


Regulatory Issue Resolution Protocol (RIRP) for Graded Approach to Dry Spent Fuel Storage Licensing

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Nuclear Economics 101


2015 Average Nuclear Generating Costs (\$/MWh)

First Quartile	38.85
Industry Average	46.92
Single Unit Sites	46.92
Multi-Unit Sites	32.00

Declining Wholesale Electricity Prices


Industry Response:
Delivering the Nuclear Promise Initiative

- Maintain Operational Focus
- Increase Nuclear Value (market reform)
- Improve Efficiency (30% cost reduction)



Basis for RIRP I-16-01

- 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.
- The process continues to consume an inordinate amount of both NRC and industry resources.
- The level of detail in ISFSI licenses and cask CoCs is not commensurate with dry cask storage risk
- NRC and industry are applying the dry storage regulatory issue resolution protocol (RIRP) to provide risk appropriate criteria for determining the content of ISFSI licenses and CoCs



The Efficiency Improvement Precedent

- Industry has developed criteria for ISFSI license and CoC content
 - Proposed along with improved format in a 2012 petition for rulemaking (PRM 72-7)
- Criteria based on principles from the power reactor Improved Technical Specification NRC Policy Statement of 1993
 - ITS has been a significant factor in improving operating reactor safety and efficiency since



Used Fuel Storage and Transportation Regulatory Issue Resolution Protocol Number: I-16-01

Improving the efficiency of the regulatory framework for dry storage of used nuclear fuel

- NRC and industry interact in public meetings and letters
 - Establish a structured process for determining what information should be in ISFSI licenses or CoCs, including Tech. Specs.
 - Implement one or more pilot CoC amendments using preliminary CoC format, content and selection criteria agreed to between NRC and industry
 - Utilize lessons learned from pilot(s) to finalize CoC format, content and selection criteria
 - NEI develops guidance for NRC submittal and endorsement in the Standard Review Plans for licenses and cask CoCs




Actions To Date

- Public Meeting Kick-Off for RIRP issue resolution- 8/8/2016
- Public Meeting to discuss proposed format, content and selection criteria for the graded approach and pilot-10/28/2016
- NRC/Industry Public Workshop to discuss preliminary license/CoC format, content and selection criteria for the graded approach for dry cask storage pilot- 11/21/2016
- NEI letter to NRC clarifying the RIRP approach – 1/12/17



Proposed Pilot CoC Amendment

- Review each existing CoC condition and TS requirement against the PRM format and content
- Any “yes” determination is retained in the CoC/TS
 - Could be re-located within the CoC or TS based on format for information in the document
- Confirm the above conclusion for each retained condition or TS by verifying:
 - Safety function
 - Risk significance




Proposed CoC Format

1. Certified Design
 - Technology
 - Design Features
2. Inspections, Tests, and Evaluations
3. Technical Specifications
 - Limiting Conditions for Operation (LCO)
 - Surveillance Requirements
 - Approved Contents
 - Administrative Controls



Certified Design

- Technology
 - Concise description of dry storage system
- Design Features
 - Those that would have a significant effect on safety if modified, such as some materials of construction or geometric arrangement
- CoC holder has compliance responsibility



Inspections, Tests and Evaluations

- When performed and the acceptance criteria are met, a cask will operate in conformance with the certified design and fulfill its required safety functions
- Compliance demonstrated by CoC holder or general licensee



Technical Specifications

- Limiting Conditions for Operation (LCOs)
 - Lowest functional capability or performance levels of equipment required for safe operation of the ISFSI facility and cask
 - Selection Criteria 1 through 3
- Surveillance Requirements
- Approved Contents
 - Parameters that if modified would have a significant effect on safety
 - Selection Criteria 4 through 6



Administrative Controls

- Similar to those in Part 50 Tech Specs
- High level description of required programs
- Includes essential elements of the programs are required to assure safe ISFSI operation
- Details included in implementing procedures



LCO Selection Criteria

- Criterion 1. Installed instrumentation that is used to detect, and indicate a significant abnormal degradation of the cask confinement boundary;
- Criterion 2. An initial condition of a design basis accident that either assumes the failure of or presents a challenge to the integrity of a fission product barrier;
- Criterion 3. A structure, system, or component which operating experience or risk considerations have been shown to be significant to public health and safety.



Contents Selection Criteria

- Criterion 4. The characteristic or parameter is identified in 10 CFR 72.236(a);
- Criterion 5. A characteristic or parameter for which verification is a necessary condition to provide reasonable assurance that the cask safety functions of confinement, sub-criticality, and shielding will be performed;
- Criterion 6. A characteristic or parameter which operating experience or risk considerations have been shown to be significant to ensure public health and safety.



Future Actions

- Industry/NRC agreement on preliminary criteria (public meeting 3/24), that will be documented in NRC letter responding to NEI's 1/12/17 proposed RIRP resolution plan – at this point the process will be adequate to begin a pilot exercise
- Industry submit a pilot CoC amendment application to NRC implementing the proposed format and content-June 2017
- NRC complete safety review of pilot CoC amendment application- January 2018
- Public meeting to discuss lessons learned from the pilot – February 2018
- NRC complete rulemaking to make CoC amendment effective-June 2018
- Industry develop guidance reflecting the pilot and submit for NRC endorsement as part of standard review plan



Conclusions

- Economic challenges and resource constraints demand a more efficient approach to dry cask licensing
- Based on years of experience, and what is known about the relatively low risks of dry cask storage – there is a significant opportunity to attain a more efficient process
- Industry and NRC are committed to working together to achieve this goal



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Questions?



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