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# The Nuclear Waste Policy Act and Federal Regulations for Long-term Disposal: Topics Relevant to Southeast New Mexico

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# The Nuclear Waste Policy Act

- The Nuclear Waste Policy Act of 1982 (P.L. 97-425, enacted January 7, 1983)
  - Establishes the legal framework for the storage and disposal of high-level radioactive waste and spent nuclear fuel
- Amended 1987 (P.L. 100-203, enacted December 22 1987)
  - Limits consideration of a candidate site for the first repository to Yucca Mountain, Nevada
- Relevant to this discussion, the NWPA defines
  - Legal framework for disposal of both defense and commercial high-activity waste
  - Legal framework for establishing Federal consolidated storage facilities
  - Regulatory roles and responsibilities for the Environmental Protection Agency and the Nuclear Regulatory Commission

# NWPA Defines Regulatory Roles

- NWPA Section 121(a): “... the Administrator [of the EPA] ... shall ... promulgate generally applicable standards for protection of the general environment from offsite releases from radioactive material in repositories.”
- NWPA Section 121(b): the [Nuclear Regulatory] Commission ... shall ... promulgate technical requirements and criteria that it will apply ... in approving or disapproving ... applications for authorization to construct repositories...”
- NWPA Section 141(d): “Any [monitored retrievable storage] facility authorized pursuant to this section shall be subject to licensing under section 202(3) of the Energy Reorganization Act of 1974” [i.e., by the NRC]

# NWPA Constrains Repository Siting Options

- NWPA Section 113(a): “The Secretary [of the DOE] shall carry out ... site characterization activities at the Yucca Mountain site.”
- NWPA Section 114(b): “If the President recommends to the Congress the Yucca Mountain site ... and the site designation is permitted to take effect ... the Secretary shall submit to the Commission an application for a construction authorization ...”
- NWPA Section 160(a)(2): “The Secretary shall terminate all site specific activities (other than reclamation activities) at all candidate sites, other than the Yucca Mountain site, within 90 days...”
- NWPA Section 161(a): “The Secretary may not conduct site-specific activities with respect to a second repository unless Congress has specifically authorized and appropriated funds for such activities.”

# NWPA Constrains Interim Storage Options

- NWPA Section 145(b): “The Secretary may not select a site [for a monitored retrievable storage facility] ... until the Secretary recommends to the President the approval of a site for development as a repository...”
- NWPA Section 148(d)(1): “construction of such facility [MRS] may not begin until the Commission has issued a license for the construction of a repository ...”
- NWPA Section 148(d)(3): the quantity of spent nuclear fuel or high-level radioactive waste at the site of such facility [MRS] at any one time may not exceed 10,000 metric tons of heavy metal until a repository under this Act first accepts ... waste”

# A Separate Repository for Defense Waste?

- NWPA Section 8(b)(2): “Unless the President finds ... that the development of a repository for the disposal of high-level radioactive waste resulting from atomic energy defense activities only is required ... the Secretary shall proceed promptly with arrangement for the use of ... [Yucca Mountain] ... for the disposal of such waste”
  - Presidential decision to commingle defense and commercial waste signed April 30, 1985
- NWPA Section 8(b)(3): “Any repository for the disposal of high-level radioactive waste resulting from atomic energy defense activities only shall (A) be subject to licensing under section 202 of the Energy Reorganization Act of 1973 [NRC]; and (B) comply with all requirements of the Commission...”
- NWPA Section 8(c): “The provisions of this Act shall apply with respect to any repository not used exclusively for the disposal of high-level radioactive waste or spent nuclear fuel resulting from atomic energy defense activities, research and development activities of the Secretary, or both.”

# Applicable Regulatory Standards for Disposal

- EPA 40 CFR Part 191: *Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes*
  - Promulgated 1985, implemented at WIPP
  - Primary features of the standard
    - Limits set on the cumulative 10,000-year release from the repository
    - Strong emphasis on the role of human intrusion
- NRC 10 CFR Part 60: Disposal of High-Level Radioactive Wastes in Geologic Repositories
  - Promulgated 1983, never implemented
  - Primary features of the regulation
    - Implements the EPA standards from 10 CFR Part 191
    - Includes sub-system performance standards; e.g., substantially complete waste package containment for 1000 years

# Uncertainty Regarding Future Disposal Regulations

- Site-specific Yucca Mountain regulations were developed in accordance with the 1995 recommendations from the National Academy of Science, and are unlike the older generally-applicable regulations in several potentially important aspects
  - EPA 40 CFR Part 197
    - Primary limits set on estimated annual dose for 1 million years
    - Quantitative consideration of human intrusion was stylized and limited to groundwater releases
  - NRC 10 CFR Part 63
    - Implements the EPA standards from 40 CFR Part 197
    - Does not define subsystem performance standards
  
- NRC staff has indicated its intent to update or replace 10 CFR Part 60 for use in licensing repositories at locations other than Yucca Mountain

- Relevant to the aspects of the NWRPA discussed here
  - “The NWRPA, as amended in 1987, now provides only for the evaluation and licensing of a single repository site at Yucca Mountain, Nevada. The Act should be amended to authorize a new consent-based process to be used for selecting and evaluating sites and licensing consolidated storage and disposal facilities in the future...” (BRC 2012, p. viii)
  - “The Act should be modified to allow for a consent-based process to site, license, and construct multiple storage facilities with adequate capacity when needed and to clarify that nuclear waste fee payments can be used for this purpose.” (BRC 2012, p. viii)
- Relevant to regulatory standards for disposal
  - “... the generic regulations that would currently apply to all other sites will need to be revisited and revised in any case.” (BRC 2012, page 90)
  - “The standard and supporting regulatory requirements to license a facility should be generic... .” (BRC 2012, p. 93)
  - “Safety and other performance standards and regulations should be finalized prior to the site selection process.” (BRC 2012, p. 94)