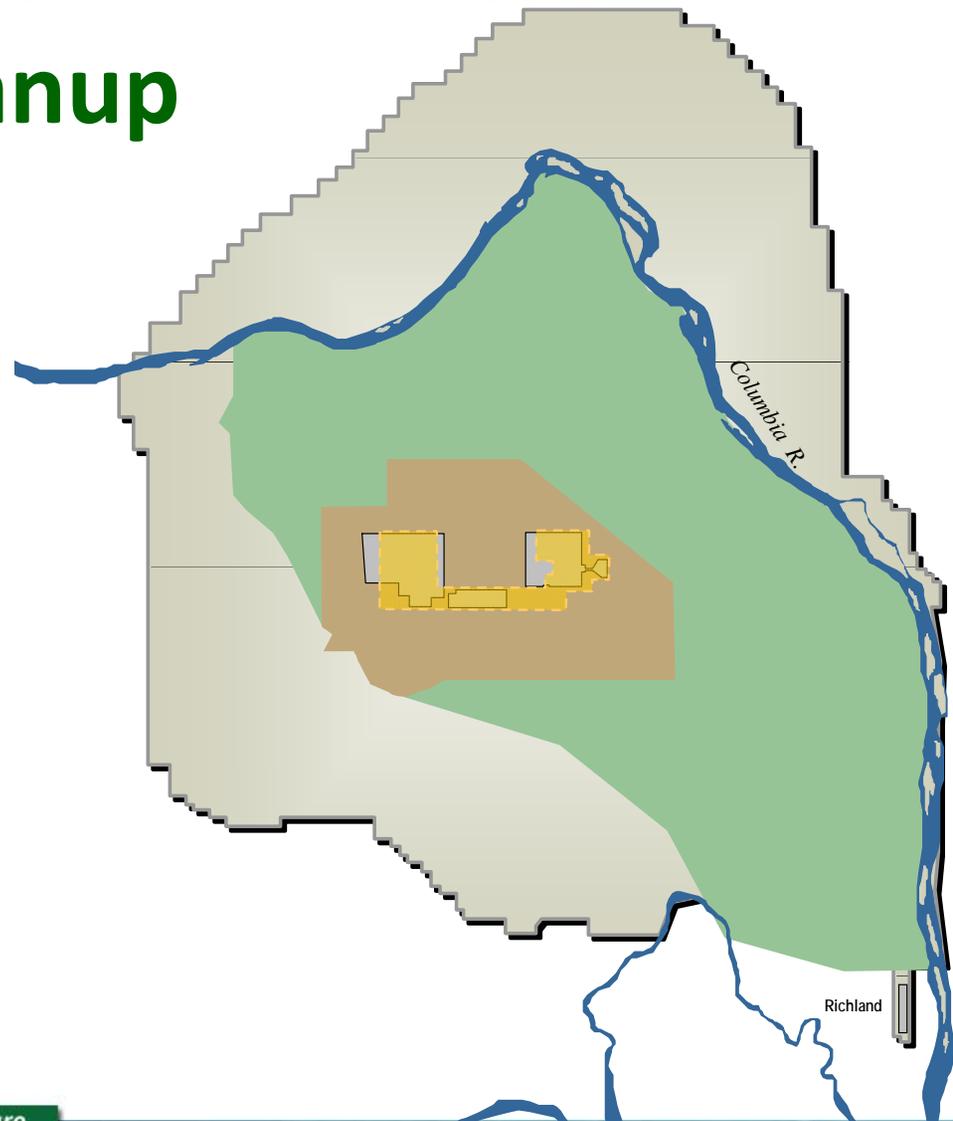


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## Priorities for Cleanup

- Protect the Columbia River
- Contain/treat contaminated groundwater
- Demolish facilities, clean up waste sites in River Corridor
- 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)



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*K East Basin March 2009*



## River Corridor Highlights

- Completed removal of K East Basin and started cleanup of contaminated soil
- Expanded groundwater treatment system at 100 K Area (300 gpm to 900 gpm)



*K East Basin Demolition*



*K Area Groundwater  
Pump & Treat System*



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## River Corridor Highlights

- Demolished 187 out of 625 facilities
- Cleaned up 446 of approx. 800 waste sites

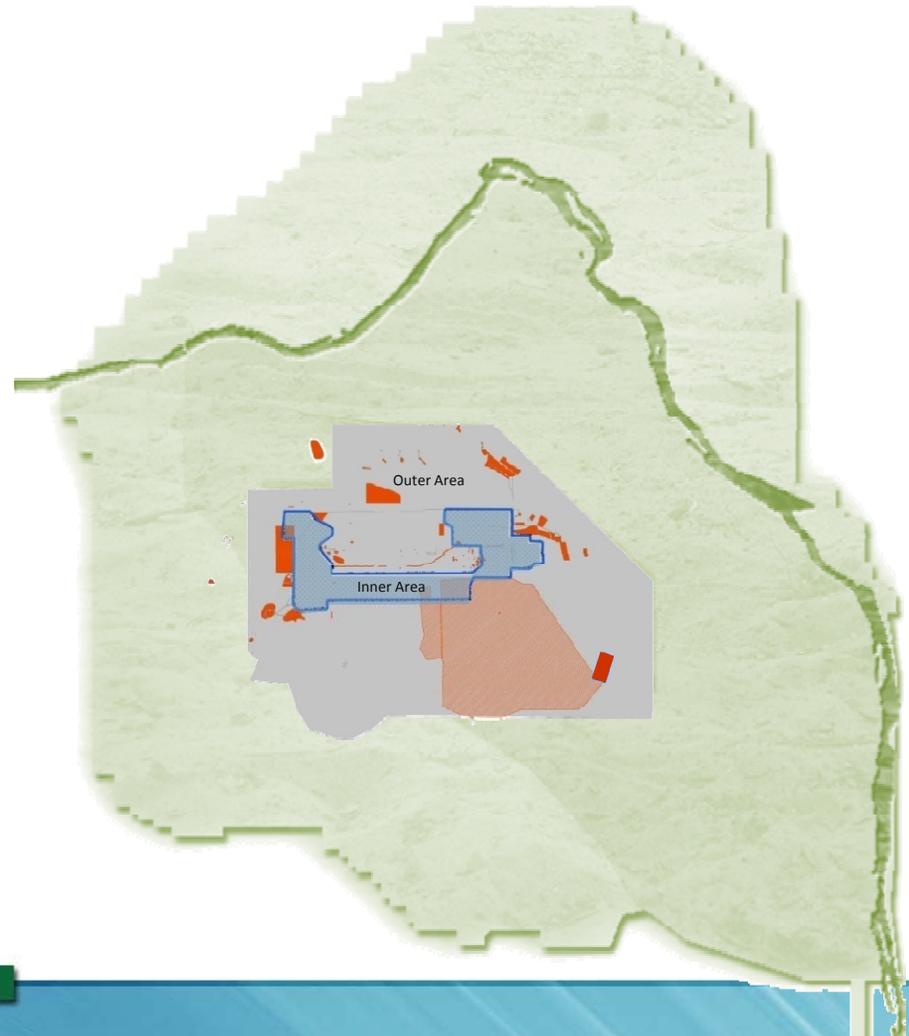


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# Central Plateau Cleanup Strategy

- Central Plateau cleanup is focused in three areas:
  - Inner Area
    - Final footprint
    - Less than 2 percent of the original Hanford Site
  - Outer Area ( > 55 mi<sup>2</sup>)
    - Remediate to unrestricted surface use
    - Cleanup standards comparable to River Corridor
  - Groundwater
    - Contain and remediate key groundwater contaminants





# Outer Area Principles and Objectives

- Clean up waste sites (about 180) comparable to the River Corridor with some exceptions
- D & D excess facilities
- Start cleanup with interim decisions using ARRA funds
- Make final cleanup decisions with one Record of Decision



 = Outer Area

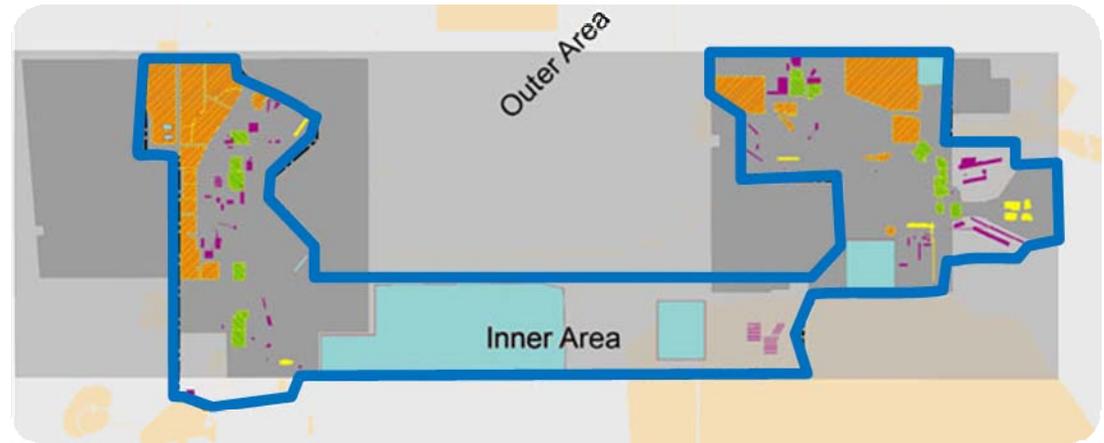
 = Inner Area





# Inner Area Principles and Objectives

- Minimize the size of the area requiring long-term management (the final footprint)
- Configure waste and residual contamination to be protective of human health and the environment
- Monitor inner area to ensure cleanup remedies are protective (defense in depth)
- Make consistent cleanup decisions at the largest scale possible
- Implement cleanup decisions using a geographical approach



- Sites With a Decision for Permanent Disposal
- Sites Anticipated to be Permanent Disposal
- Landfills
- Tank Farms
- Deep Vadose Zone Contamination Sites
- Inner Area Boundary Line



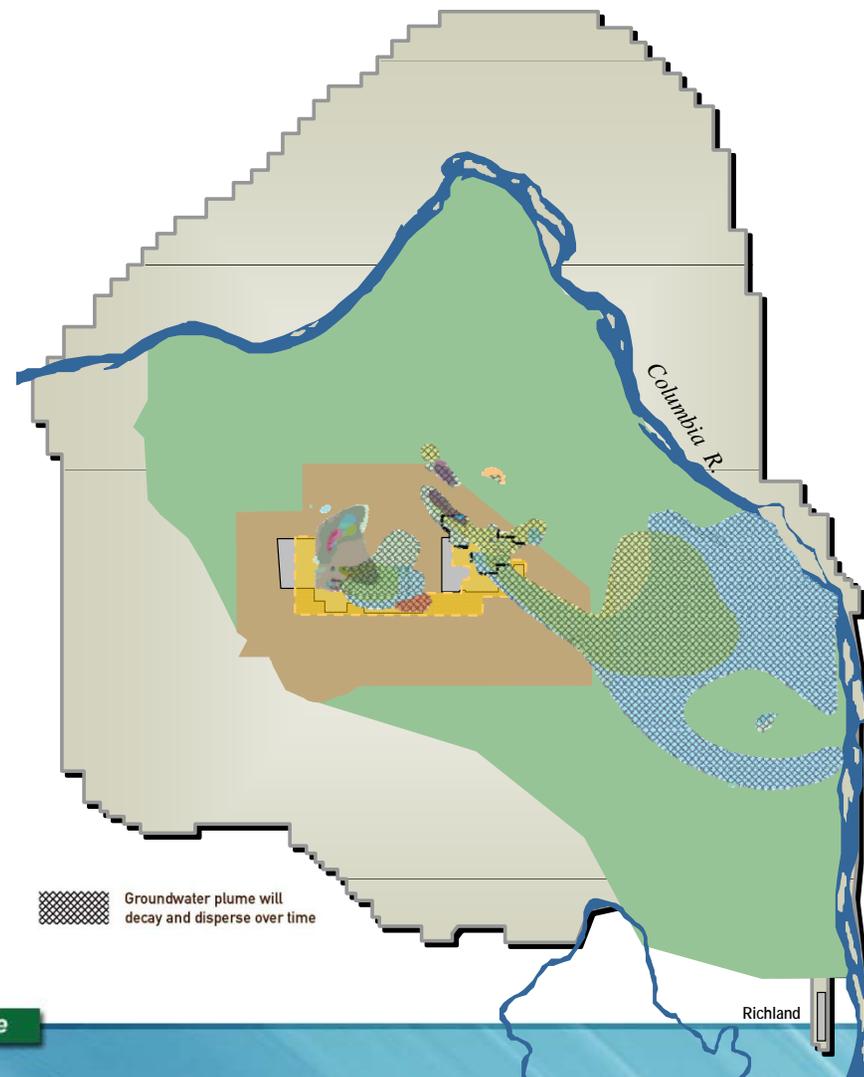


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## Central Plateau Groundwater Principles and Objectives

- Contain key contaminants (carbon tetrachloride, technitium-99, uranium) to the Central Plateau and remediate to meet drinking water standards
- Complete groundwater remediation decisions on the Central Plateau using 200 West Area (ZP-1) as template
- Field treatment (pump & treat) systems in next few years to continue to contain key contaminants



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Before

200 West - 2009



200 East - 2009



After

Conceptual Vision of 200 West After Cleanup



This draft graphic is part of an ongoing effort to develop a cleanup completion strategy for Hanford Site's Central Plateau.

Conceptual Vision of 200 East After Cleanup



This draft graphic is part of an ongoing effort to develop a cleanup completion strategy for Hanford Site's Central Plateau.



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# Central Plateau Highlights

- Finished shipping 2,300 containers of plutonium-bearing material to Savannah River Site
- Continued D&D of Plutonium Finishing Plant



*Workers removing temporary containment*



*Technician tests isolation of glove box from ventilation*



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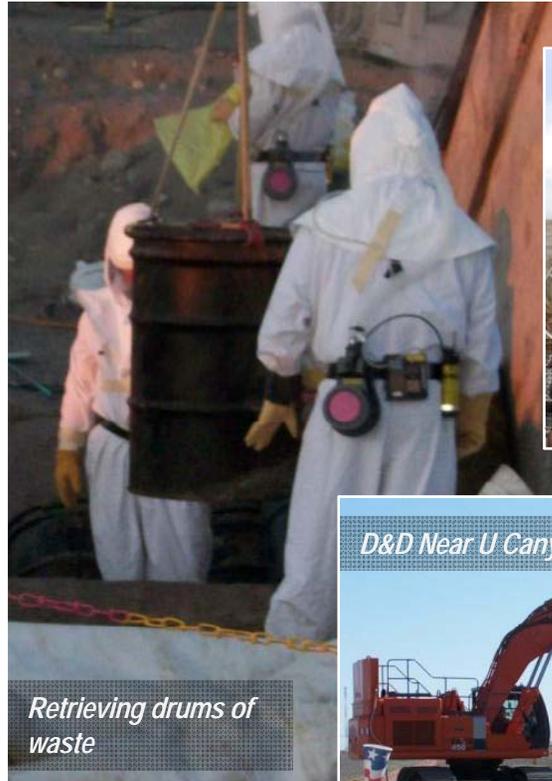


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## Central Plateau Highlights

- Construction start of largest groundwater treatment system at Hanford in 200 West
- D&D of ancillary structures near U Canyon underway
- 49,000 out of 70,000 drums worth of solid, radioactive waste retrieved



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## Recovery Act Update

- DOE Richland Operations Office apportionment totals \$1.635 billion
- DOE authorized contractors to start work in April
- As of the end of August
  - \$88.5 million spent
  - Approx. 3,000 people working on DOE-Richland Operations Office ARRA projects (part-time and full-time)
- Work on several major projects underway
- Projects are on or ahead of schedule, with some activities already completed



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## Recovery Act Highlights

- 14 glove boxes removed from Plutonium Finishing Plant
- 197 cubic meters of low-level, mixed low-level waste treated
- 3 Facilities demolished (7,500 square feet)
- 46,000 square feet of buildings demolition-ready
- Expansion of Environmental Restoration Disposal Facility for mixed, low-level waste in progress

Figures through end of August



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## Prime Contractors

- Washington Closure Hanford: River Corridor Contractor
  - Remediating waste sites, demolishing facilities, operating Environmental Restoration Disposal Facility
- CH2M HILL Plateau Remediation Company: Plateau Remediation Contractor
  - Remediating waste sites, cleaning out and demolishing facilities in 100-K Area and on Central Plateau
  - Retrieving and managing waste
  - Monitoring and remediating groundwater for the Site
- Mission Support Alliance: Integration Contractor
  - Information technology, fire and security, training



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