Status of the Yucca Mountain Repository Program

Presented to:
State of Wisconsin
Joint Legislative Council
Madison, Wisconsin

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Program Update

- Yucca Mountain Repository Status
- Transportation Planning
- Canister Approach – Program Re-direction
- Program Schedule
- Potential obstacles to building Yucca Mountain
- Administration Legislative Proposal
- Global Nuclear Energy Partnership (GNEP)
- Litigation Status
- Second Repository Decision Status
- Contingencies

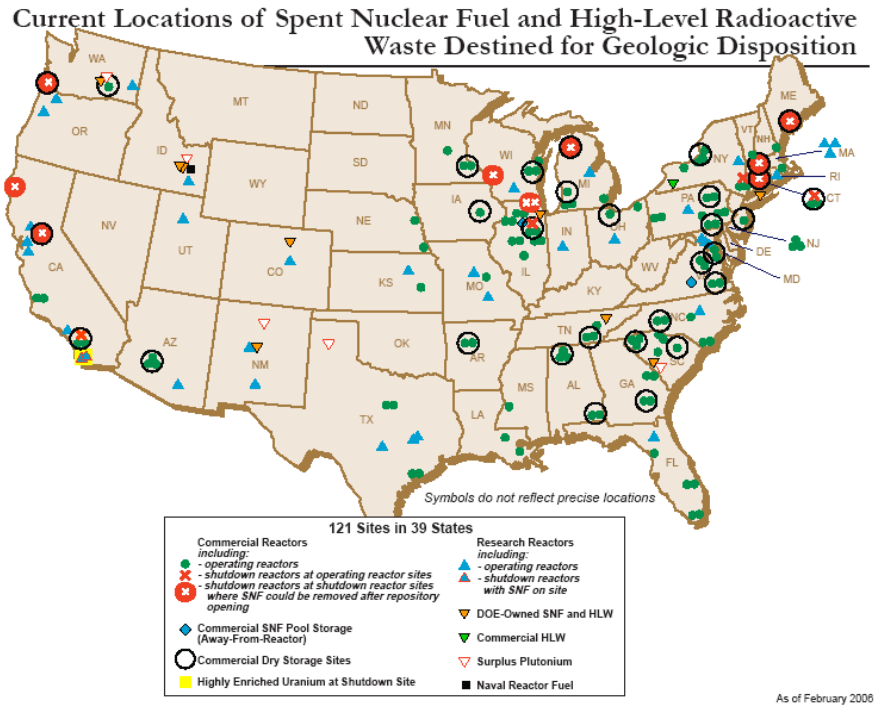
Mission

- **Mission:** Our mission is to **manage and dispose** of high-level radioactive waste and spent nuclear fuel in a manner that **protects health, safety, and the environment; enhances national and energy security; and merits public confidence.**

- **Priorities:**
  - After over 20 years of scientific study, Congress **passed a joint resolution** to designate the Yucca Mountain site for repository development and move ahead to submit a license application for repository construction authorization.
  - Protecting public health, safety, and the environment remain our top priorities.

Current locations of spent nuclear fuel (SNF) and high-level radioactive waste (HLW) destined for geologic disposal:

121 sites in 39 states

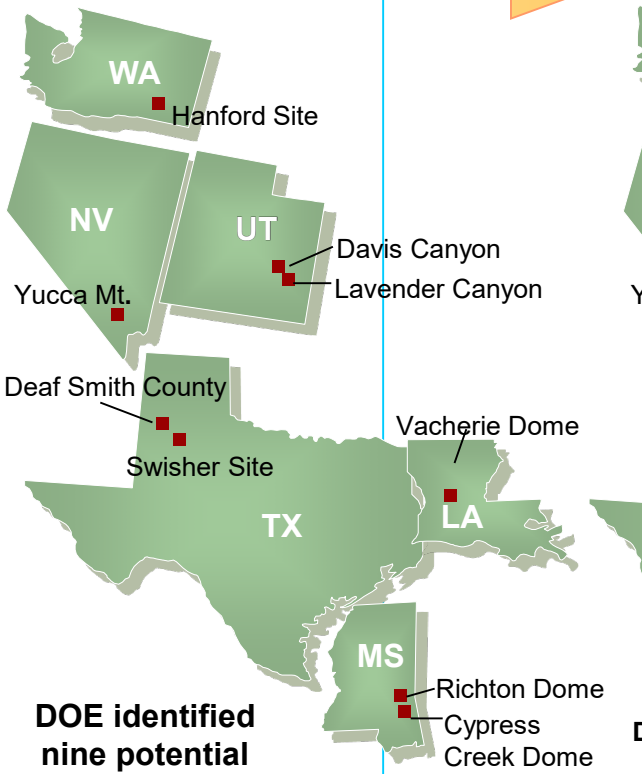


Nuclear Waste Policy Act of 1982

- Site, construct, and operate first repository for disposal of spent nuclear fuel and high-level waste from commercial and defense nuclear activities
- Site second repository
- Program funded through fees deposited in the Nuclear Waste Fund
- Specific institutional provisions for State and Native American participation
- Studies to determine the need for and feasibility of monitored retrievable storage

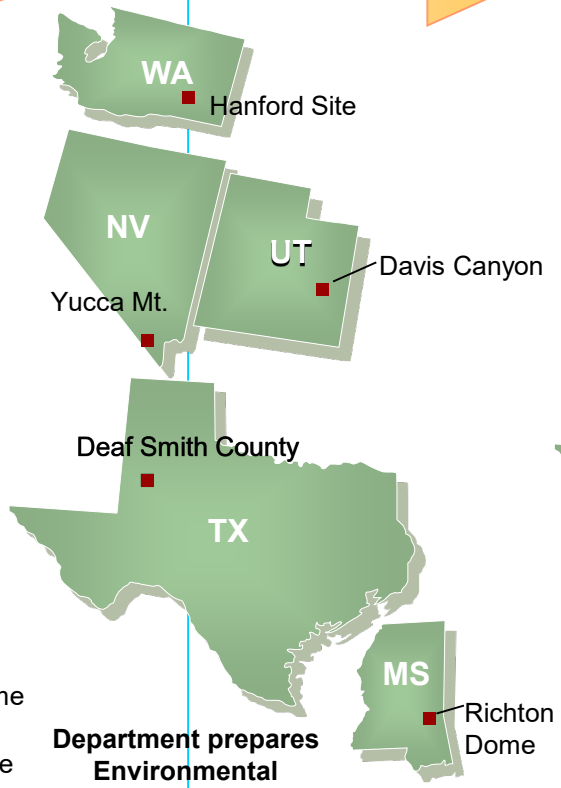
Events Leading to Selection of Yucca Mountain for Study

NINE POTENTIAL SITES



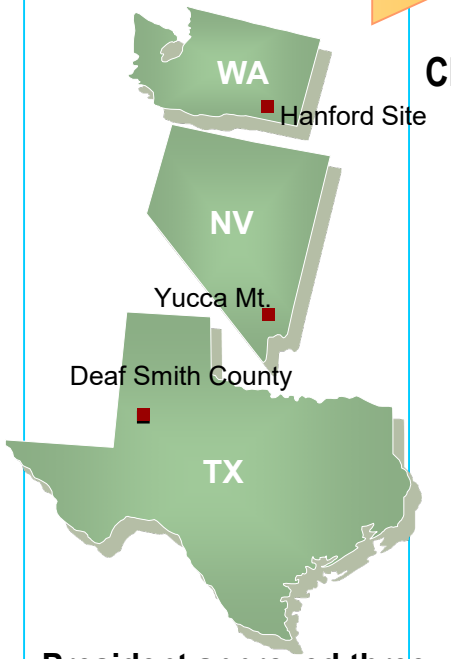
DOE identified nine potential repository sites

FIVE NOMINATED SITES



Department prepares Environmental Assessments, Secretary of Energy nominated sites for further consideration

THREE SITES PRESIDENTIALLY APPROVED



President approved three sites for characterization

ONE SITE IDENTIFIED BY CONGRESS FOR SITE CHARACTERIZATION

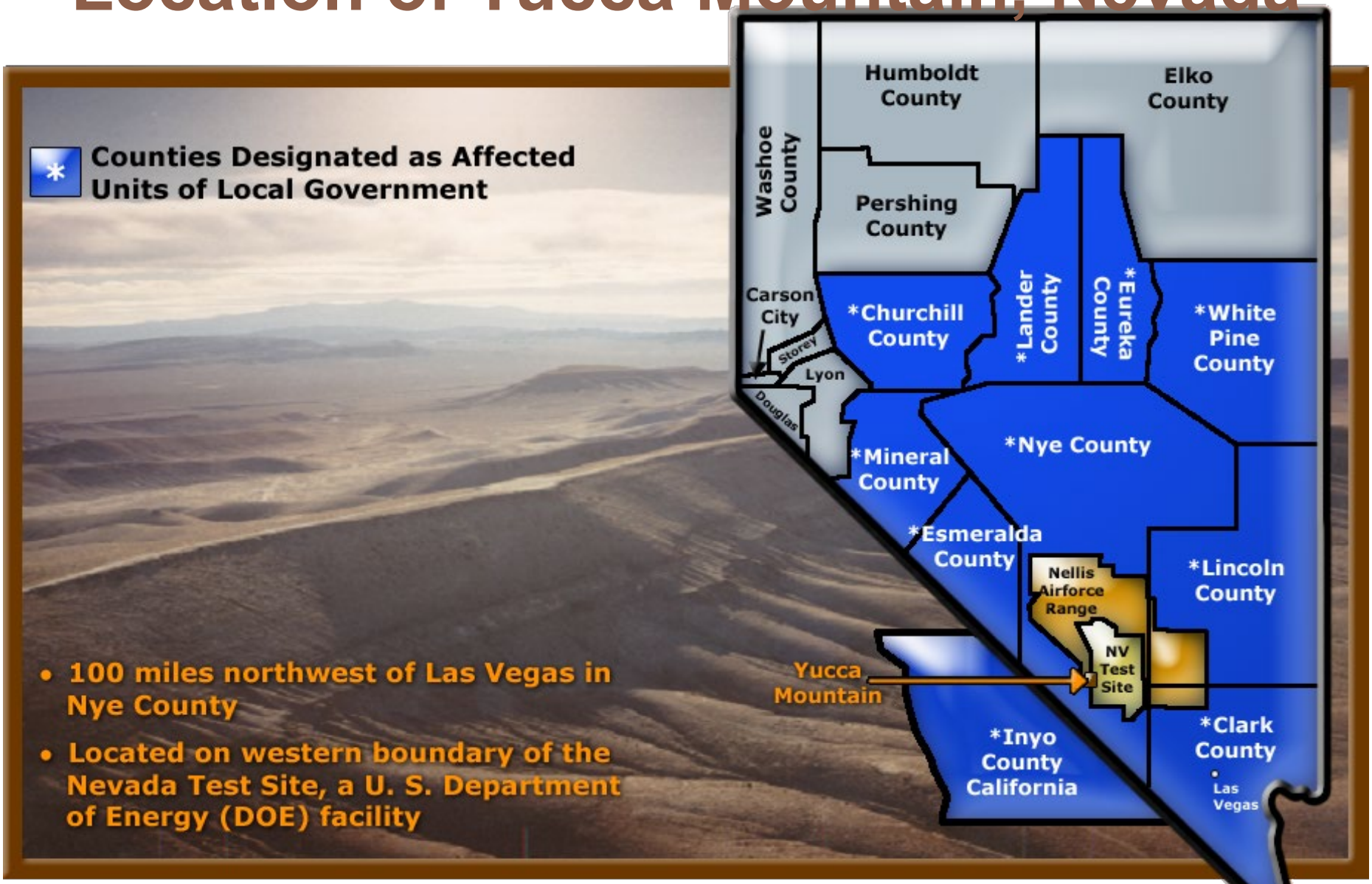
Congress passed the NWPA, as amended, mandating only the Yucca Mountain site for detailed site characterization

1983 1984 1985 1986 1987

Nuclear Waste Policy Amendments Act of 1987

- Directed DOE to characterize only Yucca Mountain, NV site to determine suitability as a repository
- Annulled and revoked DOE proposal to construct a monitored retrievable storage (MRS) facility at Oak Ridge, TN
- Established Office of Nuclear Waste Negotiator to seek a voluntary host site for an MRS facility
- Cancelled program for finding a site for a second repository and directed DOE to report to Congress between 2007 and 2010 on need for second repository
- Established the Nuclear Waste Technical Review Board

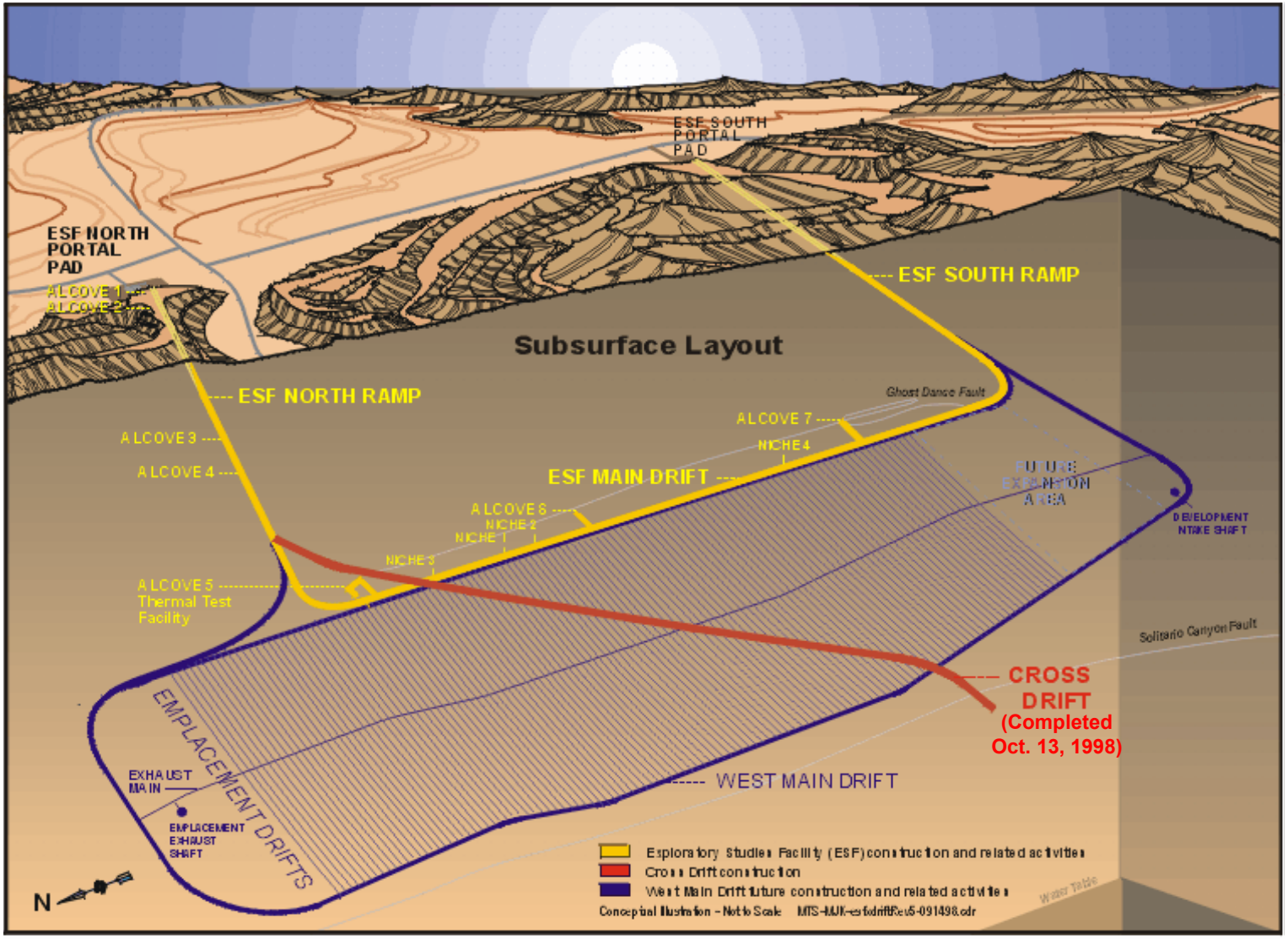
Location of Yucca Mountain, Nevada



Yucca Mountain 2002 Site Recommendation

- The Secretary of Energy and the President recommended, and Congress approved, the Yucca Mountain site for development of a repository
- Factors considered in the Secretary's decision:
  - Yucca Mountain is located in an arid environment – desert location
  - Site is isolated from population centers, Federal site
  - Waste would be emplaced 1,000 ft under the surface, within a closed hydrologic basin
  - 20 Years of comprehensive scientific studies

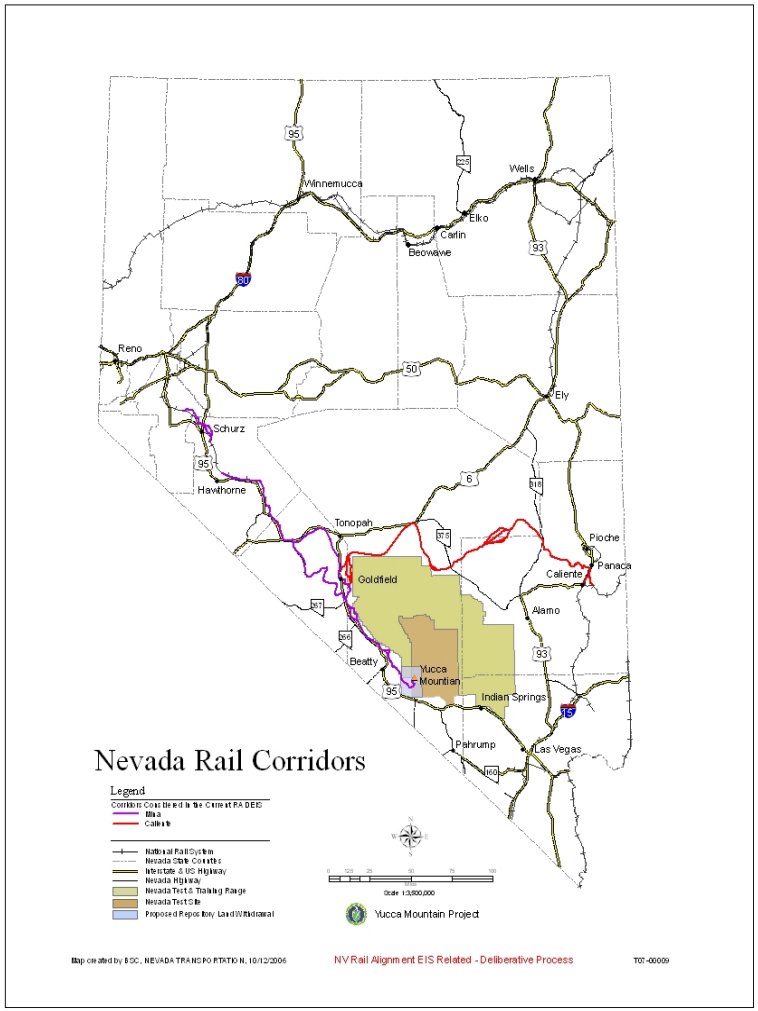
Subsurface Reference Design



Transportation Planning

- **To dispose of the Nation's nuclear waste, the program will make about 175 shipments per year for several decades**
- **States, local governments, Indian tribes, carriers, and transport cask vendors are involved in transportation planning**
- **Transportation of nuclear waste is regulated by the Nuclear Regulatory Commission and Department of Transportation**
  - In the last 30 years, over 3,000 shipments of spent nuclear fuel traveled 1.7 million miles
  - No release of radioactive material harmful to the public or the environment
- **Our safety record is comparable to that in Europe, where spent nuclear fuel has been transported extensively**
  - Over the last 25 years, more than 70,000 metric tons of SNF (exceeding the amount the NWPA authorizes for Yucca Mountain) has been shipped
  - France and Britain average 650 shipments per year

Caliente and Mina Routes

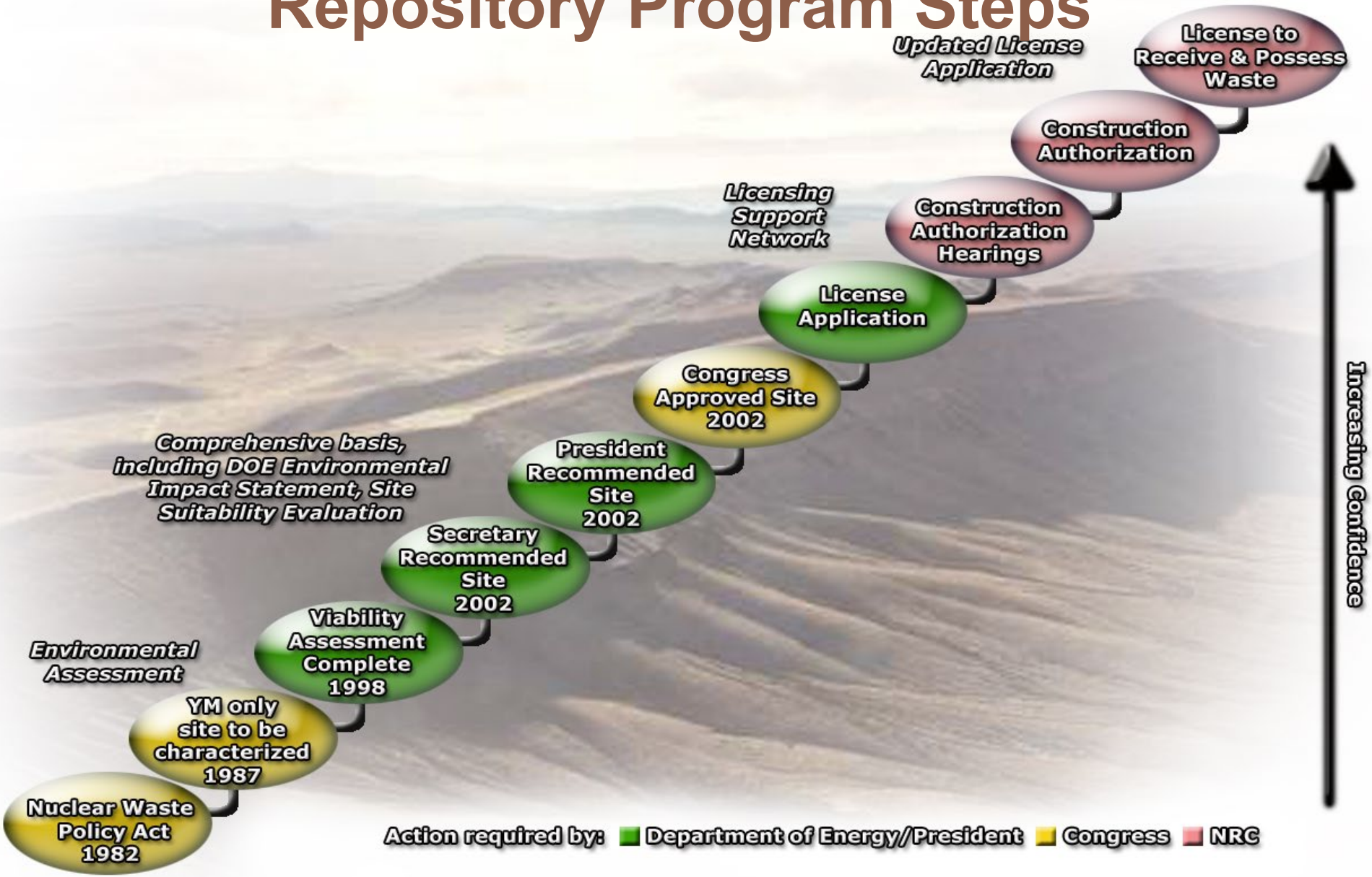


- The repository requires rail connection to an existing line
- On April 2, 2004 the DOE issued a Record of Decision selecting the Caliente Corridor for connecting rail
- In the October 13, 2006 Federal Register Notice, the Department issued an amended Notice of Intent to include the “Mina Corridor” in the Rail Alignment EIS
- The decision to add the Mina corridor will result in a one year schedule delay for the publishing of the EIS
- Based on the current schedule rail will be operational in 2014

Integration of Canisters Into Yucca Planning

- DOE has decided to implement a Transport, Aging and Disposal (TAD) canistered system approach
- TAD system offers several technical benefits:
  - Support the standardization of SNF storage, transport, aging and disposal packaging, allowing integration of SNF handling operations
  - Utilize utility fuel handling experience in packaging SNF
  - Simplify DOE operations and minimize redundant handling of bare SNF assemblies at the repository
  - Reduce low-level waste production and worker radiation exposure
  - Reduce complexity and cost of DOE facilities

Repository Program Steps



Repository Program Schedule*

Activity	Date
Begin Nevada Rail construction	Oct. 2009
NRC authorizes repository construction	Sept. 2011
Complete initial rail access	Jun. 2014
Complete construction for initial repository operations	Mar. 2016
Begin waste receipt	Mar. 2017

* Requires passage of Administration's legislative proposal

Potential Program Obstacles

- Regulatory requirement for permanent land withdrawal
- Inconsistent and insufficient funding
- State of Nevada opposition over water and air permits
- Delays in the licensing process
- Extended litigation
- Nevada rail line delays

Administration's Legislative Proposal

- **Permanent Land Withdrawal**
- **Licensing – Capacity Limit, NRC Process, Infrastructure**
- **Funding Reform**
- **Regulatory Requirements – Resource Conservation and Recovery Act (RCRA), Air Permits**
- **Transportation Safety and Security**
- **Water Provisions**
- **Waste Confidence**

Integrating with Emerging Initiatives

Global Nuclear Energy Partnership and Yucca Mountain

- **Yucca Mountain is still needed under any fuel cycle scenario**
- **We are proceeding with our base case to deal with current and planned inventory of spent nuclear fuel and high-level waste**
- **If the technology is proven and developed, the Global Nuclear Energy Partnership (GNEP) could provide improvements to spent fuel disposal at a repository by:**
  - **significantly reducing the volume of waste**
  - **enhancing thermal management by reducing waste form heat load**
  - **reducing the amount of long-lived radionuclides requiring disposal**

Utility Lawsuits

- Court ruled in 1997 that DOE is liable for damages incurred due to missed deadline to pickup waste in 1998
- 56 lawsuits pending against DOE for damages for delay in waste pickup
- Government has settled with over 20% of the industry
- Once settled, DOE may begin communicating with the utilities regarding waste acceptance planning
- Department estimates the damages could be approximately $7 billion

Second Repository Decision Status

- The Nuclear Waste Policy Act directs the Secretary to report to Congress between 2007 – 2010 on the need for a second repository

- The Administration's proposal to remove the statutory limit of 70,000 MTU for Yucca Mountain will defer the need for a second repository

Contingency Plans

- **What happens if the NRC declares a repository at Yucca Mountain cannot be built?**

- **What happens if spent fuel needs to be removed from reactor sites prior to commencement of repository operations?**

Summary

- **Entering an important period for the nuclear industry and for the disposition of nuclear waste in the United States.**
- **The Department of Energy is committed to the development of Yucca Mountain as a geologic repository.**
- **Administration's Yucca Mountain legislation can provide stability, clarity, and predictability to the Program and will help lay a solid foundation for America's future energy and national security.**