



U.S. DEPARTMENT OF  
**ENERGY**

# *Environmental Management Site-Specific Advisory Board Chairs Meeting*

**James A. Rispoli**

***Assistant Secretary***

***Office of Environmental Management***

September 17, 2008



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safety ❖ performance ❖ cleanup ❖ closure

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# We Solve Problems That Once Seemed Unsolvable

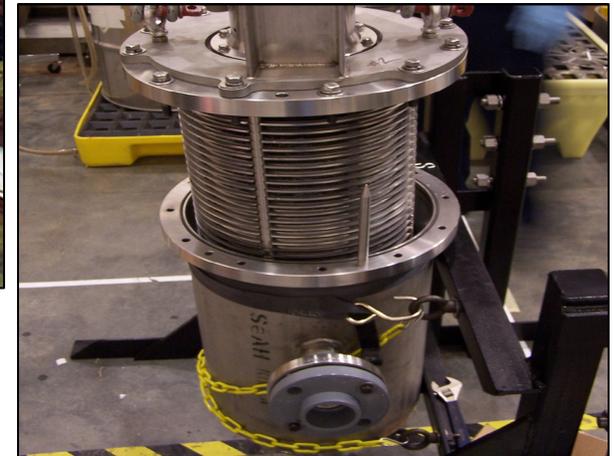
The Department's work has led to the design, construction and operation of **first-of-a-kind facilities and technologies**



Hanford, Washington  
Liquid Waste Treatment Plant =  
US \$12 Billion



Device for removing sludge from  
bottom of liquid waste storage tank



Microfilter for separating solids  
and liquids developed at  
Savannah River, South Carolina



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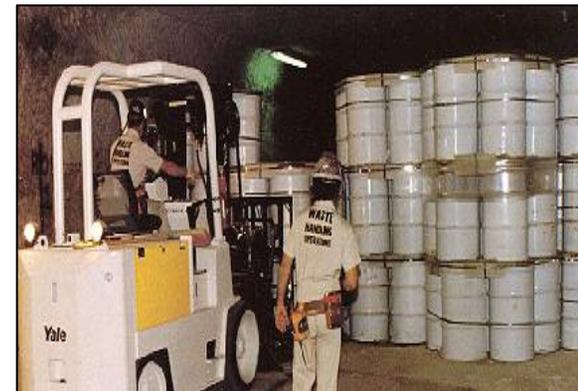
# Success Story #1: Disposal of Transuranic Waste

- Transuranic waste is disposed at the **Waste Isolation Pilot Plant (WIPP)** in Carlsbad, New Mexico
- WIPP is the **world's first** deep geological repository
- WIPP has provided a **safe, stable** solution for waste disposition



Depository rooms are located 650 meters below ground

Waste being safely shipped from states across the U.S.



Drums being prepared for disposal at WIPP



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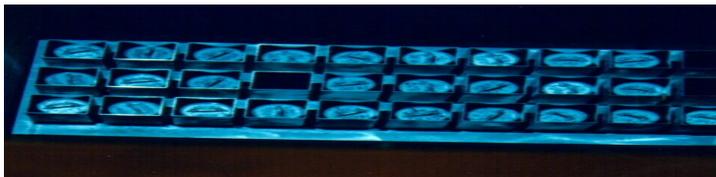
# Success Story #2: Spent Nuclear Fuel

EM manages more than **2,400 metric tons of spent nuclear fuel (SNF)**, including foreign research reactor fuel of U.S. origin



- Hanford: **K Basins closed**, SNF dried and safely stored
- Other remaining DOE SNF is being **consolidated** at Savannah River and Idaho
- U.K. officials have sought EM's help on **fuel drying**, sludge retrieval and processing

Receipt and Storage of spent nuclear fuel at U.S. DOE facilities



Spent Nuclear Fuel

**Global Energy Benefit: Supports global non-proliferation**



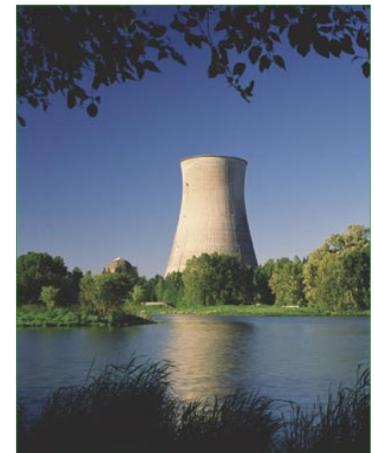
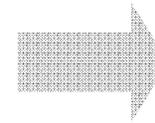
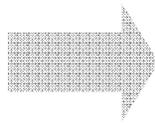
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# Success Story #3: Special Nuclear Materials

- Our program manages more than **30 metric tons of excess special nuclear materials** such as plutonium, enriched uranium, and U-233
- Surplus plutonium will be fabricated into **mixed oxide (MOX) fuel** for commercial nuclear power, or dissolved, recovered, or vitrified
- Highly enriched uranium is being downblended to low enrichment for **use as commercial reactor fuel**



MOX Fuel Fabrication Facility,  
Savannah River. South Carolina

***Global Energy Benefits: Non-proliferation, and former weapons material becomes feedstock for commercial nuclear power***



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# Success Story #4: High-Level Waste

## ➤ Building Our Future:

- Waste Treatment Plant (Hanford)
- Defense Waste Processing Facility (Savannah River)
- Salt Waste Processing Facility (Savannah River)
- Sodium Bearing Waste Plant (Idaho)
- West Valley Vitrification Plant (New York)



Waste Treatment Plant Construction, Hanford, WA



***Global Energy Benefit: Demonstrating the management of waste generated by the nuclear fuel cycle***



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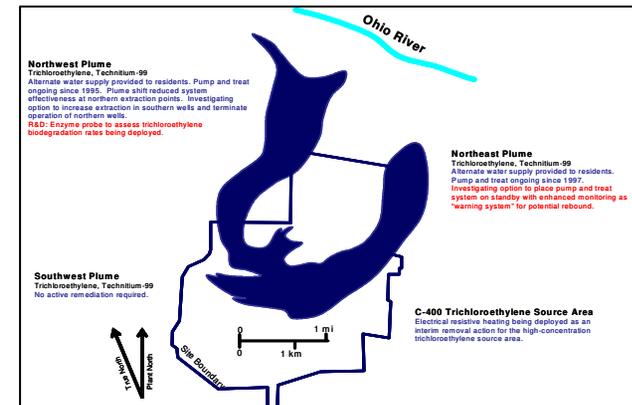
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# Success Story #5: Soil and Groundwater

- Cleaned up **240 sq. km** of contaminated groundwater
- Stabilized more than **100** groundwater plumes
- Developed **pump-and-treat** and **passive barrier** remedies for contaminants such as strontium-90
- Implementing **permanent, cost-effective technologies** to remove and/or immobilize uranium, metals, and chlorinated organics in groundwater and soil



Electrocoagulation treatment of hexavalent chromium near Columbia River, Hanford, WA



Paducah, KY plume contaminated with Technetium-99 treated since 1997



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# Programmatic Challenges

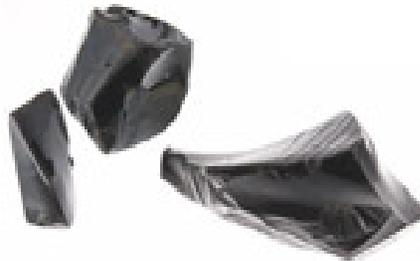
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## ➤ Budget Priorities and Unfunded Liabilities

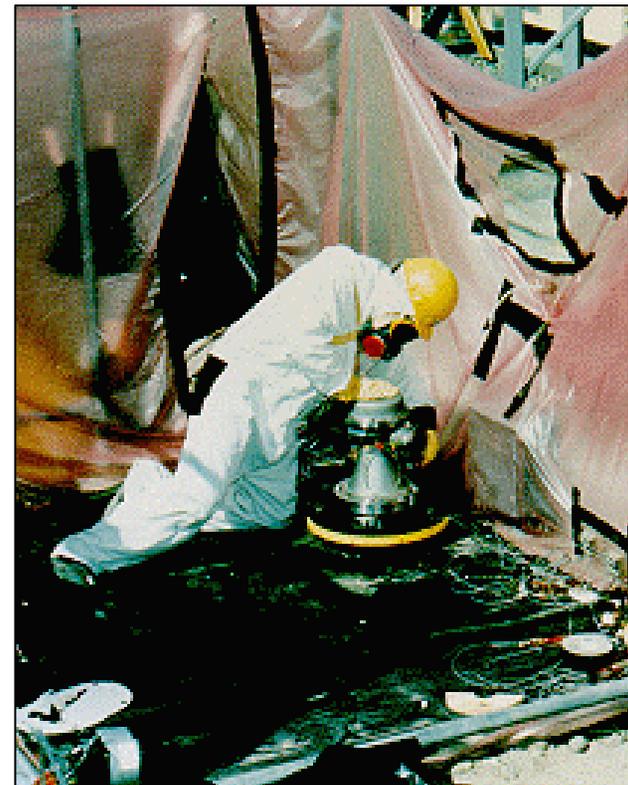
## ➤ Technical Challenges



Retrieving 3000+ million liters of liquid radioactive waste



Developing New Technologies - Vitrified waste from Savannah River



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



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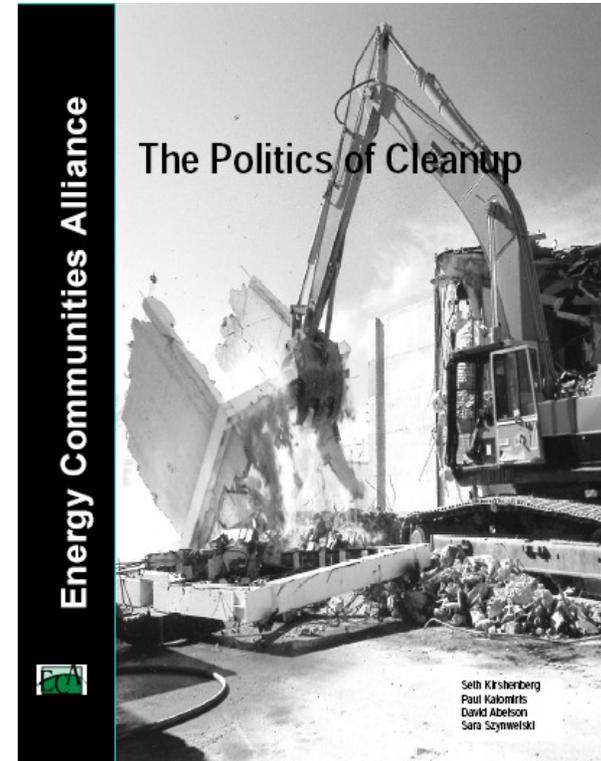
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# Topics for the EM SSAB Chairs

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- **The EM Budget Process and Effective Stakeholder Involvement**
- **Engineering and Technology**
- **Waste Disposition**
- **Communications**



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# EM SSAB Accomplishments

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- EM SSAB Management
- Awards and Recognition
- Federal Advisory Committee Act Compliance
- EM SSAB Advice and Recommendations



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# *In Conclusion*



***U.S. DOE's Environmental Management program is providing cleanup progress now, along with energy solutions for the future***

**Our record proves that safe, effective nuclear waste management is possible:**

- We have effectively reduced risk to the environment and the community
- Each year, our knowledge and skill base grows

**Our work provides global benefits beyond nuclear cleanup:**

- Advancing nuclear energy and construction during a stagnant time for the industry
- Enhancing global security and nuclear non-proliferation

**Enormous challenges lie ahead:**

- The pressing need to continue to make technological advances
- The willpower of societies to continue to pursue difficult, expensive work



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