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U.S. Nuclear Regulatory Commission  
ATTN: **Mrs. Deborah A. DeMarco**  
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Subject: Programmatic Review of Abstract

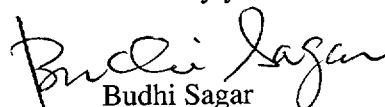
Dear Mrs. DeMarco:

The enclosed abstract, which will be submitted for presentation at the Health Physics Society Annual Meeting, to be held June 10-14, 2001 in Cleveland, OH, is being submitted for programmatic review. The title of the abstracts is:

*Incorporation of the MELCOR Code into the Consequence Analyses for the Yucca Mountain Project* by R. Benke, B. Dasgupta, D. Daruwalla, A. Chowdhury, and B. Jagannath.

This abstract presents results of work conducted by CNWRA and NRC staff as part of the Repository Design and Thermal-Mechanical Effects Key Technical Issue. This abstract is a product of the authors and does not necessarily reflect the views or regulatory position of the NRC. Please advise me of the results of your programmatic review. Your cooperation in this matter is appreciated.

Sincerely yours,

  
Budhi Sagar  
Technical Director

BS/cp

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INCORPORATION OF THE MELCOR CODE INTO THE PRECLOSURE CONSEQUENCE ANALYSES FOR THE YUCCA MOUNTAIN PROJECT.\* R.R. Benke<sup>1</sup>, B. Dasgupta<sup>1</sup>, D.

Daruwalla<sup>1</sup>, A.H. Chowdhury<sup>1</sup> and B. Jagannath<sup>2</sup> (<sup>1</sup>Center for Nuclear Waste Regulatory Analyses, 6220 Culebra Road, San Antonio, Texas 78238; <sup>2</sup>U.S. Nuclear Regulatory Commission, 11545 Rockville Pike, Rockville, Maryland 20852)

During preclosure operations at the proposed geologic repository at Yucca Mountain, spent nuclear fuel (SNF) will be received in shipping casks at an above-ground facility. Through a series of remote operations the SNF will be transferred into a waste package before emplacement into the underground repository. A preclosure safety analysis tool is being developed to allow a focused review of the repository license application. In accordance with a risk-informed performance-based review policy, the tool considers the events, their probability of occurrence, and radiological consequences to identify the structures, systems, and components important to safety. The consequence analysis module of the tool is based on an existing software that calculates downwind dose from a radiological release. The source term and its uncertainty are critical components of the dose calculation. The MELCOR code models the aerosol dynamics of radionuclides within containment structures. For a hypothetical event where radionuclides are released into the waste handling building, MELCOR determines the fraction of radioactive material released from the SNF that is retained within the building. Therefore, MELCOR provides a realistic source term for the calculation of offsite doses to the public and of worker doses inside the waste handling building. An example dose calculation incorporating the MELCOR code is presented.

\*(This work is based on the activities performed on behalf of the Nuclear Regulatory Commission (NRC), Office of Nuclear Material Safety and Safeguards, Division of Waste Management, under contract number NRC-02-97-009. This abstract and the corresponding presentation are independent products of the Center for Nuclear Waste Regulatory Analyses and the NRC staff and do not necessarily reflect the views or regulatory position of the NRC.)