



High-Level Radioactive Waste Committee Position Paper

Physical Protection Requirements for SNF Transport Number 2017-2

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In General

This Position Paper represents the views of the Western Interstate Energy Board as developed by its High-Level Radioactive Waste Committee (HLRWC). WIEB was created under the Western Interstate Nuclear Compact in 1970, and the WIEB Board members are appointed by the governors of the Compact states. The [HLRWC is composed of nuclear waste transportation experts](#) who collaborate on this topic with the U.S. Department of Energy as well as many others. The HLRWC, in existence for over thirty years, has drawn from its members' extensive experience in order to create [Position Papers](#). Once approved by the WIEB Board, this and the other Position Papers represent WIEB's view of how to create and maintain an ideal nuclear waste transportation campaign. Although the HLRWC only speaks on behalf of the Western WIEB member states in these Position Papers, it acknowledges the essential involvement of many partners in assuring this ideal campaign: one that is safe, uneventful, and publicly acceptable.

Statement of Policy and Objective

The Nuclear Regulatory Commission's (NRC) physical protection requirements¹ should be in place for all shipments of spent nuclear fuel and high-level radioactive waste (SNF/HLW). Utility shipments are currently subject to these NRC regulations. Current DOE spent fuel shipments, and future DOE shipments to storage or disposal facilities, are not at present subject to these regulations.

The objective of this policy is to ensure the physical security of SNF and HLW shipments through Western states. The threat environment in which future shipments will take place is uncertain.

¹ 10 CFR 73.37.

It is vital that the shipments receive the highest possible degree of protection regardless of the entity shipping them.

Background and Context

1. DOE's ability to self-regulate may lessen shipment security requirements.

Under the Nuclear Waste Policy Act (NWPA) as amended, SNF shipments to a storage facility or repository by DOE would be largely self-regulated. That would be the case if DOE already owns the material shipped, or if DOE assumes title at the time of shipment. This policy disjunction could create an incongruous situation in which the NRC physical protection regulations would apply to the expected 20 or so licensee shipments each year, but would not apply to the projected 250-500 or more DOE shipments per year to NWPA facilities.²

2. The consequences of a successful attack on an SNF shipment are potentially severe.

NRC describes physical protection, also referred to as physical security, as consisting of “a variety of measures to protect nuclear facilities and material against sabotage, theft, diversion, and other malicious acts.”³ The NRC system of physical protection requirements for spent fuel shipments (10 CFR 73.37) was originally adopted in 1980. In 2013, NRC updated and expanded these regulations by rulemaking. The current version incorporates regulatory clarifications and security enhancements requested by stakeholders; codifies the findings of NRC and DOE consequence analyses into policy guidance documents; and brings forward into regulations the agency and licensee experience gained since the terrorist attacks of September 11, 2001. Some of those consequence findings are included in the DOE Supplemental Environmental Impact Statement adopted by NRC staff as part of the Yucca Mountain license application in 2009. These findings form the basis of estimates that a successful terrorist attack on a spent fuel shipment in an urban area could release radioactive material and result in thousands of latent cancer fatalities and billions of dollars in clean-up costs.⁴

3. NRC physical protection requirements are not required for DOE shipments.

The NRC requirements establish a comprehensive system designed to prevent malicious acts and mitigate the consequences of such acts. Licensees must develop shipment plans in advance; use NRC-approved routes; coordinate with local law enforcement agencies; protect information about schedules; and, maintain regular communication between

² J.D. Ballard, R.J. Halstead, & F.C. Dilger, “Physical Protection of Spent Fuel Shipments: Resolution of Stakeholder Concerns Through Rulemaking – 12284,” WM 2012 Symposia, February 26 – March 1, 2012, Phoenix, AZ, available online at http://www.state.nv.us/nucwaste/news2012/pdf/wm2012dilger_pp.pdf.

³ U.S. NRC, “Physical Protection,” <http://www.nrc.gov/security/domestic/phys-protect.html>.

⁴ DOE, *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*, DOE/EIS-0250F-S1 (June 2008), Pp. 6-26 to 6-27, G-49, CR 418-419, CR 438-439.

transports and control centers. Armed guards authorized to use deadly force are required, as are vehicle immobility measures to protect against movement of hijacked shipments. These physical protection measures, and other important NRC regulations, are not required of DOE shipments now or in the future.

4. NRC authority may be limited to package certification.

Richard Meserve, then NRC Chairman, explained in 2002: “If DOE takes custody of the spent fuel at the licensee’s site, DOE regulations would control the actual spent fuel shipment. Under such circumstances, the NRC’s primary role in transportation of spent fuel to a repository would be certification of the packages used for transport ... However, if NRC licensees are responsible for shipping the spent fuel not only must the transport container be certified by the NRC, but also the shipment must comply with NRC regulations for the physical security of spent fuel in transit (10 CFR Part 73). NRC licensees are subject to inspection for compliance with the NRC’s transportation safety and security regulations.”⁵

5. DOE can choose whether or not to follow NRC standards.

DOE and NRC assure stakeholders that DOE self-regulation would meet or exceed NRC physical protection requirements. But DOE may exempt itself from NRC standards “if there is a determination that national security or another critical interest requires different action.” DOE maintains that NWPA shipments would be in compliance as long as their physical protection requirements were “the equivalent” of 10 CFR 73.37. Stakeholders are concerned that DOE self-regulation lacks credible independent oversight and fails to ensure performance of the comprehensive system of critical security planning and operations tasks required by NRC.⁶

6. DOE is not subject to the NRC route approval process.

The NRC physical protection route approval process is a particularly important example of the difference between NRC regulation and DOE self-regulation. Once a spent nuclear fuel shipment route request is received, NRC reviews it closely. NRC conducts a detailed review, considering route length and minimizing transit time, local law enforcement and emergency response contact information, adequacy of safe haven locations, and communications capability along the route. NRC also reviews the licensee’s consideration of DOT routing requirements, and the licensee’s interactions with the affected States. This comprehensive, independent regulatory guidance and oversight would be absent with DOE self-regulation.

7. NRC regulations are comprehensive.

NRC regulations also require licensees to pre-plan and coordinate SNF shipments with states. These pre-planning requirements, combined with the requirements for state involvement under the new Transportation Security Administration⁷ and Pipeline and

⁵ R. A. Meserve, “Responses to Questions from Senator Durbin,” letter dated March 22, 2002, NRC ADAMS acquisition ML021060662.pdf, May 10, 2002.

⁶ Ballard et al 2012.

⁷ Rail Transportation Security; DHS/TSA Final Rule. 73 Fed. Reg. 229 (Nov. 26, 2008), pg. 72134 (codified at 49 C.F.R. pts. 1520 and 1580).

Hazardous Materials Safety Administration rail security regulations, would allow affected states to address unique local conditions important for physical protection of shipments along rural as well as urban routes. Other provisions require continuous and active monitoring of the shipment by a telemetric position monitoring system or an alternative tracking system; require an immediate investigation if a shipment is lost or unaccounted for after the designated no-later-than arrival time; and require notification to NRC two hours before the commencement of the shipment, and notification when the shipment arrives at its final destination.

Policy Recommendation

1. Apply NRC physical protection requirements to DOE SNF shipments.

Shipments of SNF and HLW pose a viable target for human initiated events. NRC regulations establish a comprehensive physical protection system designed to minimize the potential for theft, diversion, or radiological sabotage of such shipments, and facilitate the location and recovery of such shipments that may have come under the control of unauthorized persons.