

The Carlsbad/WIPP History of Transuranic Disposal in Salt

John Heaton

New Mexico State Representative

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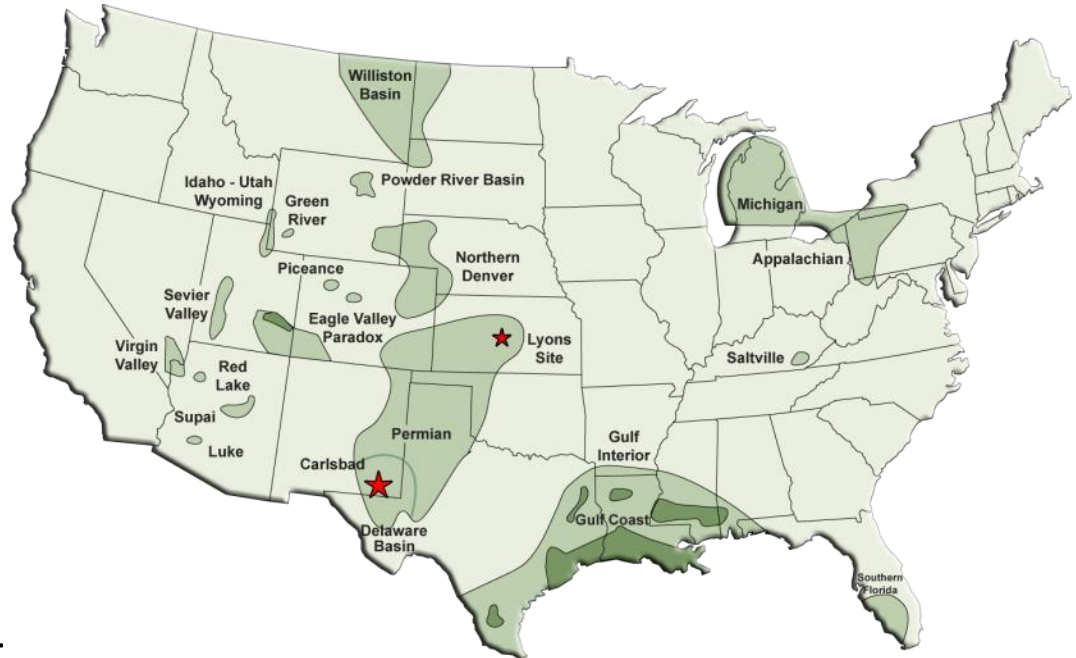
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Salt

- In 1957, the National Academy of Sciences concluded that the most promising disposal option for radioactive wastes is in salt deposits
- Project Salt Vault successfully tested in Lyons, Kansas, but rejected in 1972
- Atomic Energy Commission (predecessor to the U.S. Department of Energy) began to search for a new location

Carlsbad Steps Up

- NM State Senator Joe Gant, Jr. proposed idea for Carlsbad to U.S. Congressman Harold Runnels
- AEC impressed by geologic data available due to local potash industry
- Local leaders rallied in support of bringing the project to southeast New Mexico



Permian Salt Formation 2,000 feet thick in southeast New Mexico.

New Mexico Support

- New Mexico Legislature defeated a bill in the mid 1970s that would have made it illegal to bring the waste into the state
- No anti-WIPP legislation has ever passed in New Mexico
- Created the EEG the independent paid critic under university
- Consultation and Cooperation Agreement between DOE and state addressed state concerns
 - Provides for timely and open exchange of information about WIPP and establishes a mechanism for conflict resolution related to public health, safety or welfare of the citizens of the state
- Continued monitoring by the legislature's Radioactive and Hazardous Materials Committee
- Agreement for \$300 million for roads over 15 years

Federal Legislation

- DOE National Security and Military Applications of Nuclear Energy Authorization Act of 1980 (Public Law 96-164) authorized WIPP
- WIPP Land Withdrawal Act (1992)
 - Withdrew 16 square miles of land from public use
 - Limited disposal to defense-related transuranic waste
 - Prohibited disposal of high-level radioactive waste and spent fuel
 - Limited volume to 176,000 cubic meters
 - Made EPA the regulator for Rad & state for RCRA
 - Amended in 1996 to remove unnecessary requirements and move testing to national laboratories

Safety Above All

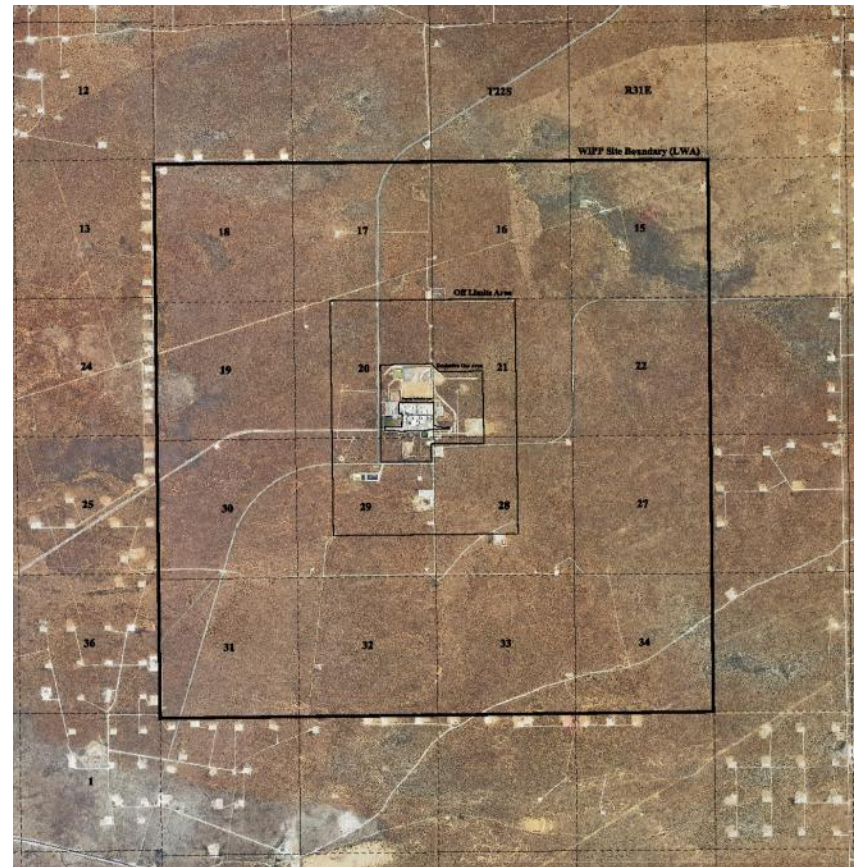
- Oversight by more than 20 organizations including
 - U.S. Environmental Protection Agency
 - New Mexico Environment Department
 - U.S. Department of Transportation
 - Nuclear Regulatory Commission
 - Defense Nuclear Facilities Safety Board
 - Mine Safety and Health Administration
- WIPP is based on the best science available
 - Sandia National Laboratories
 - Computer modeling includes conservative scenarios and is the basis for EPA certification of the site to perform undisturbed for 10,000-year regulatory period
 - SNL has been studying rock mechanics of salt for more than 30 years
 - Los Alamos National Laboratory has served as science advisor

Successful results

- Carlsbad community takes pride in successful results at WIPP:
 - 11 years of safe operations
 - More than 8,600 shipments
 - More than 68,000 cubic meters of waste disposed
 - More than 133,000 containers in the repository
 - More than 10 million loaded miles traveled to WIPP by truck
 - One of the best safety records in the DOE and way below industry averages

Salt can do more

- Early experiments at WIPP (before WIPP Land Withdrawal Act) showed salt is suitable for disposal of high-level radioactive waste
- Waste handling facilities have hot cell for HLW
- Sandia National Laboratories models for heat distribution
- With science and safety as our base, why not use the infrastructure and knowledge gained to advance cleanup of other types of waste?



Steps to Success

- Establish desired repository medium
- Find willing community
- Assure state is in agreement
- Commit to incentives
- Sign long term agreement based on science
- Complete rigorous education of community and state
- Design transportation system with disposal site in mind
- Move Civilian Rad Waste Fund to Private/Public partnership like TVA & get national politics out of it
- Guarantee host community & state the Interim Storage Facility, Reprocessing Facility, MOX plant & Fuel production

Interim Storage

- Converts D&D power plants to green fields
- Stops industry lawsuits
- Many power plants are short on storage space
- Gives us breathing period
- Will require iron-clad agreements with states to move waste if reprocessing & repository stagnant

Begin Defense High-Level Waste cleanup quickly

- There needs to be a commitment to disposition the DHLW stored at Idaho, South Carolina and Washington
- Similar to remote-handled transuranic waste already disposed at WIPP with surface dose primarily resulting from fission products (Cs – half life of 30 years)
- Cleanup could begin with changes to the WIPP Land Withdrawal Act:
 - Increase surface dose rate limit to 10,000 R/hr
 - Remove HLW and spent fuel prohibition
 - Increase volume limit
 - New agreement with state of New Mexico

Comparison of Estimated Surface Dose Rate and Heat by Waste Type		
	Surface Dose Rate (R/hr)	Heat (watts)
Commercial HLW	1,000 – 10,000	10 - 1,000
Defense HLW	100 – 5,000	1 - 500
RH-TRU	0.2 - 1,000	<10

Next step after disposal of DHLW: Commercial Spent Fuel

- Site a reprocessing facility nearby
 - Re-uses fuel
 - Cuts waste by two-thirds
 - Cuts transportation of waste to repository
- Remove defense requirement from the WIPP Land Withdrawal Act (in addition to changes required for DHLW)
- Facility changes necessary