

Security of Irradiated Reactor Fuel in Transit



Photo Credit: STS Transport



Office of Nuclear Security and Incident Response



Security Requirements for the transport of Spent Nuclear Fuel (SNF)

The terrorist attacks of September 11, 2001, heightened concerns about the use of risk-significant radioactive materials in a malevolent act. In response to the attacks, the U.S. Nuclear Regulatory Commission (NRC) assessed existing security requirements and determined that additional security measures were needed to enhance the protection of SNF shipments from theft, diversion, or radiological sabotage.

Irradiated Reactor Fuel

Security: A Brief Summary

NRC requirements for physical protection of irradiated reactor fuel in transit are found in 10 CFR 73.37.

Highlights include:

- Coordinating with law enforcement agencies before the shipment;
- Requiring advance notice to States, Tribal nations, and the NRC;
- NRC review and approval of transport routes;
- Using a movement control center staffed and equipped to monitor and control SNF shipments continuously while in transit;
- Using armed escorts, and;
- Using devices that allow drivers and escorts to immobilize the road-transport vehicle.

Robust Shipping

Containers Add to Security

Ensuring Safe Spent Fuel Shipping Containers



The impact (free drop and puncture), fire, and water immersion tests are considered in sequence to determine their cumulative effects on a given package.

 USNRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

A Team of Teams

Several federal agencies, notably the US Department of Transportation (DOT), have security and safety requirements complementary to the NRC's, all of which combine to provide high assurance of the secure and safe movement of SNF in the United States.

Other federal agencies involved in the safe and secure regulation of Hazard Class 7– (radioactive) material:

- Customs and Border Protection
- Transportation Security Administration
- United States Coast Guard
- Federal Railroad Administration
- Department of Homeland Security
- Federal Motor Carrier Safety Administration
- Pipeline and Hazardous Material Safety Administration
- Federal Aviation Administration



NRC and DOT Requirements

NRC's and DOT's regulations complement each other in ensuring the safe and secure movement of SNF.

The NRC requirement that obliges licensees to adhere to DOT requirements are found in 10 CFR 71.5, *Transportation of licensed material*:

10 CFR 71.5(a) states: "Each licensee who transports licensed material outside the site of usage, as specified in the NRC license, or where transport is on public highways, or who delivers licensed material to a carrier for transport, shall comply with the applicable requirements of the DOT regulations in 49 CFR parts 107, 171 through 180, and 390 through 397, appropriate to the mode of transport." DOT requirements include the following areas:

- Security plans
- Radiation levels in transit
- Hazardous material employee training
- Accident reporting
- Shipping papers and emergency information

Mission

Our mission is to regulate the nation's civilian use of radioactive materials in a way that protects public health and safety and the environment. The NRC regulates commercial nuclear power reactors, research, test, and training reactors, nuclear fuel cycle facilities, and medical, academic, and industrial uses of nuclear materials. The NRC also regulates packaging for the transport, storage, and disposal of nuclear materials and waste and licenses the export and import of radioactive materials.



The U.S. Nuclear Regulatory Commission was created as an independent agency by Congress in 1974 to ensure the safe use of radioactive materials for beneficial civilian purposes while protecting people and the environment. The NRC regulates commercial nuclear power plants and other uses of nuclear materials, such as in nuclear medicine, through licensing, inspection and enforcement of its requirements.

For Additional Information Contact:
Office of Public Affairs
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
Phone: (301) 415-8200