



U.S. DEPARTMENT OF
ENERGY

Nuclear Energy

**Used Fuel Disposition Campaign
Working Group Meeting
Disposal R&D**

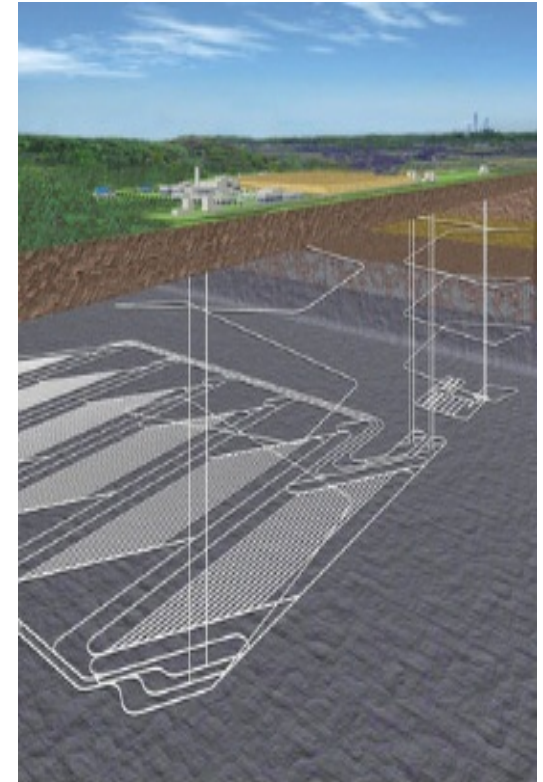
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Office of Used Nuclear Fuel Disposition R&D**

**Las Vegas, Nevada
June 7, 2016**



UFD Disposal R&D

- **Provide a sound technical basis for the assertion that the U.S. has multiple viable disposal options**
- **Increase confidence in the robustness of generic disposal concepts**
- **Initiate a field test for the deep borehole disposal concept**
- **Complete evaluation of the technical feasibility of the direct disposal of existing storage and transportation canisters**





UFD Disposal R&D

■ Anticipated FY17 Program Priorities in Disposal R&D

- Deep Borehole Disposal Field Test (DBFT)
- Technical aspects of a Repository for DOE-managed waste
- Continue R&D in disposal systems in three main rock types
 - Continue support of International collaboration
- Feasibility of direct disposal of Dual-Purpose Canisters

■ FY17 priorities and funding levels will be finalized over the summer

- DBFT large portion of UFD Disposal R&D budget

■ All priorities subject to change – Secretary of Energy, NE Management, Congressional Appropriations



UFD Disposal R&D

■ Keys to success with limited funding

- Must be selective on what work gets funded
- Prioritize work based on importance (Disposal Roadmap, Safety Case)
 - What are the important questions to answer
 - What are the benefits to the program
- Defined objectives, benefits, and schedules
- Tangible outcomes: products and completions vice progress reports

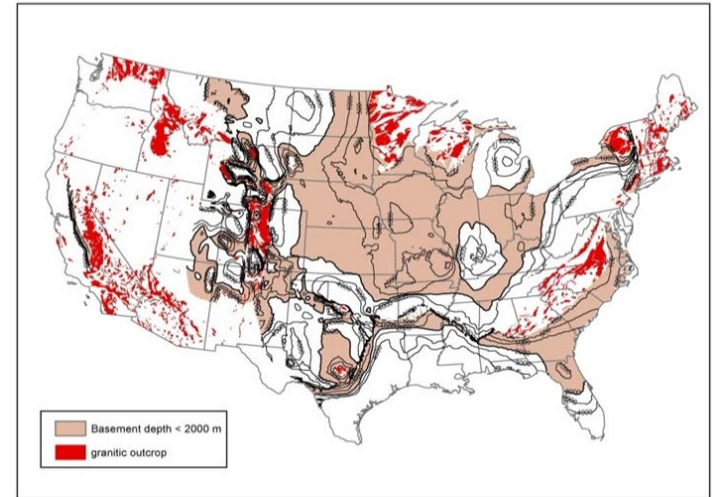


Deep Borehole Disposal Concept

Improving Scientific Understanding with a Field Test

■ Several factors suggest the disposal concept is viable and safe:

- Crystalline basement rocks are common in many stable continental regions
- Existing drilling technology permits dependable construction at acceptable cost
- Low permeability and long residence time of high-salinity groundwater in deep continental crystalline basement at many locations suggests very limited interaction with shallow fresh groundwater resources



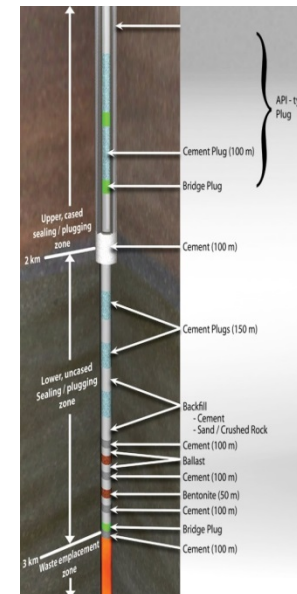
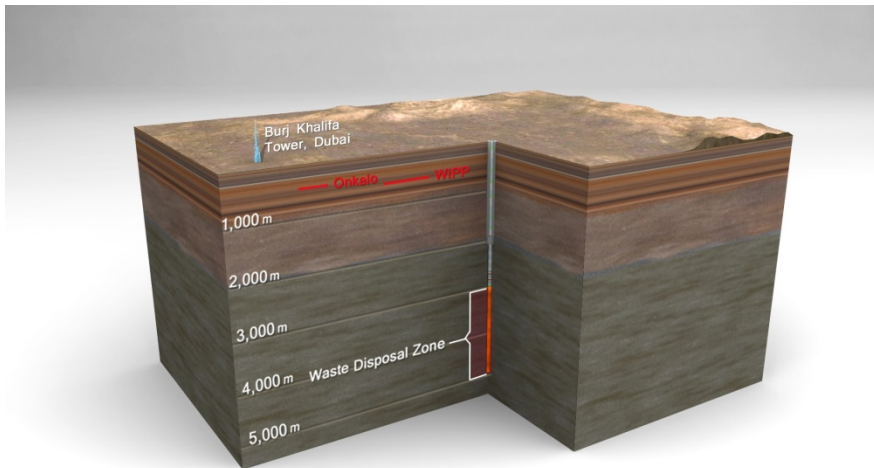


Deep Borehole Disposal Concept

Improving Scientific Understanding with a Field Test

- DOE's proposed Deep Borehole field test is the next logical step in evaluating the DBH concept and is part of the Department's cross cut in subsurface research.

- No radioactive waste will be used during the field test



■ The DBH Field Test will:

- Demonstrate the feasibility of characterizing and engineering deep boreholes
- Demonstrate safe processes and operations for safe waste emplacement downhole



UFD Disposal R&D

■ DOE Disposal R&D Team

| Control Account Title | | DOE Lead |
|--|--|------------------|
| Federal Program Manager – Disposal R&D | | Tim Gunter |
| Engineered Material Performance | | Joe Price |
| Argillite Disposal R&D | | Bill Spezialetti |
| Crystalline Disposal R&D | | Bill Spezialetti |
| Generic Disposal System Analysis | | Mark Tynan |
| International Disposal R&D | | Prasad Nair |
| Disposal of Dual Purpose Canisters | | Bob Clark |
| Deep Borehole Disposal R&D | | Mark Tynan |
| Salt R&D | | Prasad Nair |