



U.S. DEPARTMENT OF  
**ENERGY**

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**2015 Vision Status & Post-2015 Priorities**  
*RAP Subcommittee*

**Doug S. Shoop, RL Deputy Manager**  
**March 6, 2013**

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# 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
- ✓ **Additional Scope:** Extensive Chromium Contamination at the B/C Area (C-7), dug trench to groundwater to removed source

#### 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
- ✓ **Additional Scope:** Discovery of additional waste sites and additional contamination from past transportation fuel spills

#### 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
- ✓ **Additional Scope:** More extensive chromium contamination and discovery of additional waste sites

#### 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
- ✓ 2,300 Tons of Scrap Nuclear Fuel Removed
- ✓ 109 Facilities Demolished
- ✓ 2 Waste Sites Remediated
- ✓ ~361,000 Tons of Soil Removed
- ✓ **Additional Scope:** Additional waste sites and contamination resulting from past operations.

#### 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

#### 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

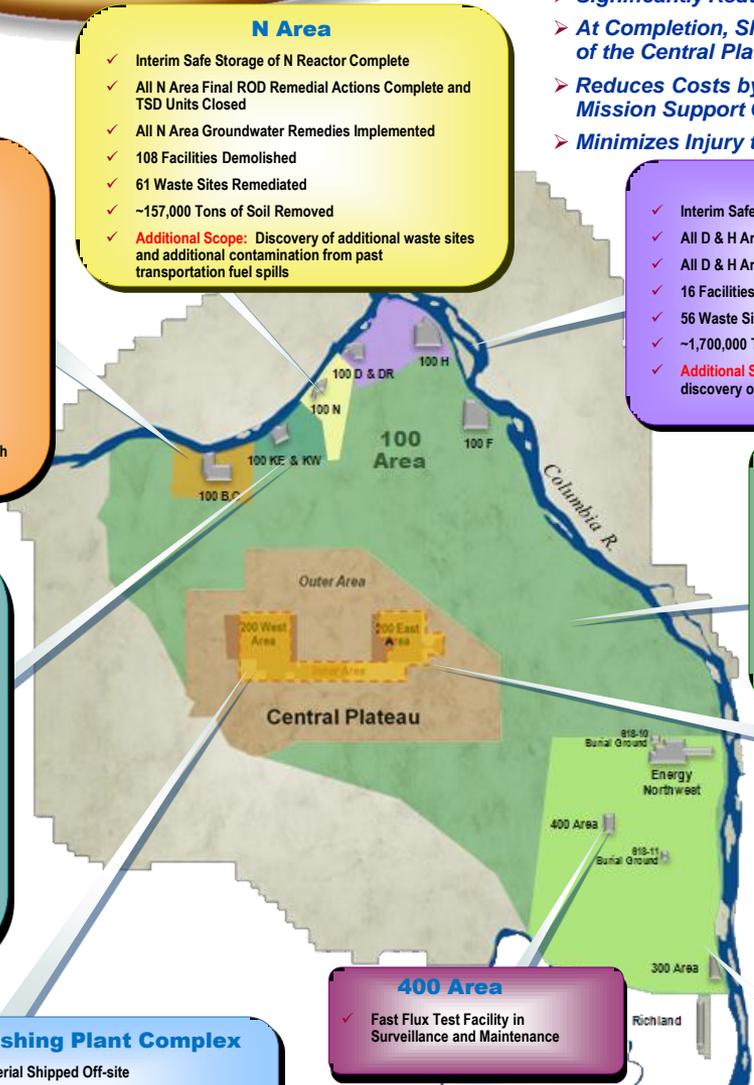
- ✓ All Special Nuclear Material Shipped Off-site
- ✓ Slightly Irradiated Fuel Shipped to the Canister Storage Building for Safe Guarding
- ✓ PFP Complex Reduced to Slab on Grade
- ✓ 18 Facilities Demolished

#### 400 Area

- ✓ Fast Flux Test Facility in Surveillance and Maintenance

#### 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
- ✓ **Additional Scope:** Discovery of high-level radioactive contamination below 324 Building



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



-  Placed 78% (7 of 9) of nuclear reactors in Interim Safe Storage/Dispositioned
-  Demolished 77% (357 of 458) of contaminated/excess facilities and 60% of Category II/Category III nuclear facilities
-  Remediated 68% (681 of 995) of waste sites
-  Disposed more than 14 million tons of contaminated waste in Environmental Restoration Disposal Facility
-  100-K Area is > 99% nuclear fuel free; 100% of Knock-Out Pot material in interim storage; remainder of radioactive sludge is 100% containerized; design/test systems and components to transfer the sludge to the Central Plateau for interim storage is 85% complete.
-  Treated 6.4 billion gallons of contaminated groundwater, removing more than 8 tons of contaminants
-  Completed 60% of Plutonium Finishing Plant decommissioning, including 100% of special nuclear material shipped offsite, 184 of 238 glove boxes dispositioned, 90 of 196 pencil tanks removed, and 32 of 46 facilities demolished
-  Reduced active cleanup footprint by 73% (425 of 586 square miles)



The Vision set a challenging scope of work that could potentially be accomplished by 2015.

The Vision made an assumption of a stable funding of \$1.040B for the Richland Operations Office from 2012-2015.

The \$1.040B funding level has not been realized. Fiscal Year 2012 was about \$20M below Vision requirements  
Fiscal Year's '13, '14, and '15 may also be below this level.

Significant progress has been made toward the 2015 Vision, with three years left to go.

Established in 2008

2015 Vision

Assumptions

Challenges

Performance

3 years to go

The Richland Operations Office continues to aggressively pursue 2015 Vision goals. Much has been accomplished to date and we anticipate the vast majority of the Vision will be complete in the remaining three years

The amount of work to be done has increased within the 2015 Vision.

**Increased Scope:**

- High levels of radioactive contamination found under the 324 building
- 170 new waste sites requiring remediation in the River Corridor
- More extensive chromium contamination near Columbia River (costing \$107M)



# The 2015 Vision

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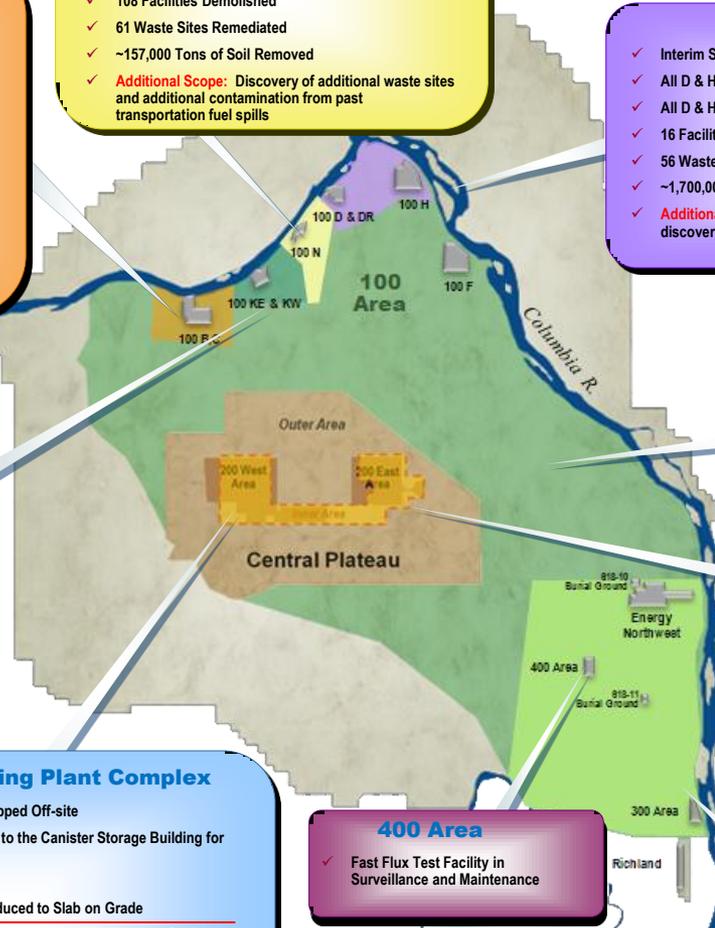
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- ✓ 18 Facilities Demolished
- ✓ **CHALLENGE:** PFP Complex Reduced to Slab on Grade
- ✓ **Additional Scope:** Additional plutonium found inside plant facilities and found adhered to piping, process equipment, exhaust ducts, and filters. (~10kg) The details of challenges include:
  - ~10 Kilograms of plutonium holdup remaining in process equipment, exhaust ducts and filters, in the Plutonium Reclamation Facility, piping, drain lines, etc.
  - Residual acids and hazardous chemicals in pipes and tanks

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# EPA/Ecology/DOE Senior Executive Committee Action

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*By October 10, Doug Shoop and Stacy Charboneau will provide a draft RL and ORP prioritized list of work and associated TPA milestones. Once finalized by the Agencies these lists will aid in focusing potential limited resources/budgets on the highest priority work. A draft list of efficiencies will also be provided. Once finalized by the Agencies this list will aid in reducing site costs and allowing for additional funds for priority cleanup work.*





# 2016 – 2020 Cleanup Priorities

Richland Operations Office

**DRAFT**

### Complete any Remaining 2015 Vision Projects

1. Complete demolition of PFP to "Slab on Grade"
2. Complete transfer of the K West Basin sludge to the Central Plateau

### Complete any Remaining River Corridor Cleanup

3. Complete the 324 Building and 618-11 Burial Ground
4. Conduct any additional soil remediation required by the CERCLA Records of Decision
5. Demolish the K West Basin and demolish/remediate remaining K-Area facilities and waste sites
6. Place the last two plutonium production reactors (K East and K West) into interim safe storage

### Continue Groundwater Cleanup and Reduce Key Long-term Groundwater Threats

7. Contain key contaminants and treat over 1 billion gallons of contaminated groundwater each year
8. Implement additional groundwater remedies required by the River Corridor CERCLA Records of Decision (expand Cr+6, 100 N apatite barrier and 300 Area Phase I in situ treatment)
9. Implement 200 East groundwater remedies (BP-5/PO-1)
10. Complete data acquisition and treatability testing to determine feasibility of remediating the Deep Vadose Zone, contaminated by past discharge of more than 450 billion gallons of contaminated liquids directly to the soil

### Provide Essential Infrastructure for Cleanup

11. Establish necessary infrastructure to support Waste Treatment Plant operations and Central Plateau cleanup



### Serve as a Primary Source of Contact-Handled and Remote-Handled Waste for the Waste Isolation Pilot Plant (WIPP)

#### Ship Contact-Handled Legacy and Newly Generated Transuranic Waste to WIPP

12. Ship legacy waste
13. Ship newly generated waste

#### Ship Remote-Handled Legacy and Newly Generated Transuranic Waste to WIPP

14. Treat and ship K-Basins sludge
15. Retrieve, pretreat and ship transuranic waste stored in Alpha Caissons

### Eliminate EM's Largest Beyond-Design-Basis Threat (Fukushima-like event) to the Public

16. Determine disposition path for 1,936 cesium/strontium capsules (104 million curies)

### Reduce Security Costs by More than \$20 Million Per Year

17. Ship category I irradiated fuel offsite (approximately 20 shipments)

### Clean up the Central Plateau Outer Area and Shrink the Cleanup Footprint of the Hanford Site to Less than 10 Square Miles (98 percent reduction)

18. Complete RI/FS and obtain Record of Decision for outer area operable units
19. Remediate over 120 waste sites
20. Close the Non-Radioactive Dangerous Waste Landfill/Solid Waste Landfill by placing a barrier over the top
21. Complete small TSD closures

### Clean Up Central Plateau Inner Area Waste Sites

22. Clean up 21 waste sites (PW 1, 3, 6 and CW5) contaminated with plutonium and cesium in the Central Plateau Inner Area
23. Complete RI/FS and obtain Records of Decision for inner area waste site operable units in the following priority
  - 200 West Inner Area and BC cribs and trenches
  - 200 East Inner Area and pipelines
  - 200 Area Deep Vadose Zone
  - 200 Area Burial Grounds

### Complete First Remediation of a Large Processing Canyon in the EM Complex

24. Begin demolition of U Plant, clean up waste sites, and design protective barrier

## Base Operations Needed to Support Cleanup

Operate key waste management facilities and maintain minimum safe operations and essential site services

### Footprint Reduction

- River Corridor ~220 square miles
- Central Plateau Outer Area ~65 square miles
- Central Plateau Inner Area ~10 square miles



# Post 2020 Cleanup Priorities

Richland Operations Office

*DRAFT*

1. Continue Groundwater Remedies

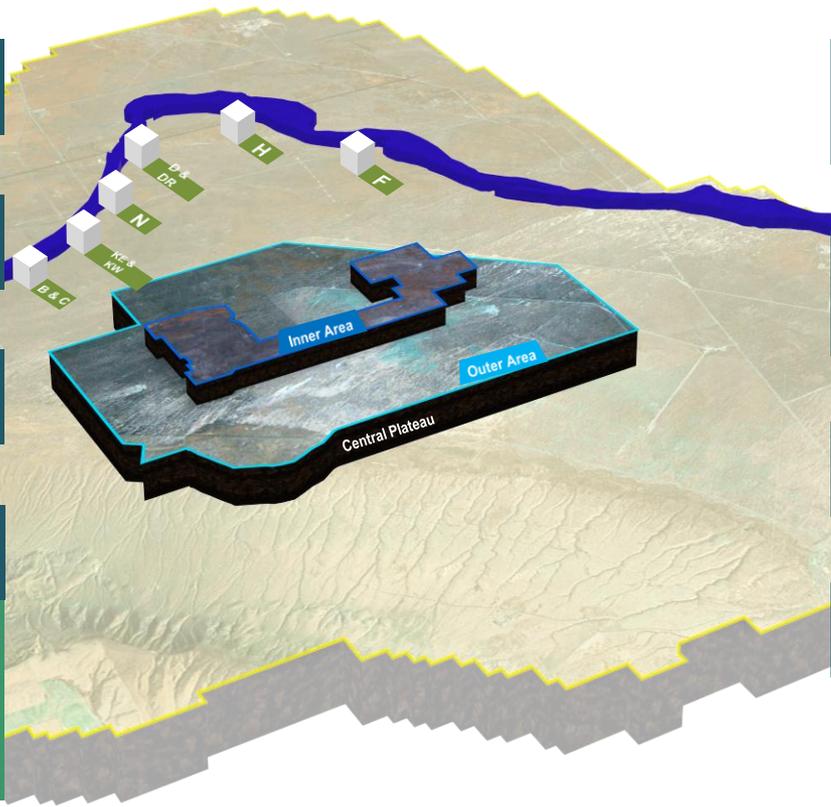
2. Continue TRU Shipments to WIPP

3. Disposition 1,936 Cesium/Strontium Capsules

4. Complete Cleanup of the Inner Area per the CERCLA RODs

- a. 200 West Inner Area & BC Cribs & Trenches
- b. 200 East Inner Area & Pipelines
- c. 200 Area Deep Vadose Zone
- d. 200 Area Burial Grounds

5. Install U Canyon Barrier



6. Complete RI/FS and obtain Records of Decision for Remaining Canyons (B Plant, PUREX, REDOX)

7. Complete Cleanup of Canyons (B Plant, PUREX, REDOX) per the CERCLA RODs

8. Determine Final Disposition of 100 Area Reactors

9. Demolish the Fast Flux Test Facility

