NRR-PMDAPEm Resource

From: Paige, Jason
Sent: Wednesday, August 24, 2011 1:40 PM
To: Hale, Steve
Cc: Abbott, Liz; Tiemann, Philip
Subject: Turkey Point EPU - Nuclear Performance and Code Review (SNPB) Request for Additional Information - Round 2.2 (Part 2)

Steve,

Below are follow-up requests for additional information (RAIs) regarding the Turkey Point Extended Power Uprate license amendment request. On August 18, 2011, the Nuclear Regulatory Commission (NRC) staff and Florida Power & Light Company (FPL) discussed the method used at Turkey Point to mitigate boric acid precipitation following a loss-of-coolant accident. As a result, the NRC staff stated that RAIs would be generated to reflect the discussion held during the call. The below RAIs reflect the questions discussed during the August 18, 2011, call. These RAIs are categorized as Round 2, Part 2 questions since these are follow-up RAIs to the RAIs issued by the NRC staff by email dated April 19, 2011, regarding the Boric Acid Precipitation analysis. FPL agreed upon providing its responses within 30 days of the date of this email. If you have any questions, feel free to contact me.

SNPB-2.2.1 To control boric acid precipitation following a loss-of-coolant accident (LOCA), the high pressure safety injection (HPSI) pumped flow is cycled from all cold side injection to hot leg injection to control the boric acid build-up in the vessel. At about 5 hrs post-LOCA, the HPSI flow is switched from the cold side to the hot side piping for boric acid control, particularly since the break location is not known. Thereafter, in 17 hr intervals the HPSI flow is switched back and forth between the hot and cold side for continued boric acid build-up control to preclude precipitation during the long term. During each realignment, the HPSI pump flow is also terminated and the valve alignments are then made to facilitate the switch in injection, followed by re-activation of the HPSI pumped flow. Provide the following information regarding this method for boric acid control following a LOCA:

a. Describe and justify the use of the site HPSI pumps to address pump failure as it was stated that all four site HPSI pumps are available for mitigating the LOCA consequences. Also, describe how failures of the hot and cold side injection valves to open or close are addressed. What provisions are available if the cycling process results in additional long term valve failures?
b. Describe the short term and long term PRA evaluations and assumptions for the HPSI pump cycling/valve manipulations and how they support acceptable operation of the method to control boric acid precipitation.
c. Describe the reliability of the valves and pumps to operate during the recycling process during the long term.
d. Since sump debris will be contained in the HPSI injection lines and HPSI pumps, how does the accumulation of sump debris affect subsequent valve and pump performance, including stopping and restarting pumps and opening and closing injection line valves? After the HPSI pump flow is terminated, debris in the lines will tend to settle and accumulate in the piping. Restarting the pumps could cause slugs of local debris concentration to clog or hinder valve operation and/or pump restart. Discuss the impact of the debris on valve and pump performance during the long term alignments and pump restarts.
e. Describe how operator errors are addressed should an improper alignment be made following one of the cycling operations.

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Recipients:
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