

**NEI 14-03**  
**“Format, Content and Implementation  
 Guidance for Dry Cask Storage Operations-  
 Based Aging Management”**

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 Nuclear Energy Institute  
 Regulatory Information Conference  
 March 8<sup>th</sup>, 2016 • Rockville, MD




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**Extended Storage Foundation**

- Dry Casks are robust systems with no moving parts
- Part 72.42 rulemaking increased license/renewal terms from 20 to 40 years
  - “This increase is consistent with the NRC staff’s findings regarding the safety of spent fuel storage as documented in the renewal exemptions issued to the Surry and H.B. Robinson ISFSIs” 76 Fed. Reg. 8874 2/16/2011
- Continued Storage rulemaking
  - “continued safe storage of spent fuel in dry casks for the timeframes considered in the GEIS is technically feasible” NUREG-2157, September 2014
- EPRI and NRC Dry Storage PRAs conducted in 2007
  - Annual cancer risk between 1.8E-12 and 3.2E-14 \*
- Opportunities to further verify performance being pursued
  - \* Compares to 2E-6 LCF/yr. public & 1E-5 LCF/yr. worker thresholds of negligible risk from NRC’s framework for “Risk-Informed Decision-making for Nuclear Material and Waste Applications”, Revision 1, February 2008




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**NEI 14-03 Cornerstones**

- Consistent format and content of license renewal applications (LRAs)
- Operations-based aging management through learning aging management programs
- Sharing of operating experience related to aging management - AMID
- Periodic “tollgate” safety assessments




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### LRA Format and Content

- Section 1: General Information
- Section 2: Scoping Evaluation
- Section 3: Aging Management Review
- Section 4: Time Limited Aging Analysis (TLAAs)
- App. A: Aging Management Programs
- App. B: Granted Exemptions
- App. C: License/CoC Changes
- App. D: UFSAR Supplement
- Additional appendices as needed (environmental report supplement, financial qualification, etc.)




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### Operations Based Aging-Management

- Key concept:  
*Effective licensee implementation of an operations-based DCS aging management program will require the ability to efficiently change AMAs based on feedback from operating experience, research, monitoring, and inspections*




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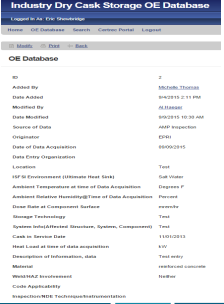

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### ISFSI Aging Management INPO Database

- Cask vendors (AREVA-TN, Energy Solutions, Holtec, NAC) have agreed to develop an information sharing database of aging management OE.
- Guiding Principles:
  - Not a replacement of existing Corrective Action Program
  - Information available to all CoC holders and licensees
  - Use of screening criteria
  - CoC Holder Approval
  - Entry of both positive and negative information


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### AMID Screening Criteria

*First Series of Questions (from NEI 14-03):*

- Is the cause of the condition due to aging-related degradation (such as loss of material or cracking)?
- Is the component or structure passive?
- Is the component or structure long lived (i.e., it is not subject to replacement based on a qualified life or a specific time period)?

• If answers to all three are “yes”.....




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### AMID Screening Criteria

- Additional set of questions—Have we identified....:
  - ...a new and unexpected aging effect?
  - ...a new or unexpected *trend* in aging effects?
  - ...unexpected inspection results (either positive or negative) through AMP implementation?
  - ...aging mechanisms and effects through the use of new or improved test or inspection methods or equipment?
  - ...deficiencies that are indicative of aging management program ineffectiveness?




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### Toll Gates

- Commitment to periodic, documented safety assessments
- Assessment timing specified after renewed operating period begins determined by the specific licensee or CoC holder
- Integrates OE, research, monitoring, and inspection results and assesses aggregate impact (e.g. applies CISCC susceptibility criteria & HBU R&D results)
  - If confirmatory, proceed to next toll gate (no action)
  - If not, pre-plan for possible outcomes – e.g., implement corrective actions, if needed, under licensee’s corrective action program
- Piloted in Calvert Cliffs and Prairie Island renewals tailored for specific issues – Canister corrosion, high burnup fuel




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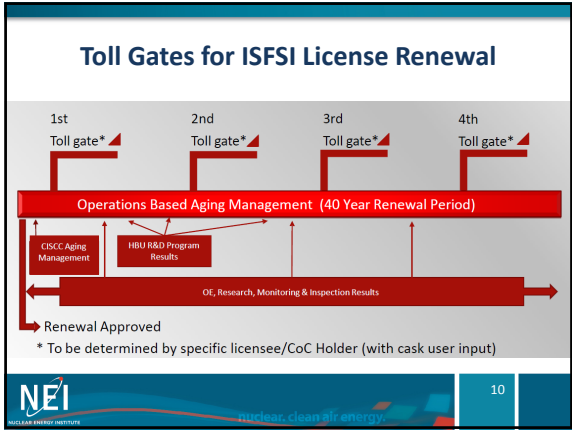
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## Thank you

Questions?

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- ### Abbreviations
- AMA – Aging Management Activity
  - AMID – Aging Management Institute of Nuclear Power Operations Database
  - AMP – Aging Management Program
  - CAP – Corrective Action Program
  - CISCC – Chloride-Induced Stress Corrosion Cracking
  - CoC – Certificate of Compliance
  - DCS – Dry Cask Storage
  - HBU R&D – DOE/EPRI Demonstration Project
  - OE – Operating Experience
  - MAPS – Managing Aging Processes in Storage Report
  - PRA – Probabilistic Risk Analysis
  - TLAA – Time-Limited Aging Analysis
  - LRA – License Renewal Application

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