NRR-PMDAPEm Resource

From: Mozafari, Brenda
Sent: Monday, August 08, 2011 7:14 PM
To: John.caves@pgnmail.com; 'Bass, Kimberly'
Cc: Saba, Farideh
Subject: MUR RAI (EMCB)(ME6169).docx

John and Kim,

By letter dated April 28, 2011 (Agencywide Documents Access and Management System Accession No. ML11124A180), Carolina Power & Light Company requested approval from the U.S. Nuclear Regulatory Commission (NRC) to increase the core thermal power level of Shearon Harris Nuclear Power Plant, Unit 1 from 2,900 megawatts thermal (MWt) to 2,948 MWt, an increase of approximately 1.66% over the present licensed power level and to change the power plant technical specifications accordingly.

The NRC staff is reviewing your submittal and has determined that additional information is needed to complete its review. The specific questions are found in this e-mail request for additional information (RAI). It is requested that your RAI response be provided by September 6, 2011, as discussed with your staff on August 4, 2011. If more time is needed to respond to the RAI, your request for additional time should include a basis for the need for an extension.

Based on its review, the NRC staff requests the following additional information:

1. Section IV.1.A.i of Enclosure 2 to Reference 1 states that the reactor pressure vessel (RPV) components at Shearon Harris Nuclear Power Plant (HNP) were originally analyzed for a vessel inlet temperature (T_{cold}) of 536.6 degrees Fahrenheit (^{o}F). Based on the nuclear steam supply system (NSSS) parameters presented in Table 4 of Enclosure1 to Reference 1, it was stated that a decrease in the vessel inlet temperature of 0.6 ^{o}F from the originally analyzed value to the revised value, resulting from the measurement uncertainty recapture (MUR) power uprate, would result in negligible changes in the transient thermal stresses for the RPV at MUR conditions. Clarify the relationship between the originally analyzed T_{cold} temperature, stated to be 536.6 ^{o}F, and the value presented in Table 4 of Enclosure 1, indicating that the current design conditions for the vessel inlet temperature is 554.4 ^{o}F.

2. Section IV.1.D of Regulatory Issue Summary (RIS) 2002-03 stipulates that the content of MUR license amendment request (LAR) applications must include the codes of record used in the qualification of structures, systems and components (SSCs) to determine their structural adequacy at MUR conditions. Section IV.1.A.iv of Enclosure 2 to Reference 1 states that primary equipment supports were evaluated and found to be acceptable at MUR conditions. State the design code(s) of record for the primary equipment supports and confirm that the evaluations performed in support of MUR power uprate implementation at HNP were performed consistent with the provisions in the original design code(s) of record.

3. Section IV.1.A.ii.5 of Enclosure 2 to Reference 1 summarizes the evaluations performed to demonstrate the continued structural qualification of the reactor vessel internals (RVIs) at HNP following the proposed MUR power uprate implementation. This section of Reference 1 states that the effects of higher heat generation, resulting from the power uprate, were considered in evaluating the structural integrity of the RVIs. Confirm that all other loads used in the current analyses of record (AOR) for the RVIs remain unaffected by the proposed MUR power uprate implementation (i.e., seismic, LOCA, reactor internal pressure differences, etc.). Additionally, with respect to the evaluation of the RVIs, State the design code of record used to qualify the RVIs for MUR conditions and confirm that the original design code of record was utilized in the evaluations performed to support MUR power uprate implementation.

4. Section IV.1.A.ii.5.b of Enclosure 2 to Reference 1 describes the evaluations performed to structurally qualify the baffle-former bolts for operation at the proposed MUR power level. The basis of this evaluation is stated to be a comparison between a facility similar to HNP (Almaraz Unit 2) showing that the baffle-former bolts at Almaraz Unit 2 are structurally adequate under similar operating parameters. Additionally, it is stated that the MUR power uprate has insignificant impacts on the thermal analyses for these components. Provide a tabulated comparison of the Almaraz Unit 2 and HNP parameters used to qualify the baffle-former bolts. This comparison should include information which demonstrates that the design basis requirements related to the structural integrity of these components will continue to be satisfied following MUR implementation.

5. Section IV.1.A.vi.3.b of Enclosure 2 to Reference 1 discusses the impact of the proposed MUR power uprate implementation at HNP on the flow-induced vibration (FIV) and tube wear in the HNP steam generators (SG). It is stated that the fluid-elastic stability ratio will increase by as much as 3.4% while the tube vibration amplitude will increase by as much as 6.9%. Discuss the methodology used to extrapolate the stability ratio and vibration amplitude to the values expected at MUR conditions. Confirm that the methodology is consistent with that used in the current AOR for the SG tubes. If the methodology varies from that in the current AOR, provide a technical justification for the use of the alternate methodology.

Reference

Letter from C. L. Burton, Progress Energy Carolinas, Inc., to NRC Document Control Desk, "Shearon Harris Nuclear Power Plant, Unit 1 – Docket No. 50-400/Renewed License No. NPF-63 – Request for License Amendment – Measurement Uncertainty Recapture Power Uprate," dated April 28, 2011. (ADAMS Accession No.: ML11124A180).

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