

Enhancing the Role of State and Local Governments
in America's Nuclear Future:

An Idea Whose Time Has Come

prepared for

The Blue Ribbon Commission
on America's Nuclear Future

by

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Executive Summary

This paper, prepared to aid the Blue Ribbon Commission on America's Nuclear Future in its deliberations, includes a discussion of the issues that would be faced in the siting, permitting and licensing of storage and disposal facilities for the "back end" of the commercial nuclear fuel cycle and for the Department of Energy's (DOE) high-level radioactive waste. It discusses the authority that could be employed by non-federal levels of government in supporting or opposing efforts led by a federal, or federally-chartered, organization tasked with siting, operation and closing of both interim storage facilities and permanent disposal repositories for both spent nuclear fuel and high level radioactive wastes. It advocates for a legal, defined role for potential host states both to participate in the siting process and to regulate an operating storage or disposal facility.

There are two separate, distinct types of facilities deemed necessary to manage the back end of the nuclear fuel cycle: interim storage facilities and permanent disposal facilities. The Nuclear Regulatory Commission (NRC) has licensed a number of interim storage facilities, and the technology is basically the same as used for dry cask storage at operating reactors. Therefore, the permit requirements for interim storage facilities are fairly well known, and permitting additional ones should not result in new surprises. However, NRC's original safety analysis for these types of facilities was based upon a 20 year life, with an expected renewal of up to an additional 20 years. NRC has recently evaluated the effects that longer term storage will have on spent fuel, and has adopted new regulations allowing approval of original licenses for a 40 year period with possible renewal for up to 40 additional years.

Therein, however, lies the problem that states have expressed about storage facilities at away-from-reactor locations. States are concerned that once the spent fuel is moved away from the reactors for storage, the pressure to find a permanent solution to the back end of the fuel cycle will decrease. And then, "interim" facilities will become anything but interim, since there will be no other solution available to deal with the spent nuclear fuel. Therefore, the licensing and permitting of interim storage facilities is expected to remain controversial with affected states as long as there is no other identified, long-term solution to permanently manage spent nuclear fuel.

The Nuclear Waste Policy Act (NWPA) embodies the decision made by the U.S. to use deep geologic repositories as the preferred method disposal of spent nuclear fuel and certain types of high level radioactive waste. The Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico is the only repository in the U.S. that has been approved and is in operation. WIPP must meet the same long-term performance requirements as any repository for spent nuclear fuel and high-level waste other than Yucca Mountain, which was placed under a special set of requirements by Congress in 1987 amendments to the original NWPA. WIPP is, however, currently limited to accepting transuranic waste from national defense activities and, at the federal level is regulated by the Environmental Protection Agency (EPA) rather than the NRC. Although WIPP demonstrates that a repository can be successfully approved for construction

and licensed for operation, its unique history cannot be used to draw absolute conclusions regarding licensing by the NRC of a repository for spent nuclear fuel and high-level waste. However, WIPP does provide an example of how “empowering” states with defined decision-making authority can lead to success. The project was very controversial in New Mexico for many years, partly due to DOE’s original approach of self-regulation of the facility. When DOE was later required to obtain permits from EPA and the State of New Mexico, many of these perceived concerns were addressed. The State’s original and continuing involvement in the permitting process was instrumental in convincing many that the facility would be safe.

Adoption of the NWPA in 1982 resulted from a long period of exploration by the U.S. on how to deal with the “back end” of the fuel cycle. During the period leading up to the passage of the NWPA, many studies pointed out that affected states should have a role in the siting process of facility siting and regulation. Congress ultimately included provisions in the NWPA for “consultation and cooperation” with potential host states, considered at the time to establish a fair, scientific siting process that was expected to result in successful site selection.

Considerable public and intergovernmental pressure led to the 1987 amendments to the NWPA. Significant provisions of these amendments short circuited the fair and scientific selection process, by selecting Yucca Mountain as the only site to be characterized, cancelling of the second repository, rescinding the recommendation of Oak Ridge as the site of the Monitored Retrievable Storage (MRS) facility in Tennessee, and terminating ongoing investigations of disposal facilities located in crystalline rock. Nevada, understandably, chose to fight the selection of Yucca Mountain rather than accept that decision.

Regulation of nuclear waste at the federal level is primarily the responsibility of the NRC and the EPA. DOE, however, does have authority under the Atomic Energy Act to self-regulate in many instances. With respect to regulation of the health and safety aspects of nuclear waste, many court cases have clearly established that state regulation of strictly radioactive materials or waste is preempted by the federal government.

However, changing existing statute to provide a meaningful, defined role for states both in the siting process and in the regulation of a nuclear waste storage or disposal facility may help to foster trust and result in one or more states willing to be considered as a potential host. A state's direct involvement and authority would likely increase trust and confidence of the citizens of the states involved. The state’s role in the siting process should be clearly defined, and specific criteria developed upon which the state would be authorized to base a decision.

Some may question whether or not a state would have the technical and legal capability of assuming a siting decision and facility regulatory role. One needs only look at the examples provided by the State of New Mexico. The technical capability of the staff is well respected by all of those involved in the WIPP project, whether they are proponents or opponents of the project. In addition, this technical excellence by the state has led to a great deal of credibility regarding the WIPP project for the citizens of New Mexico.

Although states have strongly resisted siting spent nuclear fuel disposal and storage sites within their borders, in almost every case to date local governments nearest proposed sites have been strongly supportive. Local governments generally view these facilities as opportunities for jobs and economic growth within their community. These local governments, however, have also recognized that safety is of paramount importance to the public acceptance of a facility. Therefore, they have frequently adopted strategies that would require DOE to address safety concerns raised by local governments. While DOE has oftentimes agreed to these provisions in order to move forward, it could much more strategically offer a total package that combines economic benefits with state and local safety oversight. This could have helped build more support for the facilities on a statewide basis as well as locally.

The challenge lies in determining how, and to what degree, states and local governments should be involved in the process. Needless to say, this is a complex and difficult task. It can likely only be accomplished successfully by involving the key stakeholders in the process of developing the appropriate approach. The model used by the Western Governors to initiate the development of the WIPP safe transportation program could be used to develop a system for state and local government participation in the nuclear waste facility regulatory system. A similar forum should be established to work through the process of developing the role of the states in America's Nuclear Future. Governors could be requested to appoint policy level staff to a task force to work cooperatively to develop a program for state and local government involvement in the nuclear waste system. Representatives to this task force should be appointed on a regional basis, with two or three representatives appointed from each region. Ideally, the representatives would include a cross section of states representing states that have been involved with a facility, states that have orphaned spent nuclear fuel sites, states that have operating reactors, states with DOE waste sites, and states affected only by transportation.

Examination of the failed attempts to for both Yucca Mountain in Nevada and the Private Fuel Storage facility in Utah demonstrates the importance of access to the national transportation system. Over 300 miles of new rail line would have been required to provide rail access to Yucca Mountain. Sponsors of the Private Fuel Storage facility were not able to acquire the necessary rights-of-way to provide access to their facility from the existing rail line.

Recommendations

- Siting a nuclear waste storage or disposal facility must be through a fair, scientific process as originally envisioned in the Nuclear Waste Policy Act. Subsequent actions regarding operations and closure must be similarly based on the same principles.
- States and local governments should be empowered through changes to the current federal statutes to have a meaningful, defined role in the site selection process.
- The state's role in the entire process should be clearly defined, and specific criteria

developed upon which the state would be authorized to base a decision. The equivalent roles of local government also need to be considered in federal legislation, recognizing that there is considerable variation from state to state in the relations between a state government's authority and the responsibility of local government within that state.

- Once a site is selected, the host state should be provided a regulatory oversight role in the construction and operation of that facility.
- Consider establishing a stakeholders forum of policy level staff of the governors charged with developing the specific roles and responsibilities of states and local governments in America's Nuclear Future.
- Provide adequate funding to regional groups, states and local governments to participate fully in the entire process from site selection through closure.
- Access to existing transportation facilities leading to either interim storage or permanent disposal facilities should be a key component of any site selection process.
- Consider a separate facility for defense high-level waste with specific limits on types and quantities of waste that could be accepted.

We must move forward in resolving the problem of what to do with our spent nuclear fuel and high-level waste. Decision by indecision is not an acceptable path forward. We have the ability to solve this problem through advances in technology and innovative solutions to the societal issues that have prevented effective solutions to date.

Intergovernmental Issues

I. Introduction

The Blue Ribbon Commission on America's Nuclear Future was formed by the Secretary of Energy at the direction of the President. The Commission was formed to conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle, including all alternatives for the storage, processing, and disposal of civilian and defense used nuclear fuel, high-level waste, and materials derived from nuclear activities. The Commission will provide advice, evaluate alternatives, and make recommendations for a new plan to address these issues.

Much of the testimony heard by the Commission touched on the roles and authorities of federal, state, tribal and local governments in: 1) the identification, evaluation and approval of candidate sites; and 2) the licensing, construction, operation and closure of facilities for managing used nuclear fuel and high level wastes.

This paper was prepared to aid the Commission in its deliberations and includes a discussion of the issues that would be faced in the permitting and licensing of facilities for the back end of the nuclear fuel cycle. It advocates for a legal, defined role for potential host states both to participate in the siting process and to regulate an operating storage or disposal facility.

II. Interim Storage Facilities

There are two separate, distinct types of facilities deemed necessary to manage the back end of the nuclear fuel cycle, interim storage facilities and disposal facilities. Interim storage facilities have been called different things over time. The 1982 Nuclear Waste Policy Act (NWPA) refers to them as Monitored Retrievable Storage (MRS) facilities. The Nuclear Regulatory Commission (NRC) regulations refer to them as “Independent Spent Fuel Storage Installations” (ISFSI). They are also commonly referred to as “Interim Storage Facilities,” which correctly implies that they are not permanent solutions to the problem of managing spent nuclear fuel, but temporary holding spots pending reprocessing or disposal. The NRC has licensed a number of these types of facilities, both at reactor sites, and at the proposed Private Fuel Storage (PFS) facility in Utah. A list of permits and approvals required for the PFS facility is included in Appendix A.

The technology used at an ISFSI is generally some form of dry cask storage. Therefore, the permit requirements for interim storage facilities are fairly well known, and permitting a centralized storage facility should not result in surprises. However, NRC’s original safety analysis for these types of facilities was based upon a 20 year life, with an expected renewal of up to an additional 20 years. NRC has recently evaluated the effects that longer term storage will have on spent fuel, and has adopted new regulations allowing approval of original licenses for a 40 year period with possible renewal for up to an additional 40 years.

Therein, however, lies the basis of concern that states have expressed about hosting centralized storage facilities. States are concerned that once the spent fuel is moved away from the reactor sites to an interim storage facility, the pressure to find a permanent solution to the back end of the fuel cycle will decrease. States with reactors have also expressed concern that onsite storage at reactors might become *de facto* permanent storage. And then, “interim” facilities will become anything but interim, since there will be no other solution available to deal with the fuel. Therefore, the licensing and permitting of interim storage facilities is expected to remain controversial with affected states as long as there is no other identified, long-term permanent solution to managing spent nuclear fuel.

The PFS facility also dramatically demonstrates the importance of ensuring that transportation access is available when selecting a site. The PFS facility was, in essence, killed by the Utah Congressional delegation through the creation of a new wilderness area that blocked access to the site by rail. The Bureau of Land Management (BLM) also denied rights-of-way for an intermodal transfer facility which would have allowed spent fuel casks to be delivered to the facility by heavy haul trucks. The decision by BLM is currently being appealed. It is especially noteworthy that a conservative state where people generally loathe the idea of the federal government locking up more land in wilderness areas, for example in Presidentially created national monuments, was willing to create more wilderness area to attempt to block the project.

III. Disposal Facilities

The Nuclear Waste Policy Act reflects the decision made by the U.S. to use deep geologic repositories as the preferred method of disposal of spent nuclear fuel and high-level radioactive waste. WIPP in Carlsbad, New Mexico is the only repository that has been approved and is in operation. While WIPP must meet the same long-term performance requirements as any repository for spent nuclear fuel and high-level waste other than Yucca Mountain, it is limited to transuranic waste from national defense activities and is regulated at the federal level by the Environmental Protection Agency (EPA) rather than the NRC. Although WIPP demonstrates that a repository can be successfully licensed for operation, its unique history should not be used to draw absolute conclusions regarding licensing by NRC of a repository for spent nuclear fuel and high-level waste. When DOE began the development of the WIPP facility, it did so under the presumption that DOE would be self-regulating, that is, not subject to permitting requirements of other federal or state agencies. The facility was actually constructed before the decision was made to submit disposal of waste to regulation by the EPA and the State of New Mexico. There was then a long permitting process, which resulted in significant delays in opening the facility. Much of this delay can be attributed to the need to accurately characterize the waste destined for WIPP so that the permitting agencies could evaluate the proposed disposal plan against the nature of the waste to be emplaced. DOE experienced significant challenges in characterizing the waste, since much of it had been collected with little or no documentation, and much of it was mixed with hazardous materials.

In spite of the delays encountered by DOE when it submitted to regulation, WIPP does provide an example of how “empowering” states with decision-making authority can lead to success. The project was very controversial in New Mexico for many years, partly due to DOE’s self-regulation of the facility. When DOE was required to obtain permits from EPA and the State of New Mexico, many of the perceived concerns were addressed. The State’s involvement in the Resource Conservation and Recovery Act (RCRA) permitting process was instrumental in convincing many that the facility would be safe. Permits that are required for the WIPP facility are listed in Appendix B.

The proposed repository at Yucca Mountain poses a marked contrast to the successful operation of the WIPP facility. Self-regulation by DOE as initially pursued for the WIPP facility was never an option for a repository under the NWPA. The NWPA required the Secretary of Energy to identify potential repository sites. In 1986, the Secretary of Energy identified sites at Hanford Washington, Deaf Smith Texas, and Yucca Mountain, Nevada for characterization. The Secretary also announced that he was suspending the search for a second repository site at that time. In 1987, Congress passed amendments to the Nuclear Waste Policy Act designating Yucca Mountain as the only site under consideration. DOE continued to characterize Yucca Mountain, and in 2002 issued an Environmental Impact Statement (EIS) for a Yucca Mountain repository along with the finding that the site was suitable for a repository. The Secretary of Energy recommended the site to the President for development of a repository. Nevada filed a “Notice of Disapproval,” which was overridden by Congress using procedures specified in the NWPA. DOE then began preparation of the license application to the NRC. DOE did not submit an application for a license to construct to the NRC until 2008. Since DOE is now attempting to withdraw the application to NRC, it is difficult to assess whether Yucca Mountain would have been licensed by the NRC. Although DOE had to acquire many permits in order to conduct site characterization activities, most of the applications for permits that would have been required to operate the facility were not submitted. Therefore, it is difficult to describe all of the permits that would be required to operate a repository based upon the Yucca Mountain experience. Permits that DOE expected to be necessary for construction and operation of the repository are listed in Appendix C.

Yucca Mountain does not have rail access, a critical requirement for delivering spent nuclear fuel to a facility. DOE evaluated a number of possible routes, and ultimately selected the proposed Caliente Route as the preferred option. This proposed route would be approximately 319 miles in length. Although costs cannot be accurately estimated without a final design, DOE estimated the cost of the rail line would range from \$2 billion to over \$4 billion when all ancillary facilities were considered. There were many uncertainties regarding DOE’s ability to construct this rail line within the time frame necessary to deliver spent fuel to Yucca Mountain and within reasonable costs. DOE had also never ultimately determined whether the rail line would have been operated as a single use facility serving only Yucca Mountain, or if there would be other uses of the line. This determination would significantly affect the permitting issues associated with construction of the rail line. To be specific, if it were operated as a single use line, the State of Nevada would have jurisdiction over the construction of the rail line. If,

however, it were to be operated as a shared use facility, then DOE would have been required to obtain a Certificate of Public Convenience and Necessity from the Surface Transportation Board (STB) of the U.S. Department of Transportation (DOT). Under this option, Nevada would be preempted from regulating most aspects of the railroad construction and operation. The STB was a cooperating agency in the preparation of the Environmental Impact Statement for the Nevada Rail Alignment for Yucca Mountain. Although DOE did apply for a Certificate from the STB, it is not known at this time if the STB would have considered DOE's environmental impact statement adequate for its use. Since most of the line crossed public land, BLM also participated as a cooperating agency in the preparation of the EIS. A number of issues remained unresolved for BLM and the STB, including mitigation requirements. For example, in another case, in granting approval to the 280 mile long rail line for the Dakota, Minnesota & Eastern Railroad, the Surface Transportation Board "imposed substantial environmental mitigation conditions" on the project¹. However, in the Final Environmental Impact Statement (FEIS) for the rail alignment for Yucca Mountain, DOE did not determine the mitigation that would be required. Instead, DOE proposed creating Mitigation Advisory Board(s) "to provide independent advice and recommendations to assist DOE, the BLM and the STB in developing, implementing, and monitoring best management practices and mitigation measures during the construction and operation of the railroad."² It is not known whether or not BLM and the STB would have accepted this approach.

IV. Ancillary Facilities

Both disposal facilities and interim storage facilities require substantial off-site ancillary facilities such as rail spurs, roads, water pipelines, and power lines. Siting of the corridors for these ancillary facilities can pose significant problems. These may include land use constraints, environmental issues, and acquiring rights-of-way across private land. Recent attempts to site transmission lines for electricity produced by renewable resources (e.g., wind farms) have run into numerous difficulties. Many states allow condemnation of private land for transmission lines if the public utility commission has issued a certificate of public convenience and necessity. In many states, however, developers of private intertie lines have discovered that they cannot condemn private land for their transmission lines, since public utility commissions don't have jurisdiction over these transmission lines. Although legislatures in several states have tried to address this issue in recent sessions, the concern raised by private landowners has generally prevented new legislation from being enacted which would give owners of these lines the power of condemnation.

¹Surface Transportation Board Annual Report, FY 2005 – 2006, p. 18

²Final Environmental Impact Statement for a Rail Alignment for the Construction and Operation of a Railroad in Nevada to a Geologic Repository at Yucca Mountain, Nye County, Nevada, DOE/EIS-0369, U.S. Department of Energy, Office of Civilian Radioactive Waste Management, June 2006, p. 7-4.

On a national level, recent attempts by DOE to establish national energy corridors were set back by a federal appeals court ruling. The appeals court rejected DOE's designation of corridors in the Southeast and East on the basis that DOE failed to assess environmental impacts while selecting the corridors and did not coordinate adequately with affected states.³

As mentioned previously, the PFS facility in Utah was defeated in part through the lack of a viable rail corridor to access the site. The shortest, least expensive rail corridor proposed to access the proposed repository at Yucca Mountain was the "Valley Corridor," which passed north of the City of North Las Vegas on land administered by the BLM. After this corridor was identified, significant land use changes occurred which made the corridor a non-viable alternative. The Southern Nevada Public Lands Management Act of 1998 (P.L. 106-263, H.R.449) resulted in BLM disposing of land that was then annexed by the City of North Las Vegas for residential development and other projects. The Clark County Conservation of Public Land and Natural Resources Act of 2002 (Public Law 107-282, H.R. 5200) directed BLM to release up to 232,000 acres of land in the north part of the Las Vegas Valley. This land is being auctioned off by BLM and its future uses being identified in local land use plans. This effectively eliminates the Valley Corridor from further consideration.⁴

The siting of any disposal or interim storage facility should include careful consideration of the corridors required for ancillary facilities. Without assurance that the necessary land or rights-of-way for these facilities can be acquired, significant time and resources can be spent evaluating a proposed site that becomes non-viable due to the lack of access.

In addition, many of the ancillary facilities may be subject to other state and federal permitting requirements. These permits, for the most part, are typical permits issued by agencies for linear facilities such as roads, power lines and water lines. Since these types of permits are based upon non-radiological requirements, they would usually not be preempted by the NRC regulations. It should be noted that in the PFS case in Utah, the Appeals Court found that the road provisions in Utah's statutes were preempted, not because they impinged on the regulatory authority of the NRC, but rather, because they were specifically adopted in an attempt to inhibit transportation of spent nuclear fuel in Utah, and hence, frustrate the intent of the NRC in licensing the facility.

V. Historical Background on State Participation in the Repository Program

Adoption of the NWPA in 1982 resulted from a long period of exploration by the U.S. on how to deal with the "back end" of the fuel cycle. During the time frame leading up to its adoption, many studies pointed to the determination that affected states should have a role in the siting

³Jeff Beattie, *Court Tosses DOE 'Corridors' For Power Lines*, The Energy Daily, Friday, February 4, 2011.

⁴*Rail Access to Yucca Mountain: Critical Issues*, Robert J. Halstead, Fred Dilger, and Richard C. Moore, P.E., WM'03 Conference, February 23-27, 2003 Tucson, AZ.

process for the repository. Options considered ranged from allowing states a complete veto over projects within their borders to consultation with affected states. Many of the studies recognized that states have, as one report stated, a “constitutional responsibility to ensure the health and safety of their citizens” and have “jurisdiction over local authorities and land use,” and therefore, states believed “that it is both undesirable and impractical for disposal procedures to be wholly federally determined”⁵. Many also felt that states would have more credibility with their citizens than the federal government, since they are closer to the people. Choate and Bowman noted that “. . . if the federal government is to make progress toward a permanent solution of the radioactive waste problem, it cannot go it alone – citizens will insist on assurances other than federal assurances that proposed actions will not involve undue risks to the host states”⁶. This concern was recently echoed by former Wyoming Governor Mike Sullivan, speaking about his 1992 veto of a proposed monitored retrievable storage facility in Wyoming. Sullivan said, “The same problems that existed 20 years ago still exist today. Among them is the lack of trust that western states have of the federal government to either follow through on a long-term policy or to actually work in a state’s own interest.” “Yucca Mountain was a failure,” said Sullivan, “because the federal government tried to impose its will on a state that didn’t buy into the plan.”⁷

Congress ultimately included provisions in the NWPA for “consultation and cooperation” with potential host states, considered at the time to establish a fair, scientific siting process that was expected to result in successful site selection. The NWPA was intended to provide regional equity through the requirement for DOE to identify two repository sites, one in the west and the unstated assumption that one would be in the east. The first site was to be limited to 70,000 metric tons until the second repository was operational, an amount smaller than the then-estimated total of spent fuel and high level waste, thus ensuring that the first site would not become the sole site for disposal, and that a second site would be developed. States were given oversight rights, and states would be allowed to veto a site within their borders. The veto, however, was subject to override by Congress.

DOE was required to nominate five sites for consideration. Candidate sites included geographical areas underlain by salt domes, bedded salt, volcanic tuff and basalt. DOE was then to recommend three sites for site characterization by January 1985, and to recommend the first preferred site to the President by March 31, 1987.

DOE was to also identify five candidate sites for the second repository, with at least three sites in locations that had not yet been considered, and nominate candidate sites for the second

⁵Pat Choate and John Bowman, *Radioactive Waste Management: State Concerns, A Report to the Office of Technology Assessment from the Academy for Contemporary Problems*, p. 3, 1980.

⁶*ibid* p. 11.

⁷Dustin Bleizeffer, *I Was Right to Veto Nuclear Waste*, Wyofile, February 25, 2011, <http://wyofile.com/2011/02/sullivan-i-was-right-to-veto-nuclear-waste/>

repository by July 1989. The President was to recommend to Congress a final choice for the second repository by March 31, 1990.

In May 1986 the Secretary of Energy recommended three first repository sites for detailed site characterization: the Hanford site in Washington, the Deaf Smith County site in Texas, and the Yucca Mountain site in Nevada. Also, by 1986, the Secretary had identified 12 sites in seven states as candidates for the second repository. These sites were all located in the Midwest or along the Atlantic coast. There was strong opposition from all the states identified as potential repository hosts, as well as Tennessee, which had been identified as the host state for the MRS. But with the May recommendations for first repository site characterization, the Secretary also suspended efforts to identify candidates for and develop a second repository, citing the lack of immediate need and the increasing estimated costs of site characterization.

Considerable public and intergovernmental pressure led to the 1987 amendments to the NWPA. Significant provisions of these amendments included selecting Yucca Mountain as the only site to be characterized, cancelling the second repository, rescinding approval of the MRS in Tennessee, and the terminating ongoing work related to developing a repository in crystalline rock, the rock type common to all the second set of candidate sites. Thus, the fair, scientific process envisioned in the NWPA was short circuited.

VI. Regulatory Process

A. Basis for Regulatory Approvals: Empirical versus Qualitative Decisions

When analyzing permitting requirements for controversial facilities, it is important to recognize the different types of criteria that regulatory agencies use in their decision-making process. Most regulatory decision criteria can be considered to be empirical in nature. That is, an applicant must demonstrate that its project is capable of meeting a numerical standard which the agency has defined by regulation. Compliance with permit or licensing requirements can also be verified by direct measurements during monitoring of the facility. An example is found in National Pollution Discharge Elimination System (NPDES) discharge permits. The Environmental Protection Agency has adopted standards for discharge limitations to be included in all permits, usually expressed in terms such as milligrams per liter (mg/l). Unless more strict standards are required to meet water quality standards, the permit writers include these numerical discharge limits in permits. Discharges are required to be monitored during operation for compliance with the permit limits.

Some regulatory decisions, however, are not defined by or based on empirical (i.e., numerical or quantitative) criteria contained in regulations, but rather on one or more broader, qualitative criteria. A particularly clear example of this type of decision is the required finding for appropriation (allocation) of water in many western states that a specific appropriation is “in the public interest.” Another example is found in the National Environmental Policy Act (NEPA), as well as many state environmental policy acts and facility siting laws, where the regulatory

agency must determine that the proposed action poses an acceptable impact to the environment, or does not pose an undue threat to the health and safety of the affected public. These types of decisions are very difficult to overturn on appeal, since the enabling statute typically vests the regulatory authority with the responsibility of making the required qualitative judgment call. As long as there is evidence in the record supporting the decision, courts will usually not substitute their judgment for that of the regulatory authority. In these cases, courts will remand cases back to the regulatory authority only if they find that the decision was “arbitrary and capricious” or that the regulatory authority failed to include existing important and highly relevant information in the analysis.

In between these two types of decision are decisions that may rely on an applicant demonstrating that a numerical standard can be met, but that require many assumptions or value judgments to reach that conclusion. A good example of this type is a discharge limit imposed in order to maintain the quality of the water in a receiving body of water. An agency may have adopted a numerical limit for the maximum concentration of a pollutant actually in a specific stream, for example, to maintain the quality of that water body for its intended use, for example, a fishery. In reviewing an application for a discharge permit for a specific facility that wishes to discharge a pollutant into the stream, the agency may find that it must limit the amount of that pollutant allowed in the facility’s discharge to maintain the desired water quality. Put another way, the agency may impose on the discharge more stringent requirements than the typical empirical one for that type of discharge. The calculation of the allowed concentration in the discharge, however, may involve many assumptions such as the amount of the chemical that occurs naturally, the volume of flow in the natural water body, the volume of flow in the facility’s discharge, and the amount of the chemical in the water body at any given time from other dischargers. Because of the wide variance in the assumptions that may be used to calculate the amount of the pollutant allowed in the discharge at any given time, the applicant may very well disagree with the decision reached by the regulator. When cases such as these are appealed to the courts, again the courts will usually defer to the judgments of the regulatory agencies, since the ones charged with weighing the detailed evidence and determining which factors are the most appropriate to use in each case, as long as there is evidence in the record to support the decision.

The distinction between empirical (numerical) and qualitative (judgment) decisions is important for a nuclear waste disposal facility or interim storage facility. For example, both the EPA and the NRC have adopted standards for the maximum allowable exposure of humans, expressed in millirems per year. Although these are numerical standards, calculating the expected dose will involve many assumptions, such as the geology of the disposal facilities, possible pathways for release of radiation to the environment, etc. This will be particularly difficult given the extended time frame over which a repository will be required to perform, though somewhat easier for an interim storage facility. Parties protesting the issuance of a license by the NRC may reach different conclusions regarding the expected dose to the public in the future than presented in the license application. It will be up to the regulatory authority to determine which set of assumptions to use in order to conclude that the disposal facility does or does not meet a given

numerical standard. Whatever decision is reached, as long as it is based upon credible evidence in the record, it will probably be sustainable upon appeal.

Disposal and interim storage facilities are subject to many laws and regulations administered by various federal, state and local agencies. This section summarizes most of the pertinent requirements, and identifies the permits and approvals that may pose problems. This analysis is based in part on the specific lessons learned from Yucca Mountain and the PFS project and on the permitting history for other major facilities.

B. Federal Role and Regulations

Federal laws and regulations set the framework for regulation of nuclear waste facilities at the national level. These laws and regulations provide basic permit requirements regardless of where a facility is located. Many of the federal laws and regulations contain provisions for state assumption of the permitting programs. Others require that federal decisions must take into account requirements at the state and local level. Some, such as laws and regulations authorizing decisions by the Surface Transportation Board or the Nuclear Regulatory Commission, preempt state authority. Therefore, understanding current the federal process is critical to defining the role of state and local governments' current capabilities to regulate nuclear waste facilities and how that role could be expanded in the future.

National Environmental Policy Act

NEPA requires that federal agencies incorporate consideration of the human environment in their decision-making process. This consideration must include identification of the impacts of a proposed project; steps that can be taken to mitigate identified impacts; unavoidable, adverse impacts; and reasonable alternatives to the proposed action, including the "no action" alternative. The White House Council on Environmental Quality (CEQ) has adopted regulations governing the NEPA process, and provides guidance documents to assist in compliance with their regulations. Most major federal actions will require the preparation of a draft EIS, consideration of comments on the draft document, and the preparation of a final EIS before a decision is made by the agency. Under CEQ regulations, agencies are required to prepare a concise public Record of Decision (ROD), which describes the action the agency will take, including any mitigating measures the agency will require as part of the action.

CEQ regulations emphasize the importance of cooperation among federal agencies that may have jurisdiction or special expertise with respect to any environmental issue. A cooperating agency participates with the lead agency in the preparation of the draft and final EIS documents, and may adopt the lead agency's final EIS if it concludes that its NEPA requirements have been met by the lead agency's document.

The NEPA process for Yucca Mountain demonstrated that implementation of provisions of the NWPA and CEQ regulations, and the relationship between the two, is not clearly defined. The

NWPA restricted the way NEPA is applied to repository projects. Congress also specified that NRC should adopt DOE's EIS to the extent practicable. In 1987 when Congress specified that only Yucca Mountain would be considered for the repository, it also eliminated the requirement for analysis of alternative sites in the EIS.⁸

NRC did not participate as a cooperating agency in the EIS process for Yucca Mountain. The NWPA directs DOE to prepare an EIS for a proposed repository, and provides that the EIS "shall, to the extent practicable, be adopted by the NRC in connection with the issuance by NRC of a construction authorization and license for such repository."⁹ This provision resulted in confusion regarding whether or not Nevada could sue based upon the adequacy of the final EIS (FEIS) prepared by DOE. Since DOE had not taken a "final agency action" with respect to Yucca Mountain, it did not issue a record of decision. During the initial phases of the NRC licensing process, NRC had not yet "adopted" DOE's FEIS, nor had it stated whether or not it would supplement the FEIS in any way. However, NRC has established a rule regarding the "practicability" of adopting DOE's FEIS. According to this rule, they would adopt DOE's FEIS unless "The action proposed to be taken by the Commission differs from the action proposed in the license application submitted by the Secretary of Energy; and the difference may significantly affect the quality of the human environment; or significant and substantial new information or new considerations render such environmental impact statement inadequate."¹⁰ In a lawsuit filed by the state of Nevada, the Court of Appeals ruled that the FEIS had not been used to support a final agency action by either DOE or NRC, and hence, Nevada's suit based upon the adequacy of the FEIS was not ripe for review. The Court, in reaching this determination, relied in part on assurances of counsel for both DOE and NRC during oral argument that Nevada would be permitted to raise substantive issues with the FEIS in the future before both NRC and DOE¹¹. This creates a conundrum as to when in the process the adequacy of an FEIS can be challenged. As stated by Smith, "The Commission took the view that its focus should be on the 'delta' between DOE's FEIS and new and significant information not already considered, and that substantive challenges to the adequacy of the 'base' FEIS should be taken up in the federal courts. Consequently, the Commission's regulations on adoption of the repository FEIS do not contain any regulatory standards or processes for assessing the adequacy of DOE's 'base' FEIS. On the other hand, the court seems to suggest that all FEIS-related issues (including the adequacy of both the 'base' and 'delta' FEIS) are open to substantive review in NRC administrative hearings. Thus, the NRC staff is faced with conflicting judicial and regulatory mandates, without a guiding review standard."¹²

⁸Smith, Tyson R., *Alternatives, Adoption, and Administrative Hearings: Keys to Performing Environmental Reviews for Yucca Mountain* (2006). Pace Environmental Law Review. Paper 505, p. 490.

⁹42 U.S.C. § 10134(f)(4)

¹⁰10 CFR 51.109(c)

¹¹Nuclear Energy Inst., Inc. v. EPA, 373 F.3d 1251 (D.C. Cir. 2004).

¹²Smith, p. 475.

Federal Land Policy and Management Act (FLPMA)

If a site for a proposed facility is located on public lands under the management of the BLM, the lands must be “withdrawn” from public use and designated solely for the use of the facility. The BLM describes the consequences of a withdrawal as follows: “A withdrawal removes an area of Federal land from settlement, sale, location, or entry under some or all of the general land laws, for the purpose of limiting activities under those laws to maintain other public values in the area or reserving the area for a particular public purpose or program. Withdrawals are also used to transfer jurisdiction over an area of Federal land from one department, bureau, or agency to another.”¹³

Only Congress has the power to make a permanent withdrawal for the specific use of an agency. NRC repository regulations (both generic and Yucca Mountain specific) require that land used for a repository be permanently withdrawn¹⁴. Under this requirement, there would have been a need for land withdrawal legislation before an NRC license could be granted for Yucca Mountain.

FLPMA specifies the detailed procedures which BLM must follow to handle an application for withdrawal of land, including the development of the terms and conditions for withdrawal. Congress must then authorize the withdrawal through specific legislation, which can include specific mitigating measures. An example is the WIPP Land Withdrawal Act, which in addition to designating the land for WIPP provided funds to the State of New Mexico to improve roads in New Mexico for transportation of transuranic waste to the WIPP site.

FLPMA established conservation management requirements for public lands. It requires BLM to evaluate lands under its management to identify Areas of Critical Environmental Concern (ACEC). BLM is required to manage lands designated as ACEC to protect areas identified as important riparian corridors, critical habitat for threatened and endangered species, cultural and archeological resources and unique scenic resources. Areas identified as ACEC are an important consideration in the selection of corridors for ancillary facilities.

Section 603 of FLPMA required BLM to identify and study the wilderness potential of the lands that it administers. Once identified as a Wilderness Study Area, BLM must manage the lands for their wilderness values until Congress decides whether or not to designate them as wilderness areas or to specifically withdraw them from the wilderness inventory. Even if BLM determines that a Wilderness Study Area or part of an area is not eligible for designation as wilderness, BLM must continue to manage the area as wilderness. In designating potential rail corridors for

¹³www.blm.gov/wo/st/en/prog/more/lands/public_land_orders.html

¹⁴10 CFR 60.121 states: (a) Ownership of land. (1) Both the geologic repository operations area and the controlled area shall be located in and on lands that are either acquired lands under the jurisdiction and control of DOE, or lands permanently withdrawn and reserved for its use. 10 CFR 63.121 includes similar provisions.

Yucca Mountain, DOE incorrectly assumed that portions of Wilderness Study Areas that BLM identified as not eligible for wilderness could be used for the rail line. This resulted in DOE having to adjust some of the rail corridors in later evaluations. This example demonstrates the importance of verifying assumptions early in the siting process and the value of involving all relevant agencies in the siting and environmental assessment process from the very beginning.

Nuclear Regulatory Commission

The Nuclear Regulatory Commission regulates facilities for handling, storage, and disposal of spent nuclear fuel and high-level waste under the Atomic Energy Act, the NWPA as amended, the Yucca Mountain Development Act of 2002, and the Energy Policy Act of 1992. NRC has developed specific regulations for both repositories and independent spent fuel storage installations. Detailed discussion of these provisions is beyond the scope of this paper, but is discussed in *Standards & Regulations for the Geologic Disposal of Spent Nuclear Fuel and High level Waste* by Rodney C. Ewing, another white paper commissioned by the Blue Ribbon Commission. It is important to note, however, how NRC significantly preempts state regulation of spent nuclear fuel and high-level nuclear waste facilities based on radiological safety considerations. However, as covered later in this paper, state regulation based on other considerations is not preempted.

The NRC also is responsible for certifying packaging for spent nuclear fuel. In developing their transportation system for the NWPA, DOE has begun the design of both highway and rail casks for spent nuclear fuel. NRC has developed several programs which they will use to evaluate the casks once DOE submits the applications for certification of the casks.

The NRC also is responsible for certifying packaging for spent nuclear fuel. NRC also regulates the transportation of spent nuclear fuel through its Safeguards program. This includes regulations for the physical protection of materials during transportation. NRC has a Memorandum of Understanding with the U.S. Department of Transportation to clarify how the two agencies share the role of regulating radiological materials transportation.

Environmental Protection Agency (EPA)

The US Environmental Protection Agency plays a significant role in the permitting of interim storage and disposal facilities. The more important laws, notably the Resource Conservation and Recovery Act, are covered elsewhere. Other laws that EPA is responsible relevant to storage and disposal facilities for radioactive wastes are covered here.

Under the Clean Air Act, EPA regulates hazardous air pollutants through emission standards, including radionuclides. Air quality standards also require control of fugitive dust emissions from construction activities.

The Safe Drinking Water Act of 1974 requires EPA to protect the quality of public water supplies. EPA has established drinking water standards. The drinking water provided within a facility must comply with the terms of these standards. Maintenance of the quality of public water supplies also requires EPA to regulate any potential discharges to waters identified as sources of public water supplies. This includes surface waters and aquifers that could potentially be affected by a proposed repository.

The Safe Drinking Water Act includes provisions for “sole source aquifer” protection. Sole source aquifers are defined as those aquifers that supply at least 50% of the drinking water consumed in the area overlying the aquifer. Designation by EPA of an aquifer as a sole source aquifer leads to tighter controls on activities that could potentially contaminate a drinking water supply. In such areas, EPA review of a project may lead to additional specific pollution control requirements. All federally funded projects in an area of a designated sole source aquifer are subject to review by EPA. EPA coordinates this review with other federal, state and local governments.

The Clean Water Act (the current term for the Federal Water Pollution Control Act Amendments of 1972 and subsequent amendments to it) requires EPA to restore and maintain the chemical, physical and biological integrity of the Nation’s water. This is accomplished through a variety of programs, including requiring EPA to develop water quality standards for various categories of uses of waters, such as fisheries, public bathing and agriculture. Activities are not allowed to degrade the designated quality of a body of water. This is accomplished through programs to regulate both point source discharges (the previously mentioned National Pollutant Discharge Elimination System permitting program) and non–point sources. Stormwater discharges, including discharges from construction activities, are regulated under a stormwater discharge permit system.

The enabling legislation for most EPA laws allows delegation of the federal authority to states to administer almost all of the EPA programs. Most states have assumed responsibility for programs under the Clean Air Act, the Safe Drinking Water Act, the Clean Water Act, and other federal environmental laws as well.

Surface Transportation Board (STB)

Construction, acquisition and operation of common carrier railroads are under the exclusive jurisdiction of the Surface Transportation Board. Although initially DOE did not commit to whether or not the rail line would be a shared use line, DOE did ultimately apply to the STB for a Certificate of Public Convenience and Necessity for the rail line to Yucca Mountain to construct and operate it as a shared use rail line. The Interstate Commerce Act as amended grants STB the sole responsibility at the federal and state level to regulate the interstate rail network, which includes facilities and structures that are an integral part of rail transportation. Thus, STB requirements preempt almost all state and local laws. For example, construction of a rail line in Wyoming could not be regulated under the State’s Industrial Siting Act, even though that Act

and its regulations may have addressed issues not directly covered by the STB. State powers over railroads are generally limited to their police powers to protect the public health and safety, as long as these activities do not regulate operations or interfere with interstate commerce.

Applications to construct new rail lines are handled by the Section of Environmental Analysis of the STB. This Section conducts the necessary environmental studies under NEPA, prepares an EIS if required, and makes recommendations to the STB as to conditions and mitigation activities that should be required if the STB decides to issue a Certificate to an applicant.

U.S. Department of Transportation

Shipments of spent nuclear fuel are regulated by the U.S. Department of Transportation (DOT) under the Hazardous Materials Transportation Act, as amended. DOT regulates routing, handling, storage, and vehicle and driver requirements for the transportation of spent nuclear fuel. Regulations also address package labeling, vehicle placarding, shipping paper requirements, and driver training requirements. DOT has established maximum dose rates and allowable levels of contamination on packages and vehicles. A detailed discussion of transportation regulations is included in Appendix D.

DOT has a Memorandum of Understanding with the NRC to clarify how the two agencies share the role of regulating radiological materials transportation.

Corps of Engineers

Section 404 of the Clean Water Act regulates the discharge of dredged or fill material in waters of the United States. A dredge and fill permit, or 404 permit, is required from the U.S. Army Corps of Engineers for any activity that results in the discharge of material into streams, lakes or wetlands. This includes most construction activity in or near waters of the United States. The basic premise of the 404 permit program is to minimize the discharge of material through appropriate steps to avoid or mitigate the impacts of activities conducted near or in water bodies. Under Section 404(r), federal construction projects which are specifically authorized by Congress do not need to obtain a permit from the Corps, though they must comply with the permit provisions of Section 404 if information on the effects of the activity are included in an environmental impact statement for the project, including following the guidelines developed to comply with that section of the CWA, and the environmental impact statement has been submitted to Congress prior to the actual discharge of dredge or fill material. DOE did propose that it would seek authorization under Section 404(r) for construction activities for the proposed repository at Yucca Mountain and for the proposed Caliente Rail line.

National Historic Preservation Act

The National Historic Preservation Act does not require permits or certification. It does provide for a National Register of Historic Places. Under NEPA, agencies are required to inventory areas affected by their actions for potential effect on historic places, and provide appropriate mitigation for sites that may be affected.

Occupational Health and Safety Administration (OSHA) and Mine Safety and Health Administration (MSHA)

These topics are covered in *From Three Mile Island to the Future: Improving Worker Safety and Health in the U.S. Nuclear Power Industry* by Stoneturn Consultants, a white paper commissioned by the Blue Ribbon Commission and available at www.brc.gov. It should be noted that although the construction of a repository would usually be considered an excavation, not a mine, compliance with the Mine Safety and Health Administration requirements for mine safety is required. WIPP established an excellent mine rescue team as part of its obligation under MSHA requirements.

The OSHA requirements also apply to the construction of underground tunnels, shafts, chambers and passageways. OSHA has adopted specific rules to address safety for underground construction.

Emergency Planning and Community Right-to-Know Act

The Emergency Planning and Community Right-to-Know Act, as known as SARA Title III, requires facilities to provide information on hazardous and toxic chemicals to state emergency response commissions, local emergency planning committees, and the EPA. Communities can then use this information to ensure that emergency response plans adequately address the needs created by unplanned releases of hazardous or toxic chemicals. A repository or interim storage facility would have to include specific inventories of any chemicals used or stored as well as descriptions of any releases that occur from the site.

Coastal Zone Management Act

The Coastal Zone Management Act serves to preserve, protect, develop, restore and enhance the resources of coastal zones, and includes the Great Lakes as well as coastal areas bordering oceans. Resources are considered to include wetlands, flood plains, estuaries, beaches, dunes, barrier islands, coral reefs, and fish and wildlife and their habitat. The Act emphasizes state primacy in the management of coastal zones. Section 307 of the Act, called the Federal Consistency Provision, is a powerful tool that states can use to manage coastal resources. Federal activities must be consistent to the maximum extent possible with a state's own coastal zone management program. Any facility sited in an area covered by a coastal zone management program would be required to comply with the program's requirements.

Some of the reactors where spent fuel is currently located do not have rail access, but do have barge access. To handle spent fuel casks, however, many of these access points would have to be upgraded, requiring compliance with the Coastal Zone Management Act if barges are used to transport spent nuclear fuel. Some plants may require upgrades to roads or rail lines to handle spent fuel transportation. If these plants are located within a coastal zone, compliance with the coastal zone management program would also be required.

Executive Orders

Many Executive Orders apply to any activity conducted by a federal agency, including permits issued by an agency. Examples include Executive Orders on cultural resources, flood plain management, wetlands protection, environmental justice, Indian sacred sites, consultation with Tribal governments, and invasive species.

DOE Orders

DOE Orders would apply to a facility constructed or operated by DOE. DOE Orders cover a wide variety of topics, including facility safety, radiological materials transportation, quality assurance, maintenance management for DOE nuclear facilities, environmental protection, compliance with NEPA, and independent oversight.

C. State Role and Regulations

The NWPAA provides for the participation of the host state in the evaluation of a repository. Under Section 116(c), the Secretary is directed to make grants to the host state to participate in activities relating to site characterization, to determine impacts of the facility; to engage in monitoring or evaluation of the site; to provide information to its citizens; to develop requests for mitigation funding; and to request information from, and make comments and recommendations to the Secretary. Although this provision seems relatively straightforward, it was the source of many problems between the State of Nevada and DOE. Requests for funding to implement this provision were provided to Congress by DOE. The State felt that at many times DOE was attempting to curtail or circumvent their role in evaluating the site by limiting the funding available to the State. The State at times had to substantially reduce funding for its studies. At one time, litigation was required to overturn DOE's narrow interpretation of activities eligible for use of oversight funding.

In spite of often strong support at the local level, affected states have fought bitterly against proposed storage and disposal facilities. A telling example of this opposition at the state level is the proposed PFS facility in Utah. In a conservative state where people generally loath the idea of the federal government locking up more land in wilderness areas and Presidentially created national monuments, the Utah delegation was successful in having Congress designate an additional wilderness area to block access to the PFS site.

Currently, almost all state regulation over a high-level nuclear waste facility is preempted by federal law, primarily the Atomic Energy Act, as amended. In their 1982 analysis of federal and state conflict in the management of nuclear waste, Green and Zell concluded that almost all state attempts to impose their will in deciding how or where to site facilities is preempted, by either the Atomic Energy Act, the Commerce Clause, or the doctrine of intergovernmental immunity on federal reservations. They concluded, however, that

Notwithstanding the unfavorable legal climate that now prevails, state participation in the licensing and regulation of radioactive waste repositories is an idea whose time has come. Local protest has figured heavily in the abandonment of two federal waste disposal projects in the past and many have forestalled a third indefinitely. If states are to achieve the degree of meaningful participation for which they now clamor and for which the federal government appears willing to allow, a substantial readjustment in the allocation of power to federal and state governments within the existing nuclear energy legislative and regulatory scheme should be high on the list of congressional priorities in the coming session¹⁵.

With the exception of WIPP, virtually all attempts to site disposal and away-from-reactor interim storage facilities in the United States have failed. Much of this failure can be attributed to resistance by states which have been preempted by the federal government from taking an active role in the licensing and regulation of nuclear waste facilities. As Green and Zell pointed out in 1982, state participation in the process “is an idea whose time has come.” Although some small steps in that direction have been taken, active state involvement in planning, siting, licensing, and operation of all aspects of a nuclear waste disposal or interim storage facility is key to future success whether the facilities are private initiatives such as the PFS facility or federally sponsored facilities such as Yucca Mountain.

There are several instances where states have been provided with authority over federal projects that demonstrate that state participation in the decision-making process can be instrumental. The Federal Facilities Compliance Act (FFCA) is a good example. Before the passage of this Act, the federal government was considered to be immune from civil fines and penalties under environmental laws. The State of Ohio challenged this position. The federal government’s immunity was confirmed by the Supreme Court under the “sovereign immunity doctrine.” This resulted in the passage of the Act in 1992 to hold the federal government to the same cleanup standards as the private sector under RCRA, CWA, and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA, more familiarly known as the Superfund law). For mixed waste, DOE was required to submit inventories of all of its mixed waste and to develop a plan for treating these wastes. If EPA has delegated appropriate authority under RCRA or the CWA to the state where the wastes are located, then DOE must submit the plan to the state

¹⁵Harold P. Green and L. Marc Zell, *Federal State Conflict in Nuclear Waste Management: The Legal Basis*, contained in *The Politics of Nuclear Waste*, E. William Colglazier, Jr.(ed.), (New York: Pergamon Press, 1982) p 130.

for review. The state may approve, disapprove or modify the plan. The FFCA gives states direct authority to enforce requirements of any plan adopted for cleanup of a federal site.

The mixed waste tanks at the DOE Hanford site in Washington contain what is considered to be the most difficult of DOE's high-level radioactive waste to manage. In 1989, DOE, EPA and the State of Washington executed an agreement, known as the "Tri-Party Agreement," which establishes the cleanup plan for the Hanford site. The Agreement describes the roles and responsibilities of the parties in the cleanup plan of the site, and provides for a dispute resolution process. It also includes an "Action Plan" with appropriate milestones to achieve cleanup of the site. The parties have also developed a "Community Relations Plan" to ensure that the public is informed and involved throughout the cleanup process.

The State of Washington and DOE have recently agreed upon a revised cleanup plan for Hanford that resulted in a Consent Decree approved by the U.S. District Court in Spokane. The Consent Decree imposes a new, achievable schedule on the cleanup at the Hanford site, and requires DOE to move all liquid waste from single shell tanks to newer double shelled tanks by 2040 and the treating of all tank waste by 2047. The Consent Decree also recognizes Oregon's interest in the Hanford cleanup, and grants certain rights to Oregon¹⁶. Although there is a long way to go before the Hanford site is cleaned up, involving the State of Washington in the review and approval process has resulted in greater confidence by the citizens of Washington that the Hanford site will eventually be restored.

In 1991, Governor Andrus of Idaho notified the Secretary of Energy that he would not allow additional shipments of spent nuclear fuel destined for the Idaho National Laboratory (INL) to enter Idaho, including spent nuclear fuel from the Fort St. Vrain nuclear power plant in Colorado. In response, DOE agreed to prepare a programmatic EIS on spent nuclear fuel management at INL. Several law suits resulted from the Governor's actions and the EIS, which resulted in a settlement agreement between Idaho, DOE, and Public Service Company of Colorado, the owner of the Fort St. Vrain facility. The Federal District Court imposed a Consent Order on all the parties to the various litigation that incorporates all of the terms and conditions of the settlement agreement. The settlement agreement contains detailed requirements for the management of spent nuclear fuel and transuranic waste at INL. It allows DOE to continue to ship limited quantities of spent nuclear fuel from the Navy's nuclear propulsion fleet to INL for interim storage for a 40 year period. DOE must move all spent nuclear fuel into dry cask storage by 2023, and must remove all navy spent nuclear fuel by no later than 2035. DOE is also prohibited from shipping spent nuclear fuel to INL from commercial reactors. The agreement also required DOE to ship transuranic waste from INL to WIPP and required specific quantities

¹⁶State of Washington v. Steven Chu, Secretary of the United States Department of Energy Consent Decree, available at www.hanford.gov/files.cfm/TPA_Final_Entered_Consent_Decree.pdf.

to be shipped by specific dates. If DOE fails to meet required deadlines, Idaho may halt additional shipments of spent nuclear fuel to INL.¹⁷

In addition to the types of formal agreements just described, there are examples from other realms where more ad hoc or informal arrangements have allowed a constructive approach and resolution of potentially serious federal-state conflicts. The author of this paper was directly involved in one, which may provide insights on how the federal and state governments could work together regarding facilities for radioactive wastes. When President Reagan decided to site the Peacekeeper, or MX, missiles at the F.E. Warren Air Force Base in Cheyenne, Wyoming, he asked Wyoming Governor Ed Herschler what he needed to make the project acceptable to him. Governor Herschler asked for one thing only, that the project be subject to the Wyoming Industrial Siting Act. President Reagan agreed with this request, and directed the Secretary of Defense to take the necessary steps to apply for and obtain a permit from the Wyoming Industrial Siting Council. At the time, the MX missile project was highly controversial. Utah and Nevada had vigorously opposed the proposed “racetrack” basing mode in their states. Wyoming had specific criteria under its Industrial Siting Act that had to be met to address the potential environmental and socioeconomic impacts of the project. Although the nuclear proliferation issue was significant to many in the community, it was not an issue that was appropriate to address under the state’s siting criteria. Wyoming went about the process of working with the Air Force to identify and mitigate the environmental and socioeconomic impacts. Part way through the process, the original “Closely Spaced Basing” mode was abandoned, and the decision was made to deploy only 50 missiles in existing Minuteman silos. Since this decision significantly reduced the expected impacts of the project, Governor Herschler decided not to require that the Air Force apply for a siting permit from the State, but did request that the Air Force work with the state to mitigate the identified impacts. Working together, the Air Force and the State of Wyoming were successful in getting Congress to appropriate the funds to mitigate those impacts.

WIPP also provides several examples of how “empowering” states with decision-making authority led to success. The project was very controversial in New Mexico for many years, partly due to DOE’s original approach of self-regulation of the facility. The WIPP Land Withdrawal Act specifically required DOE obtain periodic certification from EPA that WIPP complied with the standards for a repository under 40 CFR 194 and also to obtain and periodically renew a RCRA hazardous waste permit from the State of New Mexico. This certification by EPA and issuance of the RCRA permit by the State addressed many of the perceived concerns with WIPP. The State’s involvement in the permitting process was instrumental in convincing many that the facility would be safe. The safe transportation program

¹⁷Settlement Agreement: Public Service Company of Colorado v. Batt available at www.em.doe.gov/pdfs/2001_Agreements/Colorado_vs_Batt_10-16-95.pdf

for WIPP is also a good example of how cooperative efforts between states and the federal government can lead to the development of successful programs.

In marked contrast is the experience of states faced with other repository or interim storage facility siting proposals. As former Governor Sullivan expressed in his letter vetoing the proposed MRS in Wyoming, the MRS would be a federal project over which Wyoming would have little or no control. In dealing with the proposed Yucca Mountain repository, the State of Nevada was firmly opposed to the project, and hence decided not to pursue a consultation and cooperation agreement with DOE. This resulted in the State's role in the decision-making process being essentially that of a party in a contested case before the Nuclear Regulatory Commission. The State of Utah enacted laws to regulate the proposed Private Fuel Storage facility in Utah. The U.S. District Court voided those laws, a decision that was upheld by the Tenth Circuit of the U.S. Court of Appeals. In its conclusion, the Court of Appeals stated:

In holding the Utah statutes preempted, we do not denigrate the serious concerns of Utah's citizens and lawmakers regarding spent nuclear fuel, a matter which presents complex technological, economic, and political challenges to those seeking effective solutions. However, in the matter of nuclear safety, Congress has determined that it is the federal government, and not the states, that must address the problem. We also note that many of the concerns that Utah has attempted to address through the challenged statutes have been considered in the extensive regulatory proceedings before the NRC, as well as in appeals from NRC's decisions. *We are hopeful that Utah's concerns—and those of any state facing this issue in the future—will receive fair and full consideration there.*
(emphasis added)

For citizens of a state involved in a complex, adjudicatory process like the NRC's, being *hopeful* that their concerns are adequately addressed by a federal agency is not a satisfactory resolution to the societal problems of siting a repository or interim storage site.

Some may question whether or not a state would have the technical and legal capability of assuming such a role. One needs only look at the examples provided by the State of New Mexico. The technical capabilities of the staff are well respected by all of those involved in the WIPP project, whether they are proponents or opponents of the project. Although New Mexico did not have specific authority over the radiological aspects of the certification of WIPP, the technical excellence by the State has led to a great deal of credibility regarding the WIPP project for the citizens of New Mexico.

Prohibitions

Many states have enacted bans against storing or disposing of spent nuclear fuel in their state. Some of these state bans have some discretionary approval process, such as Utah where the law provides that if NRC issues a license for the facility, the Governor, with the concurrence of the

legislature, may also approve the storage of spent fuel. Other states simply prohibit the storage or disposal of spent fuel with no provision for approval. Some state bans were created through the citizen initiative process, while others were enacted by legislatures responding to concerns raised by their constituents. The fact that so many states have enacted bans demonstrates the strong resistance by the public to the possibility of spent fuel storage or disposal in their state. In spite of this resistance, state bans against disposing or storing nuclear waste are clearly preempted by the federal government.

State Environmental Policy Acts

Many states have state environmental policy acts, often referred to as mini-NEPAs or SEPAs. These state environmental policy acts generally mimic NEPA, requiring environmental assessments of agency decisions, with similar required findings as those contained in NEPA. Generally speaking, compliance with these state environmental acts would not be preempted *per se*, as long as the underlying law or regulation that triggered the environmental assessment is not based on nuclear or radiological safety. Where state decisions under its environmental policy act would be preempted is if the state attempts to deny a permit or approval based on a finding through the environmental assessment that there is a threat to public health or safety due to radiological safety concerns.

Major Facility Siting

Many states have siting acts requiring state permits or approvals of major new facilities. The types of facilities covered by these acts vary widely from state to state. Most state siting acts, at a minimum, cover energy facilities, such as power plants, substations, and transmission lines. Others also include all major new industrial facilities such as factories, refineries, mines or mills. Some states also specifically include solid and hazardous waste facilities. Most do not specifically include repositories or interim storage facilities for high level wastes and spent fuel.

The main purpose of these siting laws is usually twofold. First, through siting decisions, they attempt to ensure that the siting of major new facilities is compatible with existing or probable future land use in the area. Second, they recognize that major new facilities frequently create significant environmental and socioeconomic impacts which are not addressed through the piecemeal approvals required under other regulations. Thus, the siting decision is usually predicated upon a finding that environmental and socioeconomic impacts are correctly identified and adequately mitigated. For facilities that fall under the jurisdiction of siting laws, states exert a great deal of influence over siting decisions, thereby making those decisions less objectionable to the residents of the state.

State siting decisions such as these are probably not preempted by federal law, since they cover areas normally within the police power of states to protect the public health and safety of their citizens. As with the state environmental policy acts, however, decisions reached based upon

concerns regarding radiologic health and safety would probably be preempted. Many of the state siting laws also include the requirement for an analysis of need for the facility.

The Wyoming Industrial Siting Act poses an interesting but unresolved question in this regard. After the Wyoming Governor vetoed the proposed MRS in Wyoming, the legislature amended the Siting Act to specifically cover the storage of spent nuclear fuel. Facilities such as the MRS would probably have been covered without this specific amendment, and probably would not have been preempted if the siting decision stayed within the constraints discussed above. The state legislature, however, added a provision that tied the approval for commencement of construction on a spent nuclear fuel storage facility to the successful licensing of a repository by NRC. This was in direct response to the concern that once a “temporary” solution to the spent fuel problem was found, pressure to solve the disposal problem would disappear, resulting in the MRS becoming a permanent storage site. Although this is similar to provisions of the NWPA for NRC licensing of an MRS, this provision of the NWPA would not apply to an ISFSI or an MRS developed pursuant to an agreement reached by the Nuclear Waste Negotiator. Proponents of this requirement argued that it would not be preempted under federal law, since it did not relate directly to the radiological health and safety issue reserved by the federal government for NRC, but rather, addressed the concern that even if a project’s developer pledged that the facility would only last so long, the actual ability to move the fuel to a different location for permanent disposal is beyond that developer’s control. Without court decisions related to this type of provision, it is difficult to determine if it would be preempted by federal law.

Coastal Zone Management

As discussed above, the Coastal Zone Management act provides states with coastal zones broad powers to control activities within their coastal zones. Some designated coastal zones are very wide. For example, the approved coastal zone in New Jersey is up to 24 miles inland in several areas. Although for a variety of technical and non-technical reasons it is not likely that a repository or interim storage facility would be proposed for a coastal zone, states could probably prevent such siting under their coastal zone management programs. Several issues should be noted with respect to coastal zone management, however. Some existing reactors are located within areas covered by state coastal zone management programs. When these reactors are decommissioned, states could attempt to use provisions of their coastal zone management programs to force spent fuel to be removed from their coastal zones, rather than allowing new, “orphan” Independent Spent Fuel Storage Installations in the coastal zone. In assessing ways to transport spent fuel from existing reactors, DOE considered using barges on the Great Lakes to move the spent fuel casks to a location with rail facilities. The Midwestern states have studied this issue, however, and have recommended that no barge shipments take place on the Great

Lakes¹⁸. These states could also use their coastal zone management programs to address improvements needed to handle spent fuel casks at barge loading locations.

Solid and Hazardous Waste Facility Regulation

Most states regulate existing and new solid and hazardous waste facilities under their environmental quality laws and regulations. The federal government requirements would probably preempt all of these permit requirements for spent nuclear fuel facilities. The fact that states cannot regulate spent nuclear fuel facilities under their hazardous waste laws will pose a problem for future siting, construction and operation of these facilities. The success of WIPP is due, in part, to the fact that the State of New Mexico can regulate the site because of its authority over hazardous materials. Legislative changes to give spent nuclear fuel host states similar authority should be considered as one solution to the problem of siting facilities.

State Primacy of Federal Programs (Clean Air Act, Clean Water Act, Safe Drinking Water Act, and RCRA)

As discussed above under federal programs, EPA has delegated authority to most states for the Clean Air Act, the Clean Water Act, the Safe Drinking Water Act, and RCRA. This authority is delegated to the states on the finding by EPA that the state program is at least as strict as the federal program, although state programs can be more strict. Regulation of facilities under these programs would not be preempted as long as the state does not attempt to regulate based upon the health and safety concerns of radiological materials.

Water Allocations and Appropriations

Water will be required for drinking water supplies, for dust control and soil compaction, and other practical purposes during site characterization and facility construction. During operation, water could be required for these and other reasons and processes, including cooling water, cask wash down, for fire protection and other uses. For any deep permanent repository, additional water supplies may be necessary to support mining and drilling activities.

In the United States, water is generally managed by States through one of two legal systems. Eastern states generally manage water through the riparian system, where water is allocated to those who own the land adjacent to the water or at its source. If there is not enough water to satisfy all users, water is usually allocated based upon the proportion of land owned along the frontage of the body of water. In western states, water is usually allocated according to a prior appropriation system, based upon rights determined by the earliest appropriations having the

¹⁸Lisa R. Janairo, Senior Policy Analyst and Melissa Bailey, Policy Analyst, *Transportation Institutional Issues Involving the U.S. Department of Energy's Civilian Radioactive Waste Management Program*, Council of State Governments, Midwestern Office, August 2010, p. 45.

highest priority, or senior water rights. When there is insufficient water available to meet all rights, it is allocated according to the date of the water right. Prior appropriation doctrine frequently also includes categories of preferred rights that establish a secondary hierarchy to the appropriations. For example, domestic use is usually preferred over industrial use.

Some states also grant discretionary power to state engineers when approving requests for appropriations. This can include the criterion that the water be put to “beneficial use.” Although that may seem straightforward, because this is a qualitative criterion, it is complicated, and subject to different interpretations. For example, in the development of coal bed methane, groundwater is pumped from the coal seam to release the methane gas. In Wyoming, the State Engineer has determined that the production of coal bed methane is a beneficial use of the groundwater. In contrast, for the same coal fields in Montana, production of coal bed methane is not considered a beneficial use of groundwater.

State engineers may also be vested with the authority to deny water rights applications if they are not “in the public interest,” or are “detrimental to the public welfare,” also qualitative standards. This gives state engineers a great deal of discretionary power, though it is rarely used. Most state statutes do not contain a definition of “public interest or welfare.” A few do list factors that should be considered, but these generally include a broad, catch-all phrase, such as ‘any other factors considered appropriate’. These factors may include such items as recreation, preservation of fish and wildlife resources, water conservation, water quality, protecting minimum stream flows, and public health¹⁹. Thus, determination of public interest or public welfare is left to the broad discretion (i.e., judgment) of the agency and the courts.

For the Yucca Mountain project, DOE applied to the Nevada State Engineer for water to support bore drilling as part of the investigation of the site. The State Engineer initially denied the application, stating that it was detrimental to the public interest since Nevada has a law prohibiting a repository. Later on, the State Engineer denied another application, saying that the volume of water requested was not necessary, since DOE was supposed to have completed site characterization before the site was recommended to Congress and the earlier permit for use of water for site characterization had expired. This is one example of how a discretionary decision such as one based on state water rights can complicate a project. Ultimately the State Engineer did issue a permit, but limited it to water used for public health and safety reasons, prohibiting use for additional site characterization activities.

All eight of the Great Lakes states have entered into the Great Lakes Basin Compact. This Compact prohibits the diversion of Great Lakes water for use outside of the Great Lakes Basin unless the diversion is approved by the Governor of each of the Great Lakes States²⁰. This

¹⁹Amber L. Weeks, *Defining the Public Interest: Administrative Narrowing and Broadening of the Public Interest in Response to the Statutory Silence of Water Codes*, *Natural Resources Journal*, Volume 50, p. 256–257.

²⁰42 USC 1962d-20(b)

provision could limit water availability for a facility located within the region but outside of the hydraulic boundaries of the Great Lakes Basin.

State Departments of Transportation (State DOTs)

State Departments of Transportation have primary responsibility for highways within a state. Permitting requirements include permits for access to state highways and crossing permits where linear facilities such as pipelines and rail spurs cross state highways. These permits are usually based on specific criteria such as safe sight lines for new access points.

A state DOT may also designate alternate highway routes within a state for highway route controlled quantities of radioactive materials. A state may wish to designate alternate routes to avoid population centers, to avoid highly congested highways, or stretches of highways known to have higher crash rates. Alternate routes may also be considered to provide routes for pickup and delivery that are preferable to those routes that would be required if routes are determined solely by proximity to the Interstate Highway System. Any designation of an alternate route requires a demonstration that the route was selected by an analysis that adequately evaluates overall risk to the public. In Nevada, the question of alternate route designation became an “implied consent” issue for the Governor and was deferred, only to be considered if Yucca Mountain was finally licensed.

The state DOTs would also play an important role in any improvements required to highways to handle delivery of spent nuclear fuel or high level wastes to a facility. New Mexico, for example, completed significant upgrades to U.S. Highway 287 and bypasses around towns on other routes for shipments to the WIPP facility. Funding for these improvements was primarily provided through the WIPP Land Withdrawal Act.

If overweight trucks are used for spent nuclear fuel shipments, overweight permits would be required. Before DOE selected rail as the preferred mode for Yucca Mountain, heavy haul permits were an issue when DOE insisted it wanted a blanket heavy haul permit instead of complying with the State requirement that each heavy haul trip be permitted separately.

State Land Use Planning

Many states have state land use planning statutes. These laws usually provide for the development of state land use planning goals that are used as the basis for local land use plans. The goals provide for state policy on land use and will usually cover a wide variety of topics, such as housing, protection of natural resources, avoidance of natural hazards, recreation, transportation, industrial areas, and agricultural lands.

Some states also include provision within their land use planning process for the state to designate areas for special consideration. These are areas that are unique, and require special consideration because of their historic, scenic, recreational or natural resource values.

Most federal agencies are not required to comply with state land use designations, but must consider these designations when they take action under NEPA²¹. The Intergovernmental Cooperation Act also encourages cooperation with land use practices and compliance with state and local building codes to the extent possible. As discussed above in the case involving Utah and PFS, state land use planning requirements that are adopted specifically to address health and safety concerns of facilities regulated by NRC are preempted.

D. Local Governments' Role and Regulations

Although states have strongly resisted siting spent nuclear fuel disposal and storage sites within their borders, in almost every case to date local governments nearest the proposed site have been strongly supportive. Local governments (and also some Native American tribes) generally view these facilities as opportunities for jobs and economic growth within their community. Many times the proposed sites have been near communities that have a strong heritage and long involvement with nuclear facilities. Examples include the proposed MRS facility in Tennessee that experienced support from Oak Ridge, the proposed repository at Yucca Mountain in Nevada with support from Nye County, and the proposed MRS in Wyoming with support from both the Arapahoe Tribe and Fremont County. Residents of communities located near operating nuclear power plants may also have greater familiarity and comfort with radioactive materials and their management.

The City of Oak Ridge and Roane County in Tennessee, the host local governments of the proposed MRS in Tennessee, established an advisory task force to develop recommendations on how to deal with the proposed MRS. The task force determined that the facility could be operated safely, but identified a number of potential impediments to its acceptance by citizens of Tennessee. The task force developed a set of specific recommendations to address these concerns. To ensure that the facility would comply with standards, the task force recommended the creation of a citizen MRS Environment, Safety and Health Review Board, which would oversee operations at the facility, and would have the power to suspend operations if emissions from the facility exceeded standards. To address the concern that the MRS would reduce the need for a permanent repository, the task force recommended limiting receipt of spent nuclear fuel to 300 metric tons until the repository received construction authorization and limiting the receipt of spent fuel to 10,000 metric tons until shipments from the MRS to the repository were initiated. Concern that the stigma of a nuclear waste facility might inhibit diversification of the local economy was addressed by a recommendation that the local governments receive payments equal to taxes, that the management of the MRS facility and all transportation operations management be relocated to Oak Ridge, and that MRS contractors be required to assist in bringing non-nuclear related businesses to the area. To address the issue of public trust in DOE, the task force recommended that DOE be required to enter into a formal consultation and cooperation agreement with local governments and also that Congress enact legislation requiring

²¹*Maryland National Parks and Planning Commission v. Postal Service*, (D.C. Cir. 1973) 487 F.2d 1029.

DOE compliance with the task force's recommendations. Finally, to address the public perception of risk, the task force recommended that DOE fund extensive public education programs, assist with the creation of exhibits at the local museum, and establish a visitors' center at the facility. In spite of the strong local support for the facility, the State remained opposed to the facility, and was ultimately successful in delaying the project until the NWPA amendments resulted in the cancellation of the project.²²

Nye County, the host county of the proposed repository at Yucca Mountain, established a program in 1983 to monitor and assess the efforts of DOE at Yucca Mountain. It adopted a *Community Protection Plan*, which includes three major objectives: to ensure that the public health and safety of current and future county residents are protected, to manage the Yucca Mountain Project to be a long-term success, and to ensure that Yucca Mountain Project transportation activities are conducted with maximum safety²³. These objectives were to be accomplished through a series of "Protections," which included items such as amending the NWPA to provide Nye County with direct authority over the project for health and safety issues; independent monitoring of the environment surrounding the repository; and establishing of a consultation and cooperation partnership between Nye County and DOE.

One of Nye County's objectives was for all people who worked at the repository to live in Nye County, and that businesses and industry related to the repository would relocate in Nye County. To help further this goal, the County prepared the *Yucca Mountain Project Gateway Area Concept Plan*²⁴, a plan for the development of nine sections of land at the entrance area to the Yucca Mountain Project, known as Gate 510. The Plan includes designated areas for office space, industrial areas, community services facilities, and commercial facilities. Nye County proposed that health and wellness services, security and law enforcement, and emergency response could be jointly provided to both the Yucca Mountain Project and Nye County residents through facilities located in the Gateway Area.

Although Nye County actively supported the repository program, and encouraged DOE to locate its own offices and facilities in Nye County, DOE only made token efforts to achieve the County's goals. Throughout the life of the repository project, DOE management and the bulk of their support contractor personnel were stationed in Las Vegas. At the time, Las Vegas was growing so rapidly that the additional population added by DOE activities was not noticeable. Workers were bused to the site from Las Vegas, accessing Yucca Mountain through the Mercury

²²*GNEP Deployment Studies, Final Business Plan Report, Revision 3, Integrated Used Fuel Management, A Strategy for the Disposition of the Nation's Used Commercial Fuel*, September 30, 2009, EnergySolutions, LLC, Shaw and Booz, Allen, Hamilton, Richland, WA, pp. 3-5 to 3-7.

²³*Nye County, Nevada Community Protection Plan*, Nye County Board of County Commissions, August 2006.

²⁴*MaryEllen C. Giampaoli, Yucca Mountain Project Gateway Area Concept Plan*, Nye County Nuclear Waste Repository Program, June 2007.

Entrance to the Nevada Test Site. Thus, Nye County received only a small fraction of the economic stimulus that they hoped for from the repository activities at the site. Although this probably did not dampen Nye County's support for the project, it did not provide the County Commissioners with a success story that they could use to help demonstrate to their constituents that support of Yucca Mountain was good for Nye County. It should also be noted that a work force living near a facility helps demonstrate to the public that the facility does not pose a public health risk.



In 1987, the Nevada Legislature created a new county, Bullfrog County, totally within Nye County. The boundaries of this new county corresponded exactly with the boundaries of the proposed repository site at Yucca Mountain. The new county had no residents, and County Commissioners were to be selected by the Governor. The tax rate was set at the maximum allowed by law. Although the stated intent of the Legislature was to maximize the state's revenue from the project, many believed that it was an attempt by the Legislature to remove from Nye County its unique status under the NWPA, since it was not opposed to the project. Nye County challenged the establishment of Bullfrog County, and the court found its creation to be a violation of the state constitution because of its lack of any human population. The legislature abolished Bullfrog County in 1989.

This short-lived county may have been the basis for one of the amendments contained in the 1987 amendments to the NWPA. These amendments added "affected units of local government" as entities that could receive funding under Section 116(c) of the NWPA to engage in studies and monitoring efforts. The Secretary was given authority to include units of local government that are contiguous to the county with a candidate site for a facility. For Yucca Mountain, there are currently ten affected units of local government, nine in Nevada and one in California. These counties all have active programs to assess the impacts of both the proposed repository and the transportation corridors to it. As with the State of Nevada, adequacy and continuity of funding under Section 116(c) has been a problem for these counties. The counties received no funding in fiscal years 1996 and 1997 for their oversight activities. This created substantial problems for many of the counties. Clark County, for example, had just completed the initial phase of a socioeconomic study and the peer review of that work when it lost funding. This required a

substantial reduction in the future work to be performed, and prevented the County from implementing many of the recommendation of its peer review committee.

In the past, DOE did not take steps to maintain the political support provided by local governments. For example, for years the WIPP facility in Carlsbad was managed by DOE personnel located in Albuquerque, rather than an office in Carlsbad near the facility. It was only late in the process that DOE relocated its top WIPP management to Carlsbad. The TRANSCOM tracking system used in the transportation program was originally based out of Oak Ridge, Tennessee. It was later relocated to Albuquerque, and finally moved to Carlsbad in 2005. DOE did assemble some of the TRUPACT-II shipping casks in Carlsbad, but the manufacturing of the components was completed elsewhere.

Local Laws and Regulations

Local laws and regulations affecting either a disposal facility or an interim storage facility are primarily land use plans, local zoning ordinances and building codes. Most if not all of these laws and regulations would be preempted for a federal government facility. As discussed under the section for State Laws and Regulations, there are various encouragements to federal agencies to comply with local land use plans, zoning ordinances and building codes.

E. Federal Preemption Overview

The Atomic Energy Act of 1954 vested the Atomic Energy Commission (AEC) with exclusive authority to regulate the possession, transfer and use of source, special nuclear and by-product material. Although not explicitly mentioned in that Act, spent nuclear fuel and high-level radioactive waste fall within the category of materials regulated by the AEC. Before 1954, there was no civilian activity related to nuclear power. The Act provided for the development of nuclear power by the private sector through strict regulation by the AEC to protect the public health and safety. Amendment of the Act in 1959 created the category of “Agreement States,” which could be authorized by the AEC to regulate certain radioactive materials within a state. The materials that could be regulated by the states were limited to those materials deemed to be not as dangerous such as by-product materials, uranium mill tailings, source materials, and special nuclear material in quantities not sufficient to form a critical mass. This last provision excludes spent nuclear fuel from state regulation. These amendments also specifically prohibit the delegation of authority to the states of all other materials not specifically listed. Section 274(k), however, preserved the state regulatory authority of non-radiological hazards. This provision has allowed states to develop regulatory programs for nuclear facilities that do not cover the health and safety aspects of radiological materials, as discussed below.

With the Energy Reorganization Act of 1974, Congress recognized that regulation and development of nuclear energy were conflicting charges for a single agency. This Act created the NRC with regulatory and licensing powers, and specific authority to regulate facilities designed for receipt and storage of high-level radioactive waste and surface storage facilities as well.

Other functions of the AEC were transferred to the newly created Energy Research and Development Administration (ERDA).

In 1977 Congress disbanded ERDA and created DOE. All functions of ERDA were transferred to the newly created department. In addition, this legislation provided in detail the responsibilities of DOE to manage, store, treat and dispose of high-level radioactive waste and provided that DOE could assess fees or user charges for treatment and storage of such waste.

A number of states have passed state laws prohibiting repositories or storage sites or attempting to regulate repositories or storage sites within the state. These laws are preempted in a number of ways. If the proposed facility is on federal property, it would not be within the power of the state to regulate under the constitutional principle of intergovernmental immunity²⁵. Current NRC regulations require that high-level waste disposal sites be located on federal land²⁶. The only exception to this is where the federal government has specifically waived immunity, such as under the Federal Facilities Compliance Act of 1992. A state law banning such facilities would also be prohibited under the Supremacy Clause if it conflicts with or frustrates the policies and objectives of Congress. Finally, these types of state laws would be prohibited under the Commerce Clause, since they would interfere with interstate commerce.

State laws are not preempted when the state law concerns activities within the scope of the state's police power, unless it is clear that Congress intended to preempt that area. Section 274(k) of the Atomic Energy Act authorizing state regulation for non-radiological health and safety concerns specifically provided states with the authority to regulate facilities for health, safety and economic purposes. For example, regulation of cooling towers at nuclear power plants to deal with environmental effects of their emissions or safety concerns regarding winter icing is clearly within the authority of states. Other examples could include zoning legislation, air and water pollution, fish and wildlife protection, soil and water conservation and licensing of power generating facilities. Green and Zell concluded that "conceivably, a state or locality could use land use controls to bar a nuclear waste facility if the land use control is not based on protecting the public from the hazards of radiation²⁷."

As emphasized earlier, regulation of nuclear waste at the federal level is primarily the responsibility of the NRC and EPA. With respect to regulation of the health and safety aspects of nuclear waste, many court cases have clearly established that state regulation of these issues is preempted by the federal government. It is important to note, however, that states still have a role in the regulation of facilities for storage or disposal of nuclear waste. Some of the more significant findings by the Supreme Court in this area have actually been decisions that found

²⁵Harold P. Green and L. Marc Zell, *Federal-State Conflict in Nuclear Waste Management: The Legal Basis*, p. 116, *The Politics of Nuclear Waste*, E. William Colglazer, Jr., Ed., New York, Pergamon Press, 1982.

²⁶10 CFR Section 30 App. F(3)

²⁷Green, p. 124.

that state laws or regulations were not preempted. For example, in *Pacific Gas & Electric Co. v. State Energy Resources Conservation & Development Commission*, 461 U.S. 190 (1983), the Court determined that although Congress intended for the NRC to regulate the radiological aspects of a nuclear power plant, other aspects are not completely dominated by the federal government. In this case, California had imposed a moratorium on construction of new nuclear power plants until a plan to deal with the spent fuel was developed. Since the moratorium was based on the economics of operation of the proposed plant, the Court found that this was an area that was not preempted by federal law. In *re Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit I)*, LPB-55-12, 21 N.R.C. 644 (1985), the State of New York and a county ordinance prohibited operators of a nuclear plant from providing law enforcement activities through private contractors for the emergency response plan for the plant, requiring instead that county law enforcement officials provide this service instead. The courts found that this provision was not federally preempted, since Congress did not intend for NRC to preempt state emergency response planning to protect the public health and safety. The court also made note that the law and ordinance in question had been adopted prior to the onset of emergency planning for the power plant, and hence, were not specifically targeted at the issue of radiological health and safety.

In the more recent case of the PFS facility in Utah, the Tenth Circuit of the U.S. Court of Appeals invalidated a number of Utah laws that were aimed at regulating or even cancelling the PFS ISFSI development. The Court found that many of the provisions of Utah's laws were preempted because they were enacted with the specific intent to either regulate the radiological health and safety aspects of the PFS facility, or they were specifically intended to frustrate the ability of the company to locate a storage facility at its site. Thus, the Court looked not only at the specific provisions of the law to determine if it was preempted by the federal government entirely occupying the field, but also looked at the legislative history to determine if the law had a broader application of the state's police power than just regulating the health and safety aspects of nuclear waste.

The regulation of transportation of spent nuclear fuel and high-level waste is discussed in detail in Appendix D. Some important issues regarding regulation of transportation merit discussion here, however. It is important to note that highway safety, maintenance of highways, and regulation of intrastate carriers have long been within the purview of state regulation. The federal regulation of transportation of spent nuclear fuel is regulated by both the NRC and DOT. Although the Atomic Energy Act vests NRC with the full authority to regulate spent nuclear fuel, NRC has transferred some of this responsibility to DOT through an interagency agreement. NRC retains exclusive authority to regulate packages and licenses and regulates shipment of specific types of materials. DOT regulates package and labeling requirements for materials not regulated by NRC, regulates carriers, mechanical conditions of equipment, drivers or operators, and the routing of shipments. Radiological materials are regulated by DOT under provisions of the Hazardous Materials Transportation Act (HMTA), as amended. HMTA does have provisions for states to assume responsibility for many of these functions, as long as the state regulations are at least as strict as the federal regulations, and do not pose an undue burden on interstate

commerce. DOT has also developed procedures for state regulations to be challenged as to whether or not they are consistent with federal law and regulation. Other than state laws that outright ban the transport of nuclear materials within a state, determining whether or not state laws are preempted generally must be evaluated on a case by case basis.²⁸

VII. Tribal Governments

The Blue Ribbon Commission has commissioned a separate white paper dealing with Tribal governments, titled *The Role of Indian Tribes in America's Nuclear Future* and written by Peter C. Chestnut, Ann Berkley Rodgers, Joe M. Tenorio, and Janis E. Hawk; as for the others, it can be found on the BRC web page (www.brc.gov). Therefore, the regulatory processes and options for Tribes are not discussed in this paper. Tribes have played an important role in the nuclear waste story, however. The PFS facility in Utah was to be on land owned by the Skull Valley Band of the Goshute Indians. The proposed MRS in Wyoming was to be located on land in the Wind River Indian Reservation. In considering rail corridors for Yucca Mountain, DOE issued a Supplemental EIS for rail corridors to consider a new corridor across the Walker River Paiute Reservation in Nevada. Many of the incentives or disincentives to siting a facility discussed later in this report could apply to Tribes as well as states and local governments.

VIII. Keys to Successful Transportation

Successful transportation of spent nuclear fuel and high level waste is critical for either a permanent repository or interim storage facility. Sites without pre-existing transportation access will be vulnerable to successful challenges by states. This was certainly the case for the PFS facility, and could have been for Yucca Mountain, considering the difficulty in establishing rail access to Yucca Mountain.

The National Academy of Sciences' Committee on Transportation of Radioactive Waste completed a study on spent nuclear fuel and high-level radioactive waste transportation in 2006. The Committee concluded that there are "no fundamental technical barriers to the safe transport of spent fuel and high level waste," but there are "a number of social and institutional challenges" that require resolution²⁹. Therefore, the fundamental technical aspects of transportation are not discussed in this paper. Some of the other categories of issues with transportation are discussed as appropriate. Transportation can be used as a tool by states to help make a project successful. The Western Governors are strongly committed to the cleanup of sites with defense-related radioactive wastes in their states. They recognized that for the cleanup of one component of these wastes, specifically wastes with transuranic elements, to be successful, DOE would have to be able to transport those wastes from various sites to the WIPP facility in

²⁸Green, p. 127

²⁹*Going the Distance? The Safe Transport of Spent Nuclear Fuel and High-Level Radioactive Waste in the United States*, National Research Council of the National Academies, National Academies Press, Washington D.C., 2008.

New Mexico. They adopted a goal to work with DOE to develop a transportation program that demonstrated to the public that WIPP transportation would be “safe and uneventful.” To achieve this goal, the Western Governors created a WIPP transportation task force charged with working with DOE to develop such a program. It is important to note that the Governors’ initial appointments to the task force were all policy level staff members. They were either on their Governor’s own immediate staff, or had direct access to their Governor. Therefore, each task force member could speak for his or her Governor when discussing goals and priorities with DOE.³⁰

Transportation issues can also be an impediment to the success of a facility. Opponents of a project may try to use transportation impacts as a way to gather and mobilize opposition to the project from a broader audience over a much larger geographic area.

State regulation of the transportation of radioactive materials, called Class 7 materials under U.S. Department of Transportation regulations, is governed primarily by the same regulations and preemption issues under hazardous materials transportation in general. A summary of this transportation regulatory system is included in Appendix D. Some regulatory issues remain, however.

State involvement in spent nuclear fuel transportation has generally been through regional groups. These regional groups derive their funding primarily through cooperative agreements with DOE. In the past, these cooperative agreements have generally been targeted to specific transportation campaigns such as WIPP and the Foreign Research Reactor return program. The Office of Civilian Radioactive Waste Management had entered into cooperative agreements with the regional groups to support planning for shipments to a repository. That funding has been inconsistent over time, resulting in problems for the regional groups in the continuity of their efforts. Many projects initiated by regional groups have been suspended due to lack of funding.

The transportation program for WIPP was developed as a cooperative project between the western states and DOE after the western states had prepared a report to Congress and the Secretary of Energy describing the elements that should be in a safe transportation program. The Secretary agreed with the states, and entered into a cooperative agreement with the Western Governors’ Association, which directed DOE’s Carlsbad Office to work cooperatively with the western states to develop a safe transportation program. This ultimately led to the Western Governors’ Association WIPP Transportation Safety Program Implementation Guide, which forms the basis for many elements of the WIPP transportation plan. It is important to note that most of the procedures in this Guide should be seen as “extra-regulatory,” and could not be mandated by the states without the consent of the Department of Energy. Any attempt by states to impose these requirements by regulation would undoubtedly be considered preempted by the

³⁰The author represented the State of Wyoming on this task force and was a consultant to the Governor of Wyoming.

U.S. Department of Transportation regulations. Compliance with the Guide is a key component of the current cooperative agreement.

After successfully having negotiated procedures for safe transportation for WIPP shipments, the western states then questioned why DOE could not use these procedures for other shipments of radiological materials. Working through the Transportation External Coordination Working Group established by DOE, states were able to identify a number of the WIPP procedures that should be adapted to other shipments of radiological materials. This led to the adoption by DOE of the *Radioactive Material Transportation Practices Manual for Use with DOE O 460.2A*³¹. This manual describes practices that will be used by DOE when shipping different classes of radioactive materials.

WIPP provided significant training for state and local emergency responders, either through the providing trainers or through funding a state's own training through cooperative agreements. This training program set a very high standard that states and local governments expect to be met for other shipping programs. Section 180(c) of the NWPA requires that the Secretary "provide funds and technical assistance to states for training public safety officials of appropriate units of local government and Indian tribes through whose jurisdiction the Secretary plans to transport spent nuclear fuel or high-level radioactive waste." DOE worked with the Working Group to develop proposed procedures for distributing funds to states to meet this requirement. One major concern of the states that DOE could not address by itself was the amount of funding that would be available to meet this requirement. Under the current system, the amount of funding for training would be determined each year by Congressional appropriations. Although DOE committed to developing reasonable funding requests based upon training needs developed by the states, they could not commit to the actual amount that would be available, since this would be determined by Congress. It should also be noted that training of first responders for transportation to private nuclear waste storage facilities, such as the PFS facility, is not covered by Section 180(c). Therefore, there is no guarantee that adequate training for first responders would be provided for transportation of spent nuclear fuel to these facilities.

One critical component of the WIPP transportation system is that routes are both fixed and consolidated. This allows DOE and the states to focus preparation for shipments along a limited number of routes. Preparation includes, among other things, emergency response training, exercises and public information programs. By consolidating the routes, shipments from some sites must use routes that are longer than the minimum distance that could be traveled using other routes. DOE and the states, however, believe that this is preferable in order to maximize the use of limited resources by both the states and DOE for route preparation activities, as well as for continued training while the routes are used.

³¹*Radioactive Material Transportation Practices Manual for Use with DOE O 460.2A*, DOE M 460.2-1A, U.S. Department of Energy, Office of Environmental Management, Washington, D.C., June 4, 2008. Available at www.directive.doe.gov.

Spent nuclear fuel shipments, however, are considered to be “highway route controlled shipments,” and are subject to the U.S. DOT requirements for routing at 49 CFR 397.101(b). This regulation specifies that Interstate System highways are the preferred route, and requires the motor carrier to select routes to reduce time in transit over the preferred routes. Using this criterion, multiple routes are possible from a single origin. When many shipments originate at many sites, the possible routes end up, in essence, being almost the entire Interstate system. Since DOE is required to provide training to emergency responders along any route used, this would result in training responders in many, many jurisdictions. In contrast, the WIPP transportation program consolidated routes to optimize training along only a few routes, making limited training resources available to adequately train and prepare responders along these limited routes. WIPP required their carriers, by contract, to use these routes. Since the DOT routing requirements do not allow for this flexibility in routing highway route controlled quantities, this valuable routing method is not now available for shipments of spent nuclear fuel.

Routing requirements for rail shipments of spent nuclear fuel are up to the carrier, following an analysis of risk factors specified by the Federal Railroad Administration (FRA)³². This would allow carriers to use many alternative routes for shipments from reactors to an interim storage or repository site. By optimizing routes to use the best available track, limited resources for training emergency responders could be utilized where it is most needed, rather than providing training in multiple jurisdictions. The DOE *Radioactive Material Transportation Practices Manual* has not yet been updated to reflect the FRA requirement for an analysis of risk factors. It does address rail routing for spent nuclear fuel shipments and does specify steps that could be taken to develop routing options. It does not, however, specify how DOE will interact with the carriers to implement preferred routing criteria. In the Final Supplemental EIS for Yucca Mountain, DOE did discuss factors that go into rail shipment routing. Many factors come into play, including interchanges between railroads, level of track along various routes, carriers’ desire to maximize revenue by keeping shipments on their track as long as possible, etc³³.

Another important issue with rail routing that DOE did not discuss is that railroads may not want to use the best quality of track for these shipments because they would not want the shipments to interfere with other high volume shipments on their main lines. Union Pacific Railroad, for example, has stated that it would use its line through Kansas rather than the main line through Nebraska in order not to adversely affect their coal train operations in spite of the fact that the main line through Nebraska has much higher quality track than the track through Kansas.

Under current regulations, DOE would have little control over the routes that are actually used by the railroads. The FRA regulations for rail routing of certain hazardous materials require that

³²49 CFR 172.820

³³*Final Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada*, U.S. Department of Energy, Office of Civilian Radioactive Waste Management, DOE/EIS-0250F-S1, June 2008, p. G-5.

the carrier be able to demonstrate that a given route is safe and secure. “FRA can require the use an alternate route if it determines that the route chosen by the railroad is not the safest and most secure practicable route available.”³⁴ DOE has discussed the possibility of negotiating a tariff with the railroads for the shipment of spent fuel that would specify routes to be used.

There currently is no comprehensive independent rail equipment inspection program that would meet the needs for inspections of equipment for a large scale shipping campaign such as shipments to an interim storage facility or repository. In marked contrast, a comprehensive vehicle inspection program for highway shipments was developed for the WIPP transportation program. All shipments are inspected prior to departure according to enhanced criteria developed for radiological shipments by the Commercial Vehicle Safety Alliance (CVSA). These “Enhanced CVSA Level VI” standards require that the vehicle be “defect free” prior departure, and remain defect free *en route*. States along routes may inspect shipments, and put the vehicle out of service for noted defects. The defects must then be corrected before the shipment can proceed. DOE has adopted this practice in the *Radioactive Material Transportation Practices Manual* for spent fuel shipments. When adopted by WIPP, these inspection standards were considered above regulatory requirements. The U.S. DOT now requires this standard for all highway route controlled quantities shipped by truck.³⁵

The FRA has recognized the need for a similar enhanced safety program for spent nuclear fuel and high-level radioactive waste rail shipments. To address this need, FRA developed the *Safety Compliance Oversight Plan for Rail Transportation of High-Level Radioactive Waste and Spent Nuclear Fuel*³⁶ (SCOP), which provides an enhanced rail transportation inspection program to ensure safe transportation of spent nuclear fuel and high-level waste materials. The SCOP was developed through a coordinated effort between FRA, the Department of Energy, the American Association of Railroads (AAR), labor organizations and representatives of affected states. The SCOP is designed to address various issues associated with the railroad operating environment such as human factors and mechanical equipment. It includes three main elements: Planning, Inspections, and Training/Oversight. Planning elements include route selection and identification of safe holding areas. Inspection elements include inspection of track, equipment, crew qualifications, dispatch procedures and carriers operating practices. Training/Oversight includes emergency response training and safety briefings for crews and review of carrier emergency response plans. In order to carry out the SCOP effectively for a large shipment campaign such as one for a repository or interim storage facility, FRA would need a significant increase in their budget to hire more inspectors and to obtain additional equipment. Therefore, FRA has indicated that they will probably make major changes to the SCOP to be able to implement it for a major

³⁴*Federal Railroad Administration Rail Hazmat Routing Rule Fact Sheet*, U.S. Department of Transportation, Federal Railroad Administration, December 2008, p. 2.

³⁵49 CFR 385.415(b)(1)

³⁶*Safety Compliance Oversight Plan for Rail Transportation of High-Level Radioactive Waste and Spent Nuclear Fuel*, U.S. Department of Transportation, Federal Railroad Administration, June 1998.

shipping campaign. This would probably result in less rigorous inspections than currently envisioned. It should also be noted that states believe that inspection of locomotives, cask cars and other cars used in spent nuclear fuel shipments should be subject to a more rigorous inspection standard than currently required. Therefore, states have been working to develop a rail inspection program similar to the CVSA Level VI inspection program used for highway shipments.

In the Final Supplemental EIS for Yucca Mountain, DOE stated that highway shipments of spent fuel in the new generation of higher capacity casks would probably be by overweight truck shipments rather than legal weight shipments. DOE determined that the trucks carrying casks would have gross vehicle weights up to 115,000 pounds³⁷. Overweight trucks are subject to additional permitting requirements in each state along the routes traveled. The issuance of an overweight permit is dependent on the determination that the load is a “non-divisible” load as defined at 23 CFR 658. The decision as to whether or not to treat casks for the transport of spent nuclear materials as a non-divisible load is left to the discretion of the states³⁸. The Federal Highway Administration’s (FHWA) intent when adopting the definition of non-divisible loads was to reduce the number of permits issued for overweight and oversize vehicles. Casks for transporting spent nuclear fuel were added to the definition of non-divisible since the design of the cask requires heavy materials for strength and shielding, resulting in some cases in the need for overweight vehicles. In a Supplemental Notice of Proposed Rulemaking, FHWA stated that “shipments consisting of more than one of a unit item or assembly, which by itself may be non-divisible,” are not considered non-divisible.³⁹ States could find that DOE could transport the material in casks that meet the requirements for legal weight and size trucks, that DOE is simply proposing to ship “more than one of a unit item or assembly” by putting many more fuel rod assemblies in a cask than they could with legal weight truck casks. Thus, states may be under no obligation to issue the overweight permits.

If states do decide to issue overweight truck permits, they have the authority to condition the permit on many factors. Time of year restrictions could be imposed due to concerns about frost or excessive moisture in road beds. “Time of day” or “day of week” restrictions could be and often are imposed. These types of restrictions imposed by states are generally reasonable and are driven by legitimate concerns related to local conditions. Shippers may have a difficult time meeting all the state and local “avoidance” requests. Some flexibility will be necessary when scheduling shipments, especially cross-country shipments, which points to the need for good coordination and solid working relationships between states and the shipper. Without this coordination and working relationship, shippers could try to route shipments through states without these types of restrictions. This would greatly complicate any highway shipping campaign.

³⁷*FEIS*, p. 2–45.

³⁸58 FR 11455

³⁹58 FR 11457

Transportation infrastructure is a critical component in the siting of a new facility, particularly rail access to a site. For example, as described earlier, the proposed Private Fuel Storage facility in Utah was “derailed” over rights-of-way for the rail line. The proposed repository at Yucca Mountain would have required a minimum of over 100 miles of new rail line to access the site. The Caliente Route, DOE’s preferred route, would have been 319 miles. This route required crossing several mountain ranges in Nevada, making construction difficult and expensive. The regulatory approvals necessary to successfully complete this new rail line would have created significant challenges. Although fundamental safety aspects of a site must take priority, when selecting a site for either interim storage or a repository, reasonable access to transportation infrastructure should be a factor heavily weighted in the selection criteria. When DOE selected the MRS site in 1986 in Tennessee, for example, the Clinch River site was considered preferable for several reasons, including access to all modes of transportation. “The site has excellent access for any mode of transportation; it is within 5 miles of the nearest interstate highway, within 1.5 miles of a main rail line, and on a navigable waterway.”⁴⁰

IX. State and Local Impediments to Facility Siting

The problem of what to do with our nuclear waste is both a societal and technical problem. The societal problems are vexing. These problems can perhaps be characterized by two simple acronyms: NIMBY and NIMTOO. “Not In My Backyard” for many people and “Not In My Term of Office” for the politician. Other problems include the challenge of communicating about risk associated with nuclear facilities, and the pervasive cultural portrayal of anything nuclear as terrifying or evil, which could be described more briefly as the “Homer Simpson” factor. Since the fear of things radioactive evokes very strong emotions in those opposed to facilities, local officials may lose their interest in hosting facilities due to personal, sustained hostility directed toward them. Successful siting of both interim storage facilities and disposal facilities is dependent upon resolving these societal issues. There are many problems which contribute to these issues, but several are perhaps more critical than others.

Many of the states that have been previously identified as potential repository or interim storage facility host states have had little or no vested interest in solving the problem of what to do with nuclear waste. Nevada with the proposed repository at Yucca Mountain, Wyoming with the proposed MRS in Fremont County, and Utah with the proposed Private Fuel Storage facility had no discernable reason to want, or need, to participate in solving this problem because there are no commercial nuclear power plants or DOE facilities with spent fuel or high-level waste in any of these states. Targeting these states for facilities will almost certainly result in strong resistance from them again. Although legally, the states would have few means to deny the siting of a facility proposed by the federal government, they would undoubtedly continue to fight through political and legal avenues. The issue of nuclear waste is, perhaps, unique among siting problems for industrial facilities, often referred to as a Locally Unwanted Land Uses, or LULUs. Research

⁴⁰*Nuclear Waste, Monitored Retrievable Storage of Spent Nuclear Fuel*, U.S. General Accounting Office, GAO/RCED-104FS, May 1986, p. 6.

has demonstrated that people generally have a fear of radiological materials which results in strong resistance to siting nuclear waste facilities. This fear frequently outweighs the perceived economic benefits that could be derived from a facility.

As stressed earlier, one of the concerns that have been raised in past interim storage siting attempts is that once the spent fuel is there, the site will become the “final resting place.” Until there is a final solution to disposing nuclear waste, or at least measurable progress toward siting a facility for permanent disposal, siting of interim storage sites will be difficult.

Section 170 of the NWPAA provides that the Secretary of Energy may enter into a written “benefits agreement” with the State of Nevada as a potential host state for a repository. This written agreement would have provided for payment to Nevada of \$10 million per year during repository development and \$20 million per year once the repository began to receive spent fuel. The NWPAA fixed these amounts with no provision for increasing them to reflect inflation. By entering into such an agreement, the State would have lost its right to veto the recommendation of the site and also its rights to receive impact mitigation funding as provided for in Section 117. Furthermore, once Nevada had entered into this agreement, it could not terminate the agreement unless the Secretary of Energy determined that the NRC could not license the repository within a reasonable time. Although the intent of the language may have been to garner support for a repository through provision of funds, in application this language actually may have hindered development of the proposed repository at Yucca Mountain. The Nevada Attorney General issued an opinion in response to this section that found that any discussion of potential mitigation would be “implied consent” to the siting of the repository in Nevada. The opinion required that since the official position of the State was to oppose the repository, any discussion of mitigation, or even the study of potential mitigation measures, was contrary to the official state position on the repository, and would not be allowed. This also blocked any efforts to negotiate a consultation and cooperation agreement. The benefits provision probably also strengthened the resolve of elected officials in Nevada to continue to fight the repository. There was strong resentment to the idea that Nevada could be “bought off” on the repository issue. While this is the only example we have in the US, the author has concluded that if or when the NWPAA is revised, the benefits agreement approach that failed in Nevada should not be included in it.

The NWPAA generally provides only for the provision of funds to the affected state and its local units of government, either through a mitigation agreement negotiated under Section 117 or a benefits agreement negotiated under Section 170. Other methods of encouraging acceptance of a facility should be considered. For example, the Minnesota legislature permitted dry cask storage units at the Prairie Island nuclear plant in exchange for a commitment from the utility to contribute to the development of renewable energy resources, including 200 megawatts of wind power and 75 megawatts of biomass generation. As a result, Minnesota now has significant wind energy generation. Arrangements such as these can be effective in making projects more acceptable without raising the appearance of state or local government having been “bought off.”

Section 114(a)(4) of the NWPA attempts to expedite the environmental impact statement process for the repository under NEPA. This section provides that any impact statement developed by DOE “to the extent practicable, be adopted by the Commission (the NRC) in connection with the issuance by the Commission of a construction authorization and license for such repository.” As discussed above, this provision created a great deal of uncertainty regarding exactly when the adequacy of the FEIS for Yucca Mountain could be challenged. The resulting litigation if licensing of Yucca Mountain had proceeded could have created more delays than if NRC took the time to develop their own NEPA documents. Having the project proponent prepare the EIS also leads to the appearance of bias in the document, since many do not consider it an independent assessment of the impacts, or more important, an adequate strategy for mitigating impacts that are identified in the EIS.

In contrast, for a private facility such as the PFS facility, NRC requires the applicant to prepare an environmental impact report as part of the license application. NRC then uses this report along with its own expertise to prepare its own environmental impact statement. This provides a clearly defined process for review of the EIS, response to comments, issuance of a Record of Decision, and opportunity for legal challenge. This approach also provides for better acceptance of the conclusions regarding identified impacts and the measures required to mitigate those impacts. Affected states should also be allowed to participate in the preparation of an EIS as a cooperating agency if they so desire.

The extraordinary amount of time it takes to characterize and license a facility can also be an impediment. When the process extends over many years, or even decades, data collected early in the project may become, or be considered, out of date. The passage of time also means changes in state and local elected officials. While the office holders may have supported a project at the outset, those who succeed them may not. Supporters can also just wear down, give up on the project, and move on to other ideas that they believe may bring results.

X. State and Local Incentives for Facility Siting

Through examination of successful siting of other controversial projects we can gain some understanding on how to address these problems. Potential solutions could include inviting states with a vested interest to help resolve the issue in a collaborative process, vesting states that become part of the solution with more authority in the decision process, and separating the problem into more manageable, discreet pieces. Analyzing these potential solutions against previously successful projects in other realms helps provide direction. There are two needs that could be addressed in the relatively near term: a disposal option for defense high-level wastes, and a better interim solution than storing spent nuclear fuel at decommissioned reactor sites. Both are important topics in their own right; in addition, a successful resolution of them would significantly help set the stage for progress on other aspects of the broader issues.

There are many states that are committed to the cleanup of defense sites. The largest impediment to ultimate cleanup is the lack of a disposal site for the high level wastes and to a lesser extent

spent fuel. A site developed solely to achieve this purpose would perhaps be more acceptable to a host state, given that there is a discrete quantity of waste that will be generated from the cleanup process. States that have a vested interest in the high-level waste cleanup, such as Washington, Oregon, Idaho, or South Carolina may be more receptive to a limited disposal facility, since its success would also achieve success in the cleanup of a site within or adjacent to their state.

One of the important lessons learned from WIPP is that a disposal facility is more acceptable if it has a narrowly defined purpose, and specific limited quantities and types of waste that can be accepted for disposal. The WIPP Land Withdrawal Act contains specific limitations on the types of materials accepted at WIPP, including the curie content and total volume of waste. Similar provisions could be considered for a disposal facility for DOE high-level nuclear waste. For example, such a facility could be limited to only vitrified waste which is considered to be a very stable waste form. Disposal of DOE spent nuclear fuel could be prohibited, thus simplifying the analysis of long term containment requirements.

Community characteristics can also play an important role in finding areas to potentially host a facility. For example, when New Jersey used a voluntary siting process for locating a low-level radioactive waste disposal facility, twelve municipalities that entered into the process each had at least two of the following three characteristics. Most were rural communities with relatively small budgets, so the benefits offered were significant in relation to their existing resources. Most were near nuclear power plants, so residents were familiar with nuclear issues. Some were concerned about rapid development for both subdivisions and commercial projects and thought that dedicating one large area to a single project would help preserve the agricultural and rural character of the area.⁴¹

There are many states that have become *de facto* interim storage sites through the decommissioning of reactors. Other states with operating reactors face the same fate until a solution is found. Many states have been strong advocates for developing a solution to the storage of spent nuclear fuel because the current situation is unacceptable to them. If they are required to work with other states within their region to find an interim storage site, their own interest in solving the problem may help overcome the societal problems we have faced with other interim storage sites. This would require shifting some of the responsibilities for dealing with spent nuclear fuel to the states rather than it being the sole responsibility of the federal government as envisioned in the NWPA. If states that have a stake in finding a solution to the problem are empowered to be partners in the effort of solving a mutual problem, they may be more willing to work together with similar interests and with the federal government.

It also does not make sense to transport spent nuclear fuel long distances to one interim storage site in the country when we do not yet know what or where the ultimate solution will be. Smaller

⁴¹John Weingart, Associate Director, Eagleton Institute of Politics, Rutgers, Personal Communication, April 9, 2011.

sites located in proximity to the locations where spent fuel is currently stored may be more achievable. One of the important concerns that have been raised in past interim storage siting attempts is that once the spent fuel is there, the site will become the “final resting place.” One possible way to overcome this concern is to guarantee that when a final solution is developed, spent fuel at interim storage sites will have priority for disposal, thus ensuring that the temporary interim storage site is truly interim storage, and not the final solution. This may require modification of the existing service contracts with utilities, which allows the utilities to determine which fuel is shipped based upon their position in the queue. The guarantee would also have to be structured in such a way that states would not be concerned with future administrations or Congress changing the requirements, as happened with amendments to the NWPA. A binding contract between the state and the federal government could be one possible avenue to pursue, similar to the consultation and cooperation agreement and benefits agreement provisions provided for in the NWPA.

It is imperative that states that are part of the solution have a definitive role in the approval process. As discussed previously WIPP provides examples how the State of New Mexico had a direct role in permitting the WIPP facility and how the Western Governors’ Association worked with DOE to develop the WIPP transportation program. The Federal Facilities Compliance Act has allowed states affected by DOE contaminated sites to participate directly in the development of compliance plans to solve the environmental problems at those sites. Similar authority for states dealing with disposal facilities or interim storage sites would help build public confidence in the process.

The provision of adequate funding to states and local governments to participate fully in the siting process is essential. This funding should not be subject to political wrangling. The ability to participate effectively as an affected state or affected unit of local government under the NWPA is dependent on consistent and predicable funding. Similarly, participation by state regional groups in planning for spent nuclear fuel transportation is dependent upon adequate and consistent funding. Funding to support the efforts of states, local governments, and regional groups should be provided under a program with clear requirements for both the granting agency and the recipients of the funds. This is perhaps best accomplished by an entity other than the agency responsible for the siting and permitting of a proposed facility.

It should also be noted that independent spent fuel storage installations at deactivated nuclear power plants have become *de facto* interim storage facilities. The current NWPAA does not address the needs of states and local governments affected by these facilities. These local governments have little or no resources to participate in the policy and decision-making process for nuclear waste even though they are currently part of the temporary solution. Funding should be provided to these states and affected units of local government to allow them to participate in the process of finding solutions to the nuclear waste problem.

XI. Conclusion

The United States has been largely unsuccessful in siting either a repository or an interim storage facility for spent nuclear fuel. An examination of the history of the unsuccessful attempts provides insight into some of the reasons past attempts have proven unsuccessful. The successful siting of the WIPP facility in New Mexico for disposal of defense generated transuranic waste also provides insight into possible strategies that would lead to success.

Although many times local governments have been supportive of proposed facilities, states have strongly resisted siting a facility within their state. It is important to note that when local governments have indicated support for a facility, they have done so with the expectation that they would have some control over the operation of the facility to help ensure the health and safety of their citizens is not compromised. They have also expected that they would receive some sort of assistance in economic development efforts that would help ensure continued growth of the local economy.

An important aspect of the opposition of states to facilities has been their almost total lack of control over facilities due to the federal preemption of almost all state regulation. Although the NWPA provided some ability of the states to participate in the decision making process, states have generally viewed this as a hollow promise. The state's right to veto the decision to site a repository can be overridden by Congress, as happened with Nevada's veto of the proposed repository at Yucca Mountain. In contrast, the State of New Mexico did have some regulatory authority over the WIPP facility in New Mexico through its authority to regulate the disposal of mixed waste under RCRA.

Since the current system of siting facilities under the NWPA and regulation of these facilities by the NRC has proven to be unsuccessful in siting either a repository or an interim storage facility for spent nuclear fuel and high-level nuclear waste, it is time to consider a different approach. In order to be successful in future attempts, strategies must be developed to overcome the strong resistance by states while at the same time capitalizing on local support for proposed facilities. If states were empowered through changes to the current statutes to have a meaningful, defined role in the decision-making process, their decision to approve a site would likely increase the trust and confidence to the citizens of the state involved. The state's role in the siting process would need to be clearly defined, and specific criteria developed upon which the state would base a decision. Some may question whether or not a state would have the technical and legal capability of assuming such a role. One needs only look at the examples provided by the State of New Mexico described earlier.

The challenge lies in determining how, and to what degree, states should be involved in the process. Needless to say, this is a complex and difficult task. It can probably only be accomplished successfully by involving the key stakeholders in the process of developing the appropriate approach. The model used by the Western Governors to initiate the development of the WIPP safe transportation program could be used to develop a system for state and local

government participation in the nuclear waste facility regulatory system. A similar forum should be established to work through the process of developing the role of the states in America's Nuclear Future. Governors could be requested to appoint policy level staff to a task force to work cooperatively to develop a program for state and local government involvement in the nuclear waste system. Representatives to this task force should be appointed on a regional basis, with two or three representatives appointed from each region. Ideally, the representatives would include a cross section of states representing states that have been involved with a facility, states that have orphaned spent nuclear fuel sites, states that have operating reactors, states with DOE waste sites, and states affected only by transportation.

Recommendations

- Siting a nuclear waste storage or disposal facility must be through a fair, scientific process as originally envisioned in the Nuclear Waste Policy Act. Subsequent actions regarding operations and closure must be similarly based on the same principles.
- States and local governments should be empowered through changes to the current federal statutes to have a meaningful, defined role in the site selection process.
- The state's role in the entire process should be clearly defined, and specific criteria developed upon which the state would be authorized to base a decision. The equivalent roles of local government also need to be considered in federal legislation, recognizing that there is considerable variation from state to state in the relations between a state government's authority and the responsibility of local government within that state.
- Once a site is selected, the host state should be provided a regulatory oversight role in the construction and operation of that facility.
- Consider establishing a stakeholders forum of policy level staff of the governors charged with developing the specific roles and responsibilities of states and local governments in America's Nuclear Future.
- Provide adequate funding to regional groups, states and local governments to participate fully in the entire process from site selection through closure.
- Access to existing transportation facilities leading to either interim storage or permanent disposal facilities should be a key component of any site selection process.
- Consider a separate facility for defense high-level waste with specific limits on types and quantities of waste that could be accepted.

In conclusion, we must move forward in resolving the problem of what to do with our spent nuclear fuel and high level waste. Decision by indecision is not an acceptable path forward. We

have the ability to solve this problem through advances in technology and innovative solutions to the societal issues that have prevented effective solutions to date.

Appendices

Appendix A

List of Permits for PFS in Utah⁴²

Federal Permits and Approvals

- U.S. Nuclear Regulatory Commission: License for an Independent Spent Fuel Storage Installation
- U.S. Department of Interior, Bureau of Indian Affairs: Approval of the lease between PFS and the Skull Valley Band of Goshute Indians
- U.S. Department of Interior, Bureau of Land Management: Right-of-way approval for either a new rail line or an intermodal transfer facility
- U.S. Surface Transportation Board: Approval of a new rail line
- U.S. Environmental Protection Agency: Approval of on-site public drinking water supply under the Safe Drinking Water Act
- U.S. Environmental Protection Agency: Registration of septic tanks/leach fields for treatment of domestic waste water
- U.S. Environmental Protection Agency: RCRA identification number for management, tracking and control of small quantities of hazardous waste

State of Utah Permits and Approvals

- Utah Department of Environmental Quality: Storm Water Pollution Prevention Plan required by the General Permit under the Utah Pollution Discharge Elimination System for construction related storm water discharges for the rail line
- Utah Department of Transportation: Crossing permit to cross public road or highway for the rail line
- Utah State Historic Preservation Officer: Consultation under the National Historic Preservation Act
- Utah State Engineer: Stream Alteration Permit under Section 401 of the Clean Water Act for rail line crossings of streams
- Utah State Division of Water Rights: Use of surface or ground water other than that on the Reservation

⁴²*Final Environmental Impact Statement for the Construction and Operation of an Independent Spent Fuel Storage Installation on the Reservation of the Skull Valley Band of the Goshute Indians and the Related Transportation Facility in Toole County, Utah*, U.S. Nuclear Regulatory Commission, Docket No. 72-22, December 2001, pp. 1–27 to 1–28.

Appendix B
List of Permits for WIPP⁴³

Federal Permits and Approvals

U.S. Department of the Interior, Bureau of Land Management: Rights-of-Way for water pipeline, access roads, railroad, sampling sites, subsidence monitors, utilities, wells, and monitoring sites

U.S. Environmental Protection Agency: Conditions of Approval for Disposal of PCB/TRU and PCB/TRU Mixed Waste

U.S. Fish and Wildlife Service: Migratory Bird Special Purpose – Relocate

State of New Mexico Permits and Approvals

New Mexico Environment Department: RCRA permit

New Mexico Environment Department: Groundwater discharge permit

New Mexico Environment Department: Operating permit for backup diesel generators

New Mexico Environment Department: Underground storage tank permits

New Mexico State Land Department: Right-of-way for accessing state lands

New Mexico State Engineer: Water appropriation

New Mexico State Engineer: Monitoring wells

⁴³*Waste Isolation Pilot Plant Hazardous Waste Permit Application*, U.S. Department of Energy, November 30, 2010, pp. B-17 to B-26.

Appendix C

List of Permits for Yucca Mountain⁴⁴

Federal Permits and Approvals

U.S. Nuclear Regulatory Commission: License for a repository
U.S. Department of Interior, Bureau of Land Management: Right-of-way approval for a new rail line
U.S. Department of Interior, Bureau of Land Management: Free-use permit for sand and gravel
U.S. Surface Transportation Board: Approval of a new rail line
U.S. Army Corps of Engineers: Section 404 permit for dredge and fill materials, or alternatively, authorization under Section 404(r)
U.S. Fish and Wildlife Service: Endangered species consultation
U.S. Federal Communications Commission: Communications system authorization

State of Nevada Permits and Approvals

Nevada Division of Environmental Protection: Air quality operating permit
Nevada Division of Environmental Protection: Storm water control discharge permit
Nevada Division of Environmental Protection: Temporary permit to work in waterways
Nevada Division of Environmental Protection: Section 401 of the Clean Water Act water quality certification
Nevada Division of Environmental Protection: Sewage/septic disposal permit
Nevada Division of Environmental Protection: Hazardous waste generation, storage, transportation and disposal permit
Nevada Division of Environmental Protection: Transport, handle, treat, store, and dispose of Resource Conservation and Recovery Act hazardous wastes used during construction and operations
Nevada State Engineer: Water appropriation
Nevada State Engineer: Underground water and wells
Nevada State Fire Marshall: Permit to store and use hazardous materials, including explosives

⁴⁴*Final Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada*, U.S. Department of Energy, Office of Civilian Radioactive Waste Management, DOE/EIS-0250F-S1, June 2008, pp. 6-4 to 6-5.

Appendix D

Summary of Hazardous Materials Transportation Laws & Regulations⁴⁵

A. Transportation of Hazardous Materials (49 USC 5101-5127)

The U.S. Department of Transportation (DOT) regulates the transportation of hazardous materials (including, specifically, radioactive material) in interstate commerce by land, air, and on navigable waters. DOT regulations apply to shippers and carriers, where shippers are responsible for packaging, marking and labeling goods to meet the regulatory requirements for delivery to a carrier who is responsible for actual transport. Some companies act as a shipper's agent, and complete transportation arrangements with a carrier on behalf of the shipper. Carriers are responsible for handling shipments, placarding vehicles in accord with DOT regulations, and exercising due care in transporting the goods to a consignee.

The Hazardous Materials Transportation Act (HMTA) of 1975 as amended is the major legislation regulating the transportation of hazardous materials. The purpose of the HMTA is "to improve the regulatory and enforcement authority of the Secretary of Transportation to protect the Nation adequately against risks to life and property which are inherent in the transportation of hazardous materials in commerce" (49 USC 5101). Inherent in the authority provided to DOT is also the preemption of many state and local laws and regulation to provide for the unimpeded flow of hazardous materials in interstate commerce. Significant provisions of the HMTA include:

- Authority to DOT to adopt supplementary regulations for the safe transportation of hazardous materials, which includes radioactive material;
- The right to inspect records relating to the transportation or shipment of hazardous material;
- The extension of the Secretary of Transportation's authority to impose civil penalties for violations committed in rail and highway modes of transportation;
- A significant increase in the criminal sanctions for violations of hazardous materials regulations; and
- Guidelines for the determination of potential inconsistency and preemption of state and local laws.

After the enactment of the HMTA in 1975, states and local governments enacted laws or regulations for transportation of hazardous materials. Many of these laws conflicted with federal requirements or those in neighboring states. As a result, shippers could have been forced to comply with numerous overlapping regulations. It was this lack of uniformity among state and local regulations that prompted the passage of the Hazardous Materials Transportation Uniform

⁴⁵Richard C. Moore, P.E., *Western Interstate Energy Board On Line Resource Book, C. Legal Framework, Chapter 3, Hazardous Materials Transport Laws*, 2006. This Chapter is currently available from the author..

Safety Act (HMTUSA). (An Examination of the Hazardous Materials Transportation Uniform Safety Act (HMTUSA): A Southern Perspective, Southern States Energy Board, March 1992) which amended the HMTA. Although HMTUSA is primarily directed toward hazardous materials, many of the provisions affect DOT's regulatory framework for radioactive materials transportation, including:

- Grants for emergency preparedness planning and training;
- Rules for highway route selection for hazardous materials shipments;
- Preemption of state and local regulations;
- Shipper/carrier registration, permits and fees;
- State registration and permits;
- Application of federal, state and local laws to federal contractors;
- Civil penalties against violators;
- State enforcement against railroads;
- Training for transportation workers; and
- Placarding and shipping tracking.

Several provisions in Section 15 of HMTUSA are limited to radioactive materials, including:

- A study on mode and route selection for shipments (*Identification of Factors for Selecting Modes and Routes for Shipping High-Level Radioactive Waste and Spent Nuclear Fuel*)
- A study of the safety advantages of using dedicated trains vs. general commerce trains for shipping spent fuel and other high level wastes (*Use of Dedicated Trains for Transportation of High-level High level Radioactive Waste and Spent Nuclear Fuel*) and,
- Inspection requirements for motor vehicles prior to highway shipments of route controlled quantities of radioactive material.

The Rail Safety Improvement Act of 1970 as amended provides the Federal Railroad Administration within DOT with the authority to regulate all aspects of railroad safety. Of the various regulatory measures, the HMTA and the 1990 amendments to HMTA (HMTUSA) are the most significant laws affecting the transportation of radioactive materials.

B. US DOT Hazardous Materials Regulations

DOT has adopted regulations to implement the HMTA, which are contained in 49 CFR 101-185. As part of a reorganization of DOT in 2005, responsibility for regulating and ensuring the safe transportation of hazardous materials by all modes has been assigned to the Pipeline and Hazardous Safety Administration in DOT.

DOT's regulations specify procedures for the coordination and control of domestic and international shipments of hazardous materials, and prescribe rules pertaining to the transportation of radioactive material, including:

- National safety regulations for the transportation of radioactive materials;
- Routing regulations requiring use of interstate highways where possible, unless alternate routes are designated by the states; and
- Regulatory criteria and procedures for DOT inconsistency and non-preemption rulings.

The Pipeline and Hazardous Safety Administration exercises control over the specifics of hazardous material transportation, and exercises compliance and enforcement authority over intermodal shippers of hazardous materials. Other administrations within DOT have various responsibilities that affect the transportation of radioactive materials.

The Federal Motor Safety Carrier Administration (FMSCA), is focused on reducing crashes, injuries and fatalities involving large trucks and buses. FMSCA has adopted rules governing transportation of hazardous materials which focus on safety fitness procedures, rules of practice for carriers, and driving and parking rules. FMSCA also supports a program supporting uniformity of state hazardous materials permitting and registration.

The Federal Railroad Administration (FRA) is responsible for ensuring compliance and regulatory enforcement in relation to the movement of material by railroad. FRA has adopted regulations specific for rail safety, which are contained in 49 CFR 200 - 268. The FRA has also adopted the *Safety Compliance Oversight Program for Rail Transportation of High-Level Radioactive Waste and Spent Nuclear Fuel* (SCOP) to enhance its inspection policies for shipments of high-level radioactive waste and spent nuclear fuel.

An overview of DOT’s regulations affecting land transportation of nuclear waste is presented below:

DOT Regulations Affecting Nuclear Waste Transportation by Land	
49 CFR, Part 106	Rule-making procedures of the Materials Transportation Bureau
49 CFR, Part 107 Subpart C	Preemption determinations, waiver of preemptions by the Associate Administrator for Hazardous Materials Safety/RSPA
49 CFR, Part 107 Subpart D	Enforcement and maximum penalties
49 CFR, Part 172 Subpart E	Labeling requirements for shipments of radioactive material packages
49 CFR, Part 172 Subpart F	Placarding requirements for shipments of radioactive materials

49 CFR, Part 173 Subpart I	General requirements for shippers in preparing radioactive materials for transport (including radiation thermal limitations for packaging, and packaging types and requirements)
49 CFR, Part 174 Subparts A, B, C, D	Carriage by rail - general requirements for operating, handling, and loading of waste
49 CFR, Part 174 Subpart K	Detailed requirements for shipping radioactive materials by rail
49 CFR, Part 177 Subpart A, B, C, D	Carriage by public highway - requirements for routing and training requirements for radioactive materials (49 CFR Sections 177 - 825), loading and unloading (49 CFR Sections 177 - 842), and in the event of an accident (49 CFR Sections 177 - 861)
49 CFR, Parts 200-299	Federal Railroad Administration (DOT) railroad safety enforcement procedures, track safety standards, railroad operating rules, standards for use of radios, accident reporting procedures, and other operational regulations
49 CFR Parts 300-399	Federal Highway Administration (DOT) standards affecting minimum levels of financial responsibility for motor carriers, basic standards of qualification for drivers and driving requirements, and specific driving and parking rules for transportation of hazardous materials

C. DOT Rulings and Court Law

1. General

The Hazardous Materials Transportation Act (HMTA) authorizes state and local governments to regulate transportation of hazardous materials, but preempts any state or local requirement that is inconsistent with the HMTA, or the regulations adopted by the Department of Transportation (DOT) under the HMTA. Before 1991, DOT issued advisory opinions, called inconsistency rulings, on whether a state or local law was consistent with the HMTA. If a state or local law is inconsistent, the HMTA authorizes DOT to waive preemption (i.e., allow a state or local government to enforce an otherwise inconsistent law) if it affords at least the same level of safety as the federal law and it does not present an undue burden on interstate commerce. DOT's decision whether to waive preemption was called a nonpreemption determination before 1991. After 1991, this proceeding is called a waiver of preemption determination, and is no longer purely advisory.

Hazardous Materials Transportation Uniform Safety Act (HMTUSA), adopted in 1990, replaced the advisory inconsistency rulings with preemption determinations, which are binding on the parties unless they are successfully appealed in court. HMTUSA also codified the standards DOT had been applying in inconsistency rulings and made these applicable to the new preemption determinations. HMTUSA did not change the standards for deciding requests for waivers of preemption.

The procedures for both inconsistency rulings and preemption determinations are very similar. Under both procedures, a state and/or local government having a requirement pertaining to the transportation of radioactive materials, or any person affected by the requirement, may obtain an administrative ruling as to whether the requirement is inconsistent with the HMTA or regulations issued under the Act. Applications for all preemption determinations except those dealing with routing issues, are filed with the Office of Chief Council, within the Pipeline and Hazardous Materials Safety Administration (PHMSA). Applications for preemption determinations concerning hazardous materials routing issues are handled by the Federal Highway Administration. (It should be noted that a party that is affected by a state or local law need not seek such a DOT ruling before petitioning a court to rule on the law's validity.) The PHMSA also issues "Letters of Interpretation" (clarification) upon request. These are non-binding interpretations to aid the requester in complying with HMTA. The Office of Chief Counsel for PHMSA issues both formal and informal interpretations.

In determining whether a state or local requirement affecting the transportation of radioactive materials is inconsistent with the HMTA or its regulations, the DOT considers the following factors (found at 49 CFR §107.202):

- Whether compliance with both the state/local requirement and the Act, or regulations issued under the Act, is possible (dual compliance test);
- The extent to which the state or local requirement is an obstacle to the accomplishment and execution of the Act and its regulations (obstacle test); and
- That concerns one of five subjects, and the requirement is not substantively the same as the federal requirement (covered subject test). To be substantively the same, the state or local requirement must, in essence, be identical to the federal requirement. The covered subjects include:
 - The designation, description, and classification of hazardous material;
 - The packing, repacking, handling, labeling, marking, and placarding of hazardous material;
 - The preparation, execution, and use of shipping documents pertaining to hazardous material and requirements related to the number, content, and placement of those documents;
 - The written notification, recording, and reporting of the unintentional release in transportation of hazardous material; and

- The design, manufacturing, fabrication, marking, maintenance, reconditioning, repairing, or testing of a packaging or a container which is represented, marked, certified, or sold as qualified for use in the transportation of hazardous material.

For routing decisions, that HMTA provides that state and local governments may establish routing requirements only when those requirements substantively comply with federal requirements. The Federal Highway Administration has issued regulations for the designation of routes by state governments for highway route controlled quantities (HRCQ) of radioactive materials. (See 49 CFR 397.103). For HRCQ, state designations are preempted if compliance with the routing designation and any other requirement of the federal Act is not possible; if the designation creates an obstacle to the accomplishment of the Act, or if the designation is preempted pursuant to 49 CFR 397.69(b). This regulation requires that designation of routing requirements for non-radioactive hazardous materials must meet a number of standards to avoid adversely affecting interstate commerce. Examples of these standards include the requirement that the designation must support public safety, there must be “through routing,” there must be agreement with other states, and the designation shall not be a burden on interstate commerce. See 49 CFR 397.71 for a complete description.

A state or local government having a requirement pertaining to the transportation of radioactive materials which is inconsistent with the HMTA or its regulations may seek a determination from DOT waiving Federal preemption. Applications for such a determination must be submitted by a state (where a local rule is involved, a state must submit the application on behalf of the local government). DOT’s regulations specify that a non-preemption or waiver of preemption determination may only be issued if the state or local requirement is found to:

- Afford the public a level of safety at least equal to that afforded by the Hazardous Materials Transportation Act and its regulations; and
- Avoid placing unreasonable burdens on commerce.

In determining whether a state or local requirement unreasonably burdens commerce, DOT is to consider the following factors:

- The extent to which a state or local requirement causes increased costs or impairment of efficiency;
- Whether the state or local requirement has a rational basis;
- Whether the requirement achieves its stated purpose; and
- Whether the state or local requirement competes or conflicts with requirements of other state and local governments.

If DOT refuses to waive preemption for a state or local rule, the state or local government can challenge the determination in court within 60 days. If DOT waives preemption, any party to the

proceeding who is adversely affected by the state or local rule also has 60 days to appeal to the court.

The Federal Railroad Safety Act of 1970 (49 U.S.C. Chapters 201–213) gave the Federal Railroad Administration (FRA) authority over railroad safety, generally preempting independent state regulation. This Act does, however, allow states to participate in inspection activities under the federal safety laws. Western states participating in the FRA state program include Arizona, California, Idaho, Nebraska, New Mexico, Nevada, Oregon, Utah, Texas and Washington. Not all of these states participate in all aspects of the program, and many states only have a few inspectors. Colorado and Wyoming have chosen not to participate in the program.

The key difference between the old inconsistency rulings and nonpreemption determinations under the original HMTA and the new preemption determinations and waiver of preemption determinations under HMTUSA is that the old rulings were purely advisory on the parties and the courts. It was within the judge's discretion how much weight to give to DOT's opinions. In contrast, unless the new rulings are appealed in U.S. District Court within 60 days of being issued, they are now binding on the parties. Also, the court is no longer free to ignore DOT's rulings, but must uphold them unless they are arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law. Also, it is not necessary to apply for DOT opinions before asking a court to issue a decision on the validity of a state or local law. State or local governments, or parties adversely affected by the state or local law, can proceed directly to the court, although some courts may stay the court proceedings (put them "on hold") until DOT issues an opinion, so that the court can benefit from DOT's views.

2. Summary of DOT Rulings

The *Index to Preemption of State and Local Laws and Regulations under the Federal Hazardous Material Transportation Law* maintained on DOT's website provides a brief summary of all of DOT's Inconsistency Rulings and Preemption Determinations. This index is organized by 92 different categories. Since Inconsistency Rulings were advisory only, whereas Preemption Determinations are legally binding subject to judicial review, these are summarized separately below so that the advisory rulings are distinguished from the binding rulings.

Generally, DOT has determined that any requirement that duplicates a federal requirement, but is not substantially equivalent, is preempted. State or local regulations that rely on a preempted requirement have also been found to be preempted (for example, if a regulation relied on definitions of hazardous materials that were preempted, the regulation would also be preempted, even if it would be allowed otherwise). Permit programs are allowable, as long as the effort required to obtain a permit does not result in substantial delays to transportation. State fees are allowed, but only to the extent that they are fair, and all funds generated by the fees are used for transportation related programs. Driver or operator requirements in excess or different than federal requirements are not allowed to be applied to drivers not domiciled in the state, but can be applied to drivers who are resident of the state. States and local governments can designate

routes for hazardous materials, but only by carefully following the procedures established by DOT regulations.

3. Inconsistency Rulings (1978-1990)

DOT issued a total of 32 *Inconsistency Rulings* under the provisions of the HMTA. Some of these rulings were appealed within DOT, providing further guidance on what DOT considered to be consistent and inconsistent with federal requirements. The *Analysis of DOT Inconsistency Rulings* contains detailed analyses of the Inconsistency Rulings and the appeal decisions. The effect of these rulings is summarized in the two sections below.

I. Requirements found to be consistent with Federal Law

Restrictions or requirements found to be consistent with the HMTA are as follows:

- Inspection and Enforcement
 - ▶ State and local requirements that mirror federal laws
 - ▶ Inspection for compliance with federal and consistent state laws
 - ▶ Penalties associated with valid state and local rules
 - ▶ State penalties for violation of federal regulations, even if the penalties are larger than provided for under the HMTA
 - ▶ Seizure of carrier equipment if penalties are not paid
 - ▶ State court injunctions to prevent imminent hazards from violations of federal regulations and consistent state regulations
- Permits and Fees
 - ▶ Certain systems which require the payment of a per-shipment fee reasonably related to the costs imposed on the state, without requiring the submission of a detailed permit application
 - ▶ Where valid permit issued, requirement that it be carried and displayed in vehicle
- Traffic and Operating Restrictions
 - ▶ Radio communications via two-way radio (except for radioactive materials shipments)
 - ▶ Immediate accident notification to appropriate state personnel (except for spent fuel shipments)
 - ▶ Headlight illumination
 - ▶ Time-of-day restrictions in a city for transport service originating at, or destined for, points within the city
 - ▶ Operation requirements for vehicles on city streets
 - ▶ Provision of state escorts, rather than requiring carriers to provide additional escorts

- ▶ Use of major thoroughfares in a city, where possible
- ▶ 35 mile per hour speed limit
- ▶ Maintaining a minimum distance of 150 feet from the vehicle ahead
- Other Regulations
 - ▶ Licensing and training requirements for motor vehicle drivers and train engineers domiciled in the state
 - ▶ Licensing and training requirements for motor vehicle drivers domiciled in another state if they do not already have a hazardous materials endorsement on their commercial drivers' licenses

ii. Requirements found to be inconsistent with Federal Law

Inconsistent state and local requirements may be summarized as follows:

- Inspection and Enforcement
 - ▶ Penalties for violations that were not committed “knowingly”
 - ▶ Definition of train that allows for certain regulation of switching and classifying operations that are exempt from federal regulation
- Permits and Fees
 - ▶ Permit requirements as a precondition to radioactive materials transport through a jurisdiction (although some types of permits for other hazardous materials may be consistent)
 - ▶ Permit requirements for non-radioactive hazardous materials transportation with detailed information requirements in the permit application or with the potential to create unnecessary shipment delays
 - ▶ Annual transportation fees associated with a permit system for radioactive materials transportation
- Traffic and Operating Restrictions
 - ▶ Time-of-day restrictions in a city for transport passing through the area, without evaluating the effect on any impacted jurisdiction
 - ▶ State or local bans during rush hours
 - ▶ Total bans on shipments
 - ▶ Local routing requirements for radioactive materials
 - ▶ Weather restrictions prohibiting hazardous waste shipments during hurricane and tornado watches, when the temperature is below 35 °F, or within two hours of rain or snow
 - ▶ Additional personnel, escorts, equipment
 - ▶ Local government selection of transportation modes for radioactive

- ▶ materials
 - ▶ Local government's oral accident reporting requirements as they apply to certain radioactive materials
- Definitions
 - ▶ Hazard classification and definitions that differ from the federal classification
- Paperwork
 - ▶ Written accident reports to be submitted to state
 - ▶ Shipping papers with different color markings, for transport wholly within a state
 - ▶ Local requirement that driver carry proof of liability insurance
- Other Regulations
 - ▶ Hazardous materials storage regulations that differ from the federal regulations, as they apply to transportation-related storage
 - ▶ Any prenotification that is different from federal law
 - ▶ Additional packaging and container requirements
 - ▶ Insurance or bonding requirements in addition to those required by federal law
 - ▶ Additional or different placarding or identification requirements
 - ▶ Driver training requirements in excess of the federal requirements, as they apply to out-of-state drivers with hazardous materials endorsements on their commercial drivers' licenses issued by other states in accordance with minimum federal standards

4. Preemption Determinations (1991 - present)

DOT has issued a number of preemption determinations since adoption of HMTUSA. These are summarized in *DOT Preemption Determination Applications*.

I. Requirements determined not to be preempted by Federal Law

Restrictions or requirements determined not to be preempted by the HMTUSA are as follows:

- Permits and Fees
 - ▶ State Bonding Requirements
- Paperwork
 - ▶ Information required to be reported if authorized by another federal law, such as hazardous materials inventories, risk management plans, etc.

- ▶ Requirement that hazardous waste generator prepare and sign a shipping paper to the extent they are applied and enforced in the same manner as federal regulations
- Operator/Driver Training, Licensing and Certification
 - ▶ Training and certification requirements in excess of federal requirements for vehicle operators as applied to resident drivers
- Other Regulations
 - ▶ Equipment requirements only applicable to in-state transportation
 - ▶ Requirements for labeling, placarding, safety equipment within a facility
 - ▶ Fire codes, inspections, fees and definitions of hazardous materials that do not apply to transportation
 - ▶ Immediate notification of a hazardous materials release or incident

ii. Requirements found to be preempted by Federal Law

Preempted state and local requirements may be summarized as follows:

- Inspection and Enforcement
 - ▶ State annual inspection requirement which causes delay
 - ▶ Annual cargo tank inspection requirements for vehicles based out side of the state
- Permits and Fees
 - ▶ Fees not used for transportation related purposes
 - ▶ Permit requirements which cause unnecessary delay
 - ▶ Fees that are not fair
 - ▶ Permit requirement based on submission of hazardous materials management plan and hazardous materials inventory statement
- Paperwork
 - ▶ Manifest requirements
 - ▶ Written notification of hazardous materials release or incident
 - ▶ Shipping paper retention
- Traffic and Operating Restrictions
 - ▶ State restrictions on locations where trucks hauling radioactive materials enter the state
 - ▶ Prohibition on tank car remaining on siding and requiring attendance during unloading
 - ▶ Day of week and time of day restrictions in a downtown area with respect

- ▶ to pharmaceuticals only
- ▶ Routing restrictions not based upon federal routing regulations
- ▶ Advance notification, routing and escort requirements for pickup or delivery
- ▶ Prohibition against blasting caps on same vehicle as other explosives
- ▶ Separation between vehicles requirements
- Definitions
 - ▶ Hazardous materials definitions and all requirements that rely on those definitions
- Marking
 - ▶ Marking requirements
- Operator/Driver Training, Licensing and Certification
 - ▶ Training and certification requirements in excess of federal requirements for vehicle operators as applied to non resident drivers
 - ▶ Certification of fitness requirement
 - ▶ Employee examination and identification card requirements as applied to drivers domiciled outside of the state

5. Appeal Procedures

Any person “aggrieved” by a decision on an application for a preemption determination may file a petition for reconsideration with the Office of Chief Counsel within 20 days of publication of the decision in the Federal Register. The petition for reconsideration must be filed in the same manner as specified for an application for a preemption determination. The petition must include a concise statement explaining why the reconsideration is requested. If the petition requests review of information that was not previously reviewed by DOT, the petition must explain why such information was not provided previously. The Chief Counsel will review the petition, and render a decision which is published in the Federal Register. The determination then becomes a “final agency action” subject to judicial review. A party to the proceeding may seek judicial review in either the U.S. Court of Appeals for the District of Columbia or in the Court of Appeals for the United States for the circuit in which the person resides or has its principal place of business.

6. Relevant Court Decisions

I. Summary of Court Rulings Affecting State and Local Regulation of Hazardous and Radioactive Materials Transportation

As discussed previously, the 1990 Hazardous Materials Transportation Uniform Safety Act (HMTUSA) instructed DOT to stop issuing its inconsistency rulings, which were merely advisory, and to start issuing preemption determinations, which carry more weight. The preemption determinations may be appealed in U.S. District Court within 60 days after the determination is final. The affected party also may opt to initiate a court proceeding in lieu of the DOT preemption determination process. DOT's waiver of preemption determinations also may be appealed in U.S. District Court within 60 days after the decision is final.

Court decisions on the validity of state and local laws are binding. Until the late 1980s, courts afforded some weight to DOT's advisory inconsistency rulings when the courts were faced with similar issues. However, in 1989 and 1990, two federal courts refused to show any deference to DOT's inconsistency rulings, with one court calling the DOT ruling "poorly reasoned." These courts held de novo trials, starting from the beginning, instead of reviewing DOT's inconsistency rulings. In contrast, if a new preemption determination is appealed in court, the traditional standards of review will apply. The court may reverse DOT's ruling only if it finds that the ruling is arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law.

If the affected party chooses to go to court in lieu of applying for a DOT preemption determination, the court may hold a trial de novo or issue a stay (put the court case "on hold") and ask the parties to apply for a DOT preemption determination so that the court will have the advantage of DOT's expertise.

Like DOT, courts consider whether the state or local law has been preempted by the Hazardous Material Transportation Act (HMTA) and the regulations issued under the Act. Unlike DOT, courts also consider whether the state or local law is valid under other federal laws (e.g., the Federal Railroad Safety Act) and the U.S. Constitution, e.g., the Commerce Clause (which limits state and local actions having discriminatory impacts or undue burdens on interstate commerce).

Section 105(a) of HMTUSA lists several areas in which state and local regulations are preempted unless they are "substantively the same" as the federal regulations:

- ▶ Designation, description and classification of hazardous materials;
- ▶ Packing, repacking, handling, labeling, marking and placarding;
- ▶ Shipping documents;
- ▶ Written accident reporting; and
- ▶ Design, manufacturing, repairing, testing, etc. of containers.

For areas not listed in Section 105(a), Section 112(a) states that any requirement of a state or local government is preempted if it fails one or both of the following tests:

- ▶ Dual compliance test: whether compliance with both state/local and federal regulations is possible; and
- ▶ Obstacle test: the extent to which the state or local requirements are an obstacle to the execution of the Act and its regulations.

These are the same standards that DOT has been using for its inconsistency rulings, although DOT does not always reach the same results as the courts do in applying these tests.

The second test is essential for state and local governments to address, as it permits effective and achievable state and local regulations to be invalidated if they conflict with the goals of the federal regulatory program. What are the goals of the HMTA? While DOT advisory opinions have often focused on the need to promote nationally uniform standards and avoid duplication of rules, courts have generally focused on the Congressional intent to enhance safety on a nationwide basis. Following the passage of HMTUSA, some courts have also focused on uniformity, although one court found that the general goal of uniformity is not a sufficient reason to find that a state rule is preempted.

Section 120 of HMTUSA states that federal contractors who transport hazardous materials or manufacture (or fabricate, repair, etc.) hazardous materials shipping containers must comply with federal, state, tribal and local laws to the same extent as any other person who engages in those activities. In the past, DOE has sometimes taken the position that its carrier contractors cannot be subjected to state law because, indirectly, this would be an unconstitutional regulation of the federal government.

The Act specifically states that federal contractors must comply with “all substantive and procedural” requirements of federal law. This provision may mean that federal shipments will be conducted more in accordance with DOT and NRC requirements -- not merely under “equivalent” DOE standards, e.g., DOE’s internal package certification process that has been used instead of full NRC certification (although even before HMTUSA was enacted, the 1987 Nuclear Waste Policy Amendments Act prohibited internal DOE certification for repository and MRS casks), or DOE’s “equivalent” safeguards procedures.

The types of state and local regulations that have been the subject of court cases are summarized in the following table:

State and Local Regulations Ruled upon by Federal Courts	
Invalid Rules	Valid Rules
Absolute Bans	Headlight Illumination
Additional Placarding Requirements (Conflicting Cases)	Additional Placarding Requirements (Conflicting Cases)
State-wide Curfews	Immediate Accident Reporting
Burdensome Permitting Requirements	Circuitous Routing Through Urban Areas, with Rush-hour Curfews

Registration Requirements for Rail Shipments	Transport Vehicles Equipped with Two-way Radios to Facilitate Accident Reporting
State Penalties for Violation of Federal Rail Transportation Regulations	License Fees (Per Shipment or Annual) Designed to Cover State Costs Related to the Transportation of Hazardous Materials
Fees Associated with Invalid Permits	Permits for Loading, Unloading, Transferring or Storing Hazardous Materials on Railroad Property
State Prenotification That Differs from Federal Requirements	Driver Training Requirements, Including Mountain Driving
Bonding Requirements	Vehicle Inspection at Loading and Unloading Points

In general, state and local rules will be found valid where they promote DOT's goal of safe transportation, cause only slight transportation delays, and have little burden on interstate commerce. The following discussion will review actual court rulings affecting significant transport restrictions, and compare those decisions with DOT inconsistency rulings.

ii. Vehicle Inspection

A Pennsylvania statute requiring all motor carrier vehicles to be periodically inspected either under Pennsylvania law or the law of some other state was found valid in *American Trucking Associations, Inc. v. Larson*, 683 F.2d 787 (3rd Cir. 1982). The court recognized the traditional role of states in regulating highway safety measures and, therefore, required only a minimal relationship exist between the statute and its contribution to highway safety. DOT, in its inconsistency rulings, has recognized a similar state role in inspection and enforcement of regulations related to the transportation of radioactive materials.

The inspection of vehicles upon arrival and departure at loading and unloading areas was also found valid by the U.S. Court of Appeals for the First Circuit, in *National Tank Truck Carriers, Inc. v. Burke*, 698 F.2d 559 (1st Cir. 1983). DOT inconsistency rulings conform with such a decision.

A Colorado law requiring all nuclear materials shipments to be inspected at the port-of-entry (for out-of-state shipments) or at the point of origin (for shipments originating in Colorado) was upheld by the U.S. District Court in Colorado in *Colorado Public Utilities Commission v. Harmon*, CV 88-Z-1524 (D. Colo., July 1989) (reversed in part on other grounds) In April 1989, shortly before the court issued its decision, DOT concluded that Colorado's inspection

requirement was consistent with the HMTA, to the extent that it was directed at enforcement of federal laws and consistent state laws.

iii. Permitting and Fees

Several federal courts have addressed some aspect of permitting requirements. In a suit that culminated with *National Tank Truck Carriers, Inc. v. City of New York*, 677 F.2d 270 (1982), New York City's regulations dealing with the transport of hazardous gases in and around the city were found valid. An integral part of those regulations was a permit system. Permits, which could be obtained over the phone, generally limited transportation to shipments that were required to pass through the city due to origin or destination points, and required use of a specific route. The court found such requirements to be a valid exercise of the local regulation of highway safety, and consistent with federal regulations. DOT has not had the opportunity to consider a similar "bare-bones" permit system, although it has found that Illinois's \$1000 - \$2000 fee per spent fuel shipping cask was consistent because it was not associated with any permit system. However, language in one of its earlier rulings indicates that, at least for radioactive materials shipments, DOT may have ruled differently on a permit system similar to the New York City permit upheld by the court. In IR-8, DOT declared that permit requirements based on the desire of a state or local government to promote transportation safety of radioactive materials are inconsistent with the HMTA. This would seem to conflict also with the language of *American Trucking*, above, regarding the traditional role of the states in highway safety.

In contrast to the above permitting system, a permit system which required written application at least four hours prior to travel through a state, was found inconsistent with HMTA's requirement of avoiding unnecessary delay in transport in *National Tank Truck Carriers, Inc. v. Burke*, 698 F.2d 559 (1st Cir. 1983).

Oregon's fee on railroads was invalidated by a U.S. District Court, but upheld on appeal by the U.S. Court of Appeals in *Union Pacific Railroad Company, et. al v. Public Utilities Commission of Oregon*, 874211 D.C. CV86778 OMP (March 28, 1990). The Court of Appeals held that such fees are legal to recover the costs of rail regulation.

Ohio's registration and fee system for hazardous materials (including radioactive materials) transportation by motor carrier was initially upheld at the District Court level, although it was invalidated for rail shipments in *CSX Transportation, Inc. v. Ohio Public Utilities Commission* 701 F. Supp. 608 (S.D. Ohio 1988), affirmed *Case 88-4185 (6th Cir. Apr. 13, 1990)*, cert. denied (Jan. 22, 1991). Like the New York City system, Ohio's pre-registration could be handled over the telephone. A written application was required within 14 days after the first shipment. The statute does not specify the types of information the Public Utilities Commission can require as part of the permit application, which would probably have caused DOT to find the statute inconsistent for motor vehicles as well as trains. DOT has found various state laws to be inconsistent with federal law when the statute leaves open the possibility that the implementing regulations will be inconsistent.

The Sixth Circuit Court of Appeals upheld the District Court decision in the Ohio case, finding that Ohio's permit and fee system was valid only as it relates to transportation by motor vehicle. Both courts concluded that the Federal Railroad Safety Act (FRSA) preempted the permit system as it applied to rail shipments. (See Rail Transportation, later in this section, for a discussion of preemption under the FRSA.) On January 22, 1991, the U.S. Supreme Court refused to hear the case, although it seems to be in conflict with the Union Pacific case discussed above. (U.S. Law Week 1991)

Further permitting activity was ruled valid in *New Hampshire Motor Transport Association v. Flynn*, 751 F.2d 43 (1st Cir. 1984). The U.S. Court of Appeals for the First Circuit examined New Hampshire's state licensing requirements for hazardous materials and waste transporters; the annual cost of such a license is \$25, while the license fee for a single trip is \$15. The state intends to use five percent of the money raised for transportation response programs; twenty percent for the enforcement of its hazardous transportation regulations (identical to federal regulations); and seventy-five percent for its Hazardous Waste Cleanup Fund.

The court declared that the license-fee system did not violate the U.S. Constitution's Commerce Clause. The court also concluded that there was no inconsistency with the Hazardous Materials Transportation Act, which would have caused the license fee to be preempted. In addressing the Commerce Clause issue, the court stated that the critical question was whether the license fees could be justified as a "user fee." Where a user fee is found, the Supreme Court has held that a state can impose a "reasonable fee, to help defray the costs" of state services, upon "interstate and domestic users alike." See: *Evansville-Vanderburgh Airport Authority Dist. v. Delta Airlines, Inc.*, 405 U.S. 707 (1972). Following such case law, the court in *Flynn* stated that fees will be upheld where they are reasonable in amount for the privilege or service supplied by a state. When the amount the fees raise is found to be reasonable in relation to the amount that a state likely spends in providing associated services, what the fees themselves are actually spent on is irrelevant, according to the court.

The court also rejected the claim of the transporters' association that the New Hampshire license fee was inconsistent with, and hence preempted by the HMTA. The court found the transportation delay caused in obtaining a license was not significant enough to interfere with DOT's "speedy-transport mandate." Truckers are able to obtain licenses during ordinary business hours, and when anticipating shipments at other times, can buy an annual license. The court cited DOT's statement in other cases that a "bare" permit requirement or license requirement is consistent with the HMTA, and found that the impediment caused by New Hampshire's license system was only that inherent in the administration of any "bare" licensing scheme.

Worthy of special note, however, was the court's consideration of the truckers' concern that if many or all states imposed similar fees, the resulting fee system would greatly raise transport costs and seriously burden interstate commerce. The court suggested that if such a circumstance

should arise, that DOT remained free to promulgate a regulation prohibiting or controlling the imposition of excessive license fees.

The most detailed permit/fee system upheld to date by a court is the Colorado permit in *Colorado Public Utilities Commission v. Harmon*, CV 88-Z-1524 (D. Colo., July 1989) (reversed in part, 89-1288, 10th Cir. Dec. 1991) As part of the permit application, carriers were required to provide the following information: a copy of the carrier's driver training program (which must include mountain driving, unless the carrier does not intend to travel in the mountains); proof of insurance; a nuclear incident cleanup plan; and an equipment failure plan (to provide for repairing or replacing vehicles that have been placed out-of-service or become inoperative). The annual permit fee was \$500, with an additional \$200 per-shipment fee. The Department of Energy had applied to DOT for an inconsistency ruling earlier, challenging the permit/fee system and other aspects of the Colorado Nuclear Materials Transportation Act. Shortly before the court issued its decision, DOT issued an advisory opinion that found the entire permit system and the annual fee inconsistent with the HMTA, although it found the per-shipment fee consistent. Although DOT did not have the benefit of the District Court's decision when it issued its inconsistency ruling, DOT explicitly rejected a contrary federal court decision upholding a Nevada permit for rail shipments, finding it "unpersuasive." [Note: court decisions are binding upon DOT; DOT inconsistency rulings are merely advisory to the courts and other interested parties. The Nevada court case was later reversed on appeal.]

DOE appealed several aspects (including the permit/fee system) of the District Court's decision upholding the Colorado Nuclear Materials Transportation Act in its entirety. Ten Attorneys General (California, Illinois, Michigan, Minnesota, Nevada, Texas, Vermont, Virginia, Washington, and Wisconsin) and the New Mexico Health & Environment Department filed an amicus (friend of the court) brief supporting Colorado's law. The Environmental Defense Fund and the nuclear utilities were also granted amicus status. Unlike the District Court's decision, the appeal was decided after HMTUSA was enacted. The Court of Appeals relied heavily on the legislative history of HMTUSA to conclude that uniformity was a key purpose of the HMTA. The Court concluded that the permit system was invalid because it required carriers to submit documentation (e.g., proof of mountain driving training, nuclear incident cleanup plan) in excess of the federal requirements, and therefore, was an obstacle to HMTA's goal of uniformity.

iv. Rail Transportation

Courts have, in the past, been more lenient regarding state regulation of railyard operations than of rail transportation. Following the U.S. Supreme Court's reversal of a U.S. District Court decision upholding a state's right to regulate railyard operations, however, this may be changing. On July 18, 1990, the Supreme Court held that the District Court failed to give sufficient weight to DOT's ruling that the regulations of the state of Nevada were inconsistent with the HMTA and the regulations adopted under HMTA. Thus, the Supreme Court upheld DOT's ruling that the state regulations were redundant and unduly burdensome, and therefore, preempted by

HMTA. (*Southern Pacific Transportation Co. v. Public Service Commission of Nevada*, 909 F.2d 352 (9th Cir. 1990))

On December 12, 1988, a federal court found that Ohio's hazardous (including radioactive) materials transportation regulations, as they applied to rail operations, were preempted by the Federal Railroad Safety Act of 1979 (FRSA). *CSX Transportation, Inc. v. Ohio Public Utilities Commission*, 701 F. Supp. 608 (S.D. Ohio 1988), affirmed Case 88-4185 (6th Cir. Apr. 13, 1990), cert. denied (Jan. 22, 1991). (The court allowed the Ohio laws to stand as they apply to other transportation modes.) The Ohio law required carrier registration (with fees ranging from \$5 to \$250 annually), with the proceeds to be used to fund emergency response training. The Public Utilities Commission was authorized to require carriers of certain hazardous materials (not including radioactive materials) to conduct route assessments and to require shippers of those materials to provide prenotification. Penalties of up to \$10,000 were authorized for certain safety violations. This case was affirmed by the Sixth Circuit Court of Appeals; the U.S. Supreme Court refused to hear the case.

The FRSA has a more stringent preemption clause than the HMTA. All state laws relating to any DOT regulated area of railroad safety are preempted unless they are necessary to address a local safety hazard, are not incompatible with any federal law, and do not place an undue burden on interstate commerce. As an example of the broad preemption under the FRSA, the court in *CSX* found that states could participate in investigating violations of DOT regulations, but could not assess penalties for any violations they discovered. The court distinguished this case from *Southern Pacific* by saying that the Nevada regulations covered storage, rather than transportation, and addressed preemption under the HMTA, not under the FRSA.

The status of state enforcement of the federal hazardous materials regulations against railroads and of state regulation of railroads is unclear. Many states have adopted the federal hazardous materials regulations for rail shipments. Most of these states have active enforcement programs that are similar to the enforcement programs against motor vehicles. In contrast, the federal safety regulations applicable to railroads allow for a very limited state enforcement role. States must process all violations through the FRA. If the FRA decides either for or against pursuing the violation, the state's role is ended. If the FRA fails to make a decision within 60 days, the state may pursue the violation in federal court, but any penalties assessed against the railroad go to the U.S. Treasury. Because states have little incentive to pursue violations, few (if any) have done so. It is unclear whether the court in the *CSX* case above was referring to the federal safety regulations or the hazardous materials regulations when it concluded that the states could not assess penalties for violations they discovered.

As a result of the expanded state participation authorities granted in HMTUSA, the Federal Railroad Administration issued rules revising the states' role in railroad safety inspections and investigations with respect to the transport of hazardous materials. Section 28 of HMTUSA amended section 206 of the Federal Railroad Safety Act of 1970 (45 U.S.C. 435) to permit state

inspection and surveillance under any federal regulation related to railroad safety. (*Federal Register, Vol. 57, No. 122, June 24, 1992*)

DOT has considered state enforcement of federal hazardous materials regulations against railroads, and found that state enforcement was not inconsistent with the HMTA, even where the enforcement tools differed from those available to the federal government (e.g., under the HMTA). DOT conceded, however, that a court (following the CSX example) could find that state enforcement was preempted by the FRSA.

v. Accident Notification

Court law and DOT inconsistency rulings are currently in agreement as to valid accident reporting requirements. Both the courts and DOT have ruled that immediate accident reporting to state or local officials is consistent with federal law, while additional requirements for written reporting have been found inconsistent with the federal Hazardous Materials Regulations. See: *National Tank Truck Carriers, Inc. v. Burke, 698 F.2d 559 (1st Cir. 1983)*.

vi. Transport Bans and Curfews

State wide curfews have been ruled invalid both by DOT and the courts. See: Burke, cited above. However, rush-hour curfews, which are limited to a city, have been upheld as a justifiable inconvenience in light of “the public interest in avoiding a catastrophic accident in a densely populated area.” *National Tank Truck Carriers, Inc. v. City of New York, 677 F.2d 270 (2nd Cir. 1982)*. DOT has also upheld city-wide curfews, where applied to transport originating in, or destined for, parts of the city.

Rules which prohibit transport through a city unless no practical alternate route exists have been upheld. See: *National Tank Truck Carriers, Inc. v. City of New York, 677 F. 2d 270 (1st Cir. 1982)*. In contrast, a state statute which prohibits out-of-state shipments of spent fuel into the state, while allowing intrastate shipments, has been ruled an unconstitutional violation of the Commerce Clause, and preempted by federal law. See: *People of State of Illinois v. General Electric Company, 683 F. 2d 206 (7th Cir. 1982)*, cert. denied by Supreme Court, 103 S. Ct. 1891 (1983); also, *Washington State Building and Construction Trades Council, AFL-CIO v. Spellman, 684 F. 2d 627 (9th Cir. 1982)*, cert. denied, 103 S. Ct. 1891 (1983) (invalidated law which prohibited interstate transportation of low-level radioactive waste shipments, but allowed intrastate shipments); *Virginia Electric and Power Co. v. County of Louisa, Virginia, No. 82-0481 (E.D. Va. 1983)* (invalidated county ordinance permitting storage of spent fuel generated within county, but prohibiting storage of spent fuel generated outside of county); *Alabama v. EPA, 110 S. Ct. 538 (1989)* (state can’t ban shipments of PCB-contaminated soil from out of state, while allowing intrastate shipments).

There is a limited exception to this rule. A court upheld an Alabama law prohibiting hazardous waste shipments for disposal in Alabama if the generating state has not complied with Superfund

provisions requiring states to develop in-state hazardous waste disposal capacity or to enter into regional compacts for hazardous waste disposal. (These provisions are similar to those governing low-level radioactive waste disposal.) *NSWMA v. Alabama Department of Environmental Management*, No. 89-6-1722-W (N.D. Ala., Jan. 12, 1990). This exception may not be of direct relevance to ~~high-level~~ high level waste and spent fuel shipments because there is no similar law requiring states to enter into regional ~~high-level~~ high level waste disposal compacts. However, it may be relevant to situations where states do not comply with federal transportation laws -- e.g., those governing commercial drivers licenses.

Such cases are basically in agreement with DOT inconsistency rulings, although DOT probably would find that city-wide bans for radioactive materials are inconsistent because federal routing rules give states and tribes, not local governments, the authority to designate alternate routes.

vii. Driver Training

Colorado's driver training requirements for nuclear materials carriers, including a provision that carriers provide training in mountain driving (unless the carrier does not intend to conduct mountain shipments), were upheld by the U.S. District Court, but invalidated on appeal. *Colorado Public Utilities Commission v. Harmon*, CV 88-Z-1524 (D. Colo., July 1989) (reversed in part on appeal 89-1288). DOT opinions on driver training requirements do not agree with the District Court's decision. Shortly before the District Court issued its decision, DOT issued a ruling that the Colorado driver training requirements were inconsistent with the HMTA. The District Court implicitly rejected this DOT advisory opinion, as well as an earlier DOT ruling that distinguished between training requirements imposed on in-state drivers and on drivers licensed in other states. The Court of Appeals, relying heavily on the legislative history of HMTUSA, concluded that the mountain training requirement went beyond the federal training regulations, and therefore, was an obstacle to the HMTA's goal of uniformity.

viii. Shipments Conducted for DOE

Colorado's Nuclear Materials Transportation Act was upheld as it applies to shipments conducted by private carriers for the Department of Energy. *Colorado Public Utilities Commission v. Harmon*, CV 88-Z-1524 (D. Colo., July 1989) (reversed in part on other grounds 89-1288) DOE had argued unsuccessfully that its sovereign immunity extended to common carriers with whom DOE contracted to conduct shipments (Dawn Trucking), which will carry transuranic wastes to the Waste Isolation Pilot Plant in New Mexico.

HMTUSA, which was enacted after the Colorado District Court decision, explicitly states that federal contractors must comply with hazardous materials transportation regulations of the federal, state, tribal and local governments, just as if they were not federal contractors.

ix. Modal Mix

Local government laws restricting radioactive materials shipments to certain modes are likely to be invalidated by the courts. A federal court of appeals has ruled that the HMTA requires DOT to provide an adequate level of safety for all transportation modes, but does not require DOT to compare transportation modes and determine which one is the safest. *City of New York v. U.S. Department of Transportation*, 715 F.2d 732 (2d Cir. 1983), cert. denied and appeal dismissed, 465 U.S. 1055 (1984). See also, a state court case, *South Dakota Department of Public Safety ex rel. Melgaard v. Haddenham*, 339 N.S.2d 786 (1983) (local ordinance limiting fireworks to highway mode is inconsistent with HMTA).

DOT inconsistency rulings are consistent with the federal court cases.

x. Placarding

There are conflicting cases regarding local placarding requirements that differ from the federal requirements. A 1982 federal court of appeals case found such local placarding requirements inconsistent. *National Tank Truck Carriers, Inc. v. City of New York*, 677 F.2d 270 (2d Cir. 1982) *Accord*, *American Trucking Associations v. City of Boston*, 12 Env'tl. L. Rep. 20,789 (D. Mass. 1981) In 1985, a federal district court (which is lower than the court of appeals) refused to grant summary judgment against a local placarding requirement. *National Paint & Coatings Association Inc. v. City of New York*, No. CV-84-4525 (E.D. N.Y. 1985).

DOT inconsistency rulings conclude that placarding regulations that differ from the federal placarding requirements are inconsistent with the HMTA. (See IR-30 in Section 4-3)

xi. Prenotification

The 10th Circuit Court of Appeals concluded that Colorado's prenotification requirement was inconsistent with the HMTA because it applied to more types of radioactive materials than do the federal requirements. Also, Colorado requested more information than the federal prenotification regulations require. *Colorado Public Utilities Commission v. Harmon*, CV 88-Z-1524 (D. Colo., July 1989) (reversed in part, 89-1288, 10th Cir. Dec. 1991)

DOT has concluded that state prenotification requirements that differ from the federal requirements are inconsistent with the HMTA.

xii. Bonding

In the most recent court case dealing with HMTA, the U.S. Court of Appeals for the District of Columbia ruled that bonding requirements required by Massachusetts were not preempted. *Commonwealth of Massachusetts v. United States Department of Transportation* 93 F. 3rd 890, (D.C. Circuit 1996). In its preemption determination, DOT found that a state rule requiring hazardous waste carriers to post a \$10,000 bond was preempted by HMTA's general preemption

provision. DOT determined that the bonding requirement was preempted because it interfered with HMTA's goal of uniform hazardous waste regulation.

This case is significant because it addresses the goal of uniformity in regulation under a different standard than previous cases.. The District Court had ruled that the bonding requirement "frustrated HMTA's general goal of uniform waste regulation," and therefore was preempted. The Appeals Court overturned this decision, because of the "traditional presumption against federal preemption of state rules in areas of traditional state regulation." The Court found that the intent of the HMTA is to preempt state regulation only in specific categories, and not to preempt state rules that pose an obstacle to fulfilling the general policy of HMTA of uniform regulation. It noted that the Supreme Court in *CSX Transportation, Inc. V. Easterwood*, 507 U.S. 658, 664 (1993) dictated that preemption of state rules is allowed only when it is "the clear and manifest purpose of Congress." The Court concluded that HMTA does not require absolute uniformity as its goal, nor does it require preemption of state rules simply because they may preclude absolute uniformity.

xiii. DOT Waivers of Preemption

DOT may issue waivers of preemption determinations (called non-preemption determinations before HMTUSA was enacted) which allow a state or local government to enforce an inconsistent law. DOT has ruled on only one non-preemption determination. On September 12, 1985, DOT denied New York City's petition to allow the City to enforce its ordinance banning the transportation of spent fuel within the City. DOT set forth the following three-part test that must be met for a non-preemption determination:

- (1) Exceptional circumstances exist which necessitate immediate action to adopt more stringent regulations than the federal regulations;
- (2) The preempted state or local requirement affords an equal or greater level of protection to the public than do the federal regulations; and
- (3) The preempted state or local requirement does not unreasonably burden commerce.

DOT concluded that New York City had failed to meet the first part of the test and denied the City's petition without considering the other parts of the test.

On December 8, 1988, a federal district court ruled that DOT had improperly added the "exceptional circumstances" part of the test and that the HMTA specifically states that a state or local regulation is not preempted if it meets the tests under parts (2) and (3) above. The court remanded the City's non-preemption determination to DOT to rule on the two criteria under the HMTA (level of safety and burden on commerce). *City of New York v. DOT*, (S.D.N.Y. 1988).

ix. DOT's Routing Rule

On September 9, 1988, a DOT administrative law judge (ALJ) issued a ruling interpreting DOT's routing rules (HM-164) (*ALJ Decision 87-22-RMC*). Although not court case, it is significant since it resulted in amendments to DOT's routing rules for pick up and delivery routes.

DOT's Research and Special Programs Administration had assessed a civil penalty against Tri-State Motor Transit for deviating from the preferred route when carrying spent fuel from the Nevada Test Site to Idaho National Engineering Laboratory in 1986. The carrier used a longer route, over non-interstate highways, to avoid the City of Las Vegas. The carrier appealed the penalty assessment for the alleged routing violation and the ALJ ruled in the carrier's favor.

The outcome in this particular case is probably less important than the more widespread implications for spent fuel and high-level high level waste shipments in general in the areas of: state designation of alternate routes, pick-up and delivery exception, reducing time in transit, and state regulation of transportation.

One disputed issue in the case was whether the route the carrier did not use was the state designated alternate route. The ALJ concluded that the state's route designation was not effective because:

- ▶ The wrong federal regulation citation was provided in the state's route designation;
- ▶ There was no evidence that the designation was preceded by a routing analysis which adequately considered overall risk to the public or by substantive consultation with affected jurisdictions;
- ▶ There was no proof that the Governor was authorized to act as the "state routing agency" when he made the designation; and
- ▶ Two state agencies which the ALJ thought should have known about the route designation were unaware of it.

In 1988, DOT amended its routing rules to require states to give notice to DOT of their alternate route designations before they can become effective. However, DOT said that it did not intend to investigate the notices to determine if the routes were designated in accordance with the federal routing rules. Therefore, if second-guessing a state's route designation becomes common practice, states will have no certainty that their route designations will not be reversed years later.

HM-164 authorizes carriers to leave the preferred routes (interstate highways and state-designated alternate routes) "to the extent necessary to pick up, deliver or transfer a package (49 C.F.R. §177.825 (b)(2)(iii)). Before the ALJ's decision, this exception was commonly interpreted to require the use of a reasonably direct route from the interstate to the pick-up or delivery point. The Research and Special Programs Administration argued unsuccessfully that the route Tri-State used was illegal because it took 470 miles to reach the interstate, while the other route joined the interstate in about 60 miles. The ALJ ruled that there is no mileage limitation in the pick-up and delivery exception.

HM-164 requires carriers to “ensure that the vehicle operates over preferred routes selected to reduce time in transit” (49 C.F.R. §177.825 (b)). The ALJ effectively eliminated this requirement by saying that the phrase was ambiguous and could mean, for example, that states must reduce transit time when designating alternate routes.

Based on the ALJ’s ruling, DOT could have an even greater tendency to find that state regulations are inconsistent with federal law.

DOT’s inconsistency rulings have relied heavily on the potential for diverting shipments. DOT’s reasoning is as follows.

“Any state regulation which increases the likelihood that carriers will legally (in compliance with HM-164) reroute shipments to avoid the state is a routing rule. Therefore, unless the state bases its particular rule on safety considerations and consults with other affected states and local governments (as required for state designation of alternate routes), the state rule is an impermissible routing rule, and thus, preempted by federal law.”

DOT used the above reasoning with varying results in different states. For example, laws in Vermont, New York, and Michigan were found to be inconsistent, in part, because they made carriers want to avoid these areas and the carriers could legally do so with shipments from Canada because Canada has no routing rules which would prohibit these shipments from crossing the border at a different place, even hundreds of miles out of the way. On the other hand, DOT found that Illinois’s shipping fee was consistent with federal law because, even though it might make carriers want to avoid Illinois, they probably could not detour around Illinois without violating the federal routing rules, simply because of Illinois’s geographic location.

In September 1989, DOT proposed a rule making to address some of the uncertainties created by the ALJ decision. (54 *Federal Register* 40,272) A revised version of the rule, incorporating comments received from chemical companies, public utilities, universities, and Federal and State agencies, became final on May 8, 1990. (55 *Federal Register* 19,212) As described below, the rule reinstates DOT’s interpretation of the rules to require the carrier to select routes to reduce time in transit and would impose new requirements on pickup and delivery routes.

The amended rule states that the carrier shall operate “only over preferred routes.” The following sentence clarifies “preferred routes:” “Those routes must be selected by the carrier or that person operating a motor vehicle containing a highway route controlled quantity of radioactive materials to reduce time in transit over the preferred route segments of the trip.” This language is intended to eliminate the ambiguity pointed out by the ALJ’s opinion.

This rule clarified the pickup and delivery issue. The amended rule states:

A motor vehicle may be operated over a route, other than a preferred route, only under the following conditions:

[I] The deviation from the preferred route is necessary to pick up or deliver a highway route controlled quantity of radioactive materials, to make necessary rest stops, or because emergency conditions make continued use of the preferred route unsafe or impossible;

[ii] For pickup and delivery not over preferred routes, the route selected must be the shortest-distance route from the pickup location to the nearest preferred route entry location, and the shortest-distance route to the delivery location from the nearest preferred route exit location. Deviation from the shortest distance pickup or delivery route is authorized if such deviation:

[A] is based upon the radiological risk minimization criteria of paragraph [a] of this section; and

[B] does not exceed the shortest-distance pickup or delivery route by more than 25 miles and does not exceed 5 times the length of the shortest-distance pickup or delivery route.

[iii] Deviations from preferred routes or pickup or delivery routes other than preferred routes, which are necessary for rest, fuel, or motor vehicle repair stops or because of emergency conditions, shall be made in accordance with the radiological risk minimization criteria under paragraph [a] of this section unless, due to emergency conditions, time does not permit use of those criteria.

The permissible deviation calculation method chosen (not more than 25 miles, not longer than 5 times the length) was the second of two methods considered in the proposed rule. Commenters believed that this method allows for a reasonable amount of carrier discretion to deviate from the shortest distance base pickup or delivery route and remain consistent with the intent of §177.825. Carriers still may petition the appropriate state authority to have a particular pickup or delivery route designated as a preferred route, or may pursue the exemption procedure available in 49 CFR §107.103 if using this permissible deviation method is not feasible.

The amended rule requires states to select routes based on minimizing radiological risk. States may use the DOT Guidelines, which consider radiological risks to be primary route comparison factors, or any other “equivalent routing analysis which adequately considers overall risk to the public.” Such designations must also be preceded by “substantive consultation with affected local jurisdictions and with any other affected states to ensure consideration of all impacts and continuity of designated routes.”