

**NUCLEAR REGULATORY COMMISSION**

**NRC-2012-0108**

**Spent Fuel Transportation Risk Assessment**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** NUREG; issuance.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is issuing NUREG-2125, "Spent Fuel Transportation Risk Assessment." This NUREG provides an update of the estimated impacts from transporting spent nuclear fuel (SNF) by highway or railway in NRC certified casks under both routine and accident conditions.

**ADDRESSES:** Please refer to Docket ID NRC-2012-0108 when contacting the NRC about the availability of information regarding this document. You may access publicly-available information related to this document using any of the following methods:

- **Federal Rulemaking Web site:** Go to <http://www.regulations.gov> and search for Docket ID NRC-2012-0108. Address questions about NRC dockets to Carol Gallagher; telephone: 301-287-3422; e-mail: [Carol.Gallagher@nrc.gov](mailto:Carol.Gallagher@nrc.gov). For technical questions, contact the individual(s) listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may access publicly available documents online in the NRC Library at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "[ADAMS Public](#)

[Documents](#)” and then select “[Begin Web-based ADAMS Search.](#)” For problems with ADAMS, please contact the NRC’s Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov). The ADAMS accession number for each document referenced in this document (if that document is available in ADAMS) is provided the first time that a document is referenced. The NUREG is available electronically under ADAMS Accession No. ML14031A323.

- **NRC’s PDR:** You may examine and purchase copies of public documents at the NRC’s PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

**FOR FURTHER INFORMATION CONTACT:** John R. Cook, Office of Nuclear Material, Safety and Safeguards, telephone: 301-287-9206; e-mail: [John.Cook@nrc.gov](mailto:John.Cook@nrc.gov); U.S. Nuclear Regulatory Commission, Washington DC 20555-0001.

**SUPPLEMENTARY INFORMATION:**

**I. Discussion.**

NUREG-2125, “Spent Fuel Transportation Risk Assessment,” provides an update of the estimated impacts from transporting spent nuclear fuel (SNF) by highway or railway in NRC certified casks under both routine and accident conditions. The draft NUREG-2125 (ML12125A218) was issued on May 14, 2012 with a 60-day public comment period (77 FR 28406). The NRC received 4 public comments and the resolution of these comments is included in the Public Comment Resolution Report (ADAMS Accession No. ML13249A337). In addition, the report was reviewed by the NRC Advisory Committee on Reactor Safeguards Subcommittee on Radiation Protection and Nuclear Materials and by the full Advisory Committee on Reactor

Safeguards (ACRS). The responses to comments from these two committees are included in the ACRS Comment Resolution Report (ADAMS Accession No. ML13249A340). The final NUREG incorporates changes to address public and ACRS comments.

The risks associated with SNF transportation come from the radiation that the spent fuel emits, which is reduced—but not eliminated—by the transportation cask’s shielding, and from the possibility of the release of some quantity of radioactive material during a severe accident. This NUREG shows that the risk from radiation emitted from the cask is a small fraction of naturally occurring background radiation, and that the risk from accidental release of radioactive material is several orders of magnitude less. Because there have been only minor changes to the radioactive material transportation regulations between NRC’s original transportation risk assessment NUREG-0170, (ADAMS Accession No. ML022590355, 1977) and this risk assessment, the calculated dose due to the radiation from the cask under routine transport conditions is similar to what was found earlier. The improved analysis tools and techniques, improved data availability, and a reduction in the number of conservative assumptions has made the estimate of accident risk from the release of radioactive material in this study approximately five orders of magnitude less than what was estimated in NUREG-0170.

The results in NUREG-2125 demonstrate that the NRC's regulations in Part 71 of Title 10 of the *Code of Federal Regulations*, "Packaging and Transportation of Radioactive Material" continue to provide adequate protection of public health and safety during the transportation of SNF.

Dated at Rockville, Maryland, this 10th day of February 2014.

For the Nuclear Regulatory Commission.

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