



# Federal Laws [NWPA]

## Responsibilities and Regulations for Geologic Disposal of High-Level Radioactive Waste in the U.S.

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# Objectives

- **Understand bases in U.S. policy and law for the U.S. Nuclear Regulatory Commission's (NRC's) authority to regulate disposal of high-level radioactive waste (HLW) and spent fuel (SF) in a geologic repository**
- **Understand role and responsibilities assigned to NRC and other government agencies with regard to a potential repository at Yucca Mountain, Nevada**
- **Summarize the U.S. Congress's Nuclear Waste Policy Act and Amendments that authorize and shape the HLW repository program at Yucca Mountain**



# Background

- **Development of National Policy on High-Level Waste (HLW)**
  - Interagency Review Group
  - Presidential direction
  - Environmental Impact Statement (EIS)
  - Nuclear Waste Laws
  
- **Development of regulatory framework of HLW disposal**
  - Waste Confidence proceeding, findings and rulemaking
  - Licensing and technical criteria at 10 Code of Federal Regulations (CFR) Part 60 - General
  - Risk-informed and performance based 10 CFR Part 63 – Yucca Mountain



# National Strategy to Develop Geologic Repositories for HLW and Spent Fuel

- **Policy and Environmental Impact Statement (EIS)**
  - 1979 Interagency Review Group Report
  - Public Hearings in 5 cities before an independent Hearing Board
  - ~2000 Comments
  - Final Environmental Impact Statement published October 1980



# 1980 National Strategy Announced by President Carter

- Develop mined geologic repositories for disposal of commercially and defense generated HLW and transuranic waste (TRU)
- Conduct research and development to ensure long-term containment and isolation
- Acknowledge that multiple alternatives were considered
- Recognize importance of interaction among setting, host rock, waste form and engineered barriers on a site-specific basis
- Once 4 or 5 sites evaluated and found potentially suitable, 1 or more would be developed as a licensed repository



# Waste Confidence Proceeding

- In 1977, lawsuits challenged NRC's decisions to authorize spent fuel pool expansions at two reactors
- NRC prevailed, but court remanded to NRC the generic issue of long-term confidence that disposal solution would be found
- Initial finding of NRC confidence and rulemaking took ~5 years and was completed in 1984
- NRC is confident in adequacy of storage capacity and repository availability by ~2025 (1990 updated decision)
- In 1999, the Commissioners deferred further update pending decision on Yucca Mountain



# Nuclear Waste Policy Act (NWPA) of 1982

- **Established permanent disposal as national policy**
  - Waste is a national problem
  - Waste disposal is responsibility of Federal Government
  - Waste generators should pay
  - State and public participation is essential
  - Public health, safety and the environment should be protected for this and future generations





## Nuclear Waste Policy Act (NWPA) of 1982 (cont.)

- Established schedule for siting, construction, and operation of repositories
- Defined relationship between Federal, State and affected Tribal and local governments with regard to potential repositories
- Assigned responsibilities to Dept. of Energy (DOE), Environmental Protection Agency (EPA), NRC, Dept. of Interior (DOI), the President and to Congress
- Established Nuclear Waste Fund



# NWPA Directs NRC to:

- Issue repository criteria under *EXISTING* authority for:
  - Construction authorization
  - Receipt and possession of waste
  - Closure and decommissioning
  
- NRC criteria for spent fuel and HLW disposal must:
  - Provide for a system of multiple barriers
  - Include restrictions on retrievability
  - Not be inconsistent with generally applicable Environmental Protection Agency (EPA) standards



## Other NRC Obligations under NWPA

- **Consult with DOE prior to license application**
- **Inform State(s) and affected Tribe(s)**
- **Decide to approve or disapprove construction within a limited period**
- **Limit inventory to 70,000 MTU pending operation of a second repository**
- **Adopt DOE's Environmental Impact Statement "to the extent practicable"**

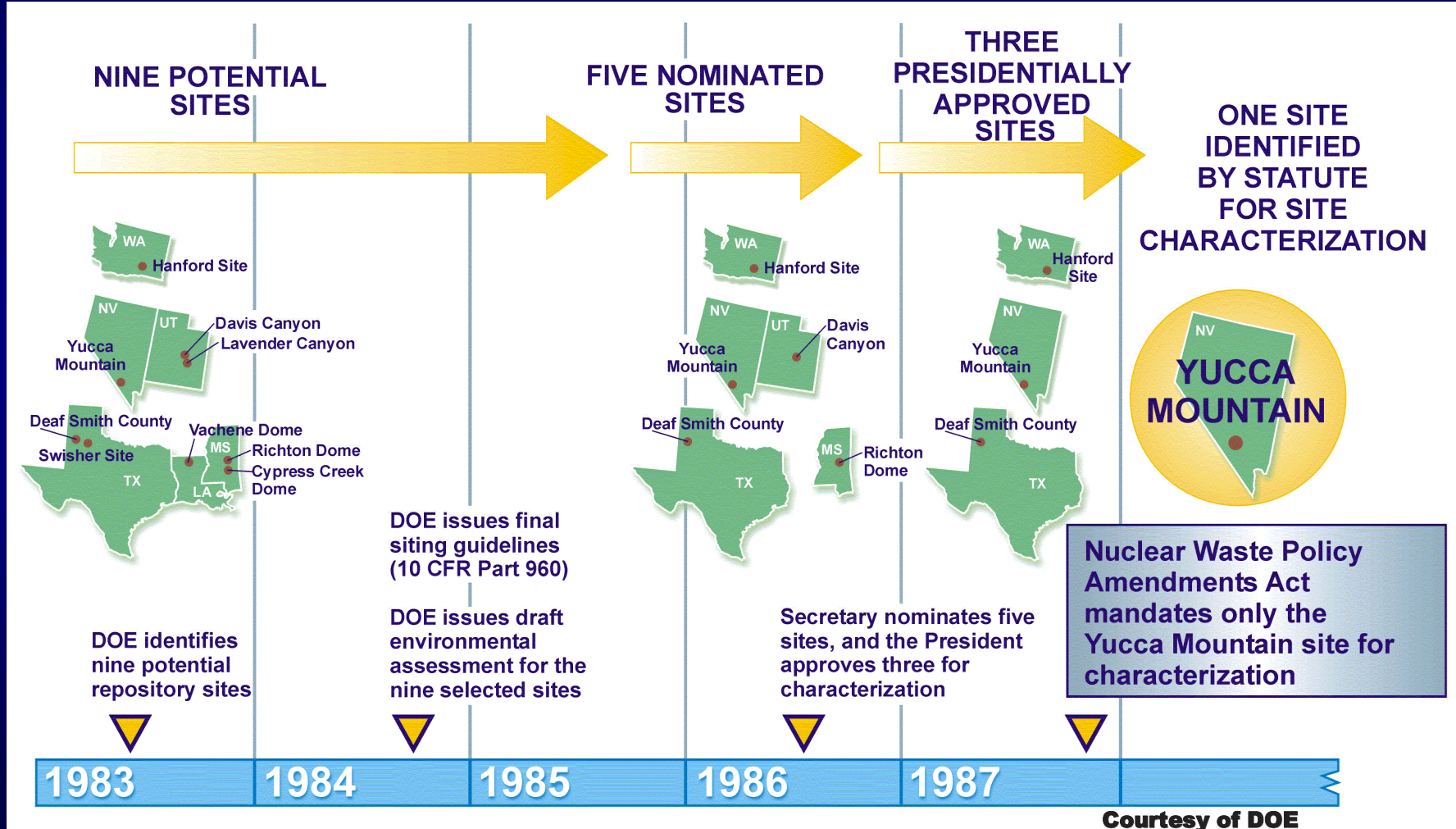


# Transportation Provisions of NWPA

- Waste must be transported to a repository or centralized storage facility using NRC-certified packages
- DOE must abide by NRC regulations for notification of State and Local officials
- DOE must provide technical assistance and funding to State and Local public safety officials from jurisdictions along transportation routes



# First Repository Site Selection Process





# Nuclear Waste Policy Amendments Act (NWPAA) of 1987

- Characterization of a single site at Yucca Mountain, Nevada
- If Yucca Mountain cannot be licensed, DOE must seek new Congressional Direction
- Nuclear Waste Technical Review Board
- Nuclear Waste Negotiator



# Further Statutory Direction

- **Energy Policy Act of 1992 (Section 801)**
  - Directs new site-specific Environmental Protection Agency (EPA) standards
  - EPA must base standards on recommendations of U.S. National Academy of Sciences
  - NRC criteria to be consistent with EPA standards
  - DOE must provide permanent oversight at Yucca Mountain
  
- **WIPP Land Withdrawal Act of 1992**
  - Exempts Yucca Mountain from earlier, generic EPA disposal standards used for the Waste Isolation Pilot Plant



# Applicable Standards and Regulations

## ➤ Environmental Protection Agency Standards

- 40 CFR Part 197—PUBLIC HEALTH AND ENVIRONMENTAL RADIATION PROTECTION STANDARDS FOR YUCCA MOUNTAIN, NEVADA

## ➤ Nuclear Regulatory Commission Regulations

- 10 CFR Part 63—DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTES IN A GEOLOGIC REPOSITORY AT YUCCA MOUNTAIN, NEVADA





# Summary

- **The U.S. nuclear waste program is large, mature and codified in federal laws (Nuclear Waste Policy Act as amended)**
- **Legal and regulatory infrastructures promote public health, safety, the environment and national security**
- **The U.S. has extensive experience with the safe regulation and management of spent nuclear fuel (SNF) and radioactive waste**