



Hanford Site Overview

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2010 Waste Management Symposium – Featured Site Panel





The Hanford Site



- 586 square miles
- 50 miles of the Columbia River run through Hanford
- Constructed in WWII as part of the Manhattan Project
- Mission: Produce plutonium
- Produced about two-thirds of nation's supply of plutonium, 1944-1989
- Peak employment was 50,000 during construction
- Present status: Full-scale cleanup
- Current employment: 11,872





Temperatures- Climate-Topography

Relative humidity: 55%; only 6.8 inches of precipitation per year.

Temperatures range from lows of -20 F to highs of 113 F.

Average wind speed is 6 to 9 mph,

Winds often exceed speeds of 30 mph and have been recorded up to 58 mph.

Visibility problems include dust, blowing dust, and smoke from field burning.

The top of Rattlesnake Mountain is 3,527 feet and the low elevation by the Columbia River is 384 feet.



General fall Chinook spawning locations in the Hanford Reach along with section locations.





Challenges

- **Deep Vadose Zone** – no proven technology to deal with deep vadose zone contamination.
- **618-10 and 618-11 Burial Grounds** – most hazardous at Hanford, research waste from 300 Area, close to town and Energy Northwest
- **Land Use**
 - Energy Parks
 - Comprehensive Land Use Plan (CLUP)
 - Cultural Resources (graves, treaty rights, artifacts)
 - B Reactor (preservation for public access, national park consideration)
- **5 Large Canyon Facilities** – B Plant, T Plant, U Plant, PUREX, and REDOX.
 - Facilities contain enormous amount of material, much of which is highly contaminated. Plants were used to chemically separate plutonium from irradiated fuel rods.





Challenges

- Natural Resource Damage Assessment (NRDA)
- Reactors – Put into Interim Safe Storage for 75 years vs. removing reactor core
 - Currently looking at feasibility of removing the K East Reactor core and demolishing building instead of interim safe storage.
- Others:
- WESF Strontium and Cesium Capsules
- Groundwater
- NEPA Records of Decision





Cleanup Progress

- 2,300 tons of corroding spent nuclear fuel dried, moved to safe storage
- 20 tons of plutonium-bearing material stabilized, packaged and shipped off site
- Treated 4.4 billion gallons of contaminated groundwater
- Five of nine former plutonium production reactors “cocooned”
- Remediated 451 of about 800 waste sites along the Columbia River
- Remediated 40 of 850 waste sites on the Central Plateau
- Disposed of 8.8 million tons of cleanup debris at Hanford’s low-level waste disposal facility





Footprint Reduction

Reducing the Footprint of Active Cleanup

By 2015:

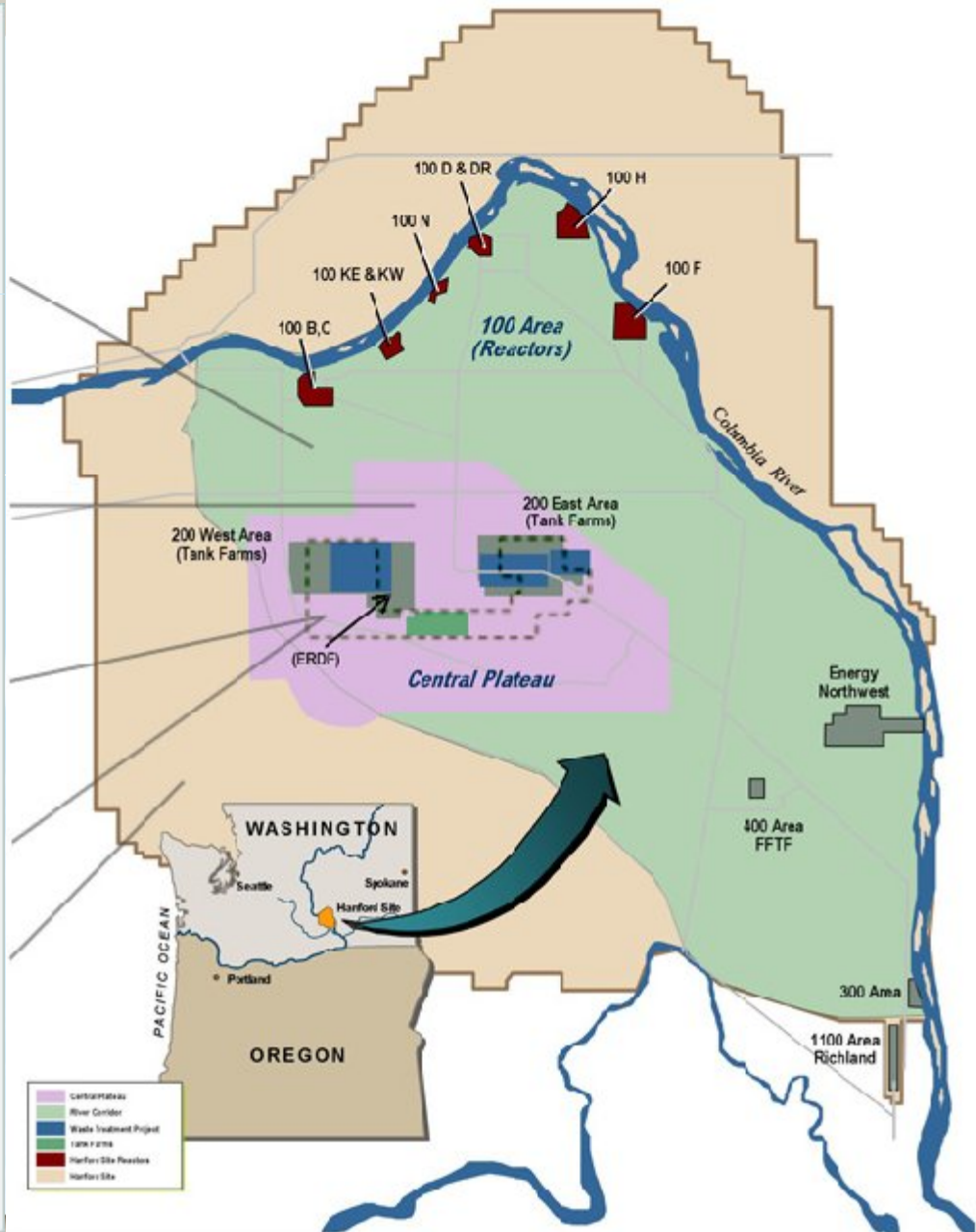
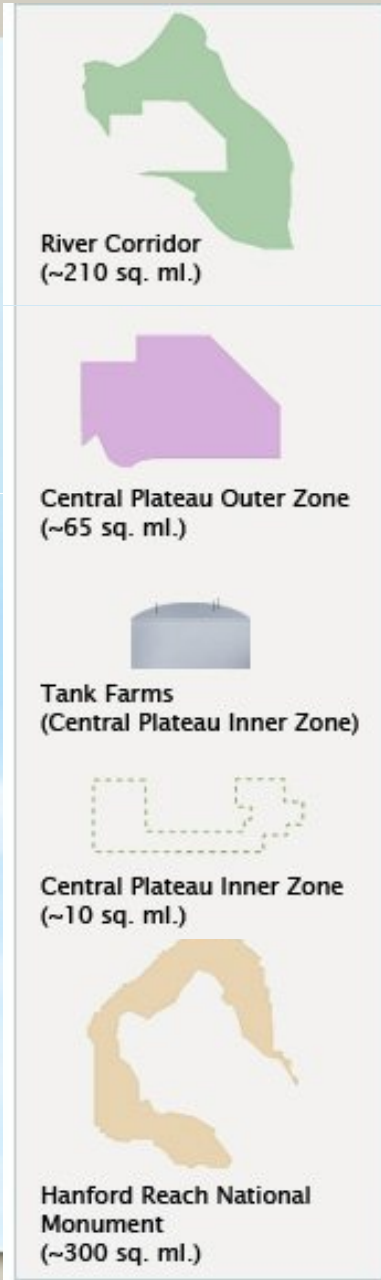
- River Corridor Contract Complete
- Hundreds of Facilities Demolished
- Hundreds of Waste Sites Cleaned Up
- Reactors Put in Interim Safe Storage
- River Corridor Groundwater Remedies in Place
- Plutonium Finishing Plant Slab on Grade
- Central Plateau Groundwater Remedies in Place





Footprint Reduction

2011	2015
45-60% reduction	85-90% reduction

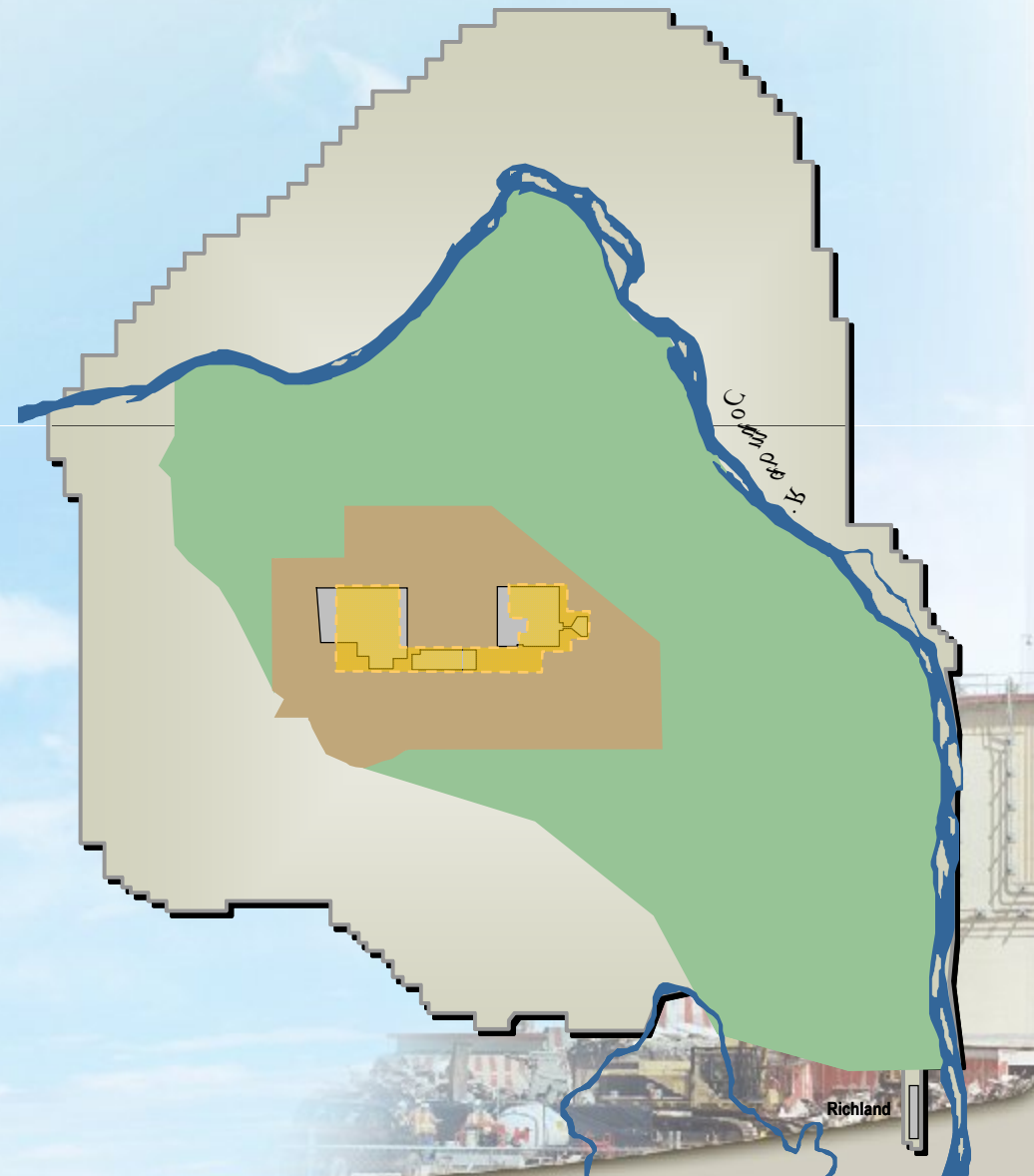


- Central Plateau
- River Corridor
- Waste Treatment Project
- 100 Area
- Hanford Site Reactors
- Hanford Site



Priorities for Cleanup

- Protect the Columbia River
- Treat contaminated groundwater
- Demolish facilities, clean up waste sites
- Clean out and demolish the high-hazard Plutonium Finishing Plant
- Remediate waste sites in Central Plateau Outer Area
- Retrieve transuranic waste (TRU) -- buried, solid radioactive waste

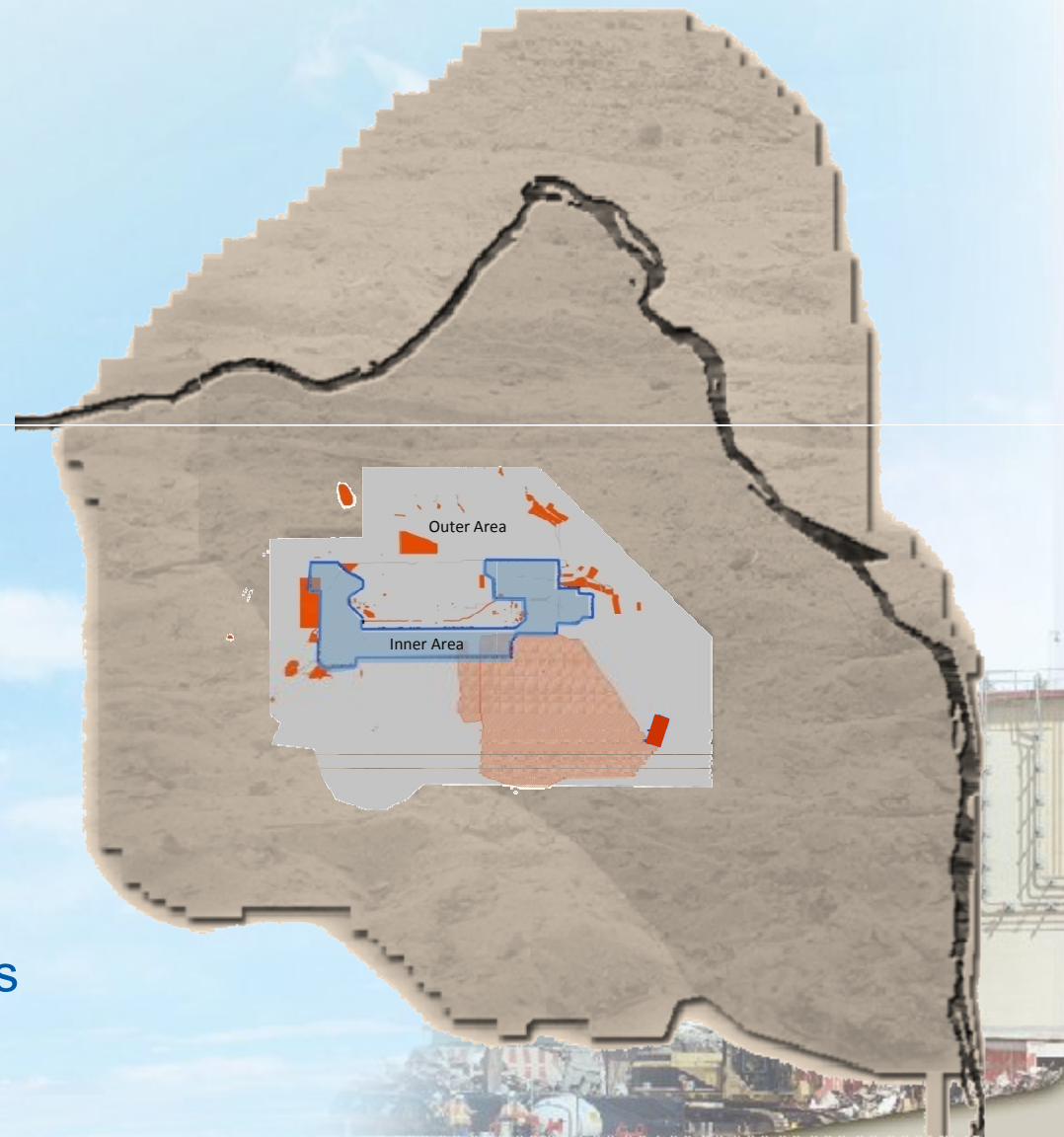




Central Plateau Cleanup Strategy

Central Plateau cleanup is focused in three areas:

- Inner Area (> 10 sq. miles)
 - Final footprint
 - Less than 2 percent of the original Hanford Site
- Outer Area (> 65 sq. miles)
 - Remediate to unrestricted surface use
 - Cleanup standards comparable to River Corridor
- Groundwater
 - Contain and remediate key groundwater contaminants





Recovery Act Update

DOE Richland Operations Office received \$1.6 billion

- Contractors started work in April 2009

Priorities for Funding:

1. Create Jobs
 2. Reduce Active Cleanup Footprint
 3. Lifecycle Cost Savings
- As of the end of January 2010:
 - \$316 million spent
 - About 1,375 full-time equivalent workers on DOE-Richland Operations Office ARRA projects
 - Projects are on schedule





Recovery Act Highlights

- 38 glove boxes removed from Plutonium Finishing Plant
- 330 cubic meters of low-level, mixed low-level waste treated
- 12 Facilities demolished (43,357 square feet)
- 502,194 square feet of buildings demolition-ready
- Expansion of Environmental Restoration Disposal Facility (ERDF) with two new supercells 9 and 10.



Figures through end of January 2010

