

**USNRC RIC 2017**  
Protecting People and the Environment

Session: Applying Risk Consideration in a Graded Approach for Regulating Spent Fuel Storage

Criteria for Evaluating Level of Detail in Dry Cask Certificate of Compliance and Technical Specifications

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Purpose

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

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Dry Storage System Safety Functions

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graph TD; A[Protection against release of radioactive materials (Confinement)] --- B[Protection against radiation exposure (Shielding)]; A --- C[Protection against Nuclear Criticality (Fissile Loading, Geometry, and Moderator)]; B --- C; B --- D[Safety Functions]; C --- D; A --- D;
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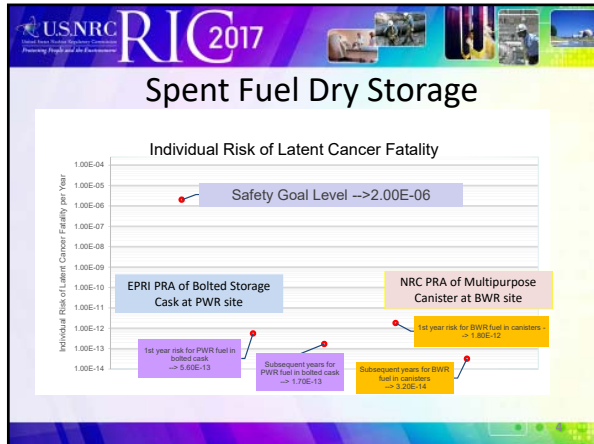
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- Needed Guidance for CoC and TS**
- Provide detailed and well-defined criteria for what to include in certificate of compliance and technical specifications.
  - Prevent extraneous information from being included in the technical specifications.
  - Improve regulatory efficiency by increasing opportunities to apply 10 CFR 72.48 change process.

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**10 CFR 72.48 Changes, tests, and experiments.**

72.48(c)(1) A licensee or certificate holder may make changes in the facility or spent fuel storage cask design as described in the FSAR (as updated), make changes in the procedures as described in the FSAR (as updated)..., without obtaining either: (i) A license amendment..., or(ii) A CoC amendment...if:

(A) A change to the technical specifications incorporated in the specific license is not required; or

(B) A change in the terms, conditions, or specifications incorporated in the CoC is not required; and

(C) The change, test, or experiment does not meet any of the criteria in paragraph (c)(2) of this section.

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### Guidance Documents for Licensing Activities

- NUREG-1745, Standard Format and Content for Technical Specifications for 10 CFR Part 72 Cask Certificates of Compliance
- NUREG-1536, Standard Review Plan for Spent Fuel Dry Storage Systems at a General License Facility
- NUREG-1567, Standard Review Plan for Spent Fuel Dry Storage Facilities

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### Key Regulatory Requirements in Part 72 for CoC and TS

- 10 CFR 72.26 Contents of application: Technical specifications.
- 10 CFR 72.44 License conditions.
- 10 CFR 72.122 Overall requirements.
- 10 CFR 72.236 Specific requirements for spent fuel storage cask approval and fabrication.

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### What is a Graded-Approach?

- Qualitative evaluation based on expert judgement of required safety functions for dry storage.
- Risk-insights from dry storage probabilistic risk assessments and human reliability analyses.

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### Proposed Method for Assigning Grades

by PRA Data or Consequence (NUREG-1536, Appendix B)

- **High**
  - Qualitative: Likely to occur or significant consequences.
  - Quantitative:  $>10^{-3}$ /yr. or  $>25$  rem to worker or  $> 1$  rem to public per year.
- **Medium**
  - Qualitative: May occur or have moderate consequences.
  - Quantitative:  $<10^{-3}$ /yr. but  $>10^{-5}$ /yr. or 5-25 rem to worker or 0.1 rem to public per year.
- **Low**
  - Qualitative: Occurrence improbable or minimal consequences.
  - Quantitative:  $< 10^{-5}$ /yr. or less than 5 rem to worker or 0.1 rem to public per year. (10 CFR 20 dose limits)

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### 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 amendments develop regulatory guidance.

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### References

- Code of Federal Regulations, Title 10, Part 72 – Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste.
- NUREG-1536, Standard Review Plan for Spent Fuel Dry Storage Systems at a General License Facility
- NUREG-1745, Standard Format and Content for Technical Specifications for 10 CFR Part 72 Cask Certificates of Compliance
- 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.

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Planning, Preparing and Performing

**Extraneous information:**

- Stating or listing of requirements in the Code of Federal Regulation.
- Detailed description of training plan
- Information in the QA plan
- Information in the security plan
- Operating procedures

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