August 4, 2011

Mr. Marcus Nichol, Senior Project Manager
Nuclear Energy Institute
1776 I Street, NW, Suite 400
Washington, DC 20006-3708

SUBJECT: NUCLEAR REGULATORY COMMISSION RESPONSE TO INDUSTRY REGARDING COASTAL MARINE ATMOSPHERE ISSUE

Dear Mr. Nichol:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am responding to the Nuclear Energy Institute's (NEI) letter[1] dated April 14, 2011, for the NRC to review and comment on NEI's Regulatory Issue Resolution Protocol (RIRP) Issue Screening Form and Resolution Plan for the Coastal Marine Atmosphere issue.

The NRC appreciates NEI's efforts in incorporating comments and suggestions received at the March 14, 2011, public meeting[2] into the RIRP Screening Form and Resolution Plan. The NRC staff has reviewed and considered both of these documents and generally agrees with NEI's most recent version, with the exception of substantive comments detailed below.

Regarding the RIRP Screening Form, the NRC staff proposes a revision to the problem statement to read as follows:

> There is insufficient data to determine the environmental conditions, and associated time scales, necessary for potential initiation of chloride-induced stress corrosion cracking (SCC) in stainless steel dry spent nuclear fuel (SNF) storage canisters deployed at ISFSI locations.

The NRC staff has determined that the RIRP Screening Form, Section II, should be modified to: replace "coastal marine atmosphere SCC" with "chloride-induced SCC" in item 2; replace "cask to cask model" with "model to model and cask to cask" in item 5, line 3; and delete "since the potential for coastal marine atmosphere SCC is expected to occur over a long term period" from the last sentence in item 5.

Regarding the RIRP Resolution Plan, it appears that the second action will be difficult to achieve in the timeframe allotted. If additional details are available regarding the proposed path forward to define screening criteria, they should be further detailed in the Resolution Plan. The

[1] NEI's letter to Christopher Staab, "RIRP Issue Screening Form and Resolution Plan for Coastal Marine Atmosphere," dated April 14, 2011, Agencywide Documents Access and Management Systems (ADAMS) Accession Number ML111310436.
[2] "Summary of March 14, 2011, Meeting with NEI and Industry Regarding Issue Resolution Protocol and Pilot Issue," ADAMS Accession Number ML110910051.

reference to “304, 304L, 316L” should be deleted from the second action. The staff would like to clarify that the screening criteria must be based on the local canister environmental conditions (e.g., canister surface temperature, relative humidity in proximity of the canister outer surface, and chloride deposition on the canister outer surface). Consideration of contributory variables (e.g., ambient environmental conditions, cask model, and cask position) needs to be considered only as they affect the local canister environmental conditions.

An additional action should be added in support of the third action. The additional action should provide the NRC an opportunity to review the proposed methodology and data collection points for the third action, “EPRI acquire field data for casks deployed at ISFSIs in coastal marine atmospheres which will support the basis of the condition based time scales under which SCC could occur.” The proposed methodology defined in this additional action should be discussed and finalized at a public meeting.

Further, the third action should be clarified to identify which field data will be collected (e.g., local canister relative humidity, local canister chloride concentration in air, chloride content on canister surface, surface temperature, pH, remote visual inspection, and NDE sufficient to detect canister SCC or any precursory indication of SCC such as pitting, etc.) and how the collected data will satisfy the success criteria. It would be prudent to allow the results of the screening evaluation described in action 8 to feed into field data collection efforts. This would enable field data prioritization to most efficiently validate the screening criteria.

Actual canister data is needed to satisfactorily resolve this RIRP issue. It appears that planning efforts related to collecting this data have begun through the Electric Power Research Institute’s (EPRI) Extended Storage Collaboration Program (ESCP). Clarification of the relationship between the ESCP efforts and this RIRP is needed, including any scheduled dependencies. The feasibility of collecting field data in the timeframe allotted (June 2011 – February 2012) is not evident.

We appreciate your commitment to work closely with other stakeholders on this issue to ensure the regulatory process effectively supports the safety, reliability, and public confidence in nuclear energy storage activities at ISFSIs. We believe that the timeframe proposed for addressing this problem is appropriate given the potential significance of the issue and available information.

If you have any questions regarding this response, please contact me or Sara DePaula of my staff at (301) 492-3300.

Sincerely,

/RA/
David Pstrak, Chief
Structural Mechanics and Materials Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

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