

Chairman Shimkus, Ranking Member Tonko, and members of the Subcommittee, on behalf of the state of Illinois and the Midwestern Radioactive Materials Transportation Committee of the Council of State Governments (CSG), thank you for inviting me to talk about the transportation of spent nuclear fuel and high-level radioactive waste and the important role that states have in this matter. My testimony today is strictly for informational purposes to help members of the Subcommittee better understand a vital component of a fully functioning waste management system.

As a state, Illinois' footprint in the nuclear fuel cycle is prominent. Illinois is one of the largest producers of nuclear power in the world, with 11 operating reactors located at six power plants. We currently have one power plant, the Zion Nuclear Power plant located just north of Chicago on the banks of Lake Michigan, which is undergoing decommissioning. Illinois is also the home of GE Morris, the only commercial away-from-reactor spent fuel storage facility in the country. Illinois has a current inventory of 9,630 metric tons of spent nuclear fuel either in spent fuel pools or sitting in dry cask storage.

As a region, the Midwest has 27 operating reactors located at 19 power stations with four power stations either shuttered or undergoing decommissioning: Kewaunee and La Crosse in Wisconsin, Big Rock Point in northern Michigan, and Zion in Illinois. The region has an inventory of 19,320 metric tons of spent nuclear fuel and high-level waste.

With this relatively large amount of spent nuclear fuel in storage and our geographical location relative to where the majority of spent nuclear fuel resides around the nation, it is obvious that Illinois and our Midwestern neighbors will be greatly impacted when it comes time to move spent nuclear fuel to interim storage or a repository. In fact, according to the U.S. Department of

Energy's (DOE) *Final 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 (DOE/EIS-0250)*, Illinois ranks number one in the nation for the number of metric ton units to be shipped. When broken down in terms of number of shipments passing through each state, of the 43 states projected to experience shipments, excluding Nevada, the *EIS* ranks Illinois sixth for highway shipments and fourth for rail shipments.

While transportation is a constant variable of waste management, it is often the most under-emphasized component of the back end of the nuclear fuel cycle. The Department of Energy's former Office of Civilian Radioactive Waste Management (OCRWM) was on the mark when it stated, in its *1986 Transportation Institutional Plan*, that "While each program element has its particular sensitivity, the transportation of the waste to facilities developed under the Nuclear Waste Policy Act may be the most visible element [of the Civilian Radioactive Waste Management System] nationwide."

In its 2003 report, *Strategic Plan for the Safe Transportation of Spent Nuclear Fuel and High-Level Radioactive Waste to Yucca Mountain: A Guide to Stakeholder Interactions*, OCRWM said the mission for the Yucca Mountain program was to "manage, dispose of, and transport spent fuel and high-level waste in a manner that protects public health, safety, and the environment; enhances national and energy security; and merits public confidence." We believe this remains true, regardless of where the spent nuclear fuel is shipped.

The safety and security of spent nuclear fuel shipments is governed by a defined regulatory system. The United States Department of Transportation (DOT) and the United States Nuclear Regulatory Commission (NRC) have primary regulatory oversight for spent nuclear fuel

transportation. These two agencies have entered into a memorandum of understanding that concisely details each agency's regulatory responsibility.

Under Title 49 Code of Federal Regulation for transportation by highway, rail, vessel, and air, DOT's primary responsibility is regulating hazardous materials, the shippers and carriers, conveyance safety, operator qualification and safety, hazard communications, and routing. In accordance with Title 10 Code of Federal Regulation, the NRC's primary role is safety and security of the spent nuclear fuel and package certification.

Under the Nuclear Waste Policy Act (NWPA), as amended, for commercial spent nuclear fuel shipments, DOE will be required to use only NRC approved and certified casks and follow the prescribed NRC notification requirements. DOE, through a memorandum of understanding with both the DOT and NRC, also has committed to following the transportation regulations of both agencies.

Why, you may be wondering, are states involved?

For almost three decades, dating back to the rail shipments of radioactive waste from the accident at Three Mile Island, Illinois and other states have worked independently and collectively to engage with DOE on various transportation campaigns and programs. State agencies protect the health and safety of the public and the environment and they are accountable to state governors and legislatures. Beginning in the late 1980s, DOE started establishing cooperative agreements with multistate organizations to bring states together on a regional basis to work on transportation planning. It is through these agreements that DOE and the states work in a consultative and cooperative fashion to resolve transportation institutional issues related to DOE's shipments of spent nuclear fuel, transuranic waste (material contaminated with

radioactive isotopes that have atomic numbers higher than uranium on the periodic table of elements), and other radioactive waste. The Council of State Governments' (CSG) Midwestern Office is one of the multistate organizations that has a cooperative agreement with DOE. I co-chair the Midwestern Radioactive Materials Transportation Committee, which CSG Midwest organized in 1989 specifically to address regional transportation issues and the potential impacts DOE's shipments might have on the Midwestern states.

States are co-regulators of transportation because we bear the primary responsibility for protecting the health and safety of the public and the environment. So when it comes to the transportation of spent nuclear fuel, responsibility for training emergency response personnel, monitoring shipments, conducting inspections, and providing escorts falls to the states. Because states have well-established working relationships with local community officials, law enforcement, and first responders along shipping routes, we also serve as the intermediary between the federal government and local officials.

Furthermore, many states have established state-specific laws that regulate certain aspects of radioactive material transportation, including spent nuclear fuel. For instance, Illinois requires all shipments of spent nuclear fuel, transuranic waste, and highway route-controlled quantities of radioactive material to be inspected and escorted before they enter into commerce within the state. Other states have permitting requirements, routing requirements, time prohibitions, etc. In the Midwest, for example, Iowa and Nebraska have exercised their authority to designate alternate routes for shipments of highway route-controlled quantity shipments, including spent nuclear fuel.

Because we are co-regulators and because of our long history of working cooperatively with the Department of Energy, states expect to be involved as partners in the planning and implementation of spent nuclear fuel shipments to a repository or to an interim storage facility. It is our sincere hope that the federal government will act in accordance with DOE's early commitment to develop a transportation system that is safe, secure, efficient, and merits public confidence.

George S. Patton once stated, "Prepare for the unknown by studying how others in the past have coped with the unforeseeable and the unpredictable." We feel it is incumbent upon DOE and the federal government to glean as much information from current and past spent nuclear fuel and other radioactive material shipping campaigns for the purpose of preparing for future shipments. This should include best practices and lessons learned as identified by all stakeholders. In the past decade, two major reports have been published on behalf of the federal government that in whole or in part analyzed the transportation of spent nuclear fuel. These reports are the National Academy of Sciences' 2006 report, *Going the Distance? The Safe Transport of Spent Nuclear Fuel and High Level Radioactive Waste in the United States* and the *Blue Ribbon Commission on America's Nuclear Future Report to the Secretary of Energy*, published in 2012. These reports contain pertinent information and recommendations that should be scrutinized and incorporated into DOE's new national transportation plan.

Transportation of spent nuclear fuel is not a new concept. As a nation, for the past 40 years we have successfully transported spent nuclear fuel from university research reactors, foreign research reactors, and commercial facilities. In addition, since 1999, many states have had firsthand experience with shipments of a different type of radioactive waste – transuranic waste – to the Waste Isolation Pilot Plant (WIPP) outside of Carlsbad, New Mexico. The WIPP's

enabling authority is the Waste Isolation Pilot Plant Land Withdrawal Act (LWA). While the WIPP shipments involve transuranic waste, not spent nuclear fuel, the transportation program is a good model for a national spent nuclear fuel transportation program because it is large, complex, highly successful, and has the support of the affected states and Tribes. The Blue Ribbon Commission's report went as far as to state, "DOE's decision to work cooperatively with Carlsbad and the Western Governors' Association to develop a safe transportation program for WIPP was extremely helpful in addressing transportation related concerns." Shipments envisioned as part of the federal program to move spent nuclear fuel and high-level radioactive waste will differ from the aforementioned examples to some extent, but there are enough similarities to warrant borrowing from these successful programs.

One critical difference between WIPP shipments and the national spent nuclear fuel transportation program, as currently envisioned, is the funding mechanism for those states and tribes affected by shipments. In Section 180(c) of the NWPA, Congress requires the Secretary of Energy to provide financial and technical assistance to states and tribes that will be affected by shipments of spent nuclear fuel and high-level radioactive waste to a national repository or other NWPA-mandated facility. The assistance is intended to be used "for training for public safety officials of appropriate units of local government," with training covering "procedures required for safe routine transportation of these materials, as well as procedures for dealing with emergency response situations."

Although Section 180(c) assistance, when implemented, may prove to be an important source of revenue for some states, two major limitations will reduce its effectiveness in preparing state, tribal, and local personnel along shipping routes for their oversight and emergency response roles in connection with shipments to a national repository. First, DOE has interpreted Section 180(c)

assistance as solely intended “for training,” and does not allow states to recoup operational costs. For example, a state could use 180(c) assistance to train inspectors, since safety inspections would be part of assuring “safe, routine transportation.” But states would not receive any assistance for *conducting* inspections, nor would they receive assistance for escorting shipments. Illinois is one of the states that charges a fee for these services, but many states do not. As a result, because of the way Section 180(c) is currently written and the way DOE interprets the section, state taxpayers may be forced to bear the cost of safety inspections and security escorts that state personnel undertake as part of their duties.

This situation stands in stark contrast with what WIPP provides to states and tribes affected by shipments. Whereas Section 180(c) is intended “for training,” Section 16(d) of the WIPP LWA requires the Secretary of Energy to “provide in-kind, financial, technical, and other appropriate assistance to any State or Indian tribe through whose jurisdiction the Secretary plans to transport transuranic waste to or from WIPP, for the purpose of WIPP-specific transportation safety programs not otherwise addressed in this section.” DOE provides states the opportunity to comprehensively assess operational impacts as a result of WIPP shipments and does not limit funding strictly to training. The flexibility under the LWA allows states to more effectively manage and mitigate burdens placed on states as a result of these shipments.

The second limitation of Section 180(c) is that it applies only to shipments to facilities mandated by the NWPAs; therefore, unless Congress amends the NWPAs, the Secretary has no obligation to provide assistance to states and tribes that are affected by shipments to private facilities or to other federal storage locations. This was a concern to states back when the Private Fuel Storage facility was planned for Utah, and it is a concern now that two entities – one in Texas and one in New Mexico – have expressed interest in constructing private storage facilities for spent fuel.

Another notable difference between WIPP shipments of transuranic waste and future shipments of commercial spent nuclear fuel is that, consistent with the National Academy of Science's recommendation in *Going the Distance*, DOE has committed to transporting spent nuclear fuel under the mostly rail transportation scenario using dedicated trains. Rail safety regulations are enforced by the Federal Railroad Administration (FRA) and, through the FRA's State Participation Program, by state rail safety programs. For WIPP shipments, the states conduct rigorous safety inspections of the trucks following the Commercial Vehicle Safety Alliance's (CVSA) Level VI inspection procedure. The CVSA developed the Level VI program with assistance from cooperative agreements with DOE – originally for the purpose of spent nuclear fuel and high-level radioactive waste shipments but later for transuranic waste shipments as well. DOT has codified the standard in 49 CFR 385 and, since 2005, all shipments of these materials are now required to have a CVSA Level VI inspection on the vehicle and packaging prior to departure.

A decade ago, states began working with DOE and the FRA to try to develop a similar program. In order to minimize risk to the greatest extent possible and to garner as much public assurance as possible, they reviewed current rail safety inspection practices with the hope of creating a reciprocal rail inspection program that would accomplish the same goals as the CVSA Level VI inspection program. Because it is a reciprocal program, the CVSA Level VI inspection helps shippers reduce the number of redundant stops for shipments in transit. By relying on standardized procedures, inspectors understand exactly what their counterparts are checking when inspections are conducted in “upstream” states. As a result, they are able to develop a high level of confidence in those previously conducted inspections. The CVSA Level VI inspection



program is rigorous and transparent; therefore, it promotes public confidence in shipments of radioactive waste.

Besides reciprocity, three attributes of the CVSA inspection program stand out as essential to the success of a national inspection program: a detailed listing of items checked and defects found; the ability to pass information along to inspectors in other states in a secure manner; and the signature of duly certified state inspectors who conduct the inspections. This is what we have for truck shipments; we need to have the same assurances for rail shipments – especially since the vast majority of spent nuclear fuel will move by train. DOE’s Office of Nuclear Energy, in conjunction with state regional groups and tribal governments, recently formed a Rail/Routing Working Group for spent nuclear fuel. It is our hope that this working group will pick up the work that was begun a decade ago and carry it forward. However, no matter what the working group’s final recommendations are, an enhanced reciprocal rail safety inspection program will not become a reality without the support of the FRA and the rail industry.

Routing is yet another dichotomy in regulation and practice. 49 CFR 397 gives states the authority to designate routes for highway shipments of Class 7 (Radioactive) material. From a regulatory standpoint, rail routing of large quantity radioactive materials such as spent nuclear fuel is treated differently from highway routing. States were given highway routing designation authority in part because it is the state’s responsibility to protect and serve its citizens. Because of the private ownership of rail lines, states don’t have this same authority over rail shipments. States should be included in discussions with DOE and the railroads over which routes will be used for shipments. This is the type of activity that we would expect to be a part of consultative, cooperative transportation planning. As envisioned by the states, a truly cooperative, consultative approach is characterized by highly engaged stakeholders that are committed to

working together to solve a problem. The success of DOE's transuranic waste transportation program is due in large part to the fact that DOE adopted just this type of cooperative, consultative approach to working with affected states and tribes. It should be pointed out that the *TRU Waste Transportation Plan* went above and beyond regulatory requirements for highway shipments of transuranic waste to the WIPP when DOE applied the requirements of 49 CFR Part 397 to all of its shipments. This is another example of why the WIPP transportation program is so successful and receives stakeholder buy-in.

Recognizing that the public will hold large-scale shipments of spent nuclear fuel to a higher standard than that for other DOE shipments, the states feel strongly that DOE must not only meet the standard set by the WIPP program but exceed those requirements by adopting reasonable measures that will minimize public risk and maximize public confidence in the transportation program. These measures include: state involvement in route identification; the development of a reciprocal rail inspection program; and financial support, not just for training, but for state transportation safety programs that are consistent with the WIPP model.

We are working cooperatively with DOE's Nuclear Fuels Storage and Transportation Planning Project, and we're making some progress. The pace of progress will understandably be slow, however, until a definite path forward is identified for the nation's civilian radioactive waste management program.

On behalf of the great state of Illinois and the CSG Midwestern Radioactive Materials Transportation Committee, I thank you for hearing this testimony. We look forward to working with our state, federal, and tribal partners as we endeavor to meet our common goal: the safe,

secure transportation of radioactive material in a manner that protects the health and safety of the public.