

---

# **U.S. Department of Energy**

## ***Hanford Cleanup Progress***

Washington State Legislature  
Wednesday, February 18, 2009

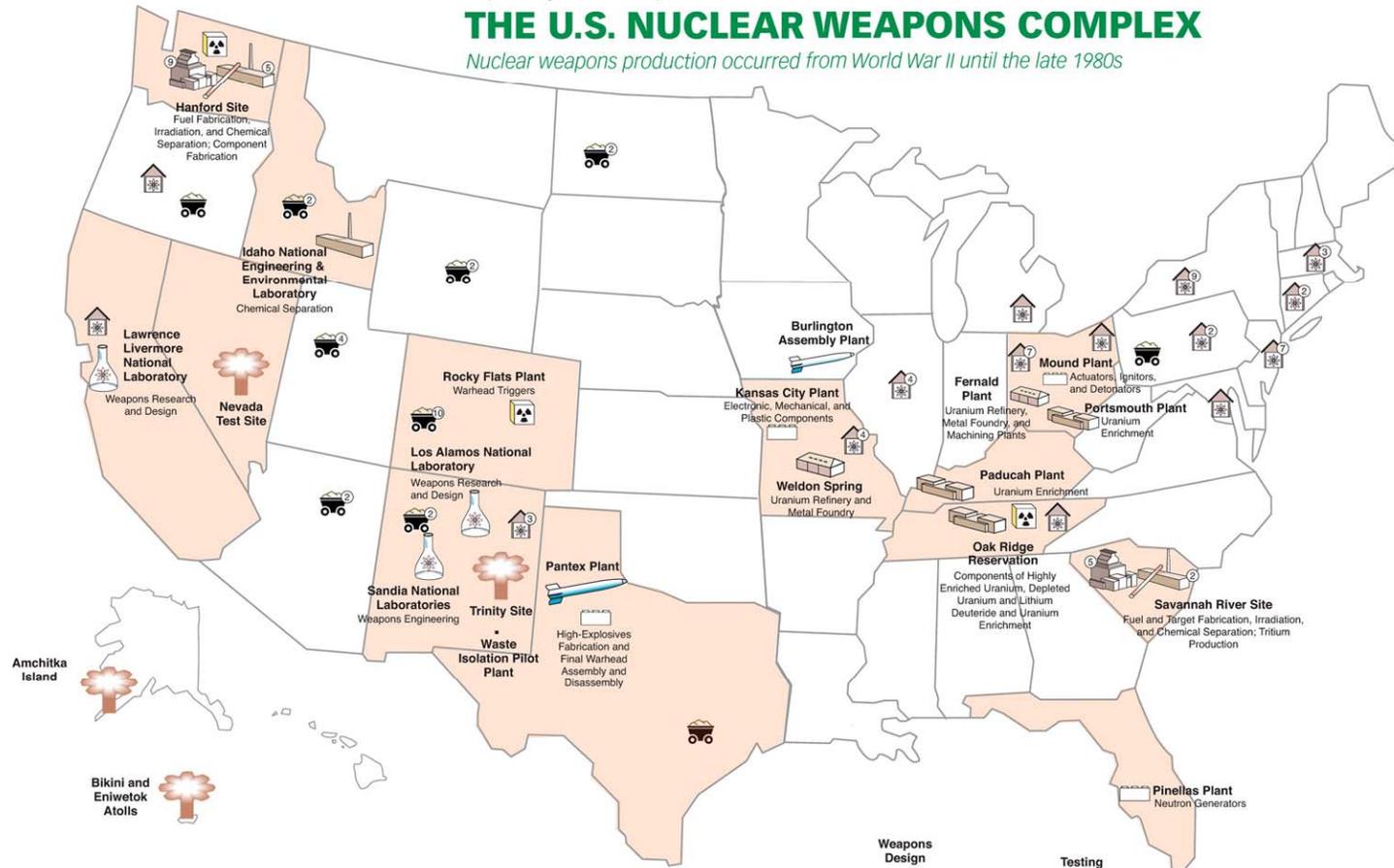


U.S. DEPARTMENT OF  
**ENERGY**

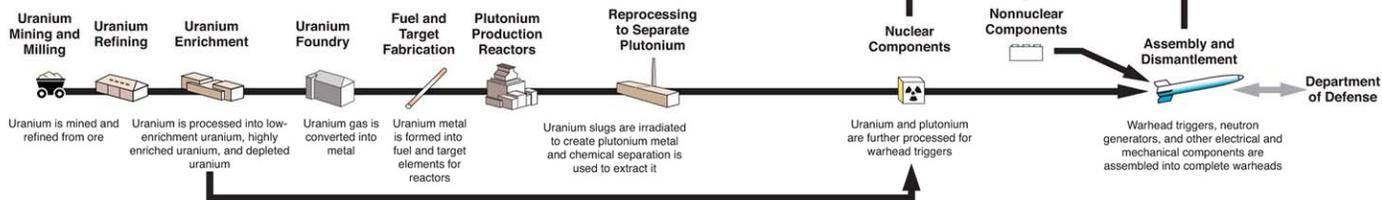
Map showing the historic scope of the nuclear weapons complex at the height of production capacity.

# THE U.S. NUCLEAR WEAPONS COMPLEX

Nuclear weapons production occurred from World War II until the late 1980s



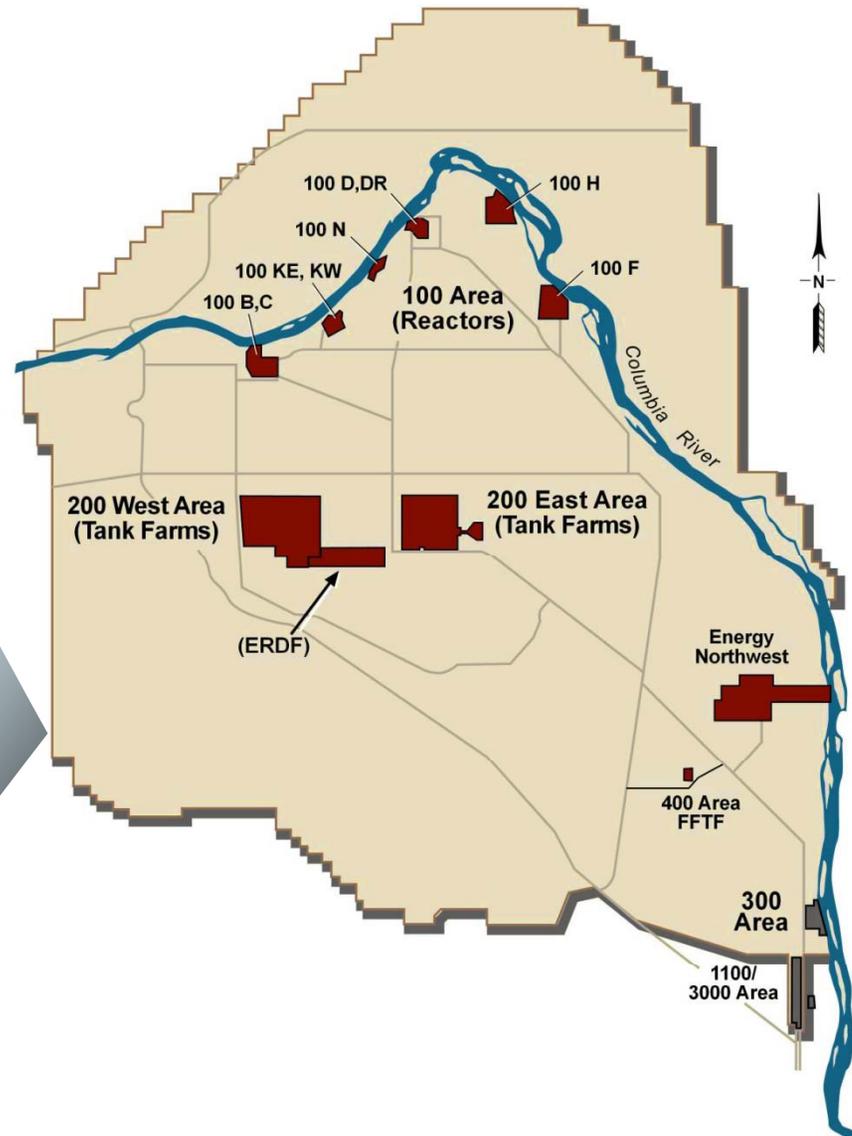
## Nuclear Weapons Production



- = Former industrial site contaminated with radioactivity, some but not all of which contributed to nuclear weapons production.
- = Number indicates how many sites were or are located in the state.
- = Shaded states hosted major production sites.

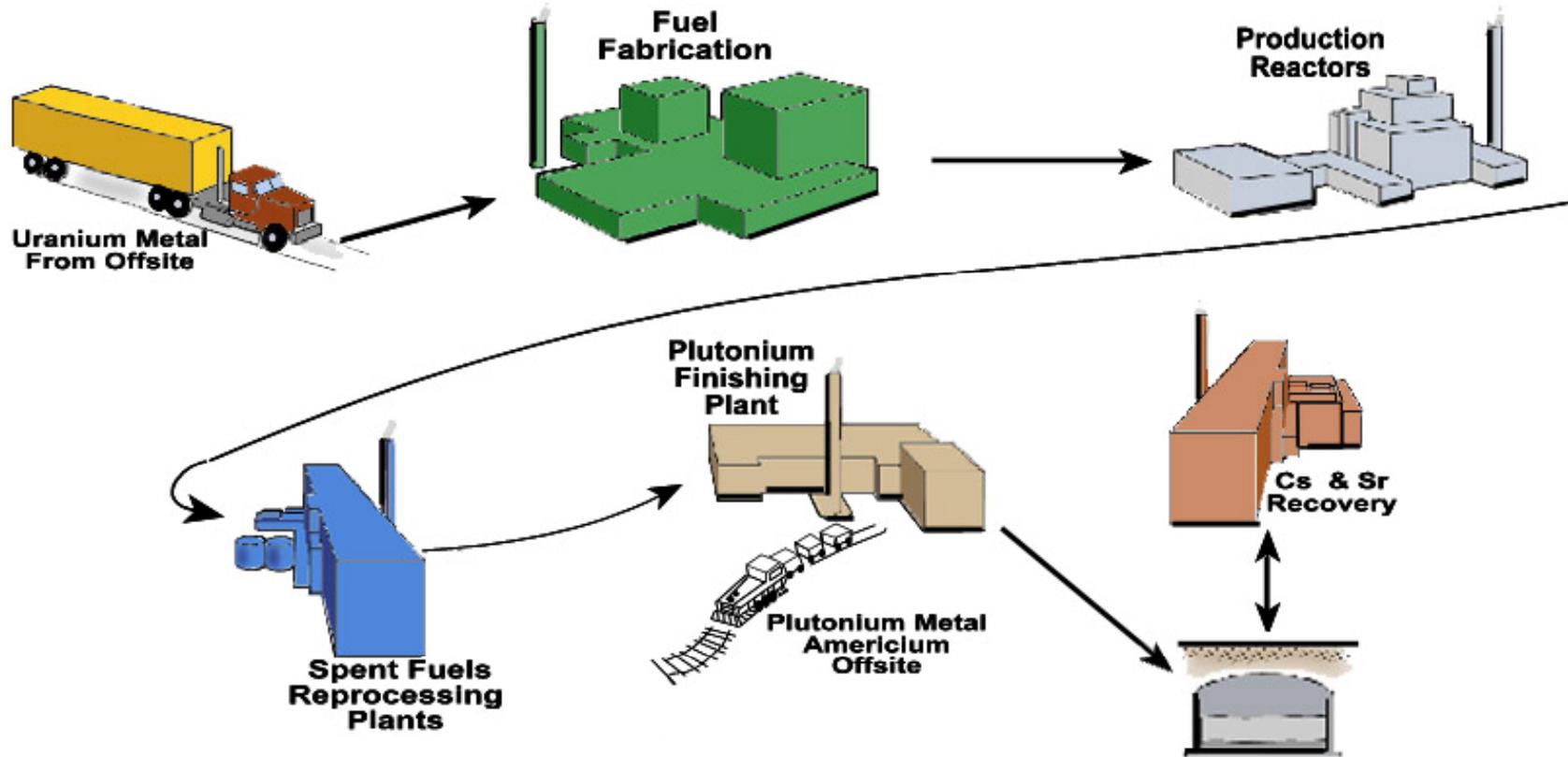
Source: Adapted from "Closing the Circle on the Splitting of the Atom: The Environmental Legacy of Nuclear Weapons Production in the United States and What the Department of Energy is Doing About It" U.S. Department of Energy, Office of Legacy Management. Second Printing January 1996.

# Hanford Site Map



U.S. DEPARTMENT OF  
**ENERGY**

# Hanford – Plutonium Production Cycle



U.S. DEPARTMENT OF  
**ENERGY**

# 20 Years of Cleanup Progress

Before Cleanup Started (1989)	Examples of Cleanup Completed
<ul style="list-style-type: none"> <li>• 800 waste sites near Columbia River, 850 waste sites on Central Plateau (center of the site)</li> </ul>	<ul style="list-style-type: none"> <li>• Cleaned up more than half of waste sites near river, 39 waste sites on Central Plateau</li> </ul>
<ul style="list-style-type: none"> <li>• 496 facilities near river and 970 on Central Plateau</li> </ul>	<ul style="list-style-type: none"> <li>• Demolished one-third of facilities near river and one-quarter of facilities on Central Plateau</li> </ul>
<ul style="list-style-type: none"> <li>• 2,300 tons of spent nuclear fuel deteriorating in leak-prone, water-filled basins near river</li> </ul>	<ul style="list-style-type: none"> <li>• Moved all spent fuel to dry storage, removing 95 percent of radioactivity along the river</li> </ul>
<ul style="list-style-type: none"> <li>• 20 tons of leftover plutonium materials in various forms at Plutonium Finishing Plant</li> </ul>	<ul style="list-style-type: none"> <li>• All material stabilized, packaged and being shipped out of the state (to be completed in 2009)</li> </ul>



# 20 Years of Cleanup Progress

Before Cleanup Started (1989)	Examples of Cleanup Completed
<ul style="list-style-type: none"> <li>• 9 nuclear reactors that produced plutonium requiring constant surveillance and maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• 5 reactors in interim safe storage, all associated facilities demolished, work on two more underway</li> </ul>
<ul style="list-style-type: none"> <li>• 80 square miles of contaminated groundwater</li> </ul>	<ul style="list-style-type: none"> <li>• Active treatment in place along Columbia River and on Central Plateau, 3.6 billion gallons treated</li> </ul>
<ul style="list-style-type: none"> <li>• 53 million gallons of waste in 177 underground tanks, 67 of which have leaked in the past</li> </ul>	<ul style="list-style-type: none"> <li>• All pumpable liquids removed</li> <li>• Tanks integrity assessment underway</li> <li>• 7 tanks emptied, 4 more underway</li> </ul>
<ul style="list-style-type: none"> <li>• No treatment capability for underground tank waste</li> </ul>	<ul style="list-style-type: none"> <li>• Waste Treatment Plant under construction – 47 percent complete</li> </ul>

# Cleaning Out and Tearing Down Buildings

---



U.S. DEPARTMENT OF  
**ENERGY**

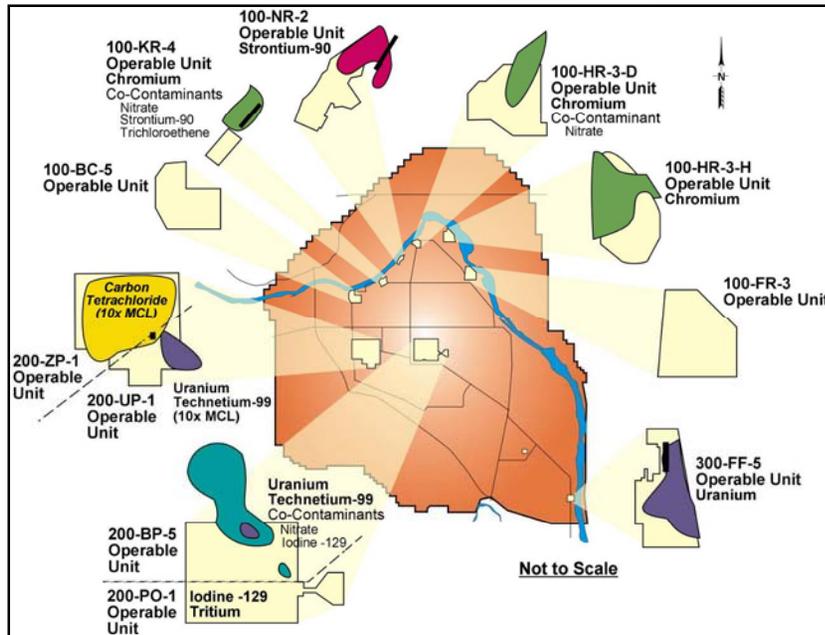
# Digging up Waste Sites Along the River

---



U.S. DEPARTMENT OF  
**ENERGY**

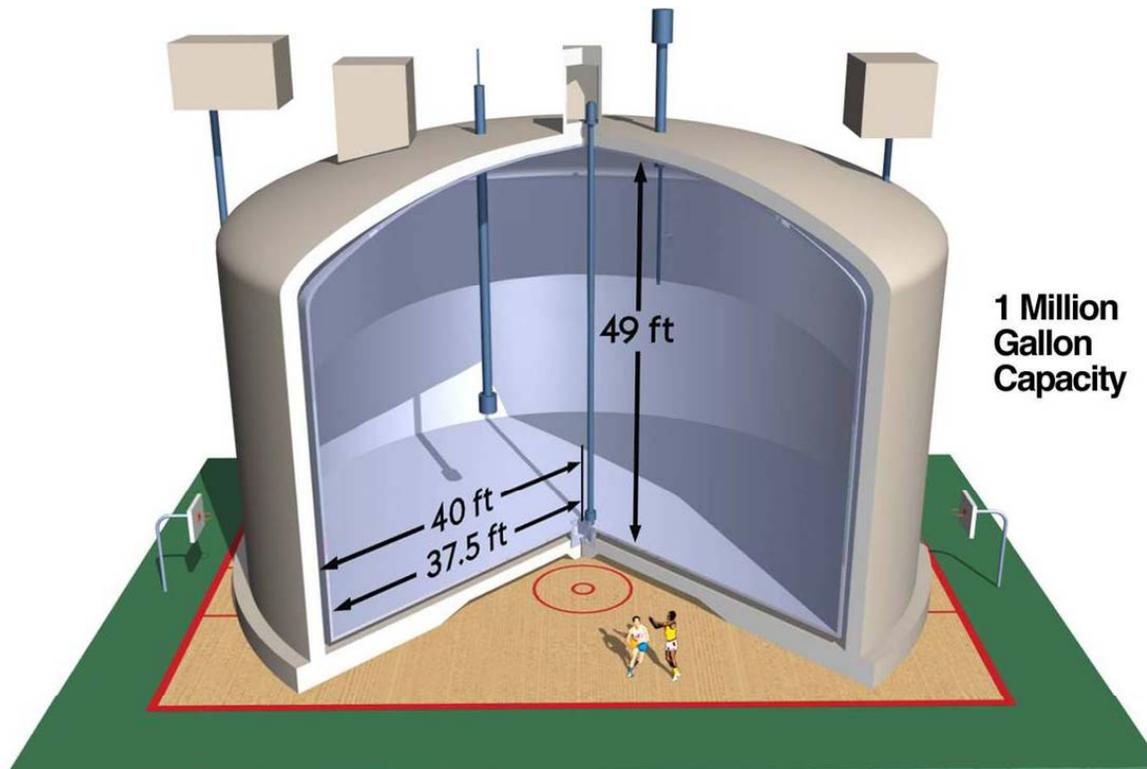
# Cleaning up Groundwater



Groundwater contamination undergoing cleanup



# Retrieving Waste from Underground Tanks



U.S. DEPARTMENT OF  
**ENERGY**

# Building Waste Transfer Systems

---



U.S. DEPARTMENT OF  
**ENERGY**

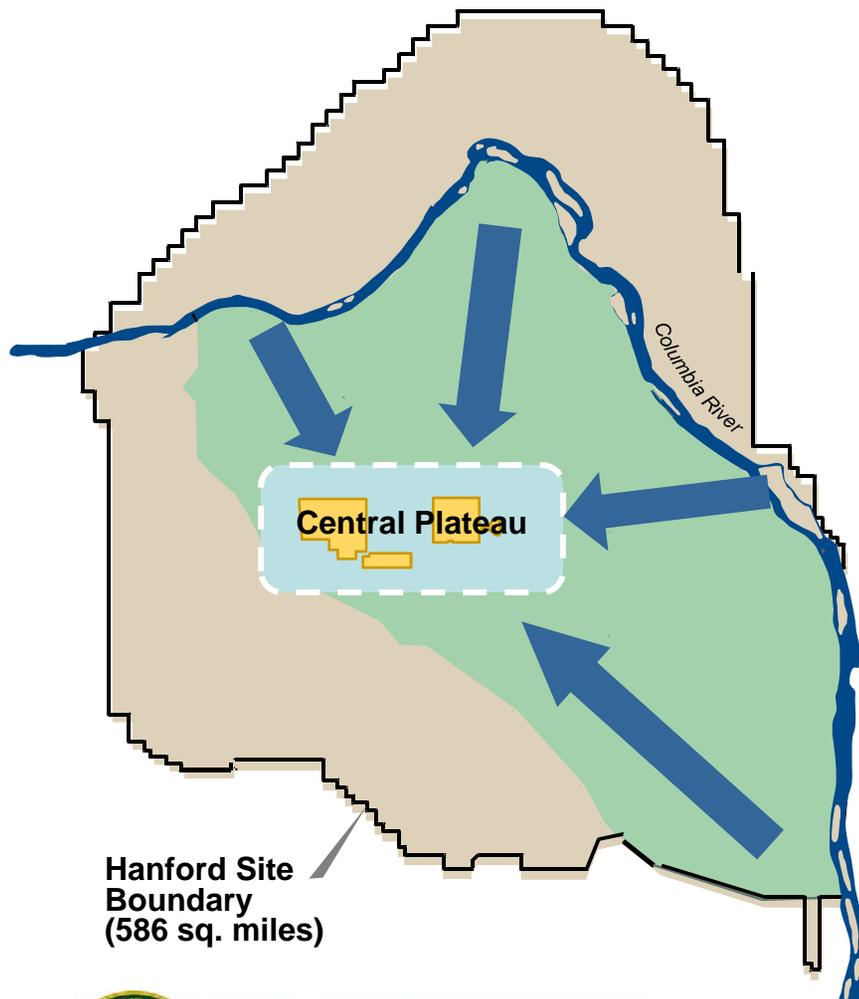
# Building a Treatment Plant for Tank Waste



U.S. DEPARTMENT OF  
**ENERGY**

# Where We're Headed

---



## By 2015

- Complete cleanup along the Columbia River
- Shrink active cleanup area to 75 square miles—center of Hanford

## By 2019

- Begin treating underground tank waste

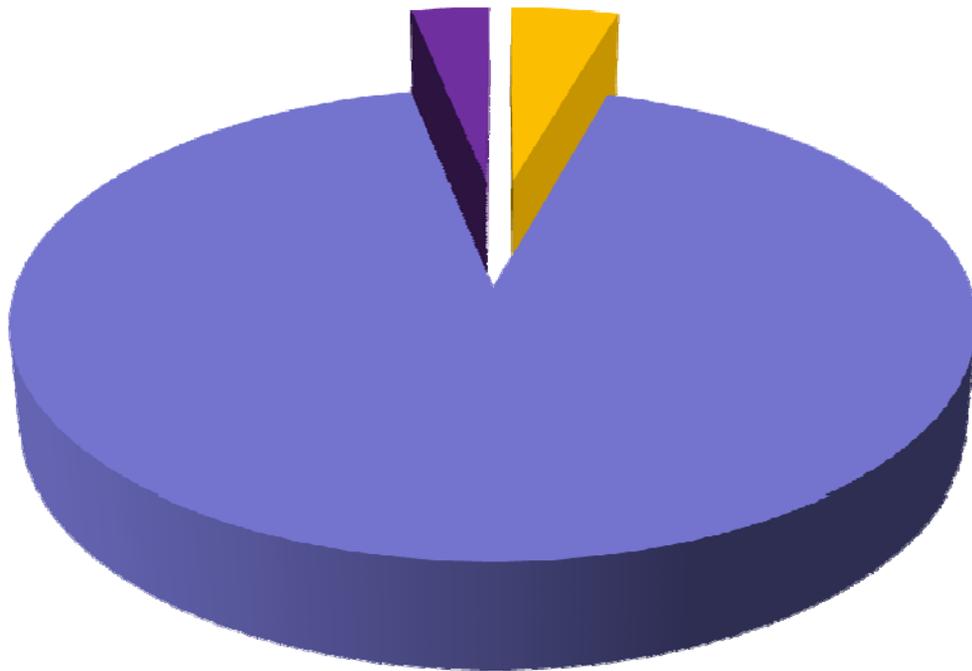
## Continuing

- Emptying and closing underground waste tanks
- Demolishing buildings in central Hanford (Central Plateau)
- Treating contaminated groundwater
- Protecting the Columbia River



U.S. DEPARTMENT OF  
**ENERGY**

## How Much Waste is Going to Leave the State?



*92 percent of Hanford waste, by radioactivity, to be shipped out of the state*

405 million total curies of waste at Hanford

- 92 percent of waste (374 million curies) identified for shipment out of state to national geologic repositories
- 4 percent of waste (18 million curies) to be disposed of at Hanford
- 3 percent of waste (13 million curies) with no currently identified disposal pathway



U.S. DEPARTMENT OF  
**ENERGY**



## We Remain Committed to...

---

- Protecting the Columbia River
- Reducing the “footprint” of the Hanford Site
- Returning the land to long-term stewardship
- Preparing Hanford’s most radioactive waste for treatment and shipment off the site and out of the state
- Protecting the health and safety of our workforce and the public...with one of the best safety records in the industry
- Following the Tri-Party Agreement that governs cleanup of the Hanford Site
- Working with the state, EPA, Tribes, and the public to make decisions that support shared values