

December 7, 2011

MEMORANDUM TO: Catherine Haney, Director
Office of Nuclear Material Safety and Safeguards

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

FROM: Brian W. Sheron, Director */RA B. Holian for/*
Office of Nuclear Regulatory Research

SUBJECT: IMPENDING PUBLICATION OF NUREG/CR-7016, "HUMAN
RELIABILITY ANALYSIS-INFORMED INSIGHTS ON CASK
DROPS," AND NUREG/CR-7017, "PRELIMINARY, QUALITATIVE
HUMAN RELIABILITY ANALYSIS FOR SPENT FUEL
HANDLING"

I am forwarding for your information the enclosed final versions of NUREG/CR-7016, "Human Reliability Analysis-Informed Insights on Cask Drops," and NUREG/CR-7017, "Preliminary, Qualitative Human Reliability Analysis for Spent Fuel Handling," that the Office of Nuclear Regulatory Research (RES) plans to submit for publication in 2 weeks.

In the Staff Requirements Memorandum (SRM)¹ for SECY-99-100², the Commission directed the staff to implement the proposed approach in SECY-99-100 to risk-inform the materials and waste safety arenas. In response, the Office of Nuclear Material Safety and Safeguards (NMSS) provided RES with a user need³ memorandum that asked for a feasibility study and development phase to develop human reliability analysis (HRA) capability applicable to byproduct materials, fuel cycle, spent fuel handling, waste, and other arenas within the responsibility of NMSS. Following the direction in User Need NMSS-2003-003, RES initiated two research projects focused on (1) byproduct materials and (2) fuel cycle, spent fuel handling, and waste. In the second of the two research projects, results from RES' feasibility study and NMSS staff input allowed research to be further focused on qualitative HRA insights for misloads and cask drops in spent fuel handling. Also, another similar NMSS user need memorandum⁴ was provided to RES to address HRA for high-level waste.

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¹ U.S. NRC, "Staff Requirements Memorandum - SECY-99-100 Framework for Risk-Informed Regulation in the Office of Nuclear Material Safety and Safeguards," June 28, 1999.

² U.S. NRC, SECY-99-100, "Framework for Risk-Informed Regulation in the Office of Nuclear Material Safety and Safeguards," March 1999.

³ NMSS-2003-003. Memorandum to Ashok Thadani, Director, RES, from Martin Virgilio, Director, NMSS, dated February 3, 2003.

⁴ NMSS-2005-004, Memorandum to Carl J. Paperiello, Director, RES, from Jack R. Strosnider, Director, NMSS, dated June 15, 2005.

The principal purpose of NUREG/CR-7016 is to document the final results of RES' HRA capability development efforts for cask drops. In particular, HRA qualitative analysis tasks have been used to develop HRA-informed insights on operator performance that could lead to cask drops. These insights include the development of detailed cask-handling scenarios showing various types of human performance vulnerabilities that could contribute to a cask drop. Thus, these insights may be used as an initial technical basis for activities aimed at reducing the potential for cask drops.

Earlier development work on both misloads and cask drops that forms the basis for NUREG/CR-7016 is being published as NUREG/CR-7017, "Preliminary, Qualitative Human Reliability Analysis for Spent Fuel Handling."

The NMSS staff has been involved in the development and review of both NUREG/CRs. In particular, Jim Pearson has been the NMSS point-of-contact and principal reviewer throughout RES' work on HRA development for spent fuel handling. Jim also has been instrumental in identifying other NRC staff to review and understand this work as the project has progressed. The Acknowledgements section in both reports identified those staff members who have been most involved in providing RES with input and review efforts.

RES has an online quality survey that is accessible on the RES Web site (<http://portal.nrc.gov/edo/res/OfficeWide/RESQualitySurvey/default.aspx>), where user offices can evaluate the usefulness of RES products and services. If your office has not yet completed this survey (which takes about 5 minutes), I would appreciate your support in ensuring its completion within the next 10 working days.

Enclosures:
As stated

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