



U.S. DEPARTMENT OF
ENERGY



OFFICE OF ENVIRONMENTAL MANAGEMENT RESEARCH AND DEVELOPMENT PLAN OFFICE OF NUCLEAR MATERIALS DISPOSITION

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September 15, 2010



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov

EM R&D PLAN COVERS FOUR AREAS

- Tank Waste Processing
- Groundwater and Soil Remediation
- Nuclear Materials Disposition
- Deactivation and Decommissioning



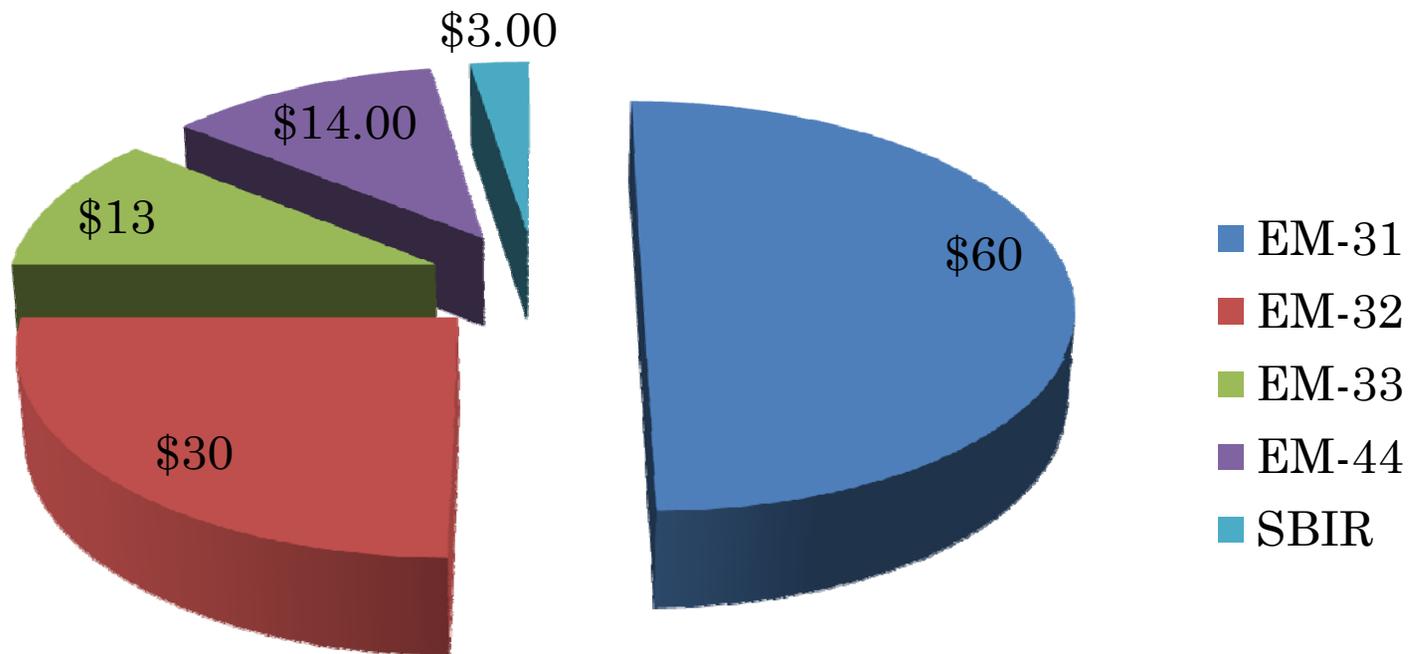
EM R&D IS PRIORITIZED

1. Radioactive Tank Waste Stabilization, Treatment and Disposal
- ➔ 2. Spent Nuclear Fuel Storage, Receipt and Disposition
- ➔ 3. Special Nuclear Material Consolidation, Processing and Disposition
4. High Priority Groundwater Remediation
5. Transuranic and Mixed/Low-Level Waste Disposition
6. Soil and Groundwater Remediation
7. Excess Facilities Decontamination and Decommissioning

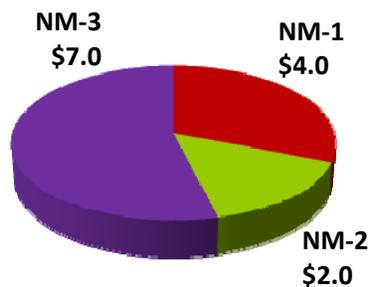
PLAN IDENTIFIES THREE AREAS FOR TD IN NUCLEAR MATERIALS DISPOSITION

- Spent Nuclear Fuel Management
 - Aging Management
 - Improved Disposal Preparation
 - Stabilization
- Challenging Materials Disposition
 - Catalogue and Characterization
 - Treatment, Conditioning and Disposal
- Plutonium Materials Management
 - Life Management and Disposition of Excess Plutonium Materials
 - Stress Corrosion
 - Non Intrusive Characterization and Inspection

FY 2011 PROPOSED TECHNOLOGY FUNDING



FY 2011 SPENT NUCLEAR FUEL, CHALLENGING MATERIALS AND NUCLEAR MATERIALS FUNDING (\$M)



\$13M Total

Technology Areas for Spent Nuclear Fuel, Challenging Materials and Nuclear Materials

NM-1	<p><u>Spent Nuclear Fuel Management</u></p> <p>Develop technologies to improve SNF storage. This includes optimized canister loading, developing advanced monitoring techniques to extend life and developing techniques to handle degraded fuel.</p>
NM-2	<p><u>Challenging Materials Disposition</u></p> <p>Determine the technical risks for any proposed disposition strategy. This includes compiling an inventory of challenging materials and the R&D of disposition options.</p>
NM-3	<p><u>Nuclear Materials Disposition</u></p> <p>Benefits may include optimized throughput through HB-Line/H-Canyon and a reduction in waste generation and improved life cycle cost. Technology development will also examine stress corrosion and develop non-intrusive inspection techniques.</p>



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FY 2011 PROPOSED TD ACTIVITIES

Savannah River Site (\$7 million)

- H-Canyon Process Improvements
- Degraded Fuel Stabilization, Assay
- Stress Corrosion
- Basin Integrity Studies
 - L Basin Life Management
 - Real Time Basin Corrosivity

FY 2011 PROPOSED TD ACTIVITIES

Idaho (\$6 million)

- Aging Management
- Improved Disposal Preparation
 - ANA
 - Remote Canister Welding
- Challenging Materials

PATH FORWARD

- Seek Concurrence From Site Programs
 - Ensure Proposed Work Supports Site Missions

- Formalize Collaboration with Nuclear Energy
 - EM Wide Technology Development Activities
 - Establish a Memorandum of Understanding

- Identify Potential Areas of Collaboration with the UK Nuclear Decommissioning Authority
 - Breakout session
 - US DOE–UK NDA Standing Committee Meeting
October 2010