



# A Proposed Graded Approach for Improving CoC and TS for Dry Cask Storage

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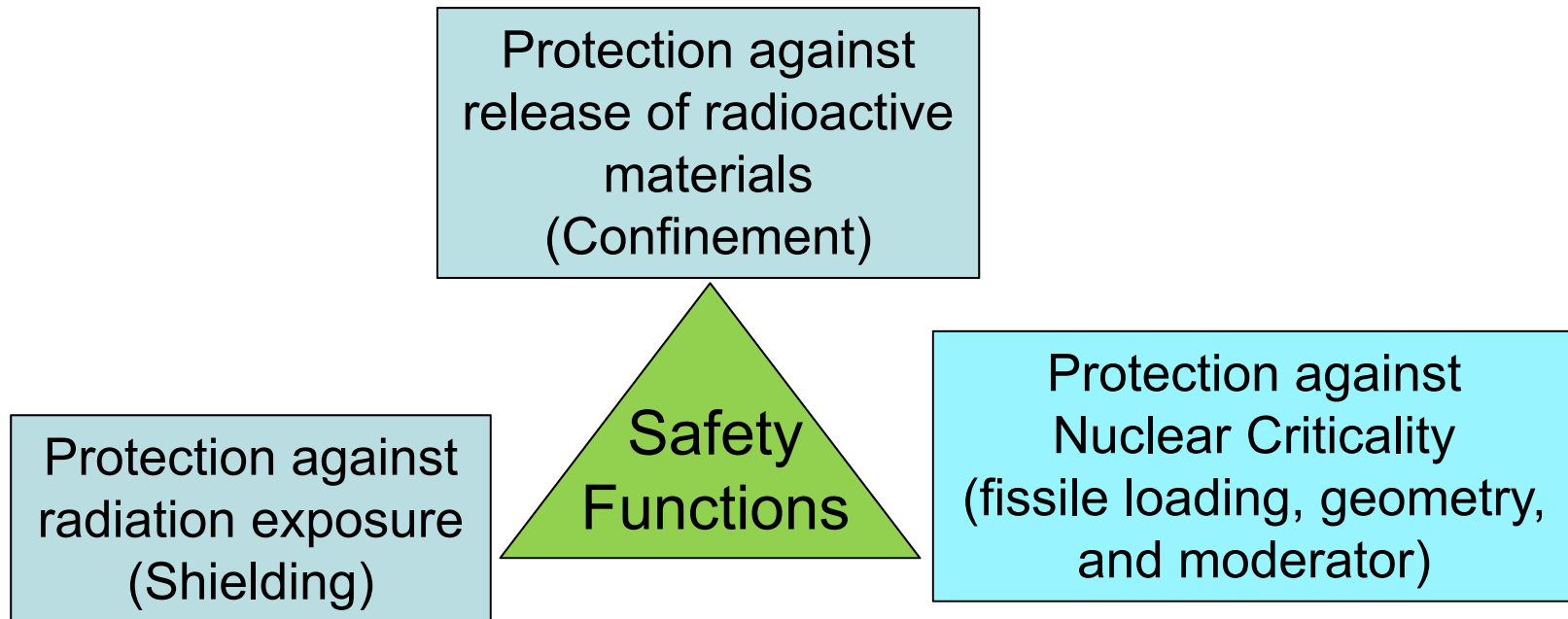
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A decorative blue graphic is located in the bottom right corner. It features a stylized atom symbol with a white nucleus and three white elliptical orbits. The text "Division of Spent Fuel Management" is written in white, curved along the top of the atom symbol. Below this, the acronym "NMSS" is written in white, bold, sans-serif font.

# Purpose

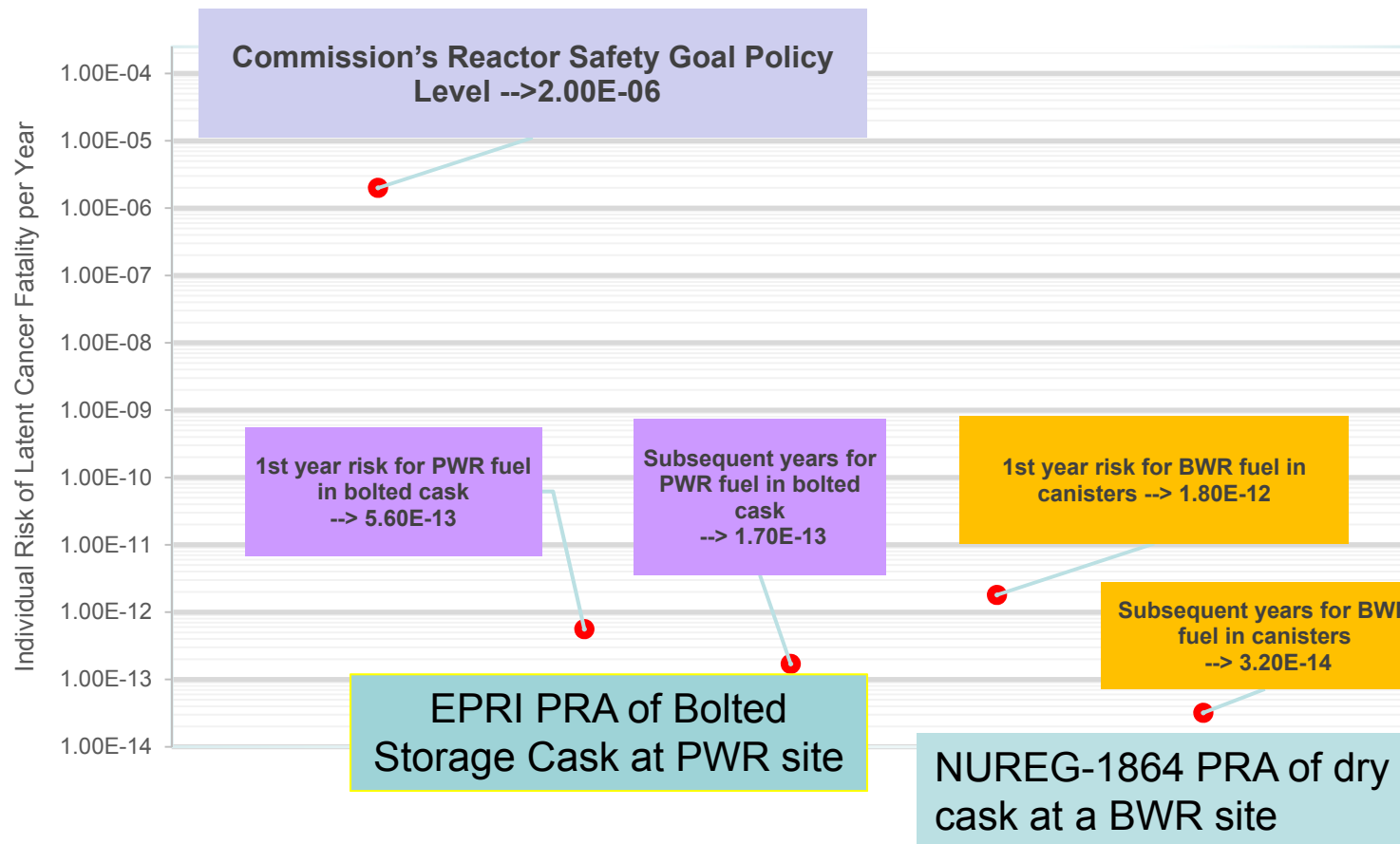
Improve the efficiency of licensing process by removing, or relocating extraneous information from Certificate of Compliance (CoC) and technical specifications (TS).

# Dry Storage System Safety Functions



# Background

## Comparison of EPRI and NRC PRA Studies Dry Cask Spent Fuel Storage Latent Cancer Fatality Risk per Cask



# Need to Develop Guidance

- Provide detailed and well-defined criteria for what to include in certificate of compliance and technical specifications.
- Apply the criteria for removing extraneous information in the current technical specifications.
- Improve regulatory efficiency by increasing opportunities to apply 10 CFR 72.48 change process.

# Technical Specifications – NRC Final Rule



Federal Register / Vol.60, No. 138

“..The voluntary conversion of current technical specifications in this manner is expected to produce an improvement in the safety of nuclear power plants through a reduction in unnecessary plant transients and more efficient use of NRC and industry resources.”

“..The Commission expects that licensees, in preparing their technical specification submittals, will utilize any plant-specific PRA or risk survey and any available literature on risk insights and PRAs... Similarly, the NRC staff has and will continue to employ risk insights in evaluating technical specifications submittals.”

# Source of Risk Insight

- Generic Probabilistic Risk Assessments for cask and canister systems\*
- Human Reliability Studies
- Graded approach that include quantitative and qualitative values
- Other available risk evaluations

\* NUREG-1864, A Pilot Probabilistic Risk Assessment Of a Dry Cask Storage System At a Nuclear Power Plant.

Probabilistic Risk Assessment (PRA) of Bolted Storage Casks: Updated Quantification and Analysis Report, EPRI, Palo Alto, CA: 2004. 1009691.

# Graded Approach

by PRA Data or Consequence\* (NUREG-1536)



- **High**
  - Qualitative: Likely to occur or significant consequences.
  - Quantitative:  $>10^{-3}/\text{yr.}$  or  $>25$  rem to worker or  $> 1$  rem to public per year.
- **Medium**
  - Qualitative: May occur or moderate consequences.
  - Quantitative:  $<10^{-3}/\text{yr.}$  but  $>10^{-5}/\text{yr.}$  or 5-25 rem to worker or 0.1 rem to public per year.
- **Low (No Significant Hazard)**
  - Qualitative: Occurrence improbable or minimal consequences.
  - Quantitative:  $< 10^{-5}/\text{yr.}$  or less than 5 rem to worker or 0.1 rem to public per year. (10 CFR 20 dose limits)

\* NUREG-1536, Standard Review Plan for Spent Fuel Dry Storage Systems at a General License Facility, Appendix B.



# Licensing Basis for Dry Storage of Used Fuel

## 10 CFR 54.3 Definitions.

The current licensing basis (CLB)..includes the NRC regulations contained in 10 CFR parts 2, 19, 20, 21, 26, 30, 40, 50, 51, 52, 54, 55, 70, 72, 73, 100 and appendices thereto; orders, license conditions; exemptions; and technical specifications. It also includes the plant-specific design-basis information defined in 10 CFR 50.2 as documented in the most recent FSAR.



10 CFR 72.248 Safety analysis Report updating.

# Path Forward

- Engage NEI and industry through public meetings to develop proposed criteria for CoC and TS information requirements.
- Evaluate industry pilot amendment application for testing the proposed criteria.
- Based on lessons learned from industry pilot amendment(s) staff will develop regulatory guidance.

# References

- NUREG/CR-6407 Classification of Transportation Packaging and Dry Spent Fuel Storage System Components According to Importance to Safety.
- NUREG-1536, Rev 1, Standard Review Plan for Spent Fuel Dry Storage Systems at a General License Facility
- Regulatory Guide 7.10, Appendix A.
- Risk-Informed Decisionmaking for Nuclear Material and Waste Applications, Revision 1, February 2008.
- NUREG-1864, A Pilot Probabilistic Risk Assessment Of a Dry Cask Storage System At a Nuclear Power Plant.
- Probabilistic Risk Assessment (PRA) of Bolted Storage Casks: Updated Quantification and Analysis Report, EPRI, Palo Alto, CA: 2004. 1009691.

# Questions?

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