U.S. DEPARTMENT OF ENERGY

Draft Greater-Than-Class C (GTCC) Low-Level Radioactive Waste Environmental Impact Statement: Developing a Long-Term Disposal Capability for Cesium Chloride Sealed Sources and Other GTCC Wastes

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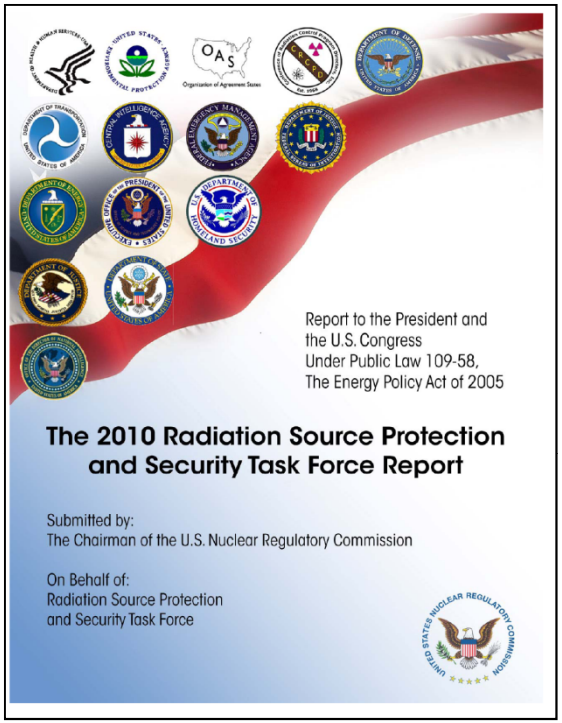
November 9, 2010

Briefing Objectives

- Inform you of the current status of DOE's efforts to develop a disposal capability for GTCC low-level radioactive waste (LLRW), which includes most cesium chloride (CsCl) sources in use today
- Obtain your perspectives on disposal issues

Drivers for GTCC Disposal Capability

- Congressional Mandate—Federal/DOE Responsibilities
  - Low-Level Radioactive Waste Policy Act Amendments of 1985
  - Energy Policy Act of 2005
- National Security Concerns
  - Potential for disused sealed sources to be used in a "dirty bomb"
  - Disposal need highlighted as one of two key security challenges in 2010 Inter-Agency Task Force Report to President Obama and Congress
- Supports Future U.S. Programs
  - Medical Isotope Production (molybdenum-99)
  - Green Energy (e.g., Gen IV Nuclear Energy Systems)
  - Space Exploration (e.g., DOE Space and Defense Power System Programs)
- Environmental Stewardship
  - Statutory mission and DOE cleanup commitments for the West Valley Site in New York


Report to the President and
the U.S. Congress
Under Public Law 109-58,
The Energy Policy Act of 2005

The 2010 Radiation Source Protection and Security Task Force Report

Submitted by:
The Chairman of the U.S. Nuclear Regulatory Commission

On Behalf of:
Radiation Source Protection
and Security Task Force

Draft GTCC Environmental Impact Statement

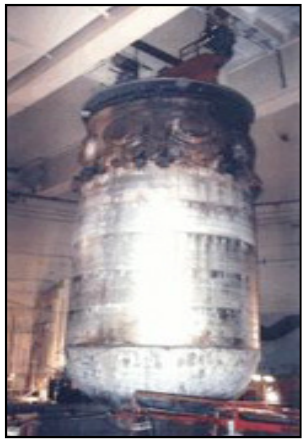
- Identifies GTCC waste types and the existing and projected inventories in need of disposal
- Identifies a reasonable range of alternatives for disposal of GTCC waste including disposal sites and methods
- Evaluates potential impacts to human health and the environment for these alternatives

GTCC Waste Types

- **Sealed sources** used in medical treatments and industrial purposes
- **Activated metal** from decommissioning of nuclear power reactors
- **Other Waste** from a wide-range of activities, such as commercial production of radionuclides for cancer treatment, DOE production of radioisotope power systems for space exploration, and commercial/DOE environmental clean up

Self-Shielded Cs Irradiator

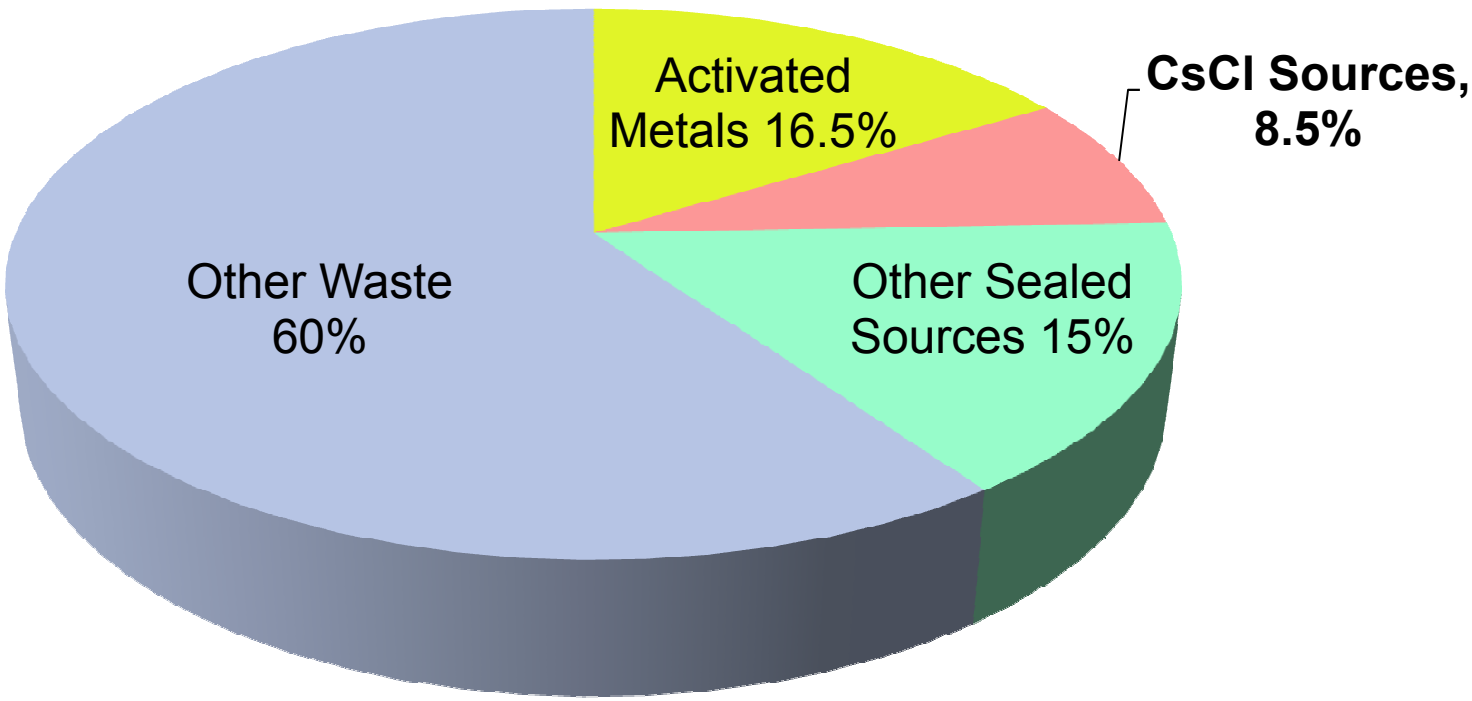
Activated Metal waste includes portions of the reactor core barrel



Other Waste includes projected maintenance waste from planned operation of new U.S. Mo-99 production facilities, needed to reduce reliance on aging, unpredictable foreign facilities for this critical medical isotope

GTCC Waste Inventory

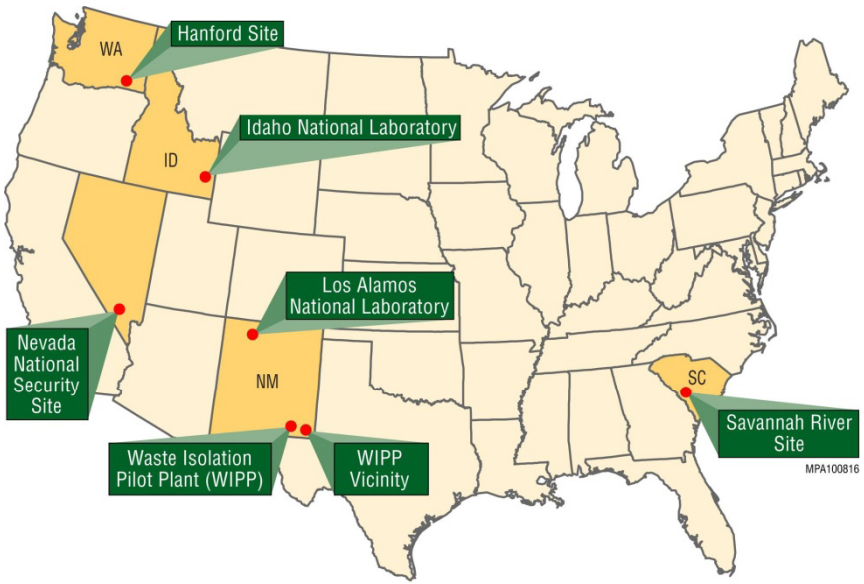
Total Stored and Projected Inventory = 12,000 m^3



CsCl sources make up 8.5 percent (1,000 m^3) of total volume of wastes analyzed in GTCC EIS

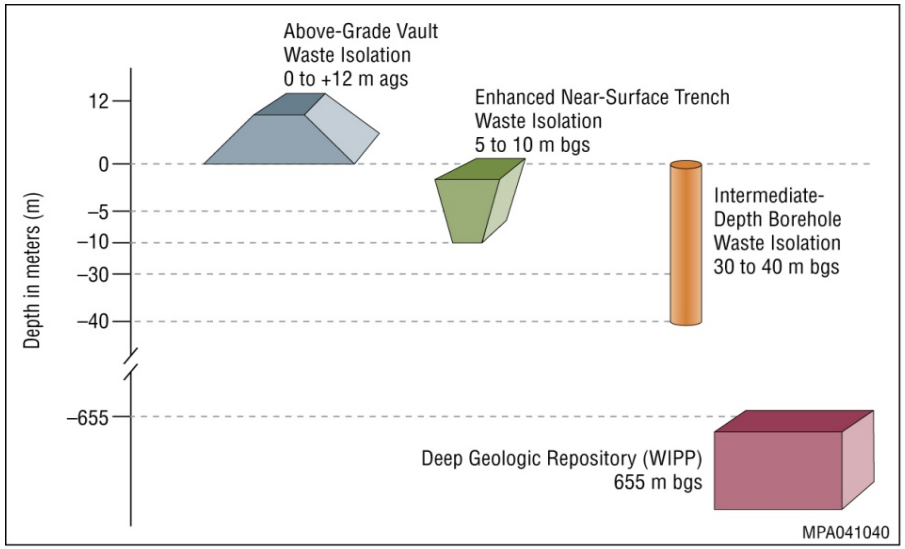
Alternatives Evaluated--Sites

- NRC regulations presume deep geologic repository unless alternative methods are proposed to and approved by NRC
- Disposal Locations: Existing DOE sites and generic commercial locations
- No action alternative is also evaluated
- Combinations of disposal methods and sites may be appropriate
- No preferred alternative being proposed



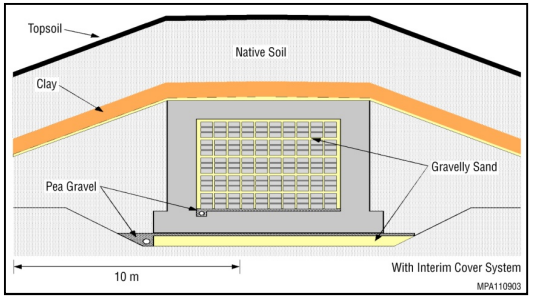
ags = above ground surface; bgs = below ground surface

Alternatives Evaluated--Disposal Methods



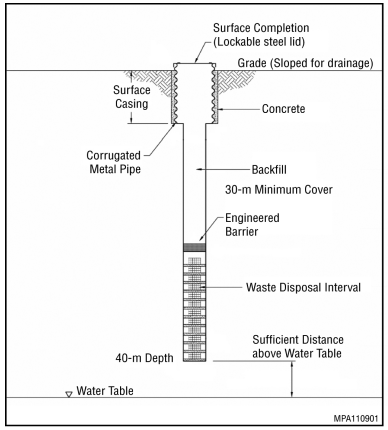
Above-Grade Vault

11 m wide x 94 m long x 7.9 m tall
(36 ft x 310 ft x 26 ft)



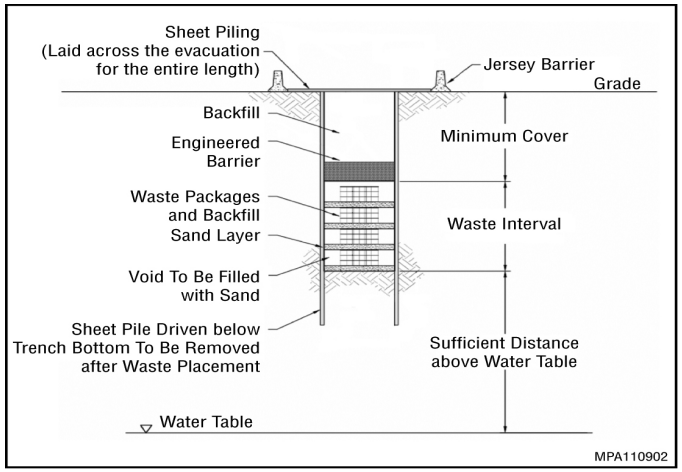
Intermediate Depth Borehole

2.4 m in diameter and 40 m deep
(8 x 130 ft)



Enhanced Near Surface Trench

3 m wide x 11 m deep x 100 m long
(10 ft x 36 ft x 330 ft)



Deep Geologic Repository (WIPP)

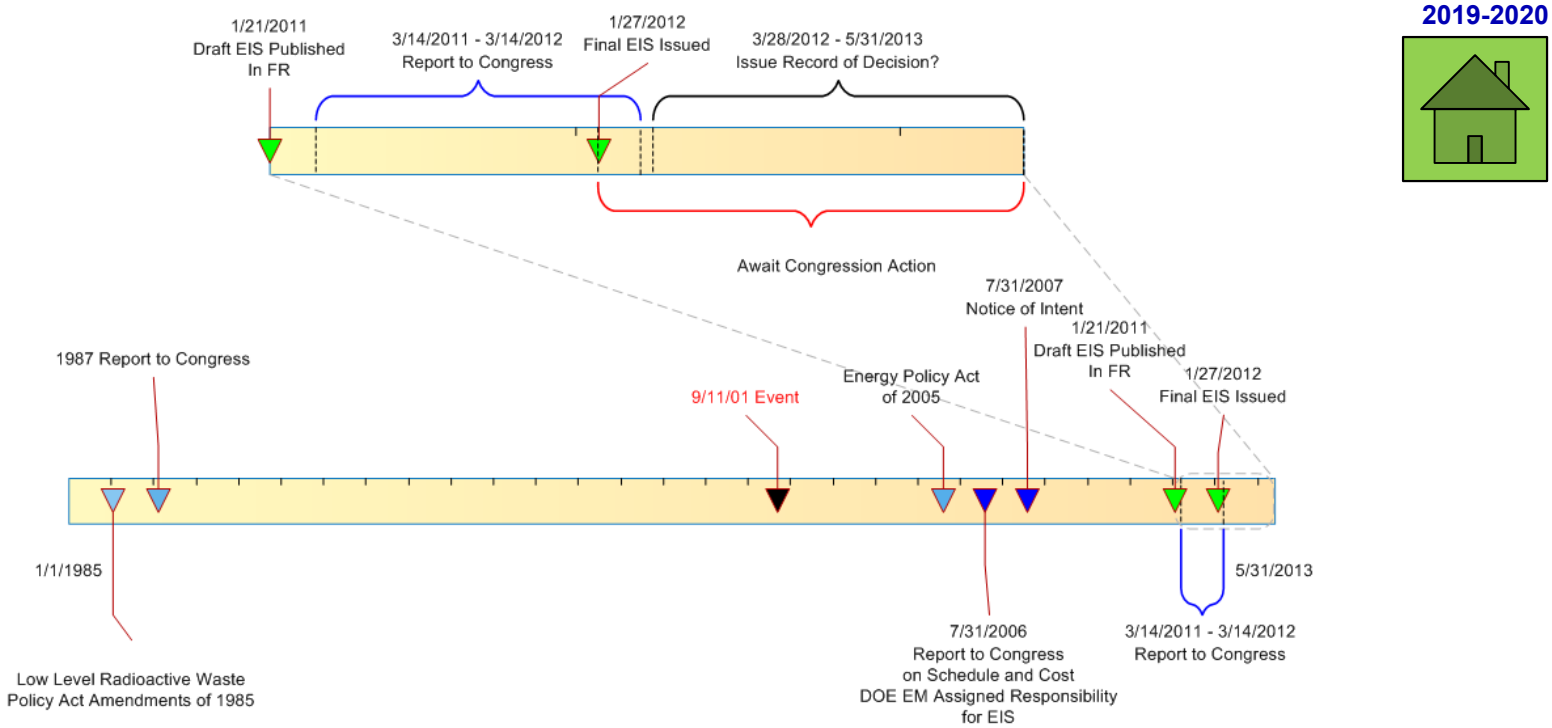
655 m (2,150 ft) below ground
Up to 26 new rooms may be required

Planned Schedule

Activity	Target Date
Issue Draft EIS	2011
Public Hearings/Comment Period	2011
Issue Final EIS	2012
Submit Report to Congress on Disposal Alternatives	2012
Await Action by Congress	To be determined
Issue Record of Decision	~3 months after receipt of Congressional Action
Implement Record of Decision	Timing depends on alternative(s) selected (e.g., some options may require legislation)

Timeline

National Security Concerns since 2001



Before the Secretary makes a final decision, the Secretary shall submit a Report Congress on disposal alternatives under consideration, including regulatory needs and legislative authorities, funding options, schedule and costs, etc, and to await action by Congress

Challenges and Opportunities

- Gaining stakeholder support of disposal alternatives(s)
- Obtaining Congressional support
  - Some alternatives may require federal legislation for implementation
  - DOE must await Congressional action on Report to Congress before selecting disposal alternative(s)
- NRC acceptance of proposed disposal alternative

DOE encourages the Sealed Source Community to participate in the GTCC EIS process, including submitting written comments on the Draft EIS and providing oral comments at the public hearings

For Further Information

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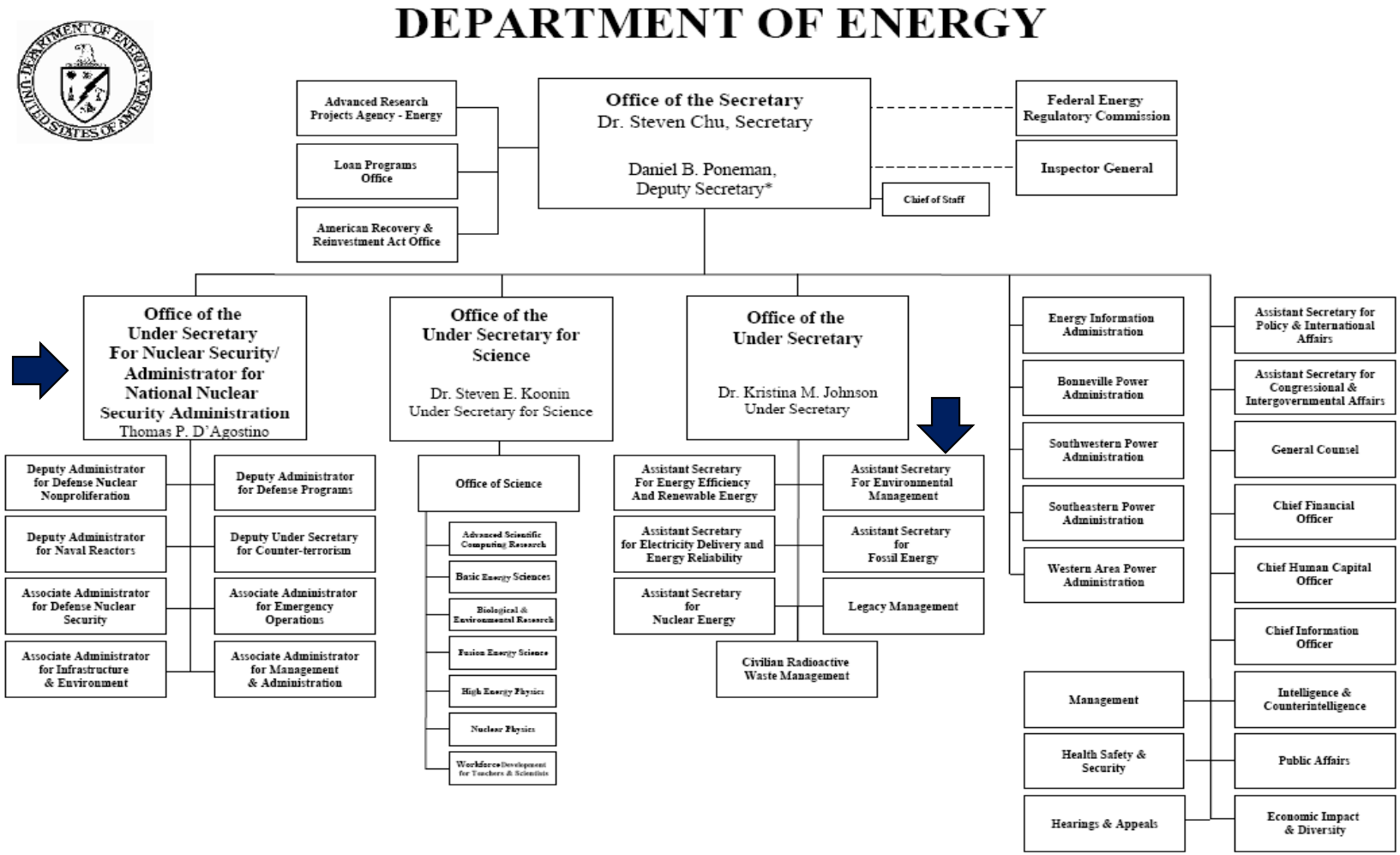
- You can continue to stay informed by visiting the GTCC EIS website at http://www/gtcceis.anl.gov

DOE Organization



DOE's Office of Environmental Management and National Nuclear Security Administration are working closely on sealed source disposal issues