



# RIS 2015-13: “SEISMIC STABILITY ANALYSIS METHODOLOGIES FOR SPENT FUEL DRY CASK LOADING STACK-UP CONFIGURATION”

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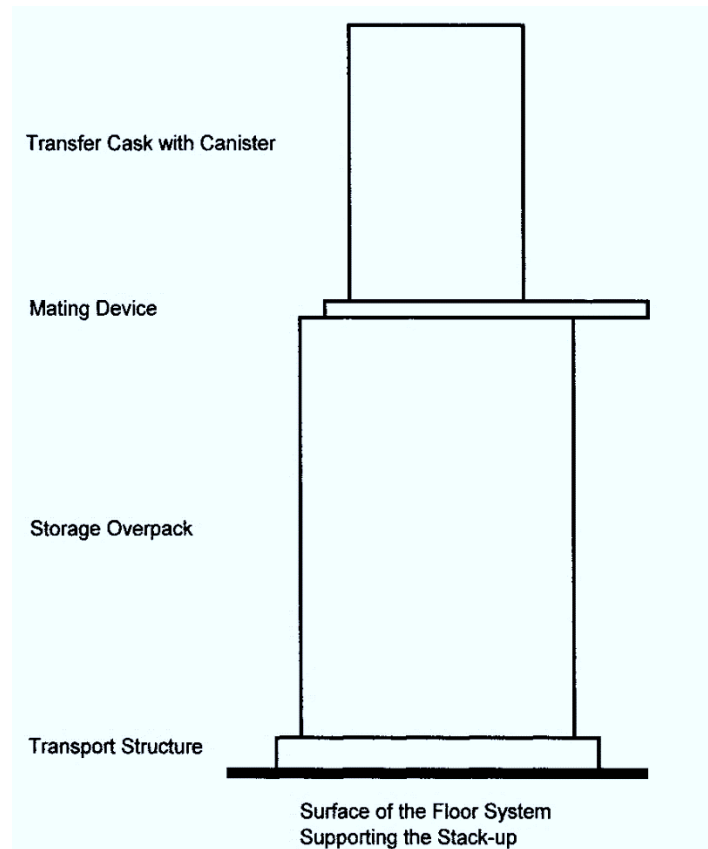


# Presentation Outline

- Introduction
- Purpose
- Background
- What the RIS includes
- What the RIS does not include
- Comments/Questions

# Introduction

- Stack-up configuration: when a transfer cask is on top of the overpack as part of loading operations



# Introduction

- Overall Topic: Stability of stack-up configuration under seismic loads
- Methods to address:
  - physical restraints
  - analysis that demonstrates adequate seismic stability performance
- RIS deals with analytic methods

# Background

- The NRC staff has reviewed several stack-up seismic stability analysis calculations performed by licensees under 10 CFR 72.122(b) and 72.212(b). Some concerns NRC staff has identified include:
  - Using a single time history to perform a nonlinear seismic analysis
  - Significantly altering the phasing of frequencies in the time histories
  - Double counting damping in rocking analyses
  - Not benchmarking finite element models against known solutions
- The RIS provides information associated with the concerns that have been identified by NRC staff

# Purpose

- Purpose of RIS: share information regarding acceptable seismic stability analysis methodologies to determine seismic stability of spent fuel dry cask loading stack-up configurations
- Information could be used for: performing analyses to evaluate stack-up stability for 72.212 report, address inspection item, licensing activities

# RIS Includes

- Included in RIS:
  - Discussion on when nonlinear time history analysis is necessary to determine rocking stability
  - Time history analysis technical details
  - Discussion of acceptance criteria for rocking and sliding
  - Finite element modeling considerations
  - Information on ensuring conservative results
- In summary: RIS has technical information

# Not in RIS

- Not within scope of RIS:
  - New Regulatory Requirements
    - A RIS cannot and does not impose new regulatory requirements
  - Discussion of 10 CFR Part 72/ Part 50 interface
    - Group 4 of the Licensing Program Improvement (LPI) project is currently working on clarification of 72/50 interfaces
- In summary: RIS has technical information





# Feedback

Thanks for your attention...



Your thoughts and ideas are welcome!

**NMSS**

Division of Spent Fuel Management