Environmental Management Complex Overview

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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 Goal #3: "Enhance nuclear security through defense, nonproliferation, and environmental efforts."

- The budget positions the EM program to meet all its FY 2014 enforceable cleanup milestones.

The EM Cleanup Program: What We Do, How We Do It, and Why

EM's mission is to clean up hazardous or potentially hazardous radioactive and other substances, much of which were generated in connection with the early days of the Nation's atomic energy defense activities.

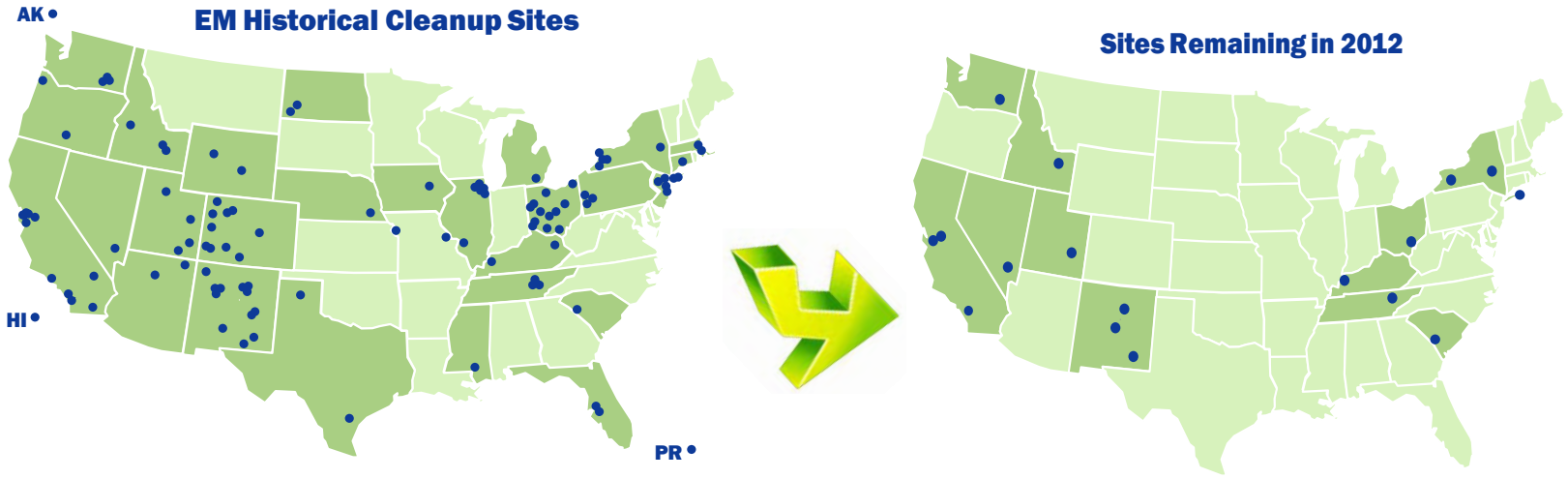
EM is building on past successes to complete ambitious remediation projects and treatment facilities.

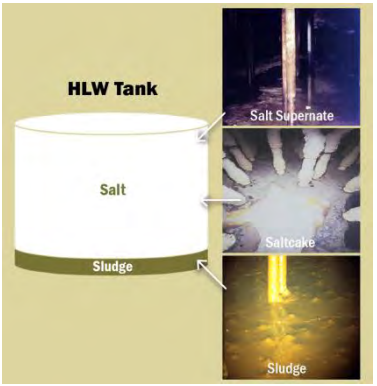
EM operates one-of-a-kind nuclear facilities to manage high-level radioactive waste and dispose of materials like plutonium.

EM cleanup addresses the environmental legacy of America's nuclear weapons research and production complex.

EM Has Significantly Reduced Risks to the Environment and Public

Completed cleanup on 90 of 107 former nuclear weapons and research sites





Immobilized over 5 million gallons of radioactive liquid tank waste (enough to fill over seven Olympic-sized swimming pools)

Former plutonium storage vaults

Packaged 100% of EM's plutonium inventories for storage and permanent disposition (over 5,000 containers)

Where Does Each Dollar of Funding Go?
Funding by EM Mission Area in FY 2014

Radioactive Tank Waste
$ 1,933M / 34%

Special Nuclear Materials and Used Nuclear Fuel**
$ 906M / 16%

Soil and Groundwater
$ 492M / 9%

EM's FY 2014 Budget Request - $5.622 Billion Total

*Includes Program Direction, Program Support, TDD, Post Closure Administration and Community and Regulatory Support

**Includes Safeguards and Security

Facility D&D
$ 1,095M / 19%

Transuranic & Solid Waste
$ 804M / 14%

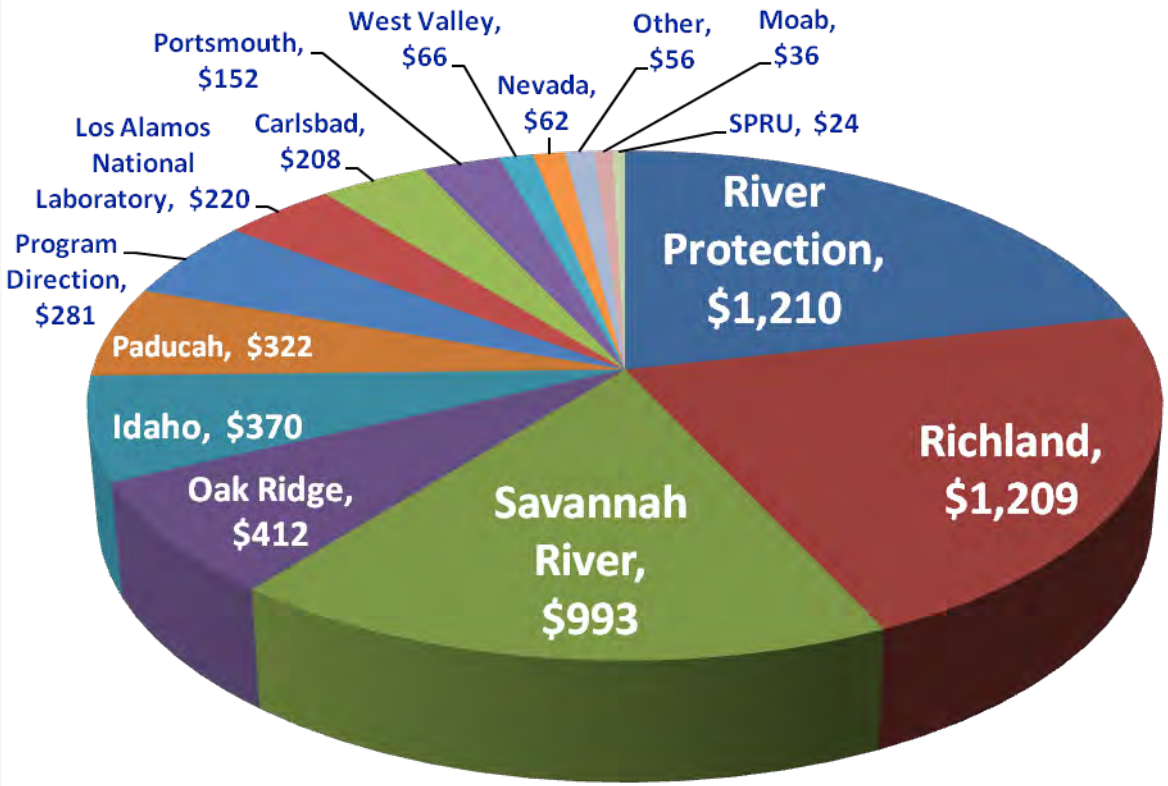
Essential Site Services*
$ 392M / 7%

EM Program Priorities

Maintain a safe, secure, and compliant posture in the EM complex

- Radioactive Tank Waste ($1,933M)
- Special Nuclear Materials and Used Nuclear Fuel ($906M)
- Transuranic & Solid Waste ($804M)
- Soil and Groundwater ($492M)
- Facilities D&D ($1,095M)
- Essential Site Services ($392M)

FY2014 Budget Request ($M)



EM's FY 2014 Budget Request - $5.622 Billion Total

Hanford (Washington)

Hanford (Washington)
(continued)

- Located in southeastern Washington State; Columbia River runs through the northern portion of the site; Richland is located on the southern border

- Established in 1943 for plutonium production, chemical processing, and research and development of nuclear weapons

- Current mission is to manage facilities and inventories of special materials, remediate contamination, and support national research efforts in environmental and other sciences

Decontaminating and Decommissioning Hanford Plutonium Finishing Plant

Idaho


Test Area North
INL Site
Naval Reactors Facility
Reactor Technology Complex
Idaho Nuclear Technology and Engineering Center
Materials and Fuels Complex
Critical Infrastructure Test Range Complex
Central Facilities Area
Power Burst Facility
Research and Education Campus
Radioactive Waste Management Complex

Idaho
(continued)

- Located in southeastern Idaho desert near northwest end of the Snake River Plain, 25 miles east of Idaho Falls
- Established in 1949 – missions included designing and testing nuclear reactors and reprocessing spent nuclear fuel
- Current missions include nuclear energy research, national security, and EM

Tank removed at the Idaho Test Area North will be treated and prepared for disposal

Los Alamos (New Mexico)

Los Alamos (New Mexico)
(continued)

- Located in north-central New Mexico, approximately 60 miles northeast of Albuquerque and 25 miles northwest of Santa Fe
- Established in 1943 to design and develop nuclear weapons
- Current missions includes multi-program national laboratory with research and development programs in broad range of scientific and technical fields; and environmental risk reduction relative to current activity as well as remediation of legacy waste

Large industrial vacuum system being used in the Canyon Floor of the Los Alamos "Acid Canyon" to remove high volumes of contaminated soil

Nevada National Security Site (NNSS)

- Located in the southern Nevada desert 65 miles northwest of Las Vegas
- Established in 1950 to conduct field testing of nuclear explosives
  - 100 total atmospheric tests (until 1962)
  - 828 total underground tests (until 1992)
- Current missions are National Security and EM

Oak Ridge Reservation (Tennessee)

Oak Ridge Reservation (Tennessee)
(continued)

- Located in east Tennessee; entirely within the city limits of Oak Ridge; and bordering the Clinch River
- "Secret City" established in early 1940s by the U.S. Army Corps of Engineers for the Manhattan Project to produce enriched uranium
- Current missions include energy technologies and science research (Oak Ridge National Laboratory); national security (Y-12 National Security Complex); and EM of legacy contamination and waste

Paducah Gaseous Diffusion Plant (Kentucky)

Paducah Gaseous Diffusion Plant (Kentucky)
(continued)

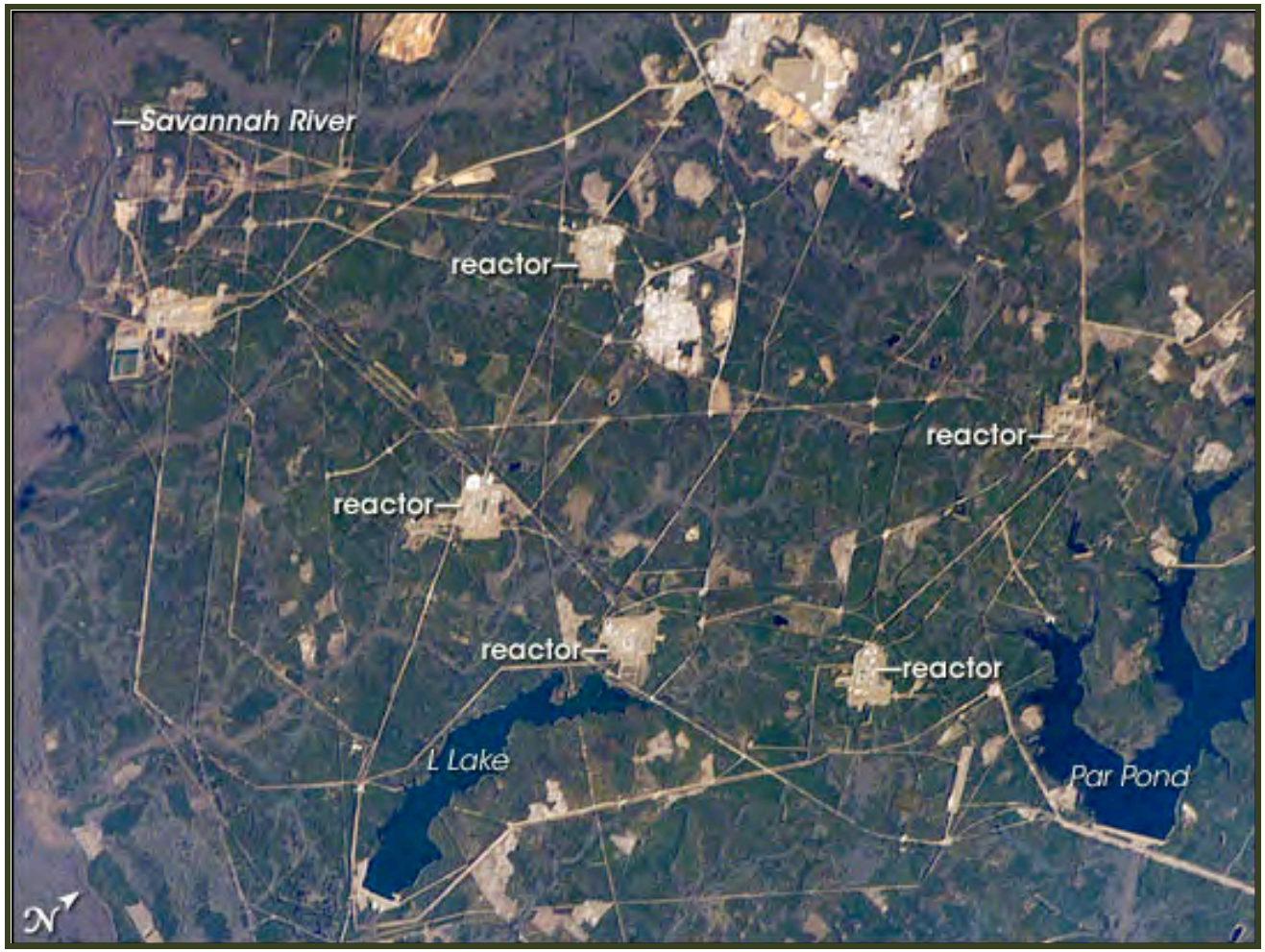
- Located in rural western Kentucky, 15 miles from the city of Paducah near the Ohio and Mississippi rivers; sister-site to the Portsmouth plant in Piketon, Ohio
- Established in 1952 to produce enriched uranium for the Federal Government and commercial nuclear power and later for low-enriched uranium production
- Current missions include environmental cleanup, waste management, depleted uranium conversion, deactivation and decommissioning, re-industrialization, and long-term stewardship

Portsmouth Gaseous Diffusion Plant (Ohio)

Portsmouth Gaseous Diffusion Plant (Ohio)
(continued)

- Located in Piketon, Ohio along the Scioto River
- Established in 1954 to support expansion of highly-enriched uranium production for military reactors and nuclear weapons and later for low-enriched uranium production for nuclear power plants
- Current missions include decontaminating uranium feed material, cold-standby for uranium deposit removal, and other specialized support services

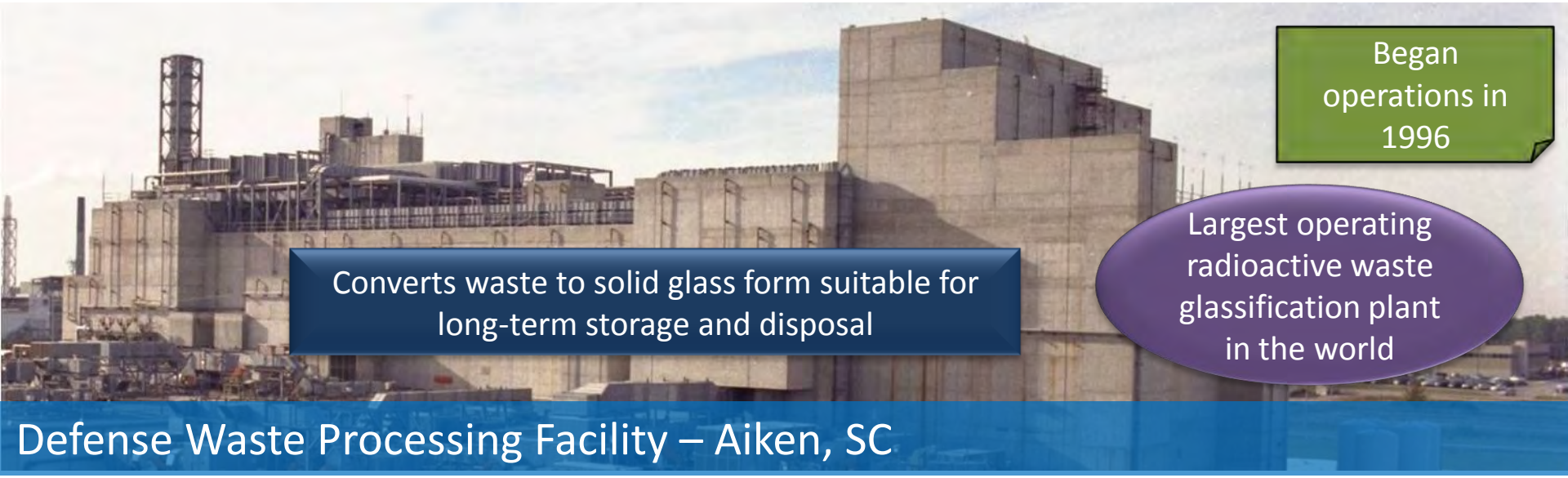
Savannah River Site (South Carolina)



Savannah River Site (South Carolina)
(continued)

- Located in South Carolina on the Savannah River which borders Georgia; close to Augusta, Georgia and Aiken, South Carolina
- Established in the early 1950s to produce basic materials used to fabricate nuclear weapons, primarily tritium and plutonium-239
- Current missions include:
  - MOX Fuel Fabrication Facility
  - Pit Disassembly and Conversion Facility
  - Plutonium Immobilization Facility
  - Savannah River National Laboratory
  - EM program addressing safe stabilization, treatment, and disposition of legacy nuclear materials, spent nuclear fuel and waste

The Radioactive Liquid Waste Challenge: How EM is Making Progress Today



Defense Waste Processing Facility – Aiken, SC

Integrated Waste Treatment Unit – Idaho Falls, ID

Radioactive Liquid Waste in FY14 and Beyond

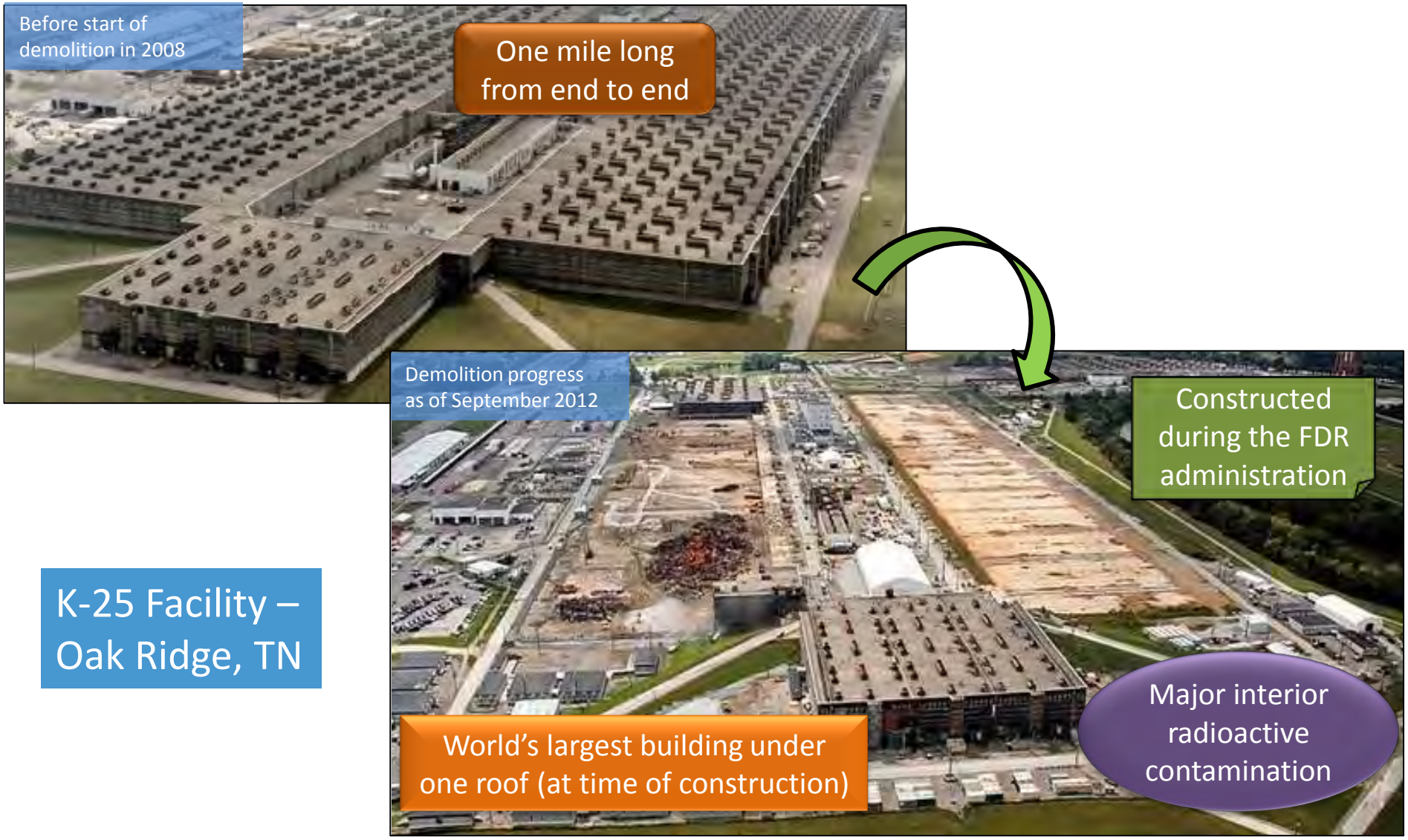
FY 2014 Funding: $1,933M (34% of EM Total)

Waste Treatment and Immobilization Plant – Richland, WA

Major Radioactive Liquid Tank Waste Accomplishments Planned for FY 2014

- Complete construction of two of the Waste Treatment and Immobilization Plant's five major facilities.
- At the Savannah River Site, package 100 canisters of high level waste at the Defense Waste Processing Facility.
- Complete retrieval of radioactive liquid waste from the last 10 single shell tanks in Hanford's Tank Farm C.
- Continue construction of the Salt Waste Processing Facility, which will allow for the remediation of the salt portion of the Savannah River Site's radioactive liquid tank waste.
- Continue closure activities of two tanks at Savannah River Site.

The Facility Decommissioning Challenge: How EM is Making Progress Today



K-25 Facility – Oak Ridge, TN

Facility Decommissioning in FY14 and Beyond

FY 2014 Funding: $1,095M (19% of EM Total)

Portsmouth Gaseous Diffusion Plant – Piketon, OH

Major Facility Decommissioning Accomplishments Planned for FY 2014

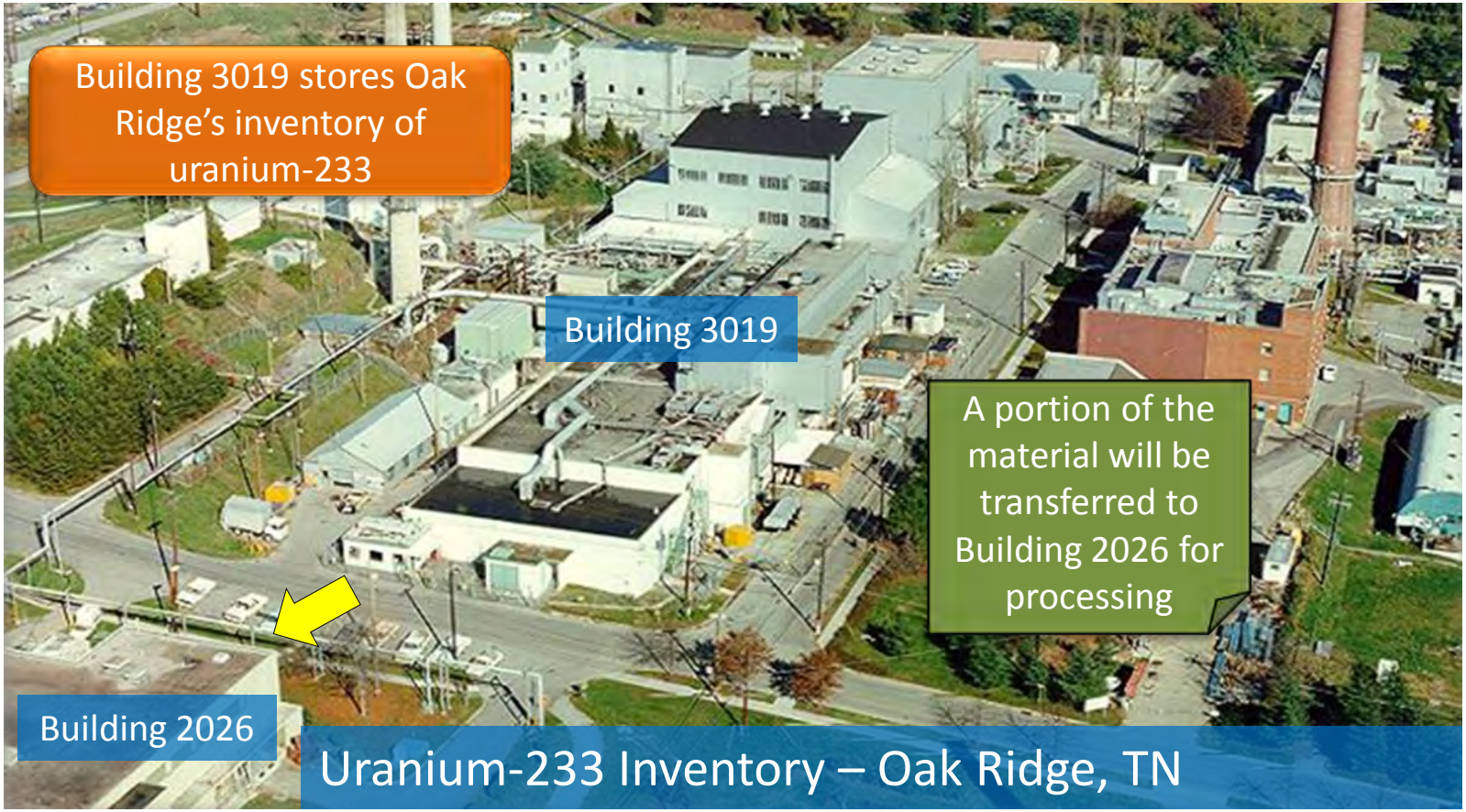
- Complete deactivation and decommissioning of 36 nuclear, radioactive and industrial facilities across the country.
- Initiate decontamination and decommissioning of two key contaminated EM facilities: Oak Ridge's K-27 Building and Richland's Building 324.

The Nuclear Materials and Used Fuel Challenge: How EM is Making Progress Today

H Canyon Facility – Aiken, SC

Nuclear Materials and Used Fuel in FY14 and Beyond

FY 2014 Funding: $906M (16% of EM Total)



Major Nuclear Materials and Spent Fuel Accomplishments Planned for FY 2014

- Continue disposition of Oak Ridge's inventory of uranium-233.
- Continue to safely store and monitor over 5,000 containers of plutonium and nearly 2,500 metric tons of spent nuclear fuel at several sites.
- Convert and package over 30,000 metric tons of depleted uranium at the Paducah and Portsmouth sites.

The Transuranic Waste Challenge: How EM is Making Progress Today

Waste Isolation Pilot Plant – Carlsbad, NM

Transuranic Waste in FY14 and Beyond

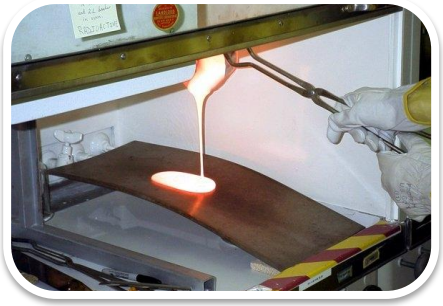
FY 2014 Funding: $804M (14% of EM Total)

Major Transuranic Waste Accomplishments Planned for FY 2014

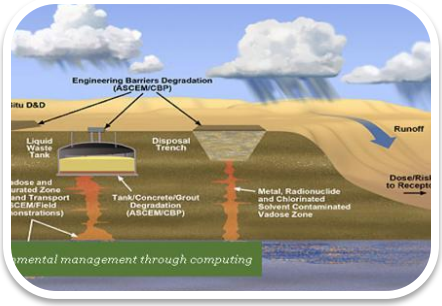
- Disposition over 8,500 cubic meters of transuranic waste from inventory across the Complex – enough to fill over three Olympic-sized swimming pools.
- Provide transportation services for over 850 shipments of transuranic waste to WIPP per year – equivalent to nearly one waste shipment every ten hours for an entire year.

Technology Development in FY 14 and Beyond

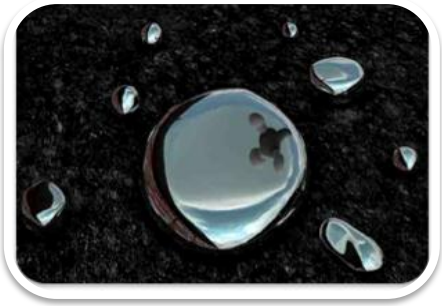
FY 2014 Funding: $24M



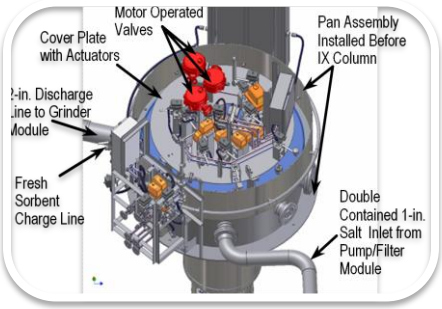
Maximizing waste loading in glass



Groundwater modeling



Mercury remediation



Separations technologies

Achieving Cleanup in a New National Environment

After 25 years of cleanup progress, the EM program's challenges have changed significantly. In response to this changing environment, EM must take the opportunity to strategically refocus our cleanup program, maximizing all of our resources to best serve the American people.

Key Challenges Facing EM

- Along with other federal programs, EM is facing an uncertain fiscal environment.
- Major technical challenges have emerged, particularly for large construction projects.

The Path Forward

- Partner with regulators, tribal nations and stakeholders to align cleanup priorities and commitments with expected performance and funding levels.
- In close consultation with stakeholders, work to optimize existing waste disposal processes and systems.
- Improve project and contract management.
- Invest in targeted, applied technology development in areas where cleanup depends on the use of new technologies and where innovative technologies can reduce the risk and cost of cleanup.