



U.S. DEPARTMENT OF  
**ENERGY**

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## **Highlights of Accomplishments in 2009 at the Hanford Site**

### *DOE Richland Operations Office*

RICHLAND, Wash. – The Department of Energy’s (DOE) Richland Operations Office and its contractors at the Hanford Site made tremendous progress in several key cleanup categories in 2009. Taking a look at the three most common cleanup categories – soil and debris removal, building demolition, and groundwater treatment – gives one a sense of the broad range of environmental cleanup activities being conducted at the former plutonium production site in southeast Washington State.

During the year, Hanford workers disposed of 900,000 tons of contaminated soil and debris from cleanup activities. This massive amount of soil and debris was transported to Hanford’s onsite disposal facility for low-level waste, the Environmental Restoration Disposal Facility (ERDF), which currently holds about 8.8 million tons of waste. To provide context, each pair of disposal cells at ERDF measures 500 feet by 1,000 feet and is 70 feet deep. The eight existing cells take up the same area as 35 football fields. This year, DOE disposed of enough waste to fill roughly one-third of a pair of disposal cells.

Also during 2009, 55 facilities were demolished at Hanford. The clean out and demolition of buildings involves a great deal of preparatory work, including removal of radiological, chemical, and other hazards, before demolition can take place.

At trenches in the center of Hanford, more than 2,200 drums-worth of solid, radioactive waste was retrieved from underground storage – including remote-handled and contact-handled transuranic (TRU) waste, as well as low-level waste.

Another highlight at Hanford was the installation of a new groundwater treatment system near the Columbia River at the 100 K Area, which, along with two existing treatment systems, pumps up to 35 million gallons per month. The total amount of groundwater treated at six pumping systems on the Hanford Site was a whopping 522 million gallons in fiscal year 2009, an average of 43.5 million gallons per month. A total of 4.4 billion gallons of Hanford groundwater was pumped and treated through the end of fiscal year 2009 (through Sept. 30, 2009).

*Note: See the attached Backgrounder for more information on highlighted projects.*

## Highlights of Accomplishments in 2009 at the Hanford Site

DOE Richland Operations Office



The Department of Energy's (DOE) Richland Operations Office and its contractors at the Hanford Site in southeast Washington State made tremendous progress in several key cleanup categories in 2009.

- Soil and Debris Removed: **900,000 tons**
- Structures Demolished: **55**
- Groundwater Treated: **522 million gallons**
- Radioactive Waste Retrieved from Underground Storage: **2,220 drums-worth** (including waste stored in large boxes)

### 2009 Highlights

#### Stimulus Funding Put to Work at the Hanford Site



[Newly hired workers train at the HAMMER Training & Education Center in Richland, Wash.](#)

The DOE Richland Operations Office placed \$1.635 billion in funding received in April 2009 from the American Recovery and Reinvestment Act on contract and saved and created hundreds of jobs through spending by Hanford contractors.

Work accomplishments through the end of October included demolishing 5 facilities; readying more than 46,000 square feet of buildings for demolition; completing remediation of 3 waste sites; shipping more than 2,100 drums-worth of mixed, low-level waste for treatment; removing more than 20 large, sealed containers, called glove boxes, from the Plutonium Finishing Plant; starting construction on two new treatment facilities for cleaning groundwater contaminated with chemicals and radioactive material; drilling 22 wells to support

groundwater treatment systems; and completing upgrades to allow more shipments of cleanup debris per day to the site's disposal facility for low-level radioactive waste.

#### Special Nuclear Material Removed from Plutonium Finishing Plant



[Nuclear Chemical Operator Peggy Bratcher briefs visitors to the Plutonium Finishing Plant, December 2009](#)

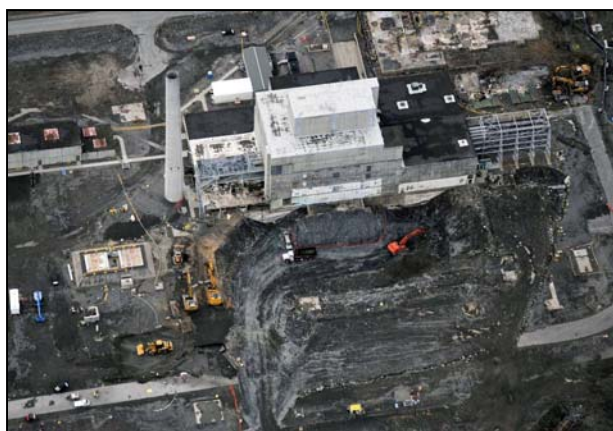
In November, workers at the Hanford Site in southeast Washington State finished moving special nuclear material containing plutonium out of the site's Plutonium Finishing Plant. During cleanup of the plant through 2004, some 20 tons of plutonium-bearing material in various forms was stabilized and packaged.

Approximately 2,300 containers of material were shipped to the DOE's Savannah River Site in South Carolina. Those shipments were completed by May 2009. By October 2009, some nuclear reactor fuel containing plutonium stored at the plant was shipped to the Savannah River Site. In November, workers finished

moving some used nuclear reactor fuel containing plutonium from the plant to a secure storage facility on the Hanford Site.

With the special nuclear material removed, the Department of Energy and its contractors have changed security requirements at the plant, allowing for an accelerated cleanup and demolition of facilities. The new security posture makes it easier for deactivation and decontamination workers to enter the plant and for workers to move cleanup debris out of the facility. Personnel with contractor CH2M HILL Plateau Remediation Company are dismantling hundreds of pieces of production equipment and preparing dozens of buildings for demolition before the Tri-Party Agreement milestone of 2016.

### Removal of K East Reactor Basin: Once Stored 1,100 tons of Uranium Fuel Rods



[Aerial view of soil cleanup under the former location of the K East Basin, November 2009](#)

In September, workers at the Hanford Site finished removing a nuclear reactor basin that was once considered a top environmental risk. The structure once stored 1,100 tons of uranium fuel rods in 1.2 million gallons of water. The basin had also contained sludge – and the removal of the sludge proved to be a difficult and arduous task for Hanford workers. Sludge was eventually removed from the K East basin and transferred to the K West basin so that demolition of the K East basin could begin. More than 5,000 cubic yards of sand and grout was used as shielding at the work site so that

workers could access the site and demolish the basin structure. Not only did this material provide shielding from radiation on the floor and walls of the basin but also a platform for the demolition machinery to drive across and tear down the roof and walls.

The basin, which had previously been prone to leaks in the 1970's and 1990's, had to be removed so that soil underneath the basin could be accessed for remediation. The basin was located adjacent to the K East Reactor, one of nine plutonium production reactors along the Columbia River on the Hanford Site. Workers finished removing the spent nuclear fuel from the basin 2004 and the sludge in 2007. Water was drained from the basin in 2008 and workers demolished the basin's superstructure that same year. Between October 2008 and September 2009, workers filled more than 2,000 large containers with debris as they excavated the basin that was 20 feet deep, 125 feet long and 67 feet wide. The waste was disposed of at Hanford's Environmental Restoration Disposal Facility.

### Upgrade of Major Groundwater Treatment System at 100 K Area

Workers with contractor CH2M HILL Plateau Remediation Company completed upgrades and expansions of a major new groundwater treatment system near the Columbia River in the 100 K Area. The K Area spans 535 acres and includes the K East and K West reactors and several facilities and waste sites that supported reactor operations from the 1950s to the 1970s.

Operation of the newest groundwater treatment system began in May, and within one month, the overall treatment capacity for the K Area Project reached more than 35 million gallons per month – three times its previous capability. The treatment system removes hexavalent chromium from the groundwater and is helping DOE meet its commitment to contain all chromium contamination along the Columbia River by 2012.

### Major Progress Made to Prepare N Reactor for Cocooning

DOE contractor Washington Closure Hanford began interim safe storage – or “cocooning” – of N Reactor, Hanford’s last operating plutonium production reactor.



[Demolishing facilities at the N Reactor](#)

The N Reactor is unique because it was Hanford’s only dual-purpose reactor, producing steam for electricity and plutonium for weapons. Work in 2009 included decontamination and demolition of the 107-N and 109-N facilities.

Work at the 107-N Building involved removal of sand filters and a massive tank, called the T-1 Tank. At one point, work on the 109-N Building involved nine excavators to load debris from the demolition work. The debris was then transported to Hanford’s Environmental Restoration Disposal Facility. Once cocooned, N Reactor will be the largest cocooned reactor at Hanford, taking up as much as twice the footprint of any of the five previously cocooned reactors.

### Cells 7 & 8 Completion and Super Cell 9 Expansions at ERDF

DOE contractor Washington Closure Hanford completed construction of waste disposal cells 7 & 8 and put both into service during 2009 at Hanford’s Environmental Restoration Disposal Facility (ERDF). In addition, the excavation of super cell 9 – the equivalent of two existing cells – is nearly complete using Recovery Act funding. The extra waste disposal capacity at ERDF is extremely important to the ongoing cleanup of the Hanford Site.



[Excavating a new disposal cell at the Environmental Restoration Disposal Facility](#)

Construction of super cells 9 and 10 will increase total disposal capacity by 50 percent to 16 million tons. ERDF has already received more than 8.8 million tons of Hanford cleanup waste for disposal. Excavation of super cell 9 began in August, putting Recovery Act dollars to work through subcontractor DelHur Industries, which was already on the Hanford site performing other work. The total estimated cost to construct cells 9 and 10 is about \$55 million, with construction through fall 2011.

Disposal of waste at ERDF is commonly seen as a benchmark for how much cleanup is getting done at Hanford. In order to accommodate increased amounts of waste coming into the facility from across the Hanford Site, the DOE Richland Operations Office and its contractors have purchased additional haul trucks, waste containers, bulldozers and water trucks – all key to expanded operations at the disposal facility.

## **Last of Three Prime Contracts Awarded at the Hanford Site**



[Mission Support functions transitioned to contractor Mission Support Alliance in August](#)

The DOE Richland Operations Office put the last of three prime contracts in place this year when it selected the Mission Support Alliance (MSA) on April 28, 2009 to provide cross-cutting services at the Hanford Site. The mission support contract is a cornerstone of the multi-contract structure for the Department of Energy at Hanford to provide services and infrastructure across the 586-square mile site.

MSA now provides several services: safety, security and environment, site infrastructure and utilities, site business management, information resources and content management, and portfolio management. MSA took over operations on the site on August 24, 2009, after a 90-day transition period.