March 17, 2011

MEMORANDUM TO: Brian W. Sheron, Director
Office of Nuclear Regulatory Research

FROM: Catherine Haney, Director **/RA/**
Office of Nuclear Material Safety
and Safeguards

SUBJECT: USER NEED REQUEST FOR RESEARCH TO CONTINUE ASSISTING NMSS TO REVIEW CFD METHODS APPLIED TO STORAGE CASKS DESIGN

This memorandum describes the Office of Nuclear Material Safety and Safeguards (NMSS) user need request for continued assistance and collaboration with the Office of Nuclear Regulatory Research (RES) during the Division of Spent Fuel Storage and Transportation (SFST) staff's review of Computational Fluid Dynamics (CFD) methods used by the applicants to perform the thermal-hydraulic design and analysis of innovative dry storage and transportation cask systems. Assistance from RES may also be needed during SFST staff's review and resolution of Technical Assistance Requests (TAR) from the regions.

It is important that the staff in NMSS and RES communicate frequently to assure the efforts related to this request are meeting NMSS's identified needs and schedules. To achieve these purposes, the technical monitors in NMSS and RES agreed to meet on an as-needed basis.

The NMSS technical monitor and contact responsible for this request is Jorge Solis, Senior Thermal Engineer, Thermal and Containment Branch, SFST. The RES technical monitor responsible for this request is Ghani Zigh, Senior Technical Advisor, Division of System Analysis.

NMSS staff has completed discussions with members of your staff to determine whether your office can support our schedule requirements, as summarized below. These discussions indicate that RES can support the scope and proposed schedule without displacing other user need requests. If this should change, we request early notification of any impact on RES work for NMSS.

1. Technical Issue: Review CFD methods used by the applicants to perform the thermal-hydraulic design and analysis of innovative dry storage and transportation cask systems. Provide assistance to NMSS during SFST staff's review and resolution of TARs from the regions.

CONTACT: Jorge Solis, NMSS/ SFST
301-492-3282

2. Regulatory Application: Support from RES will be used to assist in making the regulatory determination of reasonable assurance of adequate protection for storage and transportation casks designed using CFD methods.

3. Deliverables: Analyzed cases are to be provided in optical media and analysis results are to be provided as a written evaluation in a Word document or email.

4. Schedule: RES support is expected to be provided for approximately 24 months on an as needed basis depending on identified issues during the review of an application.

5. Priority: This request is of medium priority to effectively review new designs that are expected to increase both in technical complexity and heat load. As we have discussed with your staff, this activity will continue to enhance our technical understanding and analysis capabilities of current and future designs involving innovative heat removal systems, high decay heat loads from high burnup fuel, and anticipated new designs.

6. Points of Contact: Jorge Solis, NMSS/SFST/TCB (Contact is the knowledgeable and responsible staff). Ghani Zigh, RES/DSA.

7. Additional Information: No additional information is necessary.

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7. Additional Information: No additional information is necessary.

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| **DATE:** | 01/27/11 | | 02/15/11 | | 03/06/11 | | 03/10/11 | | 03/17/11 | |

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