



U.S. Department of Energy  
Office of Civilian Radioactive Waste Management



# Yucca Mountain Program Status Update

Presented to:  
**Nuclear Waste Technical Review Board**

Presented by:  
**J. Russell Dyer**  
**Acting Director, Office of Technical Management**

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# Why Yucca Mountain is Important



- **National Security**

- Support continued operations of the Navy's principal combat vessels.

- **Nuclear Non-Proliferation**

- Dispose of surplus weapons-grade plutonium.
- Support international initiatives.

- **Energy and Economic Security**

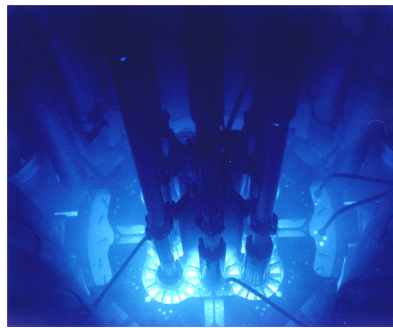
- Maintain nuclear energy option that supplies 20% of our electricity needs to sustain present and future economic security.

- **Homeland Security**

- Consolidate nuclear materials presently stored at sites within 75 miles of 162 million Americans.

- **Environmental Protection**

- Ensure environmentally sound disposition of our commercial and defense wastes.





# Accomplishments and Status Update

- **License Application completed and docketed**
  - License Support Network certified
  - National Environmental Policy Act (NEPA) documents completed
- **Environmental Protection Agency Radiation Standards issued**
- **Contracts awarded for the design, licensing and demonstration of the transportation, aging, and disposal canister-based system**
- **New Reactor Standard Contract and Amendment available**
- **Management and Operating Contract selected**
- **Reports issued:**
  - Second Repository and Interim Storage
  - Total System Life-Cycle Cost Report (TSLCC) and Fee Adequacy Assessment
- **Funding**



# Repository License Application

On June 3, 2008, the Department submitted an application to the Nuclear Regulatory Commission (NRC) that seeks authorization to construct the Nation's first geologic repository for high-level radioactive waste (HLW) and spent nuclear fuel (SNF)



# National Environmental Policy Act Documents

- **Repository Supplemental Environmental Impact Statement (EIS) - June 2008**
- **Rail Alignment EIS - June 2008**
- **Nevada Transportation Corridor Supplemental EIS – June 2008**
- **Record of Decision for Rail Line, October 2008**
  - **Notified the public of the decision to construct and operate a railroad along a rail alignment within the Caliente corridor**
  - **Allow shipments of general freight on the rail line (shared-use option)**
- **Draft supplement to the Yucca Mountain Repository Final and Supplemental EIS – in preparation**



# Repository License Application Next Steps

- **Licensing Process**
  - Requests for additional information (129 received)
  - Petition for leave to intervene, including contentions (321 received)
- **NRC issues Safety Evaluation Report – 2010**
  - Atomic Safety and Licensing Board conducts hearings – 2010
- **NRC decision on Construction Authorization – 2011**
  - NRC can request a fourth year as allowed by law
- **The Department submits application for license to receive and possess – 2016**
- **NRC decision on license to receive and possess – 2019**
- **Repository Operations – 2020**
  - Firm date cannot be set until funding issue resolved



# Environmental Protection Agency Final Radiation Standards

- **Consistent with the National Academy of Sciences recommendations**
- **Satisfies a July 2004 court decision to extend the standards' duration**
- **Final standards:**
  - **Retain the dose limit of 15 millirem per year for the first 10,000 years after disposal**
  - **Establish a dose limit of 100 millirem annual exposure per year between 10,000 years and 1 million years**
  - **Consider the effects of climate change, earthquakes, volcanoes, and corrosion of the waste packages to safely contain the waste during the 1 million-year period**
  - **Establish a radiological protection standard for the repository at the time of peak dose up to 1 million years after disposal**



# Transportation, Aging, and Disposal (TAD) Canister

- **Awarded contracts for the design, licensing and demonstration - May 2008**
- **Vendors to submit TAD designs to NRC for review – September 2009**
- **Vendors to demonstrate the TAD canister system at a utility site – May 2013**





# New Reactor Standard Contract and Amendment

- **The Department has developed an amendment to the Standard Contract for Disposal of SNF and/or HLW to support the development of the next generation of nuclear power reactors**
- **Applicant must have a contract with the Secretary for the disposal of SNF or HLW that may result from the use of such license**
  - **Nuclear Waste Policy Act requires as a precondition to the issuance or renewal of an NRC license**
  - **18 contracts signed as of December 2008**



# Management and Operating Contractor

- **New contract awarded to USA Repository Services on October 30, 2008**
  - Transition to be completed by April 1, 2009
  - \$2.5 billion, five-year period of performance with a potential five-year option period
  - Supported by principal subcontractors: Shaw Environmental and Infrastructure, Inc., and AREVA Federal Services, Inc.
- **Key scope activities**
  - Providing management expertise and support for the completion of repository design
  - Addressing questions or requests for additional information from the NRC and supporting activities in the licensing process
  - Providing construction management and integration support



# Reports Issued

- **Need for a Second Repository**
  - Concludes that unless Congress raises or eliminates the current statutory capacity limit of 70,000 metric tons of heavy metal, a second repository will be needed
- **Interim Storage of Spent Nuclear Fuel from Decommissioned Nuclear Power Reactor Sites**
  - Discusses status of commercial SNF inventory in the United States
  - Summarizes contractual arrangements, related litigation, and financial liabilities
  - Identifies legislative changes and actions that would be necessary for the Department to develop an interim storage facility and demonstration program



# 2007 TSLCC Estimate and Fee Adequacy Assessment

	2001 TSLCC (millions of 2000\$)	2007 TSLCC (millions of 2000\$)	Variance (millions of 2000\$)	2007 TSLCC (millions of 2007\$)
Yucca Mountain Project	\$ 36,140	\$ 45,220	\$ 9,080	\$ 54,820
Transportation	\$ 6,680	\$ 16,070	\$ 9,390	\$ 19,480
Balance of Program	\$ 5,620	\$ 6,880	\$ 1,260	\$ 8,340
Historical	\$ 9,080	\$ 11,170	\$ 2,090	\$ 13,540
<b>Total</b>	<b>\$ 57,520</b>	<b>\$ 79,340</b>	<b>\$ 21,820</b>	<b>\$ 96,180</b>

- **Fee is adequate**
  - Not proposing a change in the fee paid by nuclear utilities for the disposal of commercial SNF fuel at this time
- **Total program costs increased 38% since the 2001 TSLCC due to**
  - 26% more waste (97,000 to 122,100 metric tons of heavy metal\*),
  - More years of shipping and operations (25 years)
  - Refinement of designs and associated estimates
  - Increased materials costs
- **Utilities share is approximately 80% (\$77 billion in 2007\$); defense share is approximately 20% (\$19 billion in 2007\$)**

\* The NWPA, as amended, set a statutory limit of 70,000 MTHM for the amount of SNF and HLW that can be emplaced in the first geologic repository before a second repository is in operation.





# Status of the Nuclear Waste Fund

- **Congress established the Nuclear Waste Fund to provide funding for repository development and operations**
- **Utilities pay 1 mill per kilowatt-hour fee on electricity generated and sold from nuclear power plants**
  - Revenues average \$750 million per year
  - Approximately \$16.5 billion in fees paid to date
- **Excess funds invested in Treasury securities**
  - Approximately \$13 billion in interest earned to date
- **Current value of the Fund is approximately \$22 billion**



# Status of Program Funding

<b>\$'s in thousands</b>	<b>FY 2008 Enacted</b>	<b>FY 2009 Request</b>	<b>FY 2009 House Mark</b>	<b>FY 2009 Senate Mark</b>
<b>Nuclear Waste Disposal Fund</b>	\$187,269	\$247,371	\$247,371	\$195,390
<b>Defense Nuclear Waste Disposal</b>	\$199,171	\$247,371	\$247,371	\$193,000
<b>Total, OCRWM</b>	<b>\$386,440</b>	<b>\$494,742</b>	<b>\$494,742</b>	<b>\$388,390</b>

**FY 2009 activities will focus on supporting the review of the license application by the NRC, development of the TAD canisters, and repository facility designs**



# Program Accomplishments

*Another Milestone Achieved*



# Where the Program is Today

- **License Support Network certified**
- **High-quality License Application and NEPA documents submitted**
- **TAD Canister development contracts underway**
- **New Nuclear Plant contracts available**
- **Senior Management and support teams in place to support License Review**
- **Looking forward to working with the New Administration on this important National issue**

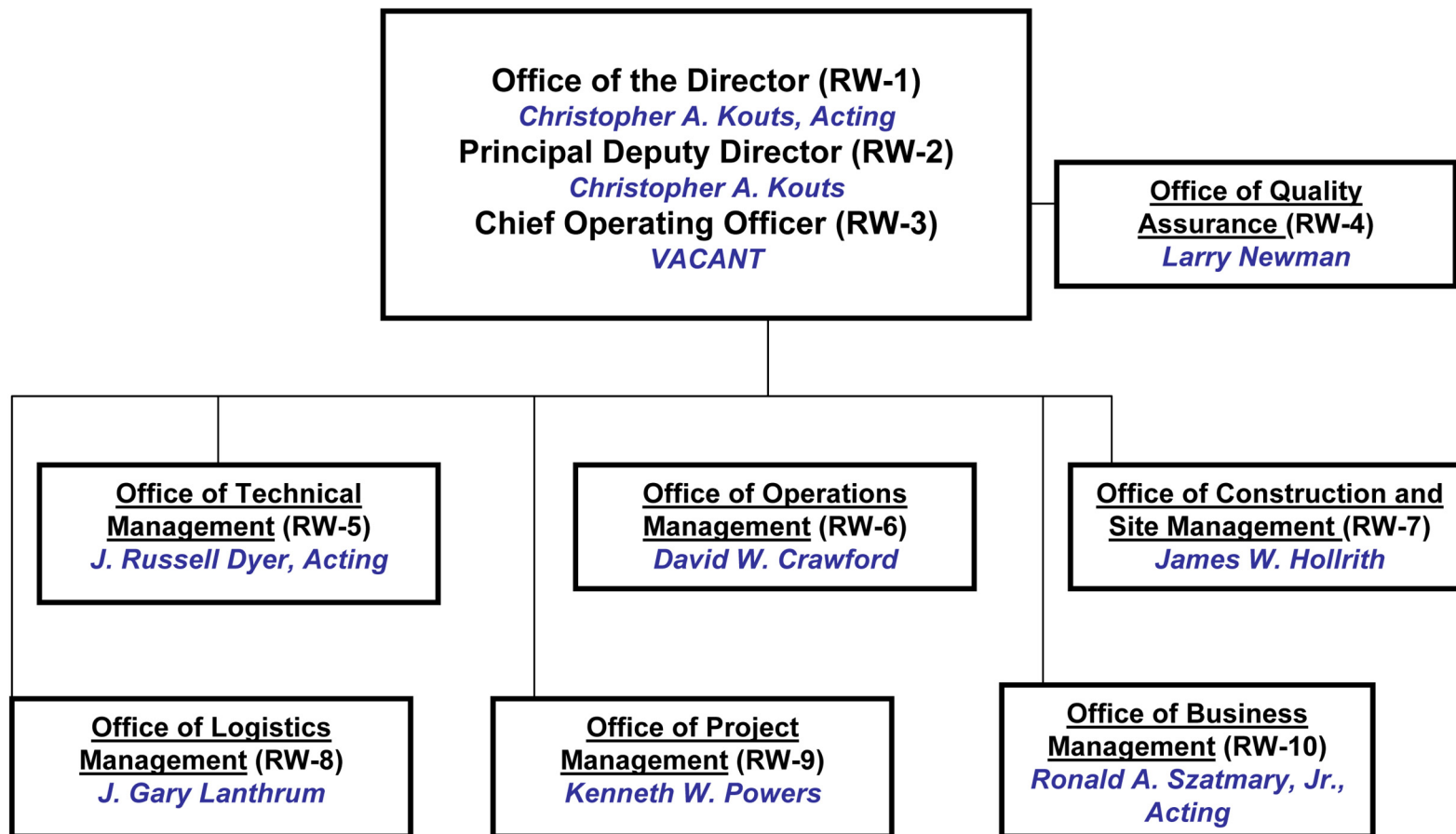




# Backup



# Office of Civilian Radioactive Waste Management



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