

# Developing a Risk-Informed Dry Storage Regulatory Framework

**Kristopher Cummings**

Sr. Project Manager, Used Fuel Programs

[kwc@nei.org](mailto:kwc@nei.org)

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# Background

- Previous effort in 1998-2001 to create cask standard Technical Specifications:
  - 1998/99: NEI launches effort to create Cask Standard Technical Specifications (STS)
  - October 1999: NEI Issues Cask STS, Revision A to NRC for review and comment
  - February-July 2000: NEI meets with NRC on Cask STS to address NRC comments
  - June 2001: NRC issues NUREG-1745

## Background II

- In 2010 Commission directed staff to identify “risk-informed performance-based enhancements”
- At the same time, Industry placed renewed focus on standardizing cask CoCs and Tech Specs
  - High level of design specific detail was driving numerous amendments
- In 2012, Industry submitted PRM 72-7 to standardize CoCs and Tech Specs at a more risk appropriate (reduced) level of detail
- PRM 72-7 accepted for rulemaking consideration in 2014, but not considered a high priority

# Risk-Informed CoCs/Tech Specs Improve Safety

- Reduces number of license amendments needed
- Allows NRC and industry resources to be focused on safety issues (versus low risk compliance issues)
- 10 CFR 72.48 provides for appropriate (enforceable) review and inspection of changes
  - Industry and NRC must have common understanding of process
- Conserves needed resources for forthcoming license renewal applications

# RIRP I-16-01

## USED FUEL STORAGE AND TRANSPORTATION ISSUE SCREENING FORM

Issue Number: N-16-01

**Title:** Improving the efficiency of the regulatory framework for dry storage of spent nuclear fuel

### **I. a. Problem Statement** (Provide a clear, concise description of the issue.)

Spent nuclear fuel storage cask Certificates of Compliance and ISFSI licenses contain an inordinately high level of detail that is not commensurate with the relatively low risk of dry cask storage operations. This results in industry and NRC resources being unnecessarily expended on review and approval of non-safety significant changes – and being diverted from more safety-significant matters.

### **b. Background Information** (Summarize industry events, licensing actions, inspection information, correspondence, and other documents germane to the issue. Attach documents as appropriate)



Both NRC and industry recognize that there is a need to improve the efficiency of the licensing process for dry storage of spent nuclear fuel (SNF) under 10 CFR Part 72. Yet despite this mutual recognition, this process continues to consume an inordinate amount of both NRC and industry resources. The lack of a risk appropriate licensing process has caused dry storage licenses and CoCs to be considerably more detailed than reactor licenses, even though the risks associated with dry cask storage are considerably lower. A collaborative effort between NRC and industry is needed to provide a path forward to more risk appropriate dry storage licenses and CoCs. This need has long been recognized, yet progress towards a more efficient regulatory framework has proved elusive.

In February of 2010 the Commission directed staff (Reference 1) to “undertake a thorough review of the regulatory programs for spent fuel storage and transportation” and to, among other things, “identify risk-informed, performance-based enhancements that will bring increased predictability and efficiency to the regulatory process”. Staff responded to this later that year (Reference 2) with a 7 year plan to “implement risk informed enhancements”. However, little progress has been made on this plan.

Meanwhile, in 2012 Industry submitted a Petition for Rulemaking (PRM 72-7) proposing improvements to 10 CFR Part 72 “based on experience and risk insights” (Reference 3). Although NRC approved the PRM for consideration in rulemaking (Reference 4), no action has been taken to date.

Despite these efforts, today the licensing of dry storage systems under 10 CFR Part 72 remains a highly inefficient process that consumes a significant NRC and industry resources.

The efficiency improvements being addressed in this RIRP are vital to enabling NRC to fulfill its mission, as the use of dry cask storage continues to grow, and are consistent with agency policy. NRC’s Project Aim 2020 (Reference 5) outlines a planning strategy and makes several recommendations in the spirit of “helping the

# Use of PRA in a Risk-Informed Framework

- Previous studies (EPRI 1009691) and NUREG-1864 have found the risk to be extremely low.
  - Latent cancer and prompt fatality metric provided for ready comparison to reactor related risks.
- New PRAs will not add new useful information
- These resources can be more effectively utilized in defining the appropriate framework.

# Risk Informed Framework

- NUREG-2150 (Section 4.7) provides three options for implementing a proposed risk management regulatory framework for dry cask storage:
  - Option A: No changes to current risk-informed, performance based approach.
  - Option B: Targeted application of risk management framework to selected guidance and rule changes.
  - Option C: Broad-scale regulatory framework changes.
- The proposed RIRP supports the recommendation in NUREG-2150 by the Risk Management Task Force for Option B and incorporates the principles in PRM 72-7

## Summary

- A new PRA is not needed to risk-inform the dry storage regulatory framework
- The proposed RIRP will use a pilot CoC Amendment to clarify the risk-appropriate level of COC/Tech Spec detail
- Placing focus on efficiency and safety supports Project AIM 2020