Dry Spent Fuel Storage Canister Chloride Induced Stress Corrosion Cracking RIRP N-10-01

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RIRP Closure Meeting

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Issue Background

- SNF storage canisters fabricated from austenitic stainless steels (304, 304L, 316L) may be susceptible to CISCC in marine or other chloride environments
- Over extended time periods, CISCC may impact canister confinement boundary

Issue Background (cont'd)

- Consistent approach to licensing review guidance based on a common understanding of the issue should be applied to satisfy 10 CFR 72 and 71.
- NRC generic communications and licensing review guidance can benefit from industry involvement to provide a better understanding regarding the extent of condition

Goals

- Goals: Determine
  - Conditions/environment of canister materials where CISCC could potentially initiate
  - Time scales under which CISCC could occur
  - Susceptibility Assessment Criteria
  - Consistent approach for licensee and CoC holder and a stable and predictable regulatory environment.

Milestones

- NRC, ERPI and industry worked collaboratively to address this potentially impactful issue
- Meaningful research and analysis undertaken
- Industry has tools needed to perform susceptibility assessments
- Research results support NRC regulatory path forward

Milestones

- 2011-2012
  - *Public meeting to review available research data*
  - Draft susceptibility criteria developed
  - *Public meeting* to present field data plan
  - *Public meeting* to review field data and draft screening criteria, RIRP resolution plan, R&D roadmap, plans for future inspections and NRC feedback

Milestones

- 2013
  - R&D road map drafted with data gaps in conceptual screening criteria identified and plan to close gaps in order to close the RIRP

Milestones

- 2014
  - R&D road map completed reflecting NRC review and comments
  - NRC sponsored research data developed at SwRI was evaluated and incorporated into the RIRP actions as appropriate

Milestones

- 2015
  - Collected data as specified per R&D roadmap and compared actual canister data with NRC-sponsored research data
  - Developed screening criteria and evaluated ability to close RIRP
  - Provided Industry Susceptibility Criteria to NRC for review and comment

Milestones

- 2016
  - Industry addresses NRC comments
  - NRC/industry public meeting to evaluate RIRP closure actions status
  - RIRP closure form is submitted to NRC and NRC issues a letter documenting its review and determination as to whether the issue closure form accurately documents resolution of the issue

Summary

- RIRP closure exemplifies strong collaborative effort between NRC, EPRI and industry
- Frequency of public meeting and open dialogue indicative of open and transparent process
- Significant advances in understating CISCC and the ability to assess susceptibility in marine or other chloride environments