



# EPA Geologic Disposal Standards

## Overview and Experience

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# EPA Authorities and Regulations

Atomic Energy Act authority for “establishing generally applicable standards for the protection of the general environment from radioactive material” – Reorg. Plan No. 3 (1970)

Standards issued by EPA include:

- 40 CFR part 190 (uranium fuel cycle)
- 40 CFR part 191 (spent fuel, HLW, TRU)
- 40 CFR part 192 (uranium/thorium tailings)
- 40 CFR part 194 (WIPP compliance criteria)
- 40 CFR part 197 (Yucca Mountain standards)



# Nuclear Waste Policy Act of 1982

Directed EPA to “promulgate generally applicable standards for protection of the general environment from offsite releases from radioactive material in repositories” – Section 121

- 40 CFR part 191 proposed 1982, final 1985
- Standards challenged in First Circuit Court of Appeals
  - 1987 ruling remanded portions to the Agency
    - Justification of compliance period for individual-protection standard as compared to radionuclide release limits
    - Consistency of disposal standards with “endangerment” provisions of Safe Drinking Water Act
    - Sufficiency of opportunity to comment on ground-water protection standards



# WIPP Land Withdrawal Act of 1992

Directed EPA to certify and regulate WIPP (Sec. 8)

Reinstated 40 CFR part 191 (except for individual-protection and ground water provisions)

- Exempted Yucca Mountain from 40 CFR part 191

Directed EPA to issue final disposal standards (1993)

Directed EPA to issue compliance certification criteria (1996)

- Certification in 1998, facility operational in 1999
- Re-certified in 2006, second re-certification ongoing



# Energy Policy Act of 1992

Directed EPA to “establish public health and safety standards for protection of the public from releases from radioactive materials stored or disposed of in the repository at the Yucca Mountain site” – Section 801(a)(1)

- Maximum annual effective dose equivalent to individuals
- “based upon and consistent with” findings and recommendations of NAS
- 40 CFR part 197 proposed in 1999, final in 2001



# 2004 Court Ruling and 2008 Amendments

## D.C. Circuit vacated 10,000-year compliance period

- Not “based upon and consistent with” NAS
- NAS recommended standard at time of peak risk
  - Likely >>10,000 years
  - Site stability allows modeling for ~1 million years
- EPA cited uncertainty to support policy decision
  - Required peak dose calculation in EIS

## EPA addressed uncertainty by adjusting standard

- Retain standard for first 10,000 years
- Apply separate standard for >10,000 (up to 1 million)

