

**NUCLEAR REGULATORY COMMISSION
Notice of Availability of Documents Regarding
Spent Fuel Transportation Package Response to the
Baltimore Tunnel Fire Scenario**

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of availability.

FOR FURTHER INFORMATION CONTACT: Allen Hansen, Thermal Engineer, Criticality, Shielding and Heat Transfer Section, Spent Fuel Project Office, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20005-0001. Telephone: (301) 415-1390; fax number: (301) 415-8555; e-mail: agh@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Introduction

Under contract with the Nuclear Regulatory Commission (NRC), the Pacific Northwest National Laboratory prepared the draft NUREG/CR-6886 report, "Spent Fuel Transportation Package Response to the Baltimore Tunnel Fire (BTF) Scenario." The BTF was chosen for the study because it represents a severe historical accident, even though it is a very low frequency event. This NUREG/CR documents the thermal analyses of three different spent fuel transportation packages exposed to the BTF scenario: Transnuclear's TN-68, Holtec's HI-STAR 100 and the NAC's LWT.

To date comments have been received from the State of Nevada, Office of the Governor, Agency For Nuclear Projects and the Western Interstate Energy Board. These comments do not need to be re-submitted.

The format of this NUREG/CR has been modified since original posting on the NRC Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html> in September 2005.

The modified draft NUREG/CR is now posted on the NRC web site at the following URLs:

<http://www.nrc.gov/reading-rm/doc-collections/nuregs/docs4comment.html>

<http://www.nrc.gov/reading-rm/doc-collections/nuregs/contract/cr6886/>

These links include access to the formal comment template.

The results of this study strongly indicate that neither spent nuclear fuel (SNF) particles nor fission products would be released from a spent fuel shipping cask involved in a severe tunnel fire such as the Baltimore Tunnel Fire. None of the three cask designs analyzed for the Baltimore Tunnel fire scenario experienced internal temperatures that would result in rupture of the fuel cladding. Therefore, the radioactive material (i.e., SNF particles or fission products) would be retained within the fuel rods.

For two of the casks, the TN-68 and the NAC-LWT, the maximum temperatures experienced in the regions of the lid, vent and drain ports exceeded the seals' rated service temperatures, making it possible to get a small release from the CRUD¹ that might spall off of the surfaces of the fuel rods. However, any release is expected to be very small due to a number of factors. These include: (1) the tight clearances maintained between the lid and cask body; (2) the low pressure differential between the cask interior and the outside; (3) the tendency of the small clearances to plug; and (4) the tendency of CRUD particles to settle or plate out. The potential releases calculated in Chapter 8 for the TN-68 rail cask and the NAC-LWT truck cask indicate that the release of CRUD from either cask, if any, would be very small. There would be no release from the HI-STAR 100 because the inner welded canister remains leak tight.

II. Summary

The purpose of this notice is to provide the public an opportunity to review and comment on the Draft NUREG/CR-6886 thermal analyses, the consequence analyses and the conclusions.

¹CRUD is an abbreviation of Chalk River Unknown Deposit, a generic term for various residues deposited on fuel rod surfaces, originally coined by Atomic Energy of Canada, Ltd. to describe deposits observed on fuel removed from the test reactor at Chalk River.

III. Further Information

The draft NUREG/CR can also be viewed at the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. From this site you can access the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents. The ADAMS accession number for the edited (format only) NUREG is ML053200024. This file is in "black and white." The original draft is in color and can be accessed at the following accession numbers:

NUREG/CR Files	ADAMS Accession Number
Spent Fuel Transportation Package Response to the Baltimore Tunnel Fire Scenario	ML052500391
Appendix A - Material Properties for COBRA-SFS Model of TN-68 Package	ML052490246
Appendix B - Material Properties for ANSYS Model of HI-STAR 100 Package	ML052490258
Appendix C - Material Properties for ANSYS Model of Legal Weight Truck Package	ML052490264
Appendix D - Blackbody View Factors for COBRA-SFS Model of TN-68 Package	ML052490268
Appendix E - HOLTEC HI-STAR 100 Component Temperature Distributions	ML052490270

If you do not have access to ADAMS or if there are problems in accessing the document, you may contact the NRC Public Document Room (PDR) Reference staff at 1-800-397-4209, 301-415-4737, or by email to pdr@nrc.gov.

This document may also be viewed electronically on the public computers located at the NRC's PDR, O 1 F21, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852. The PDR reproduction contractor will copy documents for a fee. Comments and questions on draft NUREG/CR-6886 should be entered in the comment box (see URLs above) or directed to the NRC contact listed below by December 30, 2005. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given to

comments received after this date.

Contact: Allen Hansen, Thermal Engineer, Criticality, Shielding and Heat Transfer
Section, Spent Fuel Project Office, Office of Nuclear Material Safety and Safeguards,
U.S. Nuclear Regulatory Commission, Washington, D.C. 20005-0001. Telephone: (301) 415-
1390; fax number: (301) 415-8555; e-mail: agh@nrc.gov.

Dated at Rockville, Maryland this 30th day of November, 2005.

For the Nuclear Regulatory Commission.

/RA/

M. Wayne Hodges, Deputy Director,
Technical Review Directorate,
Spent Fuel Project Office,
Office of Nuclear Material Safety
and Safeguards.

comments received after this date.

Contact: Allen Hansen, Thermal Engineer, Criticality, Shielding and Heat Transfer Section, Spent Fuel Project Office, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20005-0001. Telephone: (301) 415-1390; fax number: (301) 415-8555; e-mail: agh@nrc.gov.

Dated at Rockville, Maryland this 30th day of November, 2005.

For the Nuclear Regulatory Commission.

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M. Wayne Hodges, Deputy Director,
Technical Review Directorate,
Spent Fuel Project Office,
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