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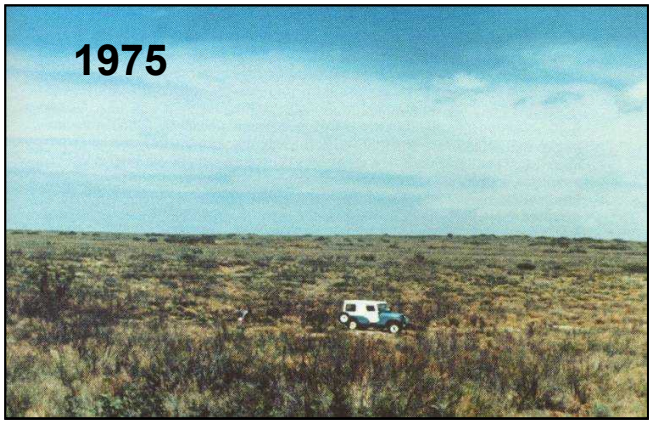

Siting, Developing, and Licensing of WIPP

Paul Shoemaker
Defense Waste Management Programs
Sandia National Laboratories
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Overview

- WIPP is frequently offered as an example of consent-based siting, development, and licensing
  - Consent – permission for something to happen or agreement to do something
  - Consent-based siting – permission from a state and affected units of local government for the siting of a nuclear waste storage and/or disposal facility
  - WIPP offers many “lessons learned” from the journey of siting, development, and licensing that provide insight for other waste disposal programs

BRC Views about WIPP

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The Blue Ribbon Commission on America's Nuclear Future (BRC) characterizes the WIPP experience as follows:

- In stark contrast to Yucca Mountain, the WIPP facility in New Mexico has been operating successfully for more than a decade with broad local and state support, although that project too was often controversial, suffered numerous setbacks in the siting and licensing process, and took years longer to complete than originally planned.
- The crucial difference in the WIPP case was the presence—also from the outset—of a supportive host community and of a state government that was willing to remain engaged.
- Unwavering local support helped to sustain the project during periods when federal and state agencies had to work through disagreements.
- Even so, the path to successfully licensing and opening WIPP was neither straightforward nor quick.
- But no one could have designed the process that was ultimately followed ahead of time nor could that process ever be replicated.

Who Gets to Express "Consent"?

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- In the WIPP case, business and political leaders in Carlsbad, New Mexico, were the first to latch on to the idea that siting WIPP nearby would be an economic boon.
- Ordinary citizens in Carlsbad – let alone in other parts of New Mexico – were not as cognizant of the idea as the business and political leaders of Carlsbad.
- Ordinary citizens in Carlsbad (and in other parts of New Mexico) were not asked to give their "consent" in the early stages.
- The citizens of Carlsbad and surrounding areas in southeastern New Mexico were gradually exposed to arguments about the economic benefits the area would derive from WIPP.
- As a result, data from surveys conducted in the period from 1990 through 2001 indicate that, in the case of the WIPP:
  - Proximity to the WIPP facility increases the level of acceptance
  - Proximity to the WIPP transportation routes also increases the level of acceptance

Perceptions of Risk

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- How risk is imposed matters
  - Self-imposition of risk creates one level of individual concern
  - Imposition of risk by others heightens an individual's concern
- In a sense, the citizens of southeastern New Mexico were electing (or at least allowing) the imposition of a "risk" upon themselves.
- Citizens elsewhere in New Mexico did not see what they had to gain from WIPP's location within the borders of the State.
- To others in New Mexico, the "risk" was being imposed on them without their permission or acceptance.

The WIPP "Bottom Line"

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From the first expression of local "consent" in 1971, 28 years would elapse before the arrival of the first shipment of transuranic waste at WIPP – over a quarter of a century.

Why Did It Take 28 Years?

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- Shifting definitions of WIPP's mission – *What facility missions are we consenting to?*
- Shifting predictions about the opening date for WIPP – *When with this facility really open?*
- Persistent technical issues about whose resolution reputable scientists disagreed – *Which scientists, and therefore what science, do we believe?*
- Lack of a shipping cask acceptable to regulators, oversight groups, and other stakeholders – *How are you going to safely get the waste here?*
- Continuously evolving Federal legislative landscape and a reactive State legislative landscape, as well – *What laws apply to this facility?*
- Regulatory framework lacking in several regards – *What regulations apply to this facility?*
  - Absence of standards for isolation of nuclear waste
  - Lack of regulations for licensing and operation of nuclear waste repositories
  - Lack of regulations pertaining to the intersection of nuclear and hazardous wastes
- Missteps and stumbles during attempts to set aside Federal land for the repository and to remove that land from public access and use – *Can't the DOE and the DOI get their act together?*
- Lawsuits (multiple significant suits over the course of the 28 years) and attendant legal actions – *In what directions will the courts send this project?*
- Evolving attempts to accommodate state and local governments – *What's in it for us?*
  - Allaying expressed concerns
  - Giving state and local officials a role in regulation and oversight (i.e., giving some control in the process)
  - Incentivizing continued "consent" for the project

Shifting Missions for WIPP

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- Original notion was to dispose of high-level waste in bedded salt (1972)
- ERDA removed WIPP from consideration for commercial waste disposal (1975)
- DOE tells NRC it plans to seek a license to build and operate WIPP; WIPP thereby returns to the commercial repository program (1977)
- Conceptual design for WIPP shows a two-level repository; one level for transuranic waste and another for high-level waste (1977)
- DOE Deputy Secretary endorses internal task force recommendation to demonstrate SNF, HLW, and TRU disposal at WIPP (1978)
- DOE defines WIPP as a combination military/commercial repository in a Draft EIS (1979)
- Congress authorizes WIPP as a defense activity for the express purpose of providing an R&D facility to demonstrate the safe disposal of radioactive wastes from defense activities and programs (1979)
- DOE issues final EIS for WIPP eliminating SNF and HLW disposal in accordance with Congressional definition for WIPP's mission (1980)
- Even so, SNL turns on heat for simulated defense high-level waste canister experiments at WIPP (1985)
- Nuclear Waste Policy Amendments Act passes, selecting Yucca Mountain, NV, to undergo site characterization for potential SNF and HLW disposal (1987)
- DOE cancels SNF and HLW experiments in WIPP because of NWPAA (1988)

What facility missions are we consenting to?

Shifting Projected Opening Dates

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- AEC tells Idaho Senator Church waste at the National Reactor Testing Station (NRTS – now known as INL) will be moved to salt mine by 1980 (1970)
- AEC official publicly announces AEC will look at southeast New Mexico as a potential nuclear waste storage location; suggests a pilot facility would be ready by 1979 or 1980 (1972)
- President Ford orders expansion of ERDA program to demonstrate permanent disposal for nuclear waste by 1985 (1976)
- DOE suggests an opening date of 1985 for WIPP (1978)
- DOE sets October, 1988 as the target for opening WIPP (1983)
- DOE announces that WIPP will not open in October of this year (1988)
- Secretary of Energy announces indefinite delay in opening of WIPP (1989)
- Record of Decision for WIPP's Final Supplemental EIS states construction is complete, testing phase of approximately 5 years should proceed, and then another Supplemental EIS should be prepared before going into full operation (1990)

When will this facility really open?

Persistent Technical Issues

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- UNM geologist, contractor to SNL, issues report questioning geologic suitability of site selected for development of WIPP (1978)
- Sandia itself raises concerns about the possibility of gas generation in a repository (1978)
- Five scientists who had been involved in WIPP research testified before the Governor's Radioactive Waste Consultation Task Force that WIPP had not been shown to be geologically acceptable, and that the uncertainties were uncomfortably high (1981)
- DOE publishes Record of Decision to proceed with Site and Preliminary Design Validation (SPDV) experiments to resolve technical issues at WIPP (1981)
- DOE WIPP Project Manager states that, in connection with the SPDV tests, HLW could be placed in WIPP by 1983 and remain during the operating phase of WIPP (1981)
- SNL initiates thermal/structural and waste package (i.e., defense HLW) field tests that were first defined in 1982 (1984)
- Environmental groups raise concerns about brine seepage into WIPP (1987)
- New Mexico Congressional delegation asks NAS Board on Radioactive Waste Management to study brine inflow controversy (1988)
- SNL and WIPP M&O contractor complete a report suggesting that waste amounting to 0.5% of capacity be brought to WIPP for gas generation experiments (1990)
- Sandia and WIPP M&O contractor work to prepare for conduct of gas generation tests using TRU waste (1992)
- NAS WIPP Panel writes to DOE questioning the scientific need for in situ waste tests at WIPP (1992)
- DOE Secretary concurs with NAS and decides not to emplace TRU waste at WIPP for tests; "bin" tests cancelled (1993)
- DOE halts all in situ experiments at WIPP and closes the experimental area in the underground (1995)

Which scientists, and therefore what science, do we believe?

Lack of Acceptable Approach to Shipping

- Sandia begins design of TRUPACT-I (1978)
- EEG issues a report and the Governor holds a press conference to express concerns about the potential build-up of hydrogen gas in TRUPACT-I shipping containers (1983)
- EEG notifies DOE that TRUPACT-1 is unacceptable to New Mexico (1985)
- Lack of double containment in TRUPACT-I becomes a major issue (1987)
- Private firm selected to design TRUPACT-II; SNL selected to serve as a technical advisor (1987)
- TRUPACT-II passes some but not all of its tests (1988)
- Redesigned seals for TRUPACT-II pass engulfing fire test (1989)
- NRC certifies TRUPACT-II for use in shipping waste to WIPP (1989)
- New Mexico designates “preferred route” for waste transport from northern border to WIPP (1990)

How are you going to safely get the waste here?

Continuously Evolving Legislation

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- Congress passes National Environmental Policy Act (NEPA) (1969)
- Congress passes Resource Conservation and Recovery Act (RCRA) (1976)
- New Mexico Legislature passes the Hazardous Waste Act to maintain environmental quality (1977)
- At the very end of 1979, Congress passes the "Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980" (1979)
  - Directs the Secretary of Energy to proceed with construction of WIPP
  - Authorizes WIPP as a defense activity for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive wastes resulting from the defense activities and programs of the United States
  - Exempts WIPP from regulation by the NRC
  - Directs the Secretary of Energy to enter into an agreement with the State, not later than September 30, 1980, specifying the procedures under which consultation and cooperation shall be carried out
- New Mexico Legislature passes the New Mexico Radioactive Waste Consultation Act (1979)
  - Provides that "no person shall store or dispose of radioactive waste in a disposal facility until the state has concurred in the creation of the disposal facility"
- New Mexico Legislature also establishes the joint House-Senate Legislative Radioactive and Hazardous Materials Committee (1979)
- New Mexico Legislature passes the New Mexico Radioactive Materials Act (1981)
  - Amends language in the Waste Consultation Act as follows: "no person shall store or dispose of radioactive materials, radioactive waste or spent fuel in a disposal facility until the state has concurred in the creation of the disposal facility, except as specifically preempted by federal law"

What laws apply to this facility?

Evolving Legislation (continued)

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- Congress passes Nuclear Waste Policy Act (1982)
  - Sets up trust fund, funded by utilities, to pay for SNF and HLW repository
  - Requires NRC licensing of a repository
  - Requires defense HLW to go to the repository unless the President finds a separate repository is required
  - Suggests DOE build Monitored Retrievable Storage facility
- Hazardous and Solid Waste Amendments to RCRA ban land disposal of hazardous waste without treatment unless the disposal site and the generator demonstrate "no migration" for as long as the waste remains hazardous (1984)
- Congress passes Nuclear Waste Policy Amendments Act (1987)
  - Selects Yucca Mountain, NV, to undergo site characterization for potential SNF and HLW disposal
  - Makes SNF and HLW tests at WIPP unnecessary
- New Mexico Legislature exempts WIPP from hazardous waste regulations to avoid conflicts between those regulations and radioactive waste regulations (1987)
- New Mexico Legislature removes the "WIPP Exemption" from hazardous waste laws and regulations so that radioactive mixed waste can be regulated under RCRA (1989)
- Congress passes WIPP Land Withdrawal Act (1992)
  - Transfers land from DOI to DOE
  - Establishes EPA as WIPP's regulator
  - Requires WIPP recertification every 5 years
  - Requires DOE cooperation and consultation with EEG (codifies 1981 DOE/State agreement)
  - New Mexico to be given $600 million over 30 years
  - Defines limits for WIPP inventory and bans storage and disposal of HLW and SNF at WIPP (codifies 1981 agreement)

What laws apply to this facility?

Evolving Legislation (continued)

- Congress passes Energy Policy Act (1992)
  - Asks NAS to recommend disposal criteria for Yucca Mountain
  - Requires EPA and NRC to reevaluate their disposal criteria for Yucca Mountain
- Congress passes Federal Facility Compliance Act (1992)
  - Waives federal sovereign immunity for civil and criminal liability for RCRA violations, bringing DOE facilities under jurisdiction of state regulators
- Congress amends WIPP Land Withdrawal Act (1996)
  - Relieves WIPP of need to comply with land disposal restrictions of RCRA, but other RCRA requirements still apply

What laws apply to this facility?

Continuously Evolving Regulation

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- Standards for isolation of nuclear waste
  - President Ford orders EPA to develop generally applicable standards (1976)
  - EPA announces intent to develop radiation protection standards for HLW waste disposal (1976)
  - EPA publishes criteria for radioactive wastes (1978)
  - EPA publishes working draft of environmental standards for radioactive waste management as a proposed 40 CFR 191 (1982)
  - EPA promulgates 40 CFR 191 for disposal of SNF, HLW, and TRU in a geologic repository (1985)
  - In response to court remand and WIPP Land Withdrawal Act, EPA re-promulgates 40 CFR 191 to address individual and groundwater protection requirements (1993)
- Regulations for licensing and operation of nuclear waste repositories
  - In response to provisions in the Land Withdrawal Act (1992), EPA announces intent to promulgate 40 CFR 194 to specify requirements for implementing 40 CFR 191 at WIPP (1993)
  - EPA proposes compliance criteria for WIPP in 40 CFR 194 (1995)
  - DOE comments that draft 40 CFR 194 exceeds the scope of 40 CFR 191 (1995)
  - EPA issues draft of non-binding Compliance Application Guide (1995)
  - DOE submits draft Compliance Certification Application to EPA for review (1995)

What regulations apply to this facility?

Evolving Regulation (continued)

- Regulations for licensing and operation of nuclear waste repositories (continued)
  - EPA promulgates final 40 CFR 194 (1996)
    - Requires waste characterization analysis and engineered barrier evaluation
    - Requires a monitoring system
    - Specifies requirements on quality assurance, peer review, and expert judgment
    - Requires peer review on waste characterization, engineered and natural barriers, and conceptual models
    - Expands human activities to be considered in performance assessment
  - DOE sends 80,000-page CCA to EPA (1996)
  - EPA issues draft certification rule on WIPP specifying conditions (1997)
    - Requires QA for waste generators
    - Lists requirements for using process knowledge to characterize wastes
    - Requires schedule for installing passive controls
    - Denies any protective credit for passive controls
  - EPA certifies WIPP (1998)

What regulations apply to this facility?

Evolving Regulation (continued)

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- Regulations pertaining to the intersection of nuclear and hazardous wastes
  - EPA delegates to New Mexico authority to regulate hazardous wastes under the provisions of RCRA (1985)
  - DOE attempts to define “by-product material” to include mixed waste and thus exclude RCRA regulation (1985)
  - EPA states that mixed waste is subject to RCRA and hazardous waste regulations (1986)
  - DOE redefines “by-product material” to exclude everything except radionuclides, thereby making TRU mixed waste subject to RCRA regulation (1987)
  - WIPP management and operating contractor completes a “no-migration” variance petition for WIPP’s test phase (1989)
  - EPA issues no-migration variance for WIPP’s test phase (1990)
  - EPA delegates authority to New Mexico to regulate transuranic mixed waste (1990)
  - New Mexico Environmental Improvement Division requests submittal of Parts A and B of RCRA permit for WIPP (1990)
  - WIPP M&O contractor completes Parts A and B of RCRA permit application (1991)
  - DOE submits application to the New Mexico Environment Department for RCRA permit for WIPP’s test phase (1992)
  - NMED issues draft RCRA permit for WIPP’s test phase (1993)
  - DOE submits Part B of RCRA permit application to NMED (1995)
  - NMED holds hearings on RCRA permit for WIPP (1999)

What regulations apply to this facility?

Land Withdrawal Missteps

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- In the absence of Federal legislative resolution of the need to withdraw Federal land from public use on and under which to develop WIPP, the DOE and the DOI attempted to resolve the matter administratively
- DOE applies to the Department of the Interior for administrative withdrawal of land for Site and Preliminary Design Validation (SPDV) experiments at WIPP (1980)
- DOI approves DOE's application for withdrawal from public use of almost 9000 acres (14 mi^2) surrounding WIPP for conducting SPDV activities (withdrawal to endure for 8 years) (1982)
- Under pressure from the Governors of Idaho and Colorado, DOE promises to vigorously pursue both administrative and legislative land withdrawal for WIPP (1988)
- [Even so] WIPP land withdrawal legislation pending in Congress dies before being enacted (1988)
- DOE files request for administrative withdrawal of 16 mi^2 (10,240 acres) with DOI (1989)
- DOE modifies administrative land withdrawal order to allow test phase at WIPP to proceed (1991)
- House Interior Committee adopts resolution to nullify DOE-modified land withdrawal order (1991)
- DOI again grants administrative land withdrawal after the Secretary of Energy certifies all environmental permitting requirements have been met (1991)
- Ultimately the matter was settled by passage of the WIPP Land Withdrawal Act (1992)

Can't the DOE and the DOI get their act together?

Law Suits and Legal Actions

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- Rights of the State and withdrawal of public land
  - Citizens for Alternatives to Radioactive Dumping files suit and asks for a preliminary injunction (1981)
  - New Mexico AG Bingaman files suit against DOE and DOI alleging violations of federal and state laws (1981)
  - Southwest Research and Information Center (SWRIC) files suit (1981)

  [District Judge Burciaga stays lawsuit in reaction to the Stipulated Agreement (1981)]
- Standards for radioactive waste isolation
  - Natural Resources Defense Council sues EPA, demanding that the agency issue 40 CFR 191 as mandated by NWPA of 1982 (1985)
  - NRDC and others sue EPA over groundwater and individual protection standards in 40 CFR 191 (1986)

  [In response to legal challenges to individual and groundwater protection requirement in subpart B, Court of Appeals in Boston vacates and remands all of 40 CFR 191; the court then reinstates subpart A in response to EPA request (1987)]
- Withdrawal of public land -- again
  - New Mexico Attorney General Udall files suit to delay start of test phase at WIPP by challenging the administrative land withdrawal (1991)
  - Environmental Defense Fund and NRDC join AG Udall's lawsuit challenging the administrative land withdrawal (1992)

  [Washington, DC district court grants preliminary injunction to stop testing with TRU waste at WIPP; judge rules WIPP does not qualify for interim status under RCRA – WIPP must get RCRA permits before rather than during operations (1992)]

In what directions will the courts send this project?

Law Suits/Legal Actions (continued)

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- Licensing requirements
  - New Mexico Attorney General Udall sues EPA alleging improper meetings between it and DOE about requirements in proposed 40 CFR 194 regulation (1996)

  [Appeals Court in Washington, DC rules that meetings between EPA and DOE were proper and says lawsuit over 40 CFR 194 is without basis (1997)]
- Review of DOE's Compliance Certification Application
  - New Mexico Attorney General Udall sues EPA alleging insufficient time to comment on the CCA; CARD and SWRIC also file lawsuits (1998)
  - New Mexico Attorney General Madrid withdraws from lawsuit challenging WIPP's certification by the EPA (1999)

  [DC Court of Appeals dismisses CARD and SWRIC petition to overturn EPA certification of WIPP (1999)]

- WIPP gets the go-ahead: District Court judge in Washington, DC lifts injunction placed on WIPP in 1992 and rules that WIPP does qualify for interim status under RCRA (1999)

In what directions will the courts send this project?

Accommodating State/Local Govt.

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- Allaying expressed concerns
  - State government leaders in Kansas protest AEC designation of Lyons site for a repository; Congress directs AEC to stop Lyons project until safety is certified (1971)
  - DOE gives Site and Preliminary Design Validation (SPDV) reports to New Mexico for review and comment (1983)
  - After reviewing SPDV results, EEG concludes that "the site has been characterized in sufficient detail to warrant confidence in the validation of the site for permanent emplacement of approximately six million cubic feet of defense TRU waste" but also recommends additional studies to resolve geotechnical issues and the potential for encountering brine pockets (1983)
- Giving state and local officials a role in regulation and oversight (i.e., giving them a feeling of having some control in the process)
  - Governor King establishes Technical Excellence Committee, which creates a WIPP oversight subcommittee (1974)
  - DOE Deputy Secretary tells New Mexico Congressional Delegation, "If New Mexico does not wish to have WIPP, it could veto the plan." [Other Federal officials contradict this assertion, however.] (1978)
  - DOE contracts with State of New Mexico for creation of the Environmental Evaluation Group (EEG), which initially is made part of the Environmental Improvement Division of the New Mexico Health and Environment Department (1978)
  - New Mexico Legislature establishes Governor's Radioactive Waste Consultation Task Force to negotiate with DOE (1979)
  - New Mexico and DOE begin negotiations on the Consultation and Cooperation (C&C) Agreement (1980)

What's in it for us?

Accommodation (continued)

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- DOE Secretary Edwards visits New Mexico for talks with Governor King and enters into a Stipulated Agreement (of which the Consultation and Cooperation Agreement becomes a part) committing to (1981)
  - Geotechnical experiments
  - SNL report on 17 technical issues (e.g., disruptive scenarios such as breccia pipe, salt dissolution, salt deformation)
  - State and public review of WIPP changes
  - Creation of a state/federal task force to oversee transportation issues (e.g., emergency response and highway upgrades)
- DOE and the State of New Mexico sign a supplemental Stipulated Agreement (1982)
  - Committing DOE to seek funds for upgrading highways in New Mexico
  - Committing DOE to more geotechnical studies
  - Making DOE liable for WIPP-related accidents
- First modification to the C&C agreement to limit quantity of Remote Handled waste disposed of at WIPP to 5.1 million Curies (1984)
- Second modification to the C&C Agreement (1987)
  - Commits DOE to comply with all applicable laws and regulations
  - Discourage WIPP compliance by means of grandfathering, variance, exemption, or waiver
  - Use 40 CFR 191 as first issued for evaluating WIPP compliance until reissued by the EPA
  - NRC and DOT regulations apply to WIPP transportation
- EEG reassigned to an affiliation with New Mexico Tech because of conflicts between EEG and New Mexico state government (1988)
- Congress reauthorizes EEG and authorizes five more years of funding for it (1994)

What's in it for us?

Accommodation (continued)

- Incentivizing continued "consent" for the project
  - Influential citizens in Carlsbad see newspaper article about troubles with Lyons project (1971)
  - Carlsbad leaders interact with state officials about using potash mines for a repository (1972)
  - Governor King invites AEC to look at New Mexico (1972)
  - Manager of DOE's Albuquerque Operations Office moves WIPP Project Office to Carlsbad (1984)
  - DOE Albuquerque Operations manager creates WIPP Integration Office in Albuquerque over the WIPP Project Office in Carlsbad (1991)
  - WIPP Land Withdrawal Act proposes to give New Mexico $600 million over 30 years (1992)
  - Mayor of Carlsbad demands more economic benefits for the city from DOE/WIPP (1993)
  - Secretary of Energy disbands the WIPP Integration Office in Albuquerque and selects personnel for Carlsbad Area Office to run WIPP (1993)

What's in it for us?

Lessons Learned at WIPP

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In many respects, the processes for siting, developing, and licensing WIPP had to be invented as the project moved haltingly forward – because the U.S. had never before built and licensed a deep geologic repository for permanent disposal of nuclear waste.

In hindsight, the process would have been more efficient, perhaps, had the following approaches been taken.

What facility missions are we consenting to?

- Analyze alternative missions up front, understanding the ramifications of each and coming to closure on the mission(s) being fulfilled by the facility; to the degree possible, stick with the mission(s) thus identified.

When will this facility really open?

- As noted in the BRC's final report, "it will be important—without imposing inflexible deadlines—to set reasonable performance goals and milestones for major phases of program development and implementation so that Congress can hold the waste management organization accountable and so that stakeholders and the public can have confidence the program is moving forward."
- Set reasonable dates for interim milestones and ultimate opening, but recognize that the processes for siting, characterizing, and licensing are complex.
- Be up front with stakeholders about the need to remain flexible.

WIPP Lessons Learned (continued)

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Which scientists, and therefore what science, do we believe?

- Maintenance of scientific integrity and objectivity are extremely important in gaining social acceptance for nuclear waste storage and/or disposal facilities.
- If those involved in characterizing a site and in assessing the long-term performance of the facility over the regulatory period of interest fail to cling to technical integrity and objectivity as their highest goal, the project runs the risk of being perceived in the following light.
- "I've seen two distinctly different kinds of science being done. One is the pretty standard developing of a traditional hypothesis and trying to destroy it. That hypothesis and trying to knock it down still goes on, but most science is goal oriented, project oriented . . . For the scientific part [at WIPP], it was a mission-oriented, military-type project were the goal was to complete the repository. [At WIPP] the whole idea of doing the science first was backwards." (Quote attributed to Roger Anderson, UNM Geologist and WIPP skeptic, 1999)

How are you going to safely get the waste here?

- Think this through early, if not first, in the effort to stand up a nuclear waste storage and/or disposal facility.
- Apply a systems approach to the physical means by which the waste will be transported to the site, the routes over which it will travel, the containers in which it will travel, and the training people along the transportation routes must be offered, the terms and conditions under which shipments will traverse various jurisdictions, etc.
- It may be tempting to engage in parallel processing as these things are worked through – in fact, it may be necessary (at least to some degree) to engage in parallel processing – but know that the more answers are available to those potentially affected by transportation considerations, the better for gaining "consent" for transport as well as for siting.

WIPP Lessons Learned (continued)

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What laws apply to this facility?

- The laws pertaining to nuclear waste storage and disposal were evolving in parallel with the pursuit of WIPP.
- The laws are still evolving.
- The WIPP experience shows that development of laws that will govern a nuclear waste facility in parallel with the development of the facility itself will result in a number of false starts and re-orientations.
- To the degree possible, it would be best to undertake development of a storage or disposal facility within a stable statutory framework, but this may be easier said than done.

What regulations apply to this facility?

- Comments made above about lessons learned at WIPP with respect the laws that will govern future nuclear waste storage and/or disposal facilities, pertain as well to bodies of regulation.
- To the degree possible, it would be best to undertake development of a storage or disposal facility within a stable regulatory framework, but this too may be easier said than done.

WIPP Lessons Learned (continued)

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Can't the DOE and the DOI get their act together?

- This was a particular problem for WIPP.
- The land on and under which the government proposed to develop WIPP was under the control of the Bureau of Land Management, a part of the Department of the Interior.
- BLM's land management philosophy is that public access and multiple uses are things to be vigorously pursued.
- Clearly this is not in keeping with the safety and security imperatives that pertain to a geologic repository for nuclear waste.
- In future storage or repository projects this may not be quite the issue that it was for WIPP.
- However, for any nuclear waste storage or disposal facility, safety and security of the facility and the land that encompasses it will be critical.
- The ability to effectively achieve safety and security needs to be very much a part of the site selection criteria for future projects.

In what directions will the courts send this project?

- A characteristic of society in the U.S. is its litigious nature.
- As with WIPP, if administrative and political processes do not produce an outcome desired by units of state or local government or by various other "un-empowered" stakeholders, those entities or individuals are very likely to turn to the courts for relief.
- More often than not, the basis for their claims is very likely to be that the requisite process was not followed to the letter, because the courts are not the places in which to debate and resolve technical or scientific issues.
- For any future storage or disposal project, it is safe to assume that litigation will be part of the site selection, characterization, and licensing process.

WIPP Lessons Learned (continued)

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What's in it for us?

- Incentivization proceeded in fits and starts at WIPP.
- Local business and political leaders began by assuming that locating WIPP near Carlsbad would generate economic benefits. (They probably thought things would proceed much more rapidly than they did.)
- State government reaped financial rewards for its engagement in the form of funding for everything from the operations of the Environmental Evaluation Group to (ultimately) road improvements.
- Disappointed that the economic benefits of WIPP were not coming in fast enough, the Mayor of Carlsbad demanded more.
- The City wound up receiving direct and sizeable grants from DOE for improvements loosely connected with the hosting of WIPP.
- The City also benefitted from DOE and national laboratory staff relocating to Carlsbad to work on WIPP.
- It is safe to assume that as part of future nuclear waste storage or disposal projects, states and units of local government will look at the precedent set in New Mexico and demand financial and other considerations for hosting the projects.

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Backup Slides

BRC Recommendations on Siting

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[The] approach we [the BRC members] recommend is explicitly adaptive, staged, and consent-based.

The BRC believes siting processes for all such future facilities are most likely to succeed if they are:

- **Consent-based**—in the sense that affected communities have an opportunity to decide whether to accept facility siting decisions and retain significant local control.
- **Transparent**—in the sense that all stakeholders have an opportunity to understand key decisions and engage the process in a meaningful way.
- **Phased**—in the sense that key decisions are revisited and modified as necessary along the way rather than being pre-determined.
- **Adaptive**—in the sense that process itself is flexible and produces decisions that are responsive to new information and new technical, social, or political developments.
- **Standards- and science-based**—in the sense that the public can have confidence that all facilities meet rigorous, objective, and consistently-applied standards of safety and environmental protection.
- **Governed by partnership arrangements** or legally enforceable agreements between the implementing organization and host states, tribes, and local communities.

BRC Recommendations (continued)

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Getting Started:

- First, the Environmental Protection Agency and the Nuclear Regulatory Commission should develop a generic disposal standard and supporting regulatory requirements early in the siting process.
- Generally applicable regulations are more likely to earn public confidence than site-specific standards.
- In addition, having a generic standard will support the efficient consideration and examination of multiple sites.

The Waste Management Organization Should:

- Develop a set of basic initial siting criteria
  - These criteria will ensure that time is not wasted investigating sites that are clearly unsuitable or inappropriate.
- Encourage expressions of interest from a large variety of communities that have potentially suitable sites
  - As these communities become engaged in the process, the implementing organization must be flexible enough not to force the issue of consent while also being fully prepared to take advantage of promising opportunities when they arise.
- Establish initial program milestones
  - Milestones should be laid out in a mission plan to allow for review by Congress, the Administration, and stakeholders, and to provide verifiable indicators for oversight of the organization's performance.

WGA Recommendations on Siting

- No centralized interim storage facility (either private or federal) will be located in a western state without the written consent of the governor of that state
- Transportation and logistical considerations should not be an afterthought in the siting process for any storage and/or disposal facility
- Searching for alternative waste management options is fine, but must not detract from the development of a permanent solution to managing and disposing of SNF
- DOE must work cooperatively with the states
  - To implement a policy to ensure the safe transportation, storage, disposition of disposal of spent nuclear fuel and HLW, and
  - To comply with agreements which have been negotiated and entered into by a state's Governor regarding the management, transportation and storage of spent nuclear fuel and high-level radioactive waste.
- Commercial SNF should remain at reactor sites until:
  - One or more storage and/or disposal sites are operational or reprocessing is deemed viable by an independent review.
  - DOE and the nuclear utility companies have worked with states along the waste transportation corridor to implement an acceptable transportation plan for shipping the SNF waste to interim storage facilities or permanent disposal sites.
  - DOE and the nuclear utility companies have put into place adequate infrastructure capacity to handle, store and dispose of this waste.
  - DOE, the U.S. Department of Transportation and the nuclear utility companies have ensured and funded adequate state and local emergency and medical responder training and resources in case of an accident or terrorist attack while shipping this waste.

WGA Recommendations (continued)

- The creation of interim storage sites for SNF would be a direct result of the Federal government's failure to begin accepting spent fuel on schedule.
  - It is the federal government's responsibility to ensure adequate preparation for shipments to these facilities, coordination with states, and provision of adequate funding to reimburse the states for costs associated with shipments to any interim storage facility, whether publicly or privately owned.
  - It would be entirely appropriate to use the Nuclear Waste Fund to pay for these activities.
- Any decisions regarding the identification of an existing or planned site to dispose of GTCC and GTCC- like waste must consider
  - Any authority of the regional low-level waste compacts, and
  - all applicable NRC requirements for certification to accept commercially generated waste.

Another Approach to Siting (NWPA)

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Nuclear Waste Negotiator – Contained in the Nuclear Waste Policy Act of 1982:

- The Negotiator shall attempt to find a State or Indian tribe willing to host a repository . . . at a technically qualified site on reasonable terms.
- The Negotiator shall negotiate with any State of Indian tribe which expresses an interest in hosting a repository.
- The Negotiator shall seek to enter into negotiations on behalf of the Unites States
  - With the Governor of any State in which a potential site is located, and
  - With the governing body of any Indian tribe on whose reservation a potential site is located.
- The Negotiator shall attempt to reach a proposed agreement specifying the terms and conditions under which such State or tribe would agree to host a repository within such State or reservation.
- In addition to entering into negotiations [with States and Indian tribes], the Negotiator shall consult with any [other] State, affected unit of local government, or any Indian tribe that the Negotiator determines may be affected by the siting of a repository.
- The Negotiator shall submit to the Congress any proposed agreement between the United States and a State of Indian tribe [as well as] an environmental assessment.
- No proposed agreement entered into . . . shall have legal effect unless enacted into Federal Law.
- A State or Indian tribe shall enter into an agreement . . . in accordance with the laws of such State or tribe.
- Nothing [shall] prohibit the disapproval of a proposed agreement between a State and the United States under this section by a referendum or an act of the legislature of such State.

Canadian Repository Siting Example

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Proposed Canadian Nuclear Waste Repository Near Lake Huron:

- Ontario Power Generation wants to bury some of its nuclear waste almost a half mile underground; it would be a little more than half a mile away from the shore of Lake Huron.
- All of the company's low and intermediate level waste would be buried in the repository.
- The proposed repository in Ontario is the first time this kind of facility would be built in limestone.
- A spokesman for Ontario Power Generation asserts that the facility is designed to last more than 100,000 years.
- The repository will be built at a depth of 680 meters below the surface in rock that's 450 million years old [WIPP is 655 meters below the surface in salt beds that are 250 million years old]
- Canada's Environment Minister was supposed to decide by September whether the company could get a construction license.
- Canada's environmental agency delayed that decision until December in order to allow for public comment.
- "Because we do in Canada have a federal election that is happening in October [2015]. So it would seem that the present Canadian government does not want this to become an election issue." (Beverly Fernandez, spokesperson for Stop the Great Lakes Nuclear Dump)
- Referring to the WIPP facility in New Mexico and Asse II and Morsleben in Germany that have had major problems, Fernandez also says, "There are only three deep geological repositories on our entire planet that have actually held nuclear waste, and all three of these have failed."
- So far, cities and towns in both Canada and the United States have passed 155 resolutions against the deep geologic repository in Kincardine. The city of Detroit just passed a resolution last month.