

## TRANSPORTATION OF SPENT NUCLEAR FUEL IS SAFE.

### **THE RECORD IS CLEAR: TRANSPORTATION OF SPENT NUCLEAR FUEL IS SAFE.**

*"The safety record for spent fuel shipment in the U.S. and in other industrialized nations is enviable. Of the thousands of shipments completed over the last 30 years, none has resulted in an identifiable injury through release of radioactive material."* Nuclear Regulatory Commission, NUREG-0725, Rev. 13.

#### **Thousands of Safe Shipments Have Occurred**

More than 3,000 shipments of spent nuclear fuel from nuclear power plants, government research facilities, universities and industrial facilities have crossed the United States, "without a single death or injury due to the

radioactive nature of the cargo."<sup>1</sup> Shipments include 719 containers from the Naval Nuclear Propulsion program between 1957 and 1999, and 2,426 highway shipments and 301 railway shipments from the U.S.

nuclear industry between 1964 and 1997. In addition, since 1996, shipments of spent nuclear fuel have been safely transported to the United States from 41 countries to the DOE facilities;<sup>2</sup> again, without a single death or injury – not one.

Furthermore, the DOE has safely and successfully received 8,364 transuranic waste shipments at the Waste Isolation Pilot Plant (WIPP) in New Mexico as of March 2010.<sup>3</sup> The Western Governors' Association (WGA)

signed an agreement with the DOE in April 1996 that affirmed regional planning processes for safe transportation of radioactive waste. All regional high-level radioactive waste transportation committees also

endorsed the WGA approach. The WIPP transportation planning system is setting the standard for safety and proving to be a critical step toward solving the nation's spent nuclear waste disposal program.

#### **Rigorous Safety Standards**

To ensure safety at on-site spent fuel storage facilities and during transportation, the material is stored in containers that meet the Nuclear Regulatory Commission's (NRC) rigorous engineering and safety standards

testing. To satisfy the NRC's rigorous standards for subsequent transportation approval, these containers have been dropped 30-feet onto an unyielding surface, dropped 40 inches onto a 6-inch vertical steel rod, exposed for

30 minutes to a 1,475°F fire, submerged under 3 feet of water for eight hours, immersed in 50 feet of water for at least eight hours (performed in a separate cask), and immersed in 656 feet of water for at least one hour.<sup>4</sup>

#### **Agencies Oversight**

The NRC and the U.S. Department of Transportation (DOT) jointly regulate shipments of spent nuclear fuel in the United States. The Atomic Energy Act of 1954 authorizes the NRC to regulate the licensing, packaging (including spent fuel containers), physical security and safe transportation of spent nuclear fuel from commercial nuclear power plants throughout the nation. The DOT is responsible for notifying the governor of any state through which the material is shipped, ensuring the safety of hazardous material during transit, providing route control and route planning of shipments, and training state agencies, local officials and Indian tribes on the various aspects of shipping spent nuclear fuel. Under the Nuclear Waste Policy Act of 1982 (NWPA), as amended in 1987, the Department of Energy's (DOE) prime responsibility is to take title and dispose of spent nuclear fuel. The DOE is obligated to provide funds for the public safety training of states, local officials and Indian tribes in the development of transportation-oriented radiological emergency preparedness plans. The transportation of high-level waste is also coordinated with the U.S. Department of Homeland Security, Federal Emergency Management Agency, Department of State, Occupational Safety and Health Administration and the Environmental Protection Agency.

### **What Makes This Program Safe?**

The National Academy of Sciences recognized in the early 1950s the need for the disposal of radioactive and hazardous waste material produced from defense, research and weapons production. The elements in these materials are manmade, radioactive and have an atomic number greater than uranium.<sup>5</sup> For more than half a century, enormous attention and stringent regulations have been placed by several federal agencies to the mechanisms of safe transportation of high-level radioactive waste material to ensure the safety to the public. Consequently, there are more than 500 laws and regulations in force that effect the transportation of spent nuclear fuel.<sup>6</sup> However, negative perception on the safety record of transportation of spent nuclear fuel continues to erode due to deliberate misinformation circulated among the public. Furthermore, facts about transportation of spent nuclear fuel to Yucca Mountain have been obfuscated. Until the Administration terminated the Yucca Mountain program and withdrew its license application with prejudice from the Nuclear Regulatory Commission, the DOE was in the process of selecting the mode, routes and timetable as to how 70,000 MTU, as mandated by the NWPA, will be transported to Nevada. If the transportation activities resume, the DOE will be collaborating with the State of Nevada, Tribal and local governments, and Federal agencies on the transportation infrastructure systems in accordance with the Department of Transportation regulations. If a permanent repository is licensed at Yucca Mountain, the DOE projects approximately 4,300 shipments over a 24-year period, averaging 175 shipments of spent nuclear fuel per year, a relatively small amount compared with the approximately 300 million annual shipments of hazardous materials (explosives, chemicals, flammable liquids, corrosive materials, and other types of radioactive materials), that are currently transported around the country every day.

- <sup>1</sup> National Conference of State Legislatures' Report, January 2000.
- <sup>2</sup> U.S. Department of Energy Report to the Committees on Appropriations, January 2001.
- <sup>3</sup> U.S. DOE/Waste Isolation Pilot Plant Shipment Figures, March 2007.
- <sup>4</sup> Nuclear Regulatory Commission Testing Requirements, 10 CFR Sections, 71.61, 71.71, and 71.73.
- <sup>5</sup> U.S. Department of Energy Oversight Bureau, Waste Isolation Pilot Plant Fact Sheet.
- <sup>6</sup> National Conference of State Legislatures' Report, January 2000.

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