

**Statement of Edward F. Sproat III
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**Before the
Committee on Commerce, Science and Transportation
United States Senate**

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Mr. Chairman and Members of the Committee, I am Edward F. Sproat III, Director of the Department of Energy's (DOE) Office of Civilian Radioactive Waste Management (OCRWM). I appreciate the invitation to appear before the Committee to discuss the safety and security of transporting spent nuclear fuel.

Since the early 1960s, more than 3,000 shipments of spent nuclear fuel have been conducted safely and securely in the United States, having traveled more than 1.7 million miles. There has never been a spent nuclear fuel transportation accident that has resulted in any release of radioactive material harmful to the public or the environment. The use of robust casks certified by the Nuclear Regulatory Commission (NRC), and strict regulatory standards for every aspect of logistics, including material characterization, packaging, loading, marking, equipment inspections, routing, training, security, and shipment monitoring, have all contributed to this outstanding safety record.

In 2006, the National Academy of Sciences published a study on the safety of spent nuclear fuel shipments titled: *"Going the Distance? The Safe Transport of Spent Nuclear Fuel and High-Level Radioactive Waste in the United States."* In that report, the

Academy concluded that from a technical viewpoint, these shipments present "...a low-radiological-risk activity with manageable safety, health and environmental consequences when conducted in strict adherence with existing regulations." The plans to ship spent nuclear fuel to the Yucca Mountain repository in the 2020 timeframe are building on this successful experience base.

Roles and Relationships

The Department of Transportation (DOT) and the NRC have established safety and security regulations for transport of spent nuclear fuel. DOE has committed to meet or exceed these regulations for shipments to Yucca Mountain. The Nuclear Waste Policy Act of 1982, as amended (NWPA) explicitly requires the Department to ship spent nuclear fuel and high-level radioactive waste to a repository in transportation casks certified by the NRC. Under the NWPA, the Department must also comply with NRC notification requirements prior to conducting such shipments. In addition, the NWPA requires the Department to provide States and Tribes technical assistance and funds for training local public safety officials in safe routine transportation and emergency response procedures. The Department has selected mostly rail as the preferred mode of transport both nationally and in the State of Nevada for shipments to Yucca Mountain. The Department also has made the policy decision to use dedicated trains as the usual mode of rail service to enhance operational efficiency.

As the planning process for the Yucca Mountain transportation system evolves, we are continually looking for opportunities to further enhance the safety and security of these

shipments. Post 9/11, the NRC has also imposed additional security measures for its licensees transporting spent nuclear fuel and other materials, many of which were measures DOE had put in place for its shipments years before. We are and will continue to coordinate our planning closely with NRC, DOT, and the Department of Homeland Security.

Once routes and shipment schedules are established, advance notification will be provided to individuals that have appropriate security clearance in each governor's office in compliance with NRC regulations. All shipments will be accompanied by armed escorts and will be continuously monitored and tracked via satellite. We anticipate that most rail shipments will be conducted on dedicated trains, meaning no other materials will be transported on the same train, allowing for greater operational control of such shipments. Highway and rail shipments will be thoroughly inspected in accordance with standards of the Commercial Vehicle Safety Alliance or the Federal Railroad Administration, as appropriate, prior to departing from their points of origin.

Challenges and Issues

In their report on the safety of spent nuclear fuel shipments referenced above, the National Academy of Sciences addressed the relative risks of these shipments compared to other hazardous materials commonly transported in this country. Their findings demonstrate that each spent nuclear fuel shipment is thousands of times less risky than shipments of other commonly transported hazardous materials. This level of safety is the

direct result of the stringent regulatory standards and robust packages used for such shipments.¹

In addition to the lower risks for each shipment of spent nuclear fuel, there are far fewer of these shipments per year than shipments of other hazardous materials. In 2006, American railroads transported hazardous materials 111 billion ton-miles in over 1,000,000 rail cars. Of this total, less than 0.025 percent were spent nuclear fuel shipments.

The National Academy of Sciences, the transportation industry, the State of Nevada, and a broad spectrum of other stakeholders advocated strongly for a transportation system based on mostly rail shipments. Over the life of the repository, fewer than 3,000 trains can transport the same amount of spent nuclear fuel that would require more than 48,000 truck shipments. In addition, the use of Transportation, Aging, and Disposal canisters, which weigh up to 180 tons in their transportation configuration, requires the use of rail transport.

A significant fleet of transportation casks has to be developed to support shipments to Yucca Mountain. That process has started with funding for the design and certification of the Transportation, Aging and Disposal canisters and their transportation overpacks. Funding to support development of a fleet of approximately 150 transport casks that meet the stringent safety requirements of the NRC is needed as part of the transportation

¹ National Research Council of the National Academies, Going the Distance? The Safe Transport of Spent Nuclear Fuel and High-Level Radioactive Waste in the United States (Washington, D.C.: The National Academies Press, 2006), pp. 174-182.

system. In addition, the Department needs to develop a fleet of rail cars with the best available safety technology. These rail cars will meet the new requirements established by the Association of American Railroads. The Department is collaborating with the Naval Nuclear Propulsion Program on development of the next generation of security escort rail cars designed to this new standard.

Current Status and Steps Moving Forward

In a 2004 Record of Decision, the Department selected mostly rail as its mode of transport, both nationally and in the State of Nevada. In June 2008, the Department completed the “Final 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” (Rail Alignment EIS). The Rail Alignment EIS analyzes the environmental impacts associated with a range of potential alignments for constructing and operating a railroad in Nevada to Yucca Mountain. There was considerable public involvement in the development of the EIS and a Record of Decision is anticipated this fall.

As we move forward the Department will continue its ongoing collaborations with States, Tribes and stakeholders as we fulfill our commitment to establish a safe and secure transportation system for shipments to Yucca Mountain. I appreciate the Committee’s interest on this important aspect of the Department’s Yucca Mountain Program.