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April 28, 2023

MEMORANDUM TO: Division of Fuel Management Staff  
Office of Nuclear Material Safety  
and Safeguards

FROM: Shana R. Helton, Director  
Division of Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

*Shana R. Helton*

Signed by Helton, Shana  
on 04/28/23

SUBJECT: EXPECTATIONS FOR USING THE RISK TOOL IN LICENSING  
REVIEWS OF DRY CASK STORAGE SYSTEMS

Staff from the Office of Nuclear Material Safety and Safeguards, Division of Fuel Management (DFM), Office of Research, and contractors from Idaho National Engineering Laboratories developed a technical report entitled "Development of Dry Cask Risk Tools (A Risk Assessment Tool for Reviewal of License Amendment Requests)," which was published in November 2020, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20324A110) – hereafter referred to as the [Risk Tool](#). The staff also developed a Job Aid (ML20318A270) to facilitate use of the Risk Tool in licensing reviews.

The objective of the Risk Tool is to assist the staff in conducting risk-informed reviews of spent fuel dry cask storage system designs under Title 10 of the *Code of Federal Regulations* (10 CFR), Part 72. Using risk information as an element of our licensing reviews is well-aligned with NRC's vision of being a modern, risk-informed regulator. The Risk Tool contains risk information for specific components of a dry cask storage system with an overall goal of providing a systematic approach for ensuring that all systems and components necessary for safety are considered across a range of potential initiating events. The tool incorporates risk insights from completed dry cask probabilistic risk assessments and related information into a process for determining and prioritizing licensing reviews. It is intended to assist the staff and focus reviews on systems and components that are most impactful to safety and complement other risk-informed programs at the NRC.

The Risk Tool and its associated Job Aid were used as a pilot for two amendment requests in 2021 (ML21068A360 and ML21126A266). These two reviews indicated that the Risk Tool would benefit from further clarifications and enhancements such as visualizing data, grouping components related to a specific safety function, and adding a discussion of key assumptions used in the risk evaluations.

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I am encouraged by the staff's efforts in using the Risk Tool to assist with reviews of license amendment requests. I believe use of the Risk Tool will help to improve the focus and should enhance overall consistency and efficiency of licensing reviews which makes it a critical part of how we accomplish our safety and security mission. The tool is currently only applicable to dry cask storage licensing. However as we are "One DFM," I encourage staff to explore how to use the general concepts described in other programmatic licensing areas.

To further enhance our use of the Tool and gather additional insights from lessons-learned, I expect staff to use the tool for all new dry cask storage licensing reviews submitted between May 1 and October 31, 2023. As the tool is applied to these reviews, I expect staff to capture lessons learned with sufficient documentation of information to provide constructive feedback with the Risk Tool Working Group to facilitate future improvements to the tool.

In parallel, the Risk Tool Working Group will assess the lessons learned and revise the Risk Tool and Job Aid, as appropriate. The goal is to improve clarity, usefulness, and effectiveness in our reviews. I anticipate that the revised Risk Tool and Job Aid will be completed by the end of calendar year 2023 and available for staff use in early 2024.

Improving our understanding of dry cask storage risks will continue to inform and assist the focus of our reviews to ensure we continue to focus on the most safety-significant aspects of our licensing reviews. The Risk Tool (and Job Aid) should be considered as another element of the staff's review and, as such, a complement to the Standard Review Plan (NUREG-2215, ML20121A190) for dry cask storage. In addition to using the risk tool and leveraging expertise from the Risk Tool Group, as well as individual experience in 10 CFR Part 72 licensing reviews, I expect everyone to look for further opportunities to include risk-informed thinking in our daily activities.

Looking ahead, I task the Division to do the following:

1. As part of reviewer qualification and post qualification continuous learning, actively participate in seminars and meetings offered by the Risk Tool Group to learn more about the use of the Risk Tool and ask questions and challenge the risk information – promoting a risk-informed dialogue among the staff.
2. Update applicable division instruction(s) to include direction to staff to use the risk tool. Staff should determine whether LIC-FM-1 (ML22130A659) should be evaluated for potential revision, as well as other appropriate division instructions.
3. Assess whether Standard Review Plan updates are needed.
4. Consistently use the Risk Tool in dry storage licensing for all new dry cask storage reviews, including new applications and amendments to current certificates.
5. Continue to collect lessons learned for each licensing action to identify improvements to the Risk Tool and associated Job Aid to ensure risk information is current and the guidance is clear. Staff should formally assess, conduct, and capture the aggregate lessons learned no later than 18 months after using the risk tool in review activities.

Sharing and discussing our collective engineering, licensing, and risk informing experiences is an important part of how we work which benefits everyone. I believe the use of the Risk Tool not only facilitates consideration of risk information in our licensing reviews, but also encourages

cross-disciplinary discussions that improve our effectiveness. I encourage DFM staff to seek opportunities for knowledge management colleagues, supervisors, and members of the Risk Tool Group as you implement this and other regulatory tools. I'd like to express my appreciation for the DFM staff (past and present, listed below) who have participated in the Risk Tool Working Group:

#### Risk Tool Working Group

- Joe Borowsky (thermal/containment)
- Tim McCartin (risk perspective)
- Alexis Sotomayor-Rivera (shielding)
- Jason Piotter (Acting Branch Chief, Nuclear Analysis and Risk Assessment Branch)

#### Past Members

- Tanner Boone
- Shikha Kumar
- Zhian Li
- Jonathan Marcano
- April Smith
- John Wise

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