NRR-PMDAPEm Resource

From: Wiebe, Joel
Sent: Wednesday, August 03, 2011 9:44 AM
To: 'Timothy Byam'
Subject: Preliminary RAI Questions Regarding Quad Cities Nuclear Power Station, Units 1 and 2 Technical Specification Change for Minimum Critical Power Ratio Safety Limit

The purpose of providing preliminary RAI questions is to ensure the questions are clear and don't contain proprietary information. If clarification is required I will set up a conference call to resolve. If the questions involve proprietary information, let me know promptly, since this e-mail will be placed in ADAMS and made publicly available within one week.

In reviewing the Exelon Generation Company's (Exelon's) submittal dated June 7, 2011, related to the Technical Specification Change for Minimum Critical Power Ratio Safety Limit, for the Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2, the NRC staff has determined that the following information is needed in order to complete its review:

1. Provide:
    a. The details of the QCNPS Unit 1 Cycle 22 analysis performed to obtain the final core loading pattern including procedure, guideline, criteria, and approved methodologies used for this analysis, and
    b. The design document for the QCNPS Unit 1 Cycle 22 core loading pattern.

2. Provide a core map to show those bundles experiencing the 0.1 percent boiling transition for the limiting SLMCPR case, including information of the bundle group, group exposure, the number of bundles, fuel type, and percent contribution to the number of rods subjected boiling transition (NRSBT).

3. Provide:

    a. An updated version of power/flow map for QCNPS Unit 1 Cycle 22 operation including stability Option III features of scram region and controlled entry region for back up stability protection, and
    b. A list of approved methodologies used to perform the above stability calculations.

4. Provide the rationale why a 30.4% reload batch fraction for SVEA-96 Optima 2 fuel caused the proposed SLMCPR increment of 0.01 for SLO and no change for TLO for the proposed loading pattern in Figure 1 of Attachments 3 and 5 of the Exelon submittal.

5. Provide:

    a. A copy of the McSLAP computer code including theory and user's manual;
    b. A description of the relationship between McSLAP computer code and CENPD-300-P-A;
    c. Details of two errors found in Westinghouse's McSLAP computer code including applicable portions of the methodology described in CENPD-300-P-A, and their impact to the SLMCPR calculation including those at exposure beyond 4000 MW_d/MT; and
    d. A flow chart consisting of approved methodologies used for this SLMCPR calculation with respect to their input to each sub-routine calculation.

6. Describe any Part 21 issues relating to the fuel design applied to the QCNPS Unit 1 Cycle 22 fuel assemblies. Also, with respect to the Part 21 issues, identify all affected factors and quantify their impact on the parameters shown in Table 2 of Attachment 3.

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