FY 2013 Budget Request

Office of Environmental Management

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Enhancing Nuclear Security through Defense, Nonproliferation, and Environmental Efforts

- 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 President's FY 2013 Budget will position EM to achieve major accomplishments in all areas of the cleanup mission.

Department of Energy Mission and Goals

DOE Mission

The mission of the Department of Energy is to ensure America's security and prosperity by addressing its energy, environmental, and nuclear challenges through transformative science and technology solutions.

Transform our Energy Systems

Goal 1: Catalyze the timely, material, and efficient transformation of the nation's energy system and secure U.S. leadership in clean energy technologies.

The Science and Engineering Enterprise

Goal 2: Maintain a vibrant U.S. effort in science and engineering as a cornerstone of our economic prosperity with clear leadership in strategic areas.

Secure Our Nation

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

Management and Operational Excellence

Goal 4: Establish an operational and adaptable framework that combines the best wisdom of all Department stakeholders to maximize mission success.

EM Mission

"Complete the safe cleanup of the environmental legacy brought about from five decades of nuclear weapons development, production, and Government-sponsored nuclear energy research"

- From a legacy of weapons production to the world's largest environmental cleanup program
- Operating in the world's most complex regulatory environment
- EM clean-up enables DOE to maintain ongoing operations and other critical missions (NNSA/SC) while achieving compliance with governing environmental laws

The EM Challenge: Cleaning Up Five Decades of Nuclear Research and Weapons Production

Disposition nearly 1.9 million cubic meters of radioactive waste (low level/mixed low level, transuranic, and high level waste) -- enough to fill over 750 Olympic-sized swimming pools

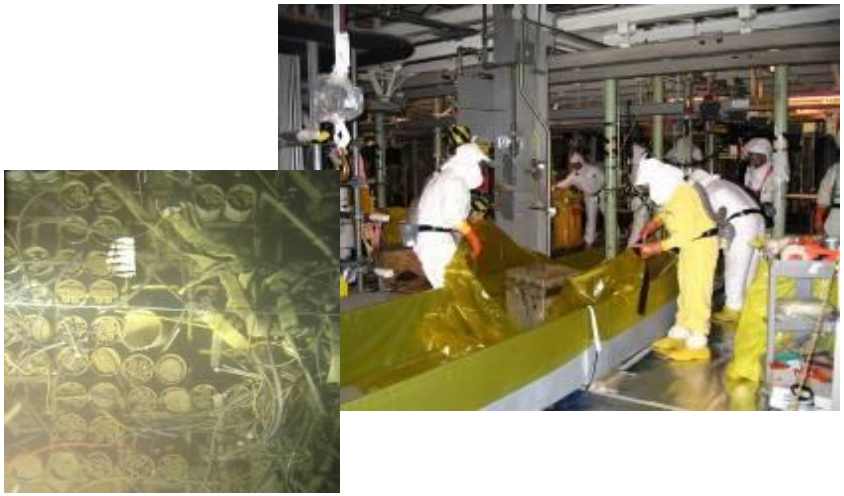
Deactivate and decommission over 5,000 facilities

Protect and clean up more than 10,000 groundwater and soil sites

The Inherently High-Risk Work of Nuclear Cleanup

We work with some of the most dangerous substances known to humanity…

Workers using glovebox to handle plutonium



Stabilizing spent (used) nuclear fuel

Performing first-of-a-kind tasks in highly hazardous work environments

High level waste canisters

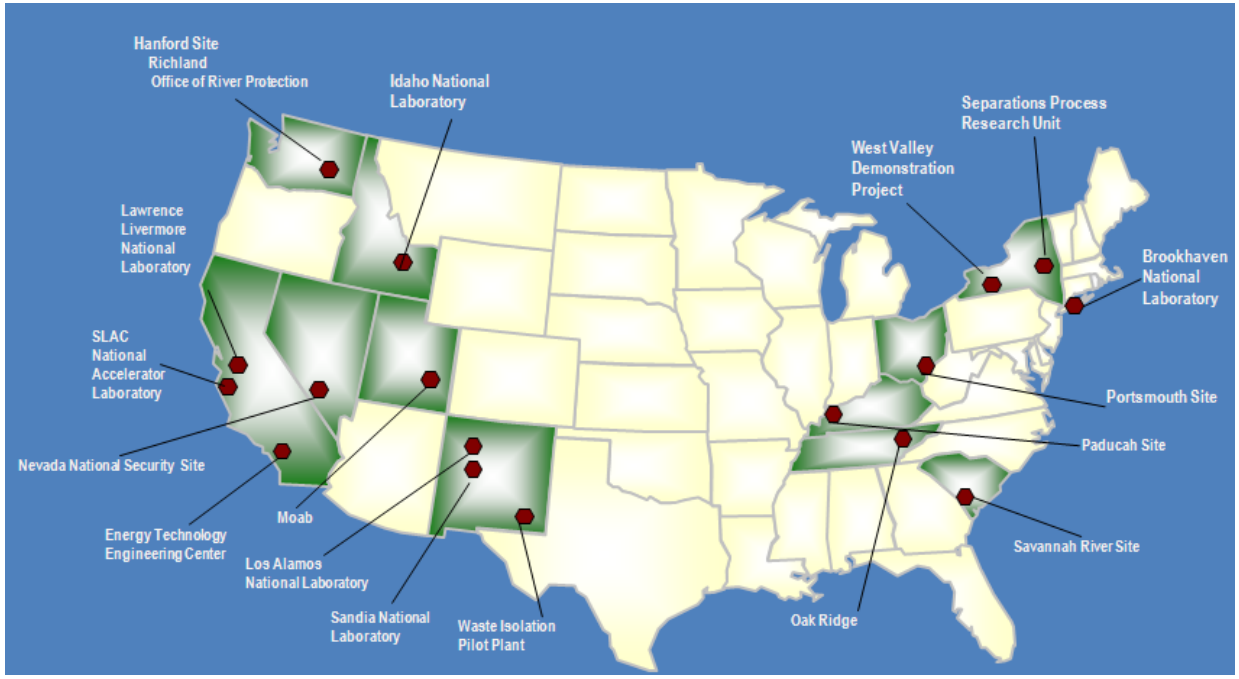
EM: A National Responsibility

- Time is not on our side – costs and risks increase over time.
- We have a responsibility to relieve future generations of this environmental and financial liability.
- We have delivered significant cleanup progress in the past several years.

Sodium Bearing Waste treatment facility at the Idaho site – will treat ~ 900,000 gallons of sodium bearing waste stored in tanks that are 35 to 45 years old.

Progress to Date and Challenges Ahead

- In 1989,cleanup was required at **107 sites** with a total area of **3,125 square miles** across **35 states**.
- At the end of FY 2011, the remaining cleanup covers **17 sites** with a total area **of 318 square miles** across **11 states**.
- The program's toughest challenges are still ahead, including processing liquid tank waste and deactivating and decommissioning a large number of facilities.
- These challenges require innovative technical solutions and scientific approaches.



EM cleanup sites as of the end of FY 2011

EM Cleanup Accomplishments

- Two major weapons production facilities closed
  - Rocky Flats – former nuclear weapons components production facility is now a National Wildlife Refuge (2006)
  - Fernald – former uranium processing facility supporting U.S. weapons program is now a nature preserve (2006)
- Tank waste stabilized and cleanup initiated
  - Stabilized and isolated millions of gallons of radioactive tank waste at multiple sites
  - In 1996, began operations of the first vitrification facility to turn liquid waste into stable glass logs
  - Completed High Level Waste campaign at West Valley

Rocky Flats Site in July 1995 prior to final cleanup

Rocky Flats Site in June 2007 two years after cleanup

EM Cleanup Accomplishments

- Construction initiated on three additional tank waste processing facilities
  - Hanford Waste Treatment and Immobilization Plant (2003)
  - Savannah River Salt Waste Processing Facility (2005)
  - Idaho Sodium Bearing Waste Treatment Facility (2007)
- Transuranic Waste dispositioned
  - Waste Isolation Pilot Plant opened in 1999
    - World's only operational deep geologic repository
    - First contact-handled transuranic waste shipment in March 1999 from Los Alamos
    - First remote-handled transuranic waste shipment in January 2007 from Idaho
  - Safely dispositioned over 85,000 cubic meters of transuranic waste through 2011
  - Completed 10,000th shipment in October 2011

The Waste Isolation Pilot Plant near Carlsbad, NM

EM Cleanup Approach

- Conduct quality work in a safe and secure manner while protecting workers, communities and the environment
- Perform strategic reviews of site cleanup approaches to ensure maximum return on taxpayer investment
- Focus technology development and deployment investments on near-term solutions to address our most challenging problems
- Prioritize work based on risk and compliance
- Improve contract and project management

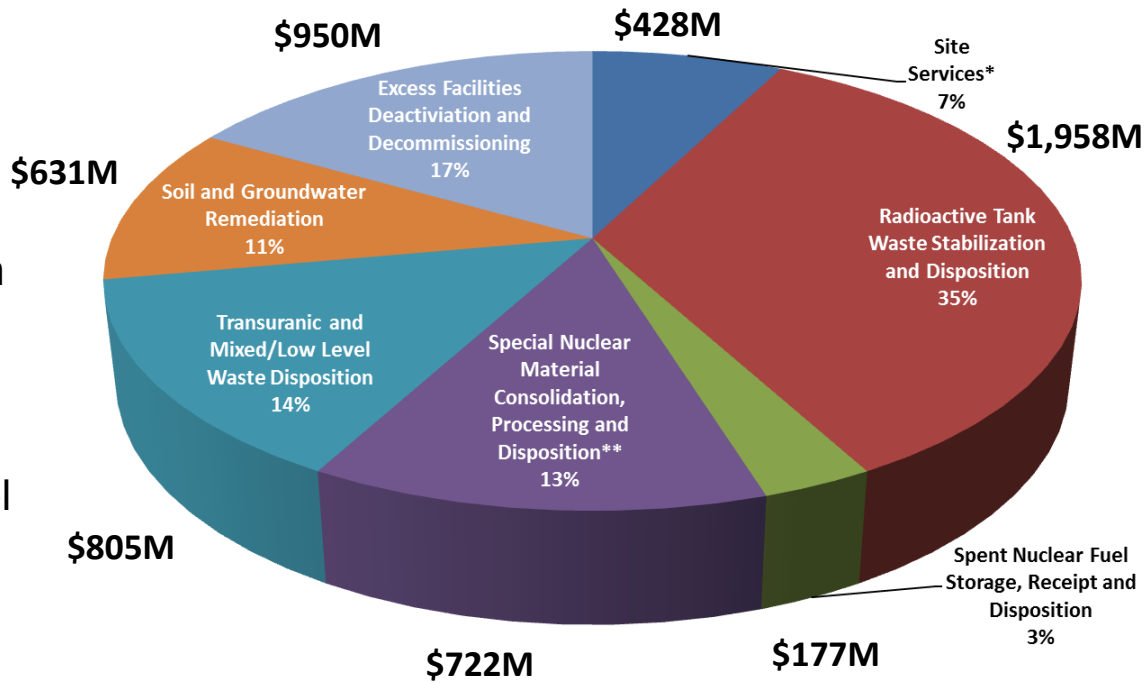
Transuranic waste being shipped for permanent disposal

EM Program Priorities

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

- Radioactive tank waste stabilization, treatment, and disposal
- Spent (used) nuclear fuel storage, receipt, and disposition
- Special nuclear material consolidation, processing, and disposition
- Transuranic and mixed/low-level waste disposition
- Soil and groundwater remediation
- Excess facilities deactivation and decommissioning (D&D)

FY 2013 Budget Request - $5.65B



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

** Includes Safeguards and Security

FY 2013 Programmatic Highlights and Planned Accomplishments

The FY 2013 budget will support major cleanup accomplishments in all areas of EM's cleanup mission:

Across the Complex

- **Tank Waste**: Close 2 High Level Waste tanks
- **Nuclear Materials:** Package over 10,000 metric tons of depleted and other uranium
- **Soil and Groundwater:** Complete remediation on over 100 release sites
- **Solid Waste:** Disposition over 9,000 cubic meters of transuranic waste from inventory
- **Excess Facilities:** Deactivate and decommission over 75 facilities

Installation of a groundwater treatment system at the Hanford site

At Individual EM Sites

- **Hanford – Richland (WA)**: Complete removal and/or remedial actions for thirteen high risk facilities in the site's 300 Area
- **Hanford – River Protection (WA):** Continue construction of Waste Treatment Plant and perform critical tank farm infrastructure upgrades
- **Idaho (ID)**: Complete treatment of all 900,000 gallons of liquid tank waste
- **Los Alamos (NM)**: Substantially complete Material Disposal Area-A exhumation and expedite the de-inventory and disposal of above-ground transuranic waste
- **Moab (UT):** Dispose of nearly 1 million tons of radioactive mill tailings
- **Oak Ridge (TN)**: Perform facility deactivation and decommissioning in support of the planned 2015 completion of the K-25 facility
- **Paducah/Portsmouth (KY/OH)**: Continue deactivation and decommissioning of facilities and systems
- **Savannah River (SC)**: Complete disposition of the site's contact-handled legacy transuranic waste

EM's Cleanup Vision is Focused on Three Major Goals

Treatment of HLW through the completion of three major tank waste facilities

Cleanup Goal Description

- Sodium Bearing Waste Facility by 2011 (operational 2012)
- Salt Waste Processing Facility by 2015 (operational 2016)
- Waste Treatment Plant by 2017 (operational 2019)

FY 2013 Progress towards Cleanup Goal

- Complete Sodium Bearing Waste Facility operations by December 2012
- Continue construction of the Salt Waste Processing Facility and Waste Treatment Plant

Disposition 90% of legacy TRU waste by 2015

Cleanup Goal Description

- Disposition 90% of legacy TRU waste by 2015
- Through the end of FY 2011, 85,066 cubic meters of the 116,335 cubic meters total goal have already been dispositioned (73%)

FY 2013 Progress towards Cleanup Goal

- Continue progress toward the goal for 90% legacy TRU completion

Shrink the EM legacy footprint 90% by 2015

Cleanup Goal Description

- In 1989, the legacy cleanup footprint was 3,125 sq. miles. By 2009, it was 931 sq. miles. At the end of 2011, 318 sq. miles were remaining – a 66% reduction relative to the 2009 value.

FY 2013 Progress towards Cleanup Goal

- Reduce EM's legacy cleanup footprint by an additional 20 square miles. Including the planned progress in FY 2012, this will bring the total footprint reduction to 71% or greater.

Compliance Status

EM has 123 major enforceable milestones due in FY 2013 and this request positions EM to meet those milestones.

Notable planned accomplishments include:

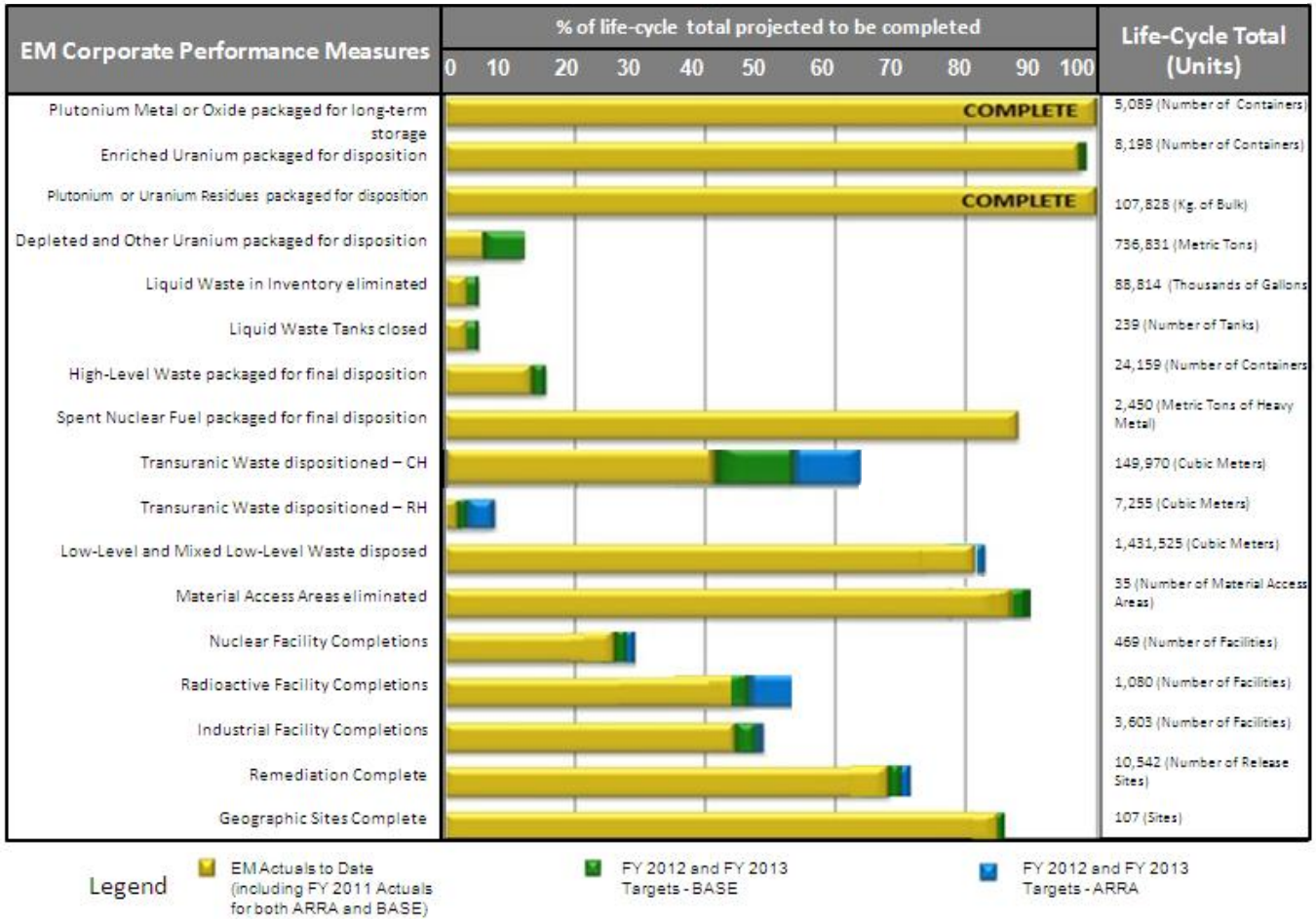
- Complete the closure, including waste removal and final grouting, of high-level-waste tanks 18 and 19 in the Savannah River Site's F-Tank Farm
- Complete all interim response actions in the 100 Area of the Hanford Reservation, the portion of the site that borders the Columbia River
- Complete all corrective actions in the Los Alamos Canyon/Pueblo Canyon Aggregate Areas and expedite the de-inventory and disposal of above-ground transuranic waste

Hanford's 300 area before and after cleanup

- Complete all slab and soil-related remedial actions in the northwest quarter of the Oak Ridge National Laboratory

Corporate Performance Measure Status

Completions through FY 2013



- Performance measures comprehensively track **cleanup progress.**
- Two performance measures are complete and five additional measures are over 80% complete.
- EM has made **substantial risk reduction progress** by stabilizing and consolidating special nuclear material.
- With investments in FY 2012 and FY 2013, EM will make **significant progress** on high level waste, transuranic waste shipments, and facility completions.

Funding by Site

Dollars in thousands

Site	FY 2011 Operating Plan	FY 2012 Current Enacted	FY 2013 Cong. Request
Brookhaven	13,833	9,585	7,840
ETEC	6,466	9,279	9,460
Hanford	1,040,248	1,021,824	1,037,773
Idaho	403,448	389,800	405,397
Los Alamos	191,800	188,561	239,143
Lawrence Livermore	822	873	1,484
Moab	32,594	31,000	30,941
Nevada	62,510	65,545	64,641
Oak Ridge	401,142	419,758	421,250
River Protection	1,134,197	1,181,800	1,172,113
Paducah	144,370	143,082	142,479
Portsmouth	257,604	254,527	186,672
Savannah River	1,300,022	1,316,922	1,303,493
SPRU	50,895	24,000	24,000
SLAC	7,711	2,435	3,800
Sandia	3,014	3,014	5,000
WIPP	220,006	218,179	202,987
West Valley	59,588	66,300	49,877
Other	175	14,703	1,990
Program Direction	320,007	321,628	323,504
Program Support	21,101	20,380	18,279
TD&D	18,869	10,622	20,000
D&D Fund Deposit	33,633	-	463,000
Subtotal, EM	5,724,055	5,713,817	6,135,123
D&D Fund Deposit Offset	(33,633)	-	(463,000)
Offsets	(22,700)	(3,381)	(22,123)
Total, EM	**5,667,722**	**5,710,436**	**5,650,000**

Safeguard and Security allocated across sites

Funding by State

Dollars in thousands

State	FY 2011 Operating Plan	FY 2012 Current Enacted	FY 2013 Cong. Request	Percent of Total
California	14,999	12,587	14,744	0.3%
Colorado	175	4,703	1,990	0.0%
Idaho	414,639	401,011	413,169	7.3%
Kentucky	154,678	154,107	153,498	2.7%
Nevada	66,127	69,366	68,655	1.2%
New Mexico	428,781	425,515	462,118	8.1%
New York	124,316	99,885	81,717	1.4%
Ohio	301,885	295,308	227,980	4.0%
South Carolina	1,349,693	1,368,849	1,353,576	23.9%
Tennessee	416,258	435,918	437,764	7.7%
Utah	32,594	31,000	30,941	0.5%
Washington	2,253,193	2,281,003	2,287,757	40.3%
Other*	133,084	134,565	138,214	2.4%
Subtotal, EM	5,690,422	5,713,817	5,672,123	100%
Offsets	(22,700)	(3,381)	(22,123)	
Total, EM	**5,667,722**	**5,710,436**	**5,650,000**	

* Includes Headquarters Program Direction, Program Support, Technology Development, and DOE-sponsored Facilities (per P.L. 112-74)