

# ***The United States of America's Presentation***



Slides Presented at Joint Convention  
on Safety of Spent Fuel Management and  
on the Safety of Radioactive Waste Management

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## **Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management**

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Nuclear Regulatory Commission

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# Content of Presentation

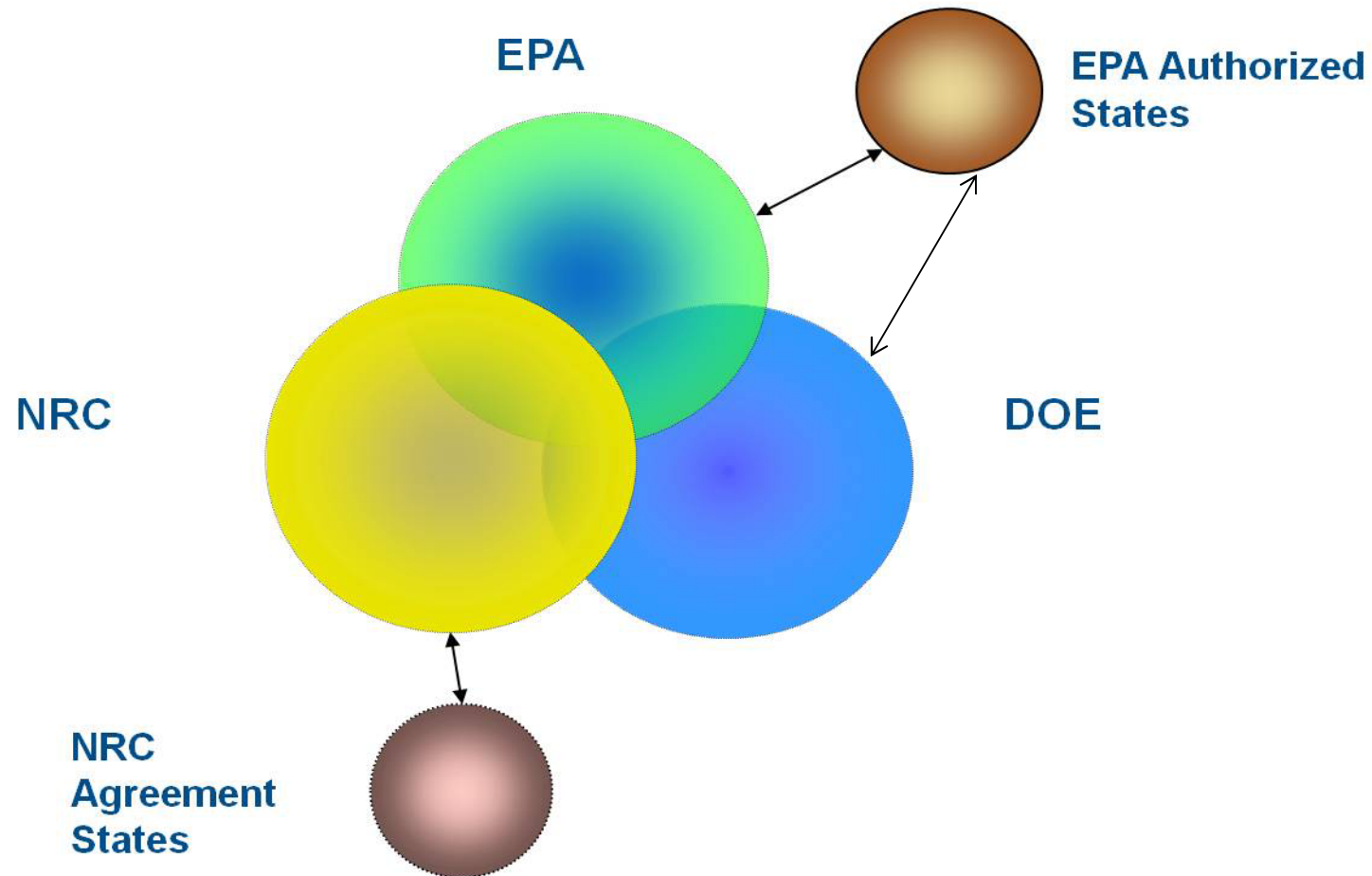
## ★ Nuclear Regulatory Commission:

1. Overview of U.S. Regulatory Framework
2. Spent Fuel, High Level Waste, Low-Level Waste and Decommissioning Rulemaking Update
3. Commercial Low-Level Radioactive Waste
4. Safety of Sealed Source
5. Clearance
6. Human and Financial Resources
7. NRC Response to the Fukushima Accident

## ★ Department of Energy:

1. DOE's Regulatory Environment
2. Update on Challenge: Spent Fuel and High Level Waste Disposition
3. Transuranic Waste and DOE Low-Level Waste Disposition
4. Greater than Class C Low-Level Radioactive Waste
5. Decommissioning and Site Remediation: DOE Update
6. Disused Sealed Source Recovery
7. DOE Response to the Fukushima Accident

# Overview of U.S. Regulatory Framework



# Overview of U.S. Regulatory Framework: Waste Classification

USA		IAEA			
<u>DOE</u>	<u>NRC</u>	HLW	ILW	LLW	VLLW
HLW	HLW	X			
TRU			X		
LLW			X	X	X
	GTCC LLW		X	X	
	Class C LLW			X	
	Class B LLW			X	
	Class A LLW			X	X

# Overview of U.S. Regulatory Framework: New Developments

- ★ VOGTLE Nuclear Power Plant (NPP) Units 3 and 4 - New Reactor License Approval
- ★ V.C. Summer NPP Units 2 and 3 – Combined Operating License Issued
- ★ New LLW Disposal Facility –
  - ★ *Waste Control Specialists (WCS)*



Photo Caption: First drum of LLW offloaded at the Texas Compact Waste Facility (WCS)

# Rulemaking Updates

- ★ 10 CFR Part 72 – License & Certificate of Compliance Terms
- ★ 10 CFR Part 51 – Environmental Impacts of Temporary Storage of Spent fuel After Cessation of Reactor Operation and Waste Confidence Decision
- ★ 10 CFR Part 61 – Site-specific Analysis for Near-surface Disposal
- ★ 10 CFR Part 30, 40, 50, 70 & 72 – Decommissioning Planning

# Low-Level Radioactive Waste: Commercial LLW Disposal Access/Capacity

- ★ Challenge
- ★ Commercial LLW Sources
- ★ Current Disposal Pathways
- ★ Steps Ahead and Future Options
- ★ Extended Storage Guidance



Photo Caption: LLW Disposal Site at Barnwell



# Low-Level Radioactive Waste: Blending & Branch Technical Position (BTP)

- ★ Blending
- ★ Concentration Averaging (CA) Branch Technical Position (BTP)
- ★ Changes to the CA BTP Including Blending
- ★ BTP Path Forward

# Safety of Sealed Sources Security, Monitoring & Tracking

- ★ NRC Regulations – National Source Tracking System (NSTS)
  - Category 1 and 2 Sealed Sources
- ★ Future Steps
  - Web Based Licensing (WBL)
  - License Verification System (LVS)
- ★ NORM/NARM

Photo Caption: Well-logging source (Am-241)



# Update on Challenge: National Clearance Standard

- ★ Current U.S. Approach
- ★ Historical Perspectives
- ★ Future Steps

# Human and Financial Resources: Funding of Liabilities



- ★ Spent Fuel
- ★ Nuclear Fuel Cycle Wastes
- ★ Non-Nuclear Fuel Cycle Wastes
- ★ Decommissioning
- ★ Disused Sealed Sources

# Human and Financial Resources: Financial Surety Guidelines

- ★ Financial Assurance
- ★ Generator Responsibilities
- ★ NRC/Agreement States Approach

# Human and Financial Resources: Training and Retention of Staff



- ★ U.S. Commitment and Approach
- ★ Specifics and Details
- ★ Looking Ahead and the Future

# U.S. Response to Fukushima



- ★ Activated NRC's operations center and dispatched site team in Japan
- ★ Inspections at U.S. nuclear plants
- ★ Near-Term Task Force (NTTF) convened
  - Evaluated safety of U.S. nuclear plants
  - U.S. nuclear plants pose no imminent risk to public health and safety
  - Three tiers of recommendations

# Identifying Lessons Learned (Fukushima)



- ★ March 2012
  - NRC issued orders & requests for information to U.S. licensees regarding near term items
- ★ Other areas addressed: seismic & flooding hazards and emergency preparedness staffing and communications.
- ★ Next steps



# DOE's Regulatory Environment



DOE operates its facilities within a complex regulatory environment which includes other U.S. Federal agencies, and States for hazardous materials

- ★ The Atomic Energy Act provides DOE authority for self-regulation of Spent Nuclear Fuel (SNF) and radioactive waste at DOE sites
- ★ Some commercial SNF for which DOE has custody is stored under NRC issued licenses



# Update on Challenge: Spent Fuel and High Level Waste Disposition



- ★ Report by the Blue Ribbon Commission on America's Nuclear Future (BRC)
- ★ Planned Activities: Next Steps on BRC recommendations
- ★ Research and Development

# Report by the BRC

## ★ The BRC's Recommended Strategy Contains Eight Key Elements:

- › Consent-based approach to siting future nuclear waste management facilities
- › New organization dedicated solely to implementing the waste management program
- › Access to the funds nuclear utility ratepayers
- › Develop one or more geologic disposal facilities
- › Develop one or more consolidated storage facilities
- › Prepare for the eventual large-scale transport of spent nuclear fuel and high-level waste
- › U.S. innovation in nuclear energy technology
- › Active U.S. leadership in international efforts

# Planned Activities: Next Steps on BRC Recommendations

- ★ **Memorandum for the Secretary approved the implementation process to consider the BRC's recommendations**
- ★ **Administration/DOE strategy is under development and will be completed in summer 2012**
- ★ **DOE has initiated near-term activities that can be accomplished without legislation**
  - **Evaluation of storage concepts**
  - **Plans for engaging stakeholders**
  - **Conducting tests to understand the behavior of spent nuclear fuel in long-term storage**
  - **Generic Geologic Media**
    - Develop additional repository concepts and generic performance assessment models
    - Work with international partners for disposal in salt, granite and clay rocks
    - Conduct R&D for possible use of salt formations in used fuel disposition

# Progress on DOE HLW Treatment Facilities

## Sodium Bearing Waste Facility



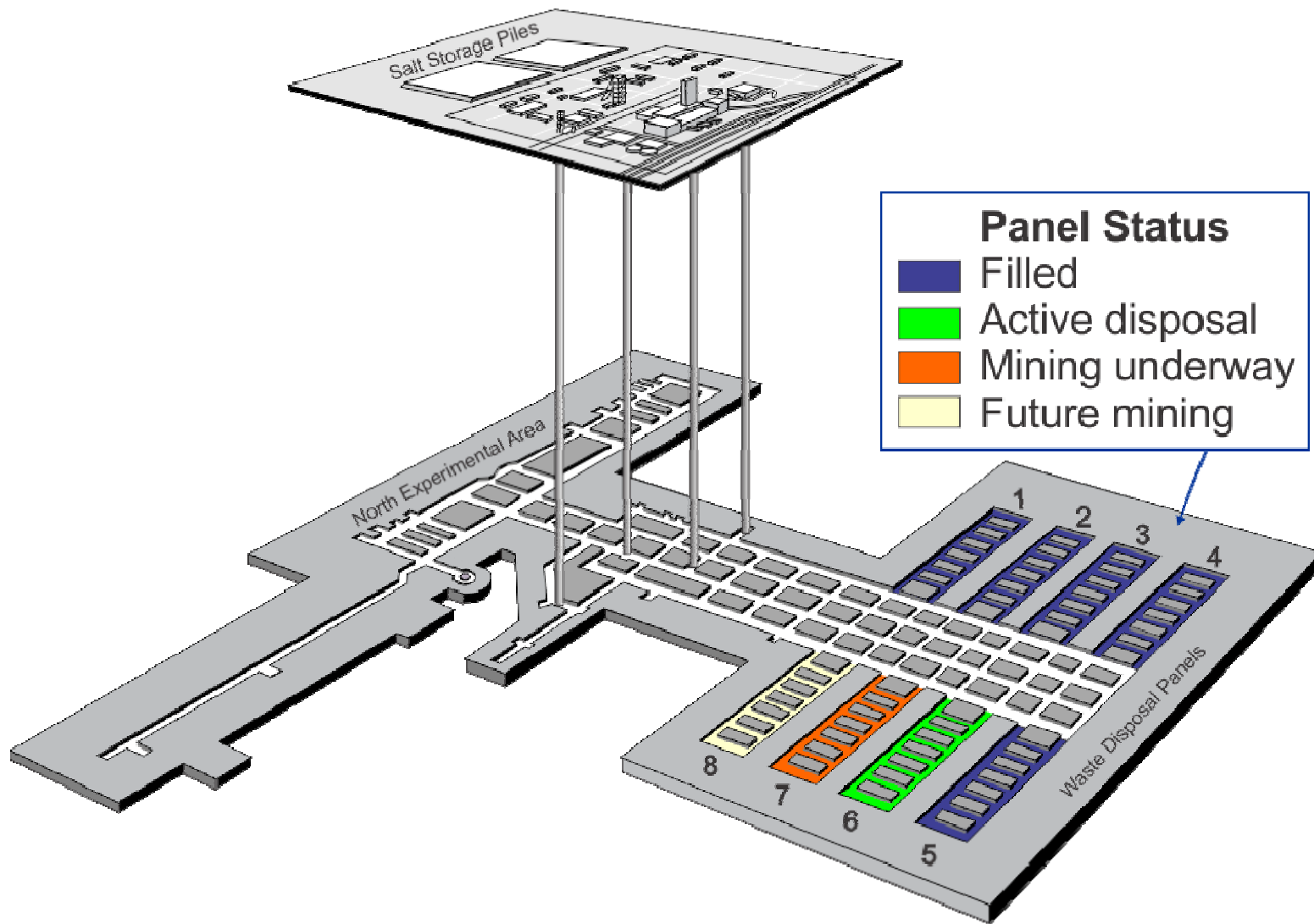
## Salt Waste Processing Facility



## Waste Treatment Plant

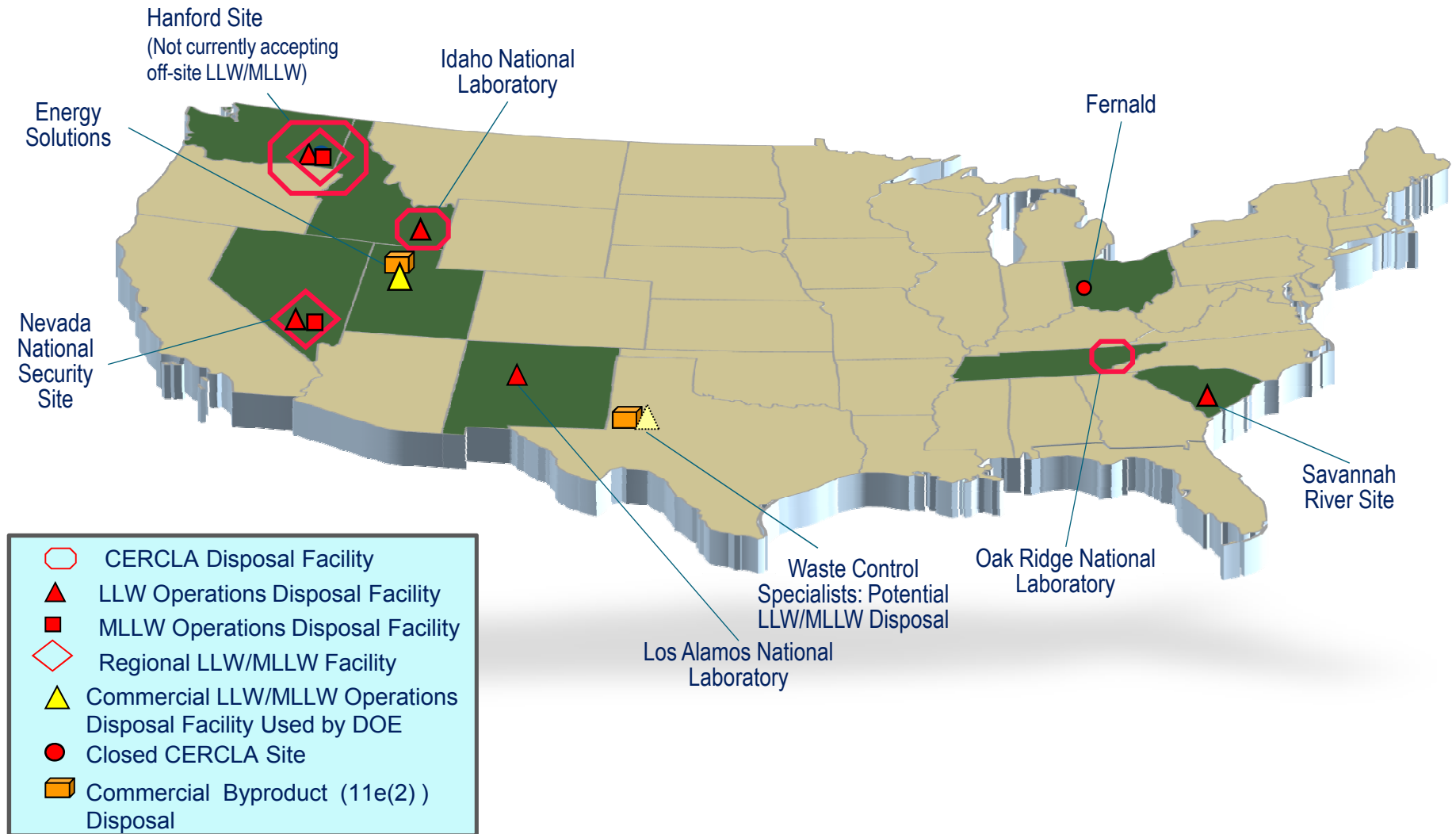


# Waste Isolation Pilot Plant (WIPP) – 13 Years of Safe Disposal





# DOE LLW Waste Disposal Options



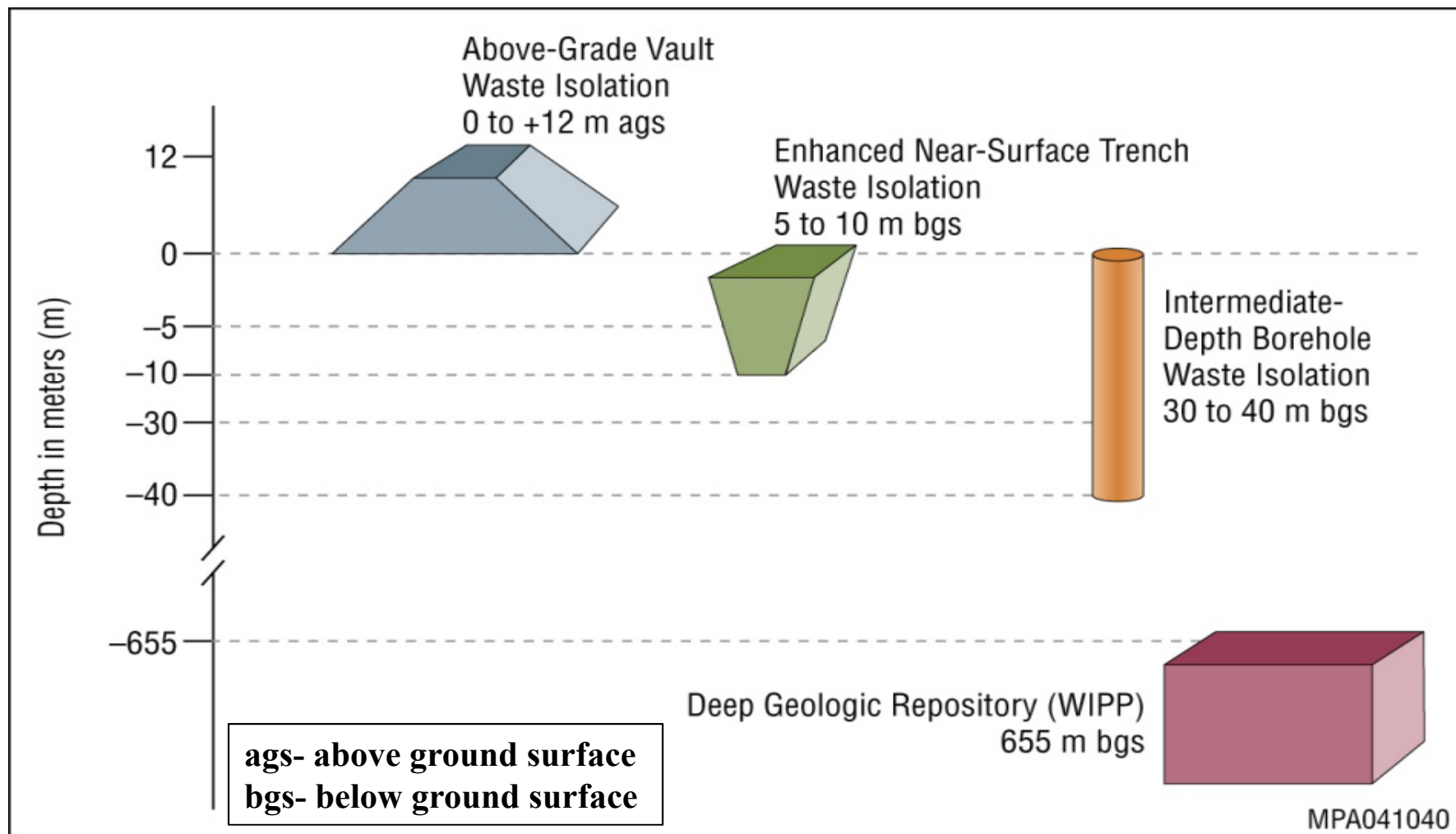
# Update on Challenge: Greater-than-Class C LLW Disposal



- ★ DOE is responsible for GTCC LLW disposal in a facility licensed by NRC
- ★ DOE issued a Draft Environmental Impact Statement on GTCC LLW Disposal for public comment in February 2011
  - › Final EIS expected in late 2012/ early 2013
  - › Includes activated metals, sealed sources, and other waste
- ★ Proposed Disposal Locations: DOE sites (Hanford, Idaho, Los Alamos, WIPP/WIPP vicinity, Nevada, Savannah River) and generic commercial
- ★ Before selecting GTCC LLW disposal site, DOE must submit a Report to the U.S. Congress and await Congressional action



# GTCC Proposed Design Alternatives



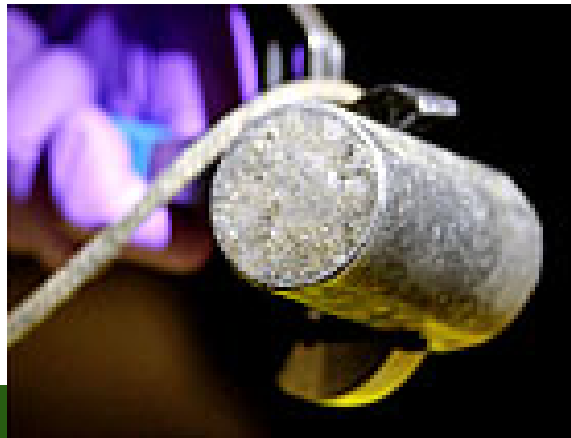
# Decommissioning and Site Remediation

## Status of DOE Cleanup Initiatives



# Disused Sealed Sources Recovery

- ★ To date, over 30,000 sources totaling over 30,266 TBq recovered by the DOE/NNSA Global Threat Reduction Initiative
- ★ GTRI primarily recovers Cs-137, Co-60, Sr-90, Am-241, Pu-238, Pu-239, Ra-226
- ★ Every potential recovery is different and must be considered and prioritized
- ★ Recoveries are done according to a prioritization methodology based on threat reduction criteria developed in coordination with the NRC
- ★ GTRI works with the IAEA, other source exporting states, and GTRI Partner States to recover and/or store securely disused sources internationally





# DOE Response to the Fukushima Accident



## Review of DOE Category 1 and 2 Facilities and Results

- ★ **DOE focused on the highest hazard category 1 and 2 nuclear facilities because these facilities have the higher hazard/ risk activities**
  - › The Secretary of Energy issued Safety Bulletin 2011-1 (Events Beyond Design Safety Basis Analysis) on March 23, 2011
- ★ **Initial Observations**
  - › DOE reactor designs are different than commercial reactors
  - › All safety systems for accident prevention and mitigation are operable
  - › The reviews evaluated beyond design basis events , including severe natural phenomena events
  - › No risks were identified that warrant immediate action
- ★ **Recommendations**
  - › Issued by the Secretary in a report titled Review of Requirements and Capabilities for Analyzing and Responding to Beyond Design Basis Events
  - › Developing an implementation strategy to complete all actions by December 30, 2012

# Summary

- ✓ U.S. focus on safety of spent fuel and radioactive waste management
- ✓ Robust independent legal and regulatory infrastructure
- ✓ Evaluating BRC HLW recommendations
  - Routine disposal of TRU (geologic) and LLW (near-surface)
- ★ Through examination of lessons learned from the Fukushima Accident
  - Commitment to enhanced participation and continuous improvement in the Joint Convention review process

# Thank you for your attention!

