Packaging and Transportation of Spent Nuclear Fuel - Role of NRC Licensees

Institute of Nuclear Materials Management
35th Spent Fuel Management Seminar

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Overview

- NRC’s Role in Regulating Shipments of Spent Nuclear Fuel
- Package Testing
- NRC Licensees Must Comply with the Transportation Regulations
- Radiation Level Limits
- NRC Transportation Studies and Related Information
- Questions
NRC’s Role in Regulating Spent Nuclear Fuel Transportation

• Certification of Shipping Casks
• Inspection of Cask Designers and Fabricators
• Enforcement of NRC and DOT safety rules
• Enforcement of Physical Protection Measures
• Emergency Response – assistance to first responders
NRC’s Role in Regulating Spent Nuclear Fuel Packages

- Spent fuel shipping packages are certified to be accident resistant. They must withstand:
  - 30-foot drop onto unyielding surface.
  - 40-inch drop onto a steel puncture pin.
  - 30-minute fully engulfing 1475°F fire.
  - Immersion test (50 feet).
NRC Licensees Must Comply with the Transportation Regulations

- 10 CFR Part 71, Packaging and transportation of radioactive material
  - 71.17, General license: NRC-approved package
    - NRC-approved QAP
    - Register as a user of the package
    - Follow the Certificate of Compliance
  - 71.87, Routine determinations
  - 71.5, Transportation of licensed material
    - Comply with U.S. Department of Transportation regulations
      - Security requirements
      - NRC enforces the DOT regulations
Radiation Level Limits

- 10 CFR 71.87
- 49 CFR 173.441

**Package**
- 0.5 mr/hr
- 200 mr/hr
- 1,000 mr/hr (closed)

**Vehicle**
- 200 mr/hr

**2 meters from vehicle**
- 10 mr/hr

**Occupied spaces of the vehicle**
- 2 mr/hr
NRC Transportation Studies and Related Information


NRC Transportation Studies and Related Information
(continued)

- NUREG/BPR-0292, Rev. 2: “Safety of Spent Fuel Transportation” (2017) [ML16237A133]
Questions?

Thank you for your attention.