

ASME Code Case N-860 and Reg Guide 3.78 NEI/Industry Perspective

ACRS Fuels, Materials, and Structures
Subcommittee Meeting

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Status of Spent Fuel Dry Storage

- Approaching 40 years of safe operation
- AMP inspections of inservice storage canisters to date have revealed no indications of corrosion indicative of confinement degradation
- Minor evidence of oxidation associated with ambient moisture noted
- The Code Case and endorsing Regulatory Guide align with the concept of learning aging management in NEI 14-03, as endorsed by the NRC in Regulatory Guide 3.76
- Licensees could benefit from the flexibility offered by the CC and draft Regulatory Guide 3.78 while maintaining safe, risk-informed ISFSI operations

Status of ISFSI Licenses & Technology

- 12 Part 72 specific ISFSI licenses renewed, one being finalized
- 10 Dry Storage System CoCs Renewed for Part 72 general licenses
- Most renewed licenses/CoCs include austenitic stainless steel canisters comprising 90+% of in-service DSSs
 - About 3,800 such canisters in service, some for 30+ years
- Five more DSS CoCs to be renewed beginning in 2027 through 2037

Dry Storage Canister AMPs

- Canister AMPs for CISCC developed and approved uniquely for each license/CoC renewal
- Refer to Code where appropriate (e.g., visual NDE inspection technique)
- No NRC or Code requirements existed for choosing which canister(s) to inspect, what to inspect, or how often
 - Needed differentiators for different site service environments
 - Needed actions to be taken if indications are found
 - Need guidance for using inspection results to appropriately modify AMPs

Dry Storage Canister AMPs

- EPRI developed processes for relative site CISCSC susceptibility and how to choose which canister(s) to inspect
- Renewed licenses and CoCs established the requirements for canister inspections – technique, frequency, acceptance criteria, corrective actions, etc.
- In 2015, NRC requested ASME to develop a standard for canister inspections during the period of extended operations
- ASME, ISFSI owners, national laboratories, vendors, and NRC developed Code Case N-860, approved by ASME in 2020

Dry Storage Canister AMPs

- The approved Code Case had no effect on renewed licenses and CoCs
 - Licensees are bound to the AMPs in the renewed licenses and CoCs
- NRC developed draft Regulatory Guide 3.78 proposing a method for licensees and CoC to voluntarily adopt CC N-860
- Licensees (in collaboration with CoC holders) need to evaluate the potential benefits of updating their canister AMPs to adopt the CC and RG
 - Requires canister AMP revision via 10 CFR 72.48, program and procedure changes
- Future CoC renewals should seriously consider adopting the CC to enable a more efficient renewal review process

Regulatory Guide 3.78

- Draft RG 3.78 is succinct and well-written
- Adopts the CC with no exceptions or clarifications
- Offers one additional alternative to extend canister inspection interval for sites with low CISCC relative susceptibility ranking
 - This is important for establishing site-specific risk-informed inspection programs
 - Storage service conditions are a key element of the aging management review process for license and CoC renewal
- Industry supports the RG as the final piece of the framework to allow the consensus standard CC to be used under ISFSI licenses

Concluding Remarks

- NEI commends the NRC staff for:
 - Using ISFSI service environment and material performance data in the development of DG-3058, including enabling modification of inspection intervals based on susceptibility criteria
 - Recommending the use of 72.48 to adopt the Code Case without an amendment
 - Recognizing the transformation of non-chloride salts into sodium sulfate and nitrite which act as CICSS inhibitors
 - Recognizing testing results that demonstrate that CISC of austenitic stainless steel welds at low-susceptibility sites is very unlikely

- NEI agrees with the staff decision rationale and implementation conclusion reflected in the associated draft regulatory analysis:
 - *This guidance will result in total quantified benefits that exceed the relatively small costs of implementation. DG-3058 is a noteworthy example of applying risk insights to improve the regulatory framework*

Questions?
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