U.S. DEPARTMENT OF ENERGY | OFFICE OF ENVIRONMENTAL MANAGEMENT

# EM FY 2015 Budget Rollout Presentation

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# Environmental Cleanup–a Key DOE Strategic Goal

- The mission of the DOE Office of Environmental Management (EM) is to complete the safe cleanup of the environmental legacy brought about from five decades of nuclear weapons development and government-sponsored nuclear energy research.

- EM's work supports DOE Strategic Objective #8: "Continue cleanup of radioactive and chemical waste resulting from the Manhattan Project and Cold War activities."

# Section One: Summary of FY 2015 Budget Request

# EM FY 2015 Budget Request

## Funding by Appropriation

(dollars in millions)

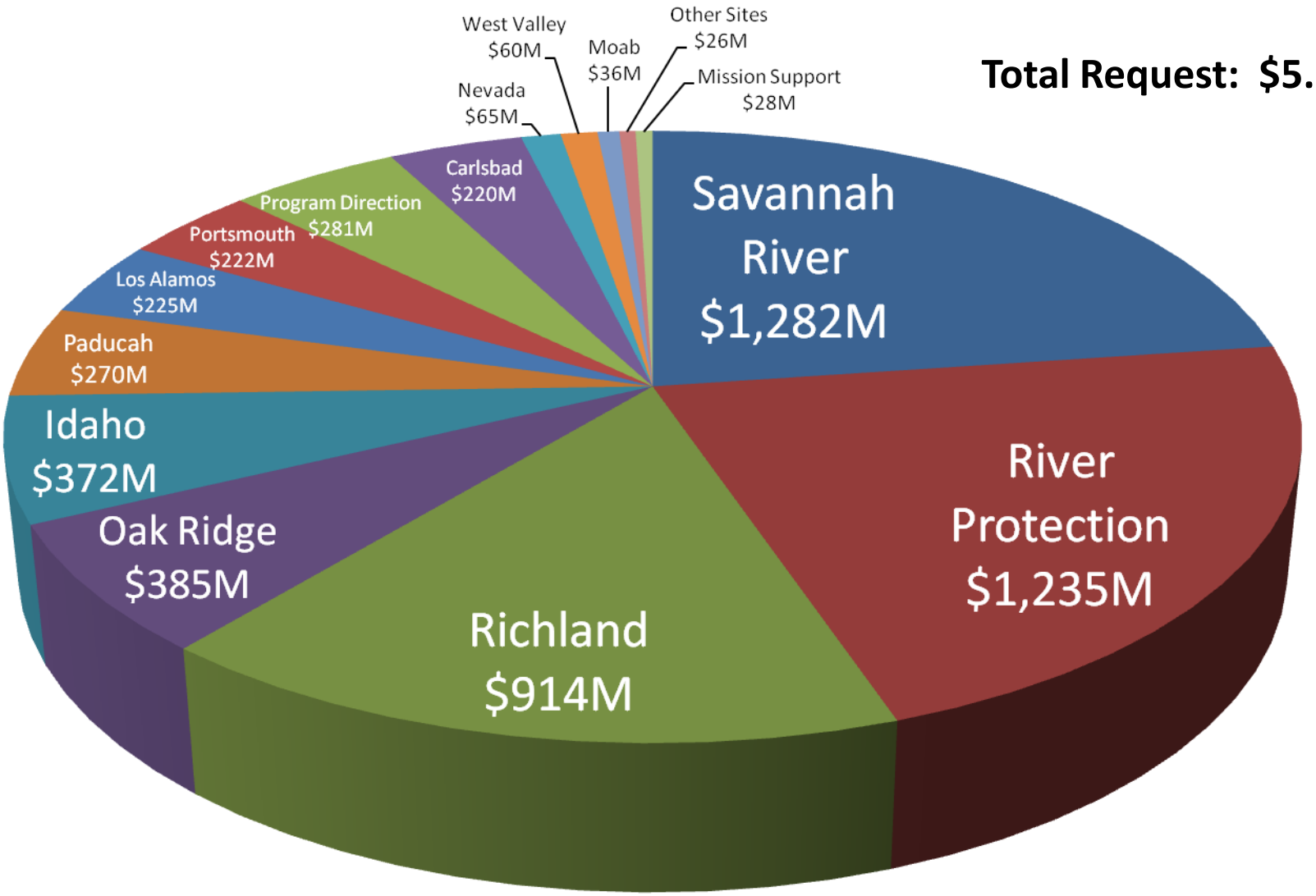
| Appropriation | FY 2013 Current ($M) | FY 2014 Enacted ($M) | FY 2015 Request ($M) |
|---|---|---|---|
| **Defense Environmental Cleanup** | 4,646 | 5,000 | 5,328 |
| **Non-Defense Environmental Cleanup** | 223 | 234 | 226 |
| **Uranium Enrichment Decontamination and Decommissioning Fund** | 448 | 599 | 531 |
| **Subtotal, Environmental Management** | 5,318 | 5,833 | 6,085 |
| D&D Fund Offset | 0 | 0 | -463 |
| Use of Prior Year Funds (Defense & Non-Defense Environmental Cleanup) | -19 | -2 | 0 |
| **Total, Environmental Management** | 5,299 | 5,830 | 5,622 |

**Cleanup**: 4,865
**D&D Fund Deposit**: 463
**Total**: 5,328

# EM FY 2015 Budget Request

## Funding by Field Site

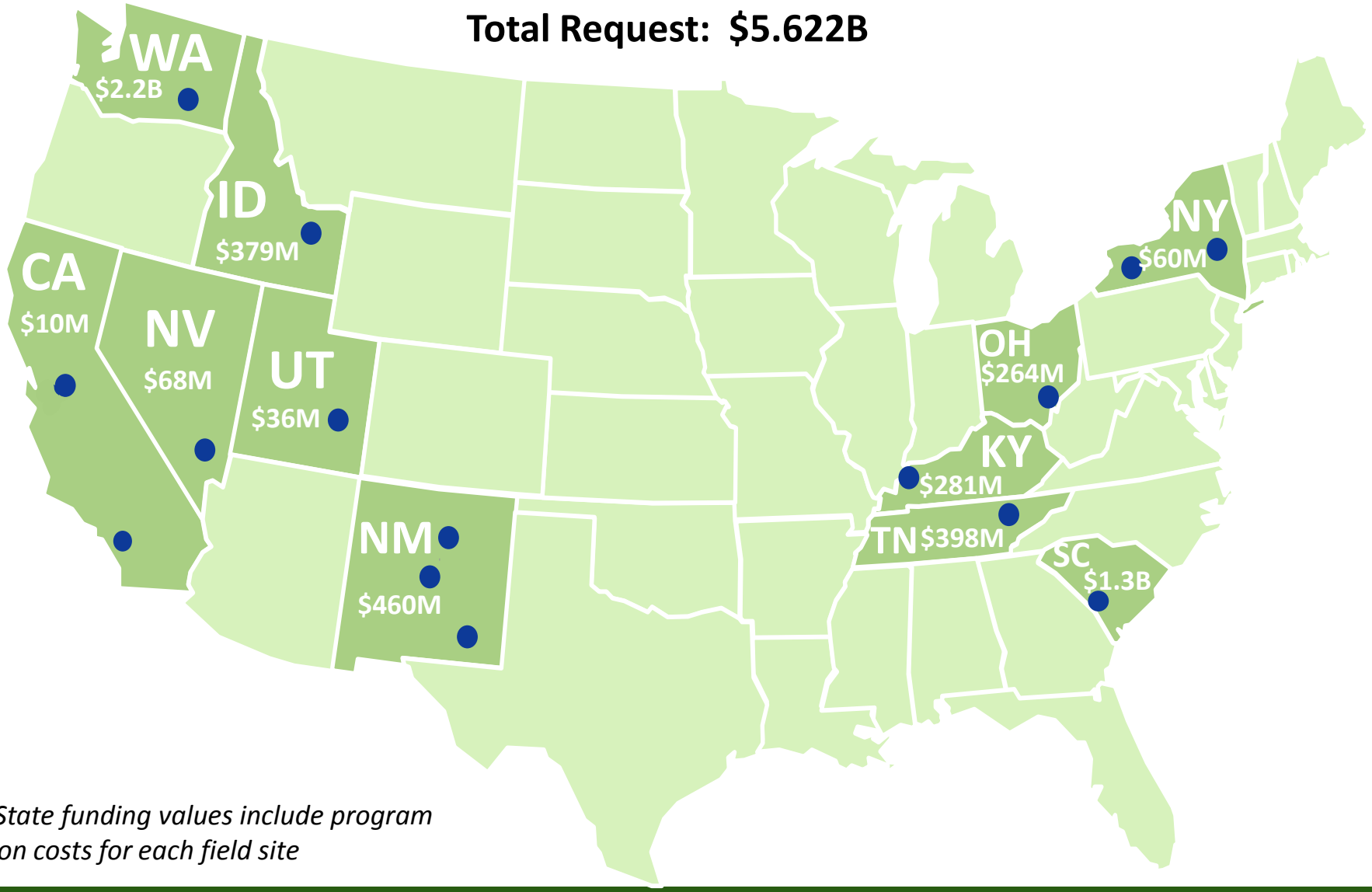
**Total Request: $5.622B**



# EM FY 2015 Budget Request

## Funding by State

**Total Request: $5.622B**




*Note: State funding values include program direction costs for each field site*

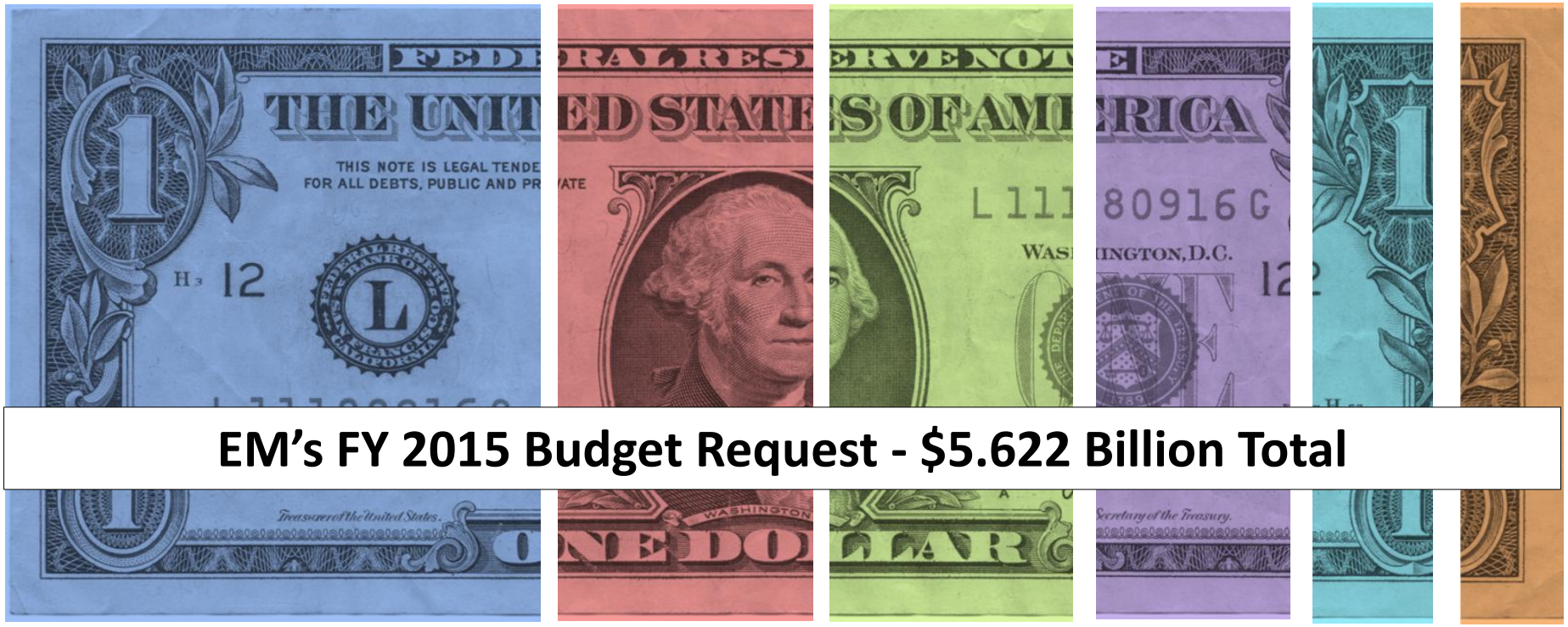
OFFICE OF ENVIRONMENTAL MANAGEMENT

# Where Does Each Dollar of Funding Go? Funding by EM Mission Area in FY 2015

**Radioactive Tank Waste**
$ 2,042M / 36%

**Special Nuclear Materials and Used Nuclear Fuel****
$ 971M / 17%

**Soil and Groundwater**
$ 466M / 8%



## EM's FY 2015 Budget Request - $5.622 Billion Total

**Facility D&D**
$ 992M / 18%

**Transuranic & Solid Waste**
$ 758M / 13%

**Site Services***
$ 392M / 7%

*Includes Program Direction, Program Support, Technology Development & Deployment, Post Closure Administration and Community and Regulatory Support

**Includes Safeguards and Security

# Section Two: EM Mission Overview

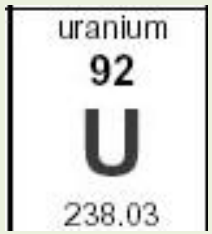
# The Nuclear Weapons Complex Produced Both Nuclear Weapons and Contamination on a Large Scale

Over **700,000 tons of depleted uranium** produced as a by-product of enriching uranium to weapons grade

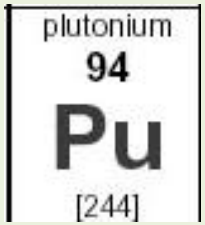
Over **5,000 facilities contaminated** as a result of activities such as reactor operations and uranium enrichment (which produce fissile material for nuclear weapons)

Millions of cubic meters of soil and **billions of gallons of groundwater** contaminated by environmental releases of radioactive and hazardous materials

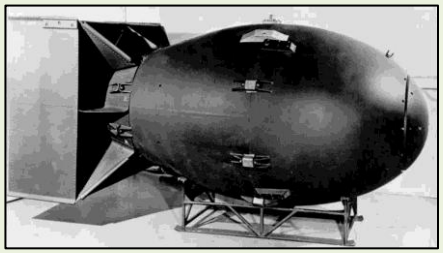
Over **1,000 metric tons** of weapons-grade uranium




Over **100 metric tons** of plutonium




Tens of thousands of nuclear warheads



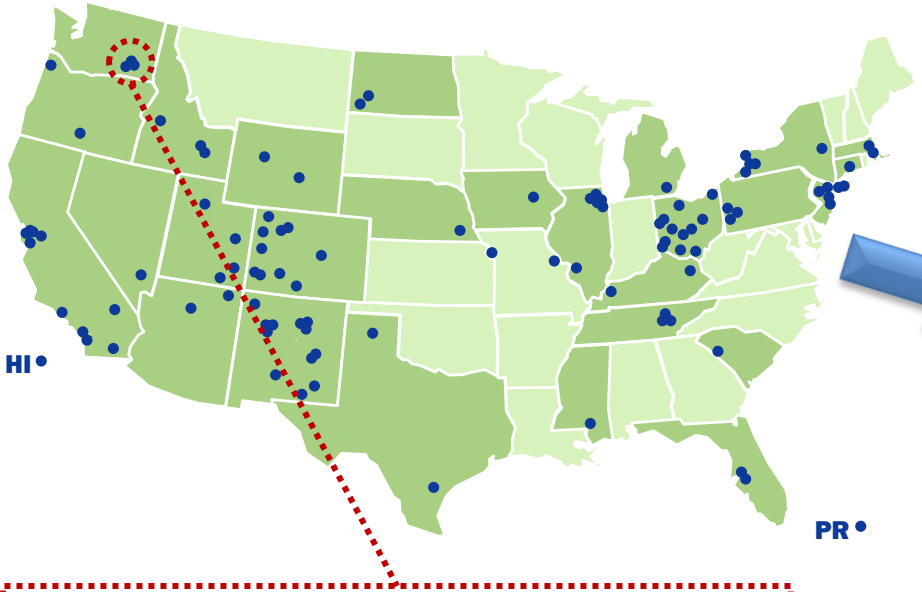
Over **90 million gallons of liquid waste** produced as a by-product of the separation of plutonium and uranium from used nuclear fuel rods

# EM Remediates the Environmental Legacy of the U.S. Nuclear Weapons Complex

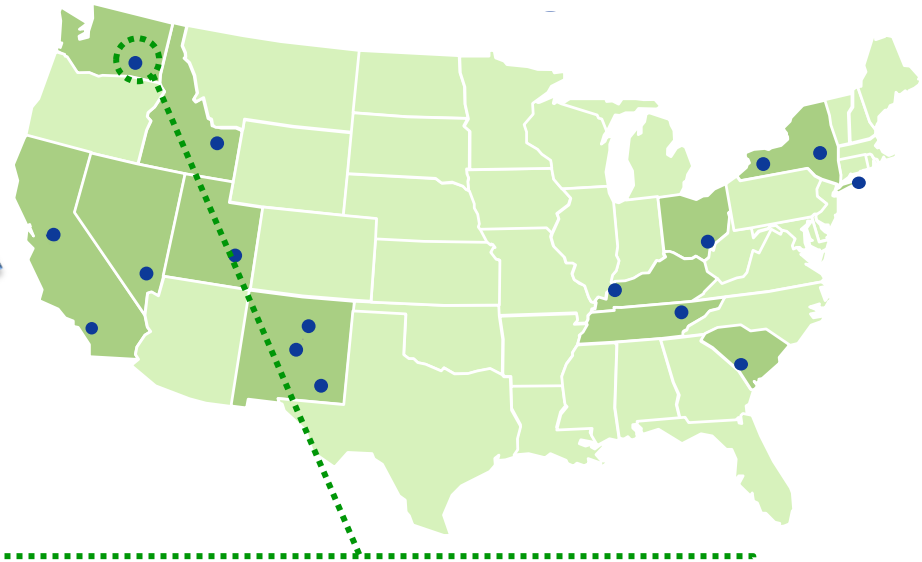
EM is an **operational federal program**, performing a wide variety of tasks to clean up the environmental legacy of the U.S. nuclear weapons complex:

# EM Has Made Significant Progress Cleaning Up the Environmental Legacy of the Cold War

## EM Historical Cleanup Sites (107)




## Sites Remaining Today (16)



**Hanford 300 Area. Pre-Cleanup**

**Hanford 300 Area, Post-Cleanup**

# Safety is EM's Top Priority

- EM conducts cleanup within a "Safety First" culture that integrates environmental, safety, and health requirements and controls into all work activities. This ensures protection to the workers, public, and the environment.
- Worker injury rates for EM cleanup work are significantly lower than averages in comparable industries and have decreased significantly in recent years.
- EM is further strengthening its organizational safety culture through several programs, including training hundreds of senior federal and contractor managers in Leadership for a Safety Conscious Work Environment.

# Legally Enforceable Regulatory Requirements Drive the EM Cleanup Program

**1984**

Court rules that DOE is not exempt from environmental laws and regulations.

Due to this ruling, federal and state regulators now have the authority to require DOE to meet current environmental standards.

**Late 1980s**

DOE enters into enforceable agreements with regulators to bring sites into compliance over time.

**Late 1980s to Present**

DOE successfully meets an annual average of 90% of the enforceable cleanup milestones stipulated under these agreements.

**2015**

EM requests $5.6 billion in budget authority to perform cleanup in accordance with our regulatory commitments.

**Impact of Compliance**

DOE honors its legal obligation to remediate environmental contamination in a timely and safe manner.

**Impact of Non-Compliance**

DOE subject to fines of up to **$37,500 per day** for each missed milestone in FY 2015.

The FY 2015 requested funding level positions the EM program to meet enforceable milestones due in FY 2015.

# Section Three: Major Planned Accomplishments in FY 2015

# Radioactive Liquid Waste Treatment: Making Progress in 2015

## Key Activities and Accomplishments in FY 2015 (Total Funding: $2 Billion)

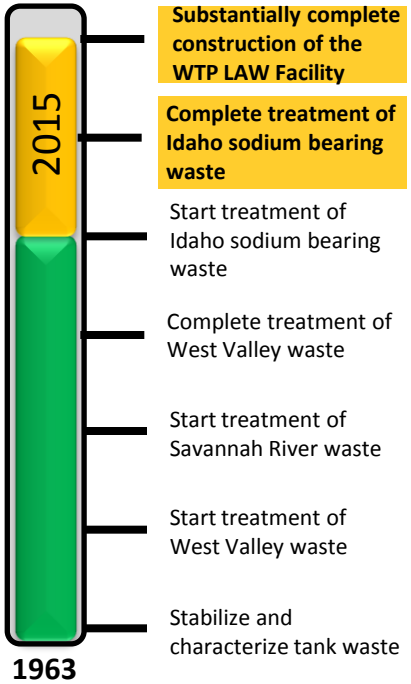
Integrated Waste Treatment Unit (ID)

Defense Waste Processing Facility (SC)

Waste Treatment and Immob. Plant (WA)

- Complete retrieval and treatment of sodium bearing waste from all 4 remaining tanks at Idaho.
- Package 120 - 130 canisters of high level waste at Savannah River, achieving over 50% overall completion of the site's high level waste mission.
- Consistent with the Department's revised option for the Waste Treatment and Immobilization Plant (WTP), which is designed to move the WTP toward immobilization of waste as soon as practicable while resolution of technical issues continues, the FY 2015 budget includes support for analysis and preliminary design of an Interim Pretreatment System.

## Cleanup Progress



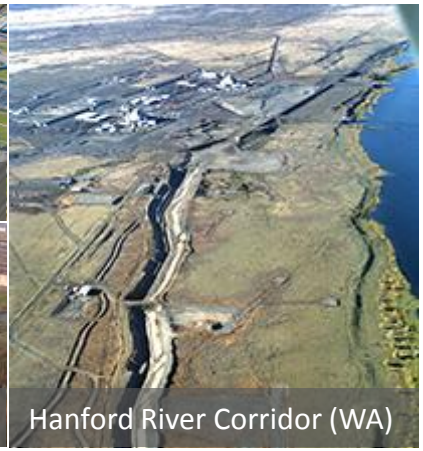
# Cleanout and Demolition of Contaminated Facilities: Finishing Up and Moving Out in 2015

## Key Activities and Accomplishments in FY 2015 (Total Funding: $992 Million)

Ports. Gas. Dif. Plant (OH)

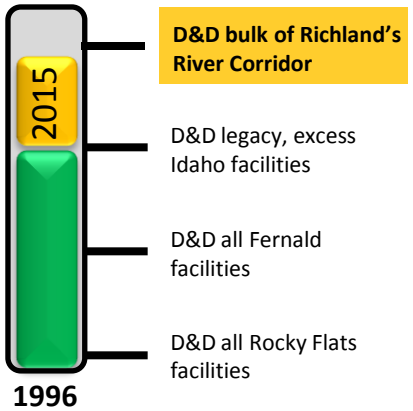
Paducah Gaseous Diffusion Plant (KY)

East Tennessee Technology Park (TN)


Hanford River Corridor (WA)

- Finish up major facility cleanout and demolition projects:
  - Complete bulk of cleanup of Richland's River Corridor, which contained over 500 facilities. The 324 Facility will be the primary River Corridor facility remaining to be completed after 2015.
  - Proceed with cleanout and demolition of the last two major facilities in Oak Ridge's East Tennessee Technology Park (K-27 and K-31). The area previously contained nearly 600 facilities.
  - Complete demolition of the C-410 Complex at Paducah, which contained 15 facilities
- Prepare to move out on a new round of facility cleanout and demolition:
  - Complete transition of the massive Paducah Gaseous Diffusion Plant to DOE and initiate critical facility cleanout actions.
  - Complete equipment removal from one of the three main facilities of the Portsmouth Gaseous Diffusion Plant, which was transferred to DOE in 2011.

## Cleanup Progress



# Nuclear Materials and Fuel: Moving From Interim Safe Storage to Final Disposition in 2015

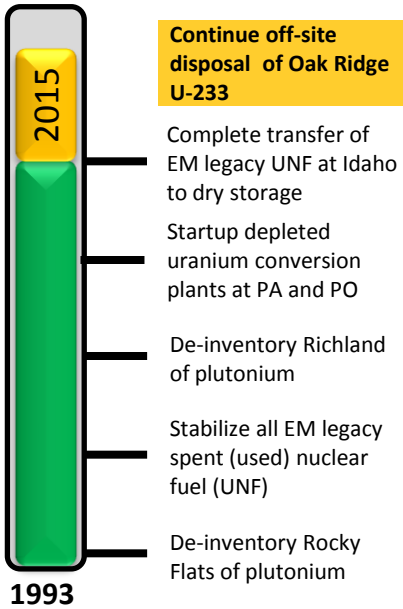
## Key Activities and Accomplishments in FY 2015 (Total Funding: $971 Million)

H Canyon Facility (SC)

K-East Spent (Used) Nuclear Fuel Basins (WA)

- At the Savannah River Site, disposition plutonium via preparation for conversion to Mixed Oxide fuel and direct off-site disposal.
- Also at the Savannah River Site, continue campaign to process certain used nuclear fuel from the High Flux Isotope and Material Test Reactors.
- Continue disposition of uranium-233 currently stored at Oak Ridge.
- At Richland, continue work required to retrieve and package spent (used) nuclear fuel sludge from the K-West Basin.
- At Paducah and Portsmouth, convert and package over 30,000 tons of depleted uranium for final disposition, reaching over 10% overall completion of the mission.

## Cleanup Progress



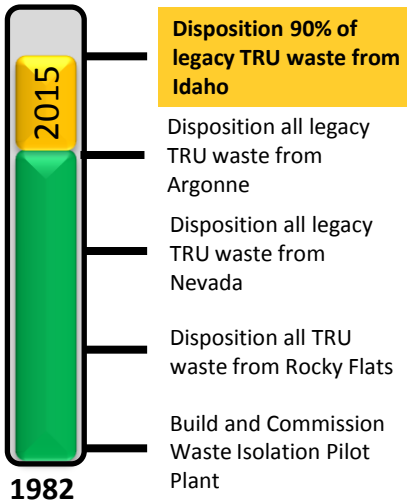
# Transuranic (TRU) Waste: Approaching Completion of Multiple Sites in 2015

## Key Activities and Accomplishments in FY 2015 (Total Funding: $758 Million)

Waste Retrieval (ID) | Waste Shipment (NM) | Waste Emplacement (NM)

- At the Savannah River Site, reach over 99% completion of the legacy transuranic waste disposition mission.
- At Idaho, reach 90% completion of the legacy transuranic waste disposition mission. This will involve the disposition of 4,500 cubic meters of waste in FY 2015.
- At Oak Ridge, reach 88% completion of the legacy transuranic waste disposition mission. Also, complete processing of legacy, contact-handled transuranic waste.
- At Los Alamos, reach over 70% completion of the legacy transuranic waste disposition mission. Also, complete disposition of combustible, above-ground transuranic waste.
- At the Waste Isolation Pilot Plant, transport, receive and emplace over 1,000 shipments of transuranic waste from the sites listed above.

## Cleanup Progress



# Soil and Groundwater Remediation: Using New and Existing Systems to Address Risk in 2015

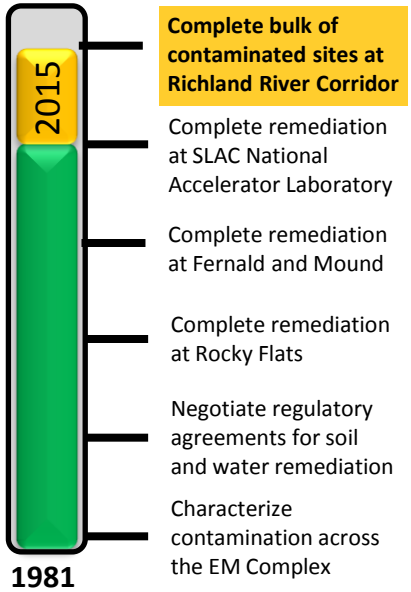
## Key Activities and Accomplishments in FY 2015 (Total Funding: $466 Million)

Installation of Treatment System (KY)

200 West Pump and Treat Facility (WA)

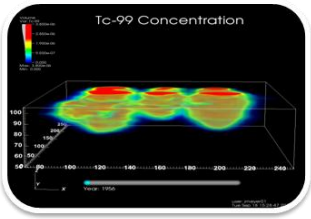
- Complete remediation of the bulk of the roughly 1,200 contaminated release sites in Richland's River Corridor. After 2015, the 618-11 Burial Ground and 300-296 Waste Site will be the only major remaining release sites.
- Operate groundwater remediation systems at multiple sites, including 39 systems at the Savannah River Site alone.
- At Oak Ridge, complete preliminary design of a new facility to treat mercury contamination in surface water.
- At Los Alamos, conduct design on a proposed new facility to treat chromium contamination in groundwater.
- At the Nevada National Security Site, complete closure activities for over 20 contaminated soil sites.

## Cleanup Progress

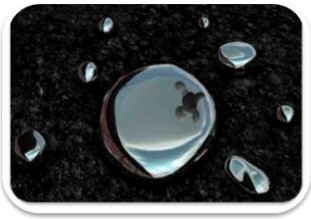


# Site Services in FY 2015

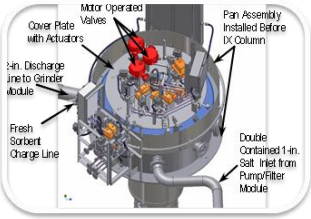
**Perform technology development and deployment to resolve critical gaps in EM's capabilities ($13 million)**




Groundwater modeling



Mercury remediation




Separations technologies

Maximizing waste loading in glass

**Support a federal workforce of 1,500 FTEs to oversee the cleanup effort ($281 million)**

**Provide other services, including strategic bulk purchasing of commodities, proactive safety analysis and support for Minority-Serving Institutions.**

# Conclusion

Final Demolition of K-25 Facility (TN)

- EM's FY 2015 budget supports clear, discrete progress in the cleanup of the environmental legacy of the Cold War.

- In particular, the budget will allow EM to:
  1. Make progress in the high level waste treatment mission
  2. Complete major facility cleanout and demolition projects and initiate preparations for new work
  3. Move closer to completion of the transuranic waste disposition mission
  4. Continue progress in nuclear materials management and soil and groundwater remediation