

NRR-PMDAPEm Resource

From: DiFrancesco, Nicholas
Sent: Tuesday, January 10, 2012 5:01 PM
To: Mitchel.Mathews@exeloncorp.com
Cc: Zimmerman, Jacob; Huang, Tai; David.Gullott@exeloncorp.com; terrence.simpkin@exeloncorp.com; DiFrancesco, Nicholas
Subject: DRAFT - Request for Additional Information - LaSalle County Station, Unit 1 - SLMCPR License Amendment
Attachments: LSCS Unit 1 SL MCPR RAIs.pdf

Follow Up Flag: Follow up
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Mr. Mathews,

By letter to the Nuclear Regulatory Commission dated October 12, 2011, Exelon Generation Company, LLC, the licensee for LaSalle County Station, Unit 1, submitted a License Amendment Request regarding revisions to the safety limit minimum critical power ratios (SLMCPR).

The Reactor Systems Branch has reviewed the information provided and determined that additional information is needed to complete its review. The draft request for additional information is attached.

Please contact me after you have reviewed the questions to discuss the need for a clarification call on the RAI questions and the response date.

Sincerely,

Nicholas DiFrancesco

Project Manager - LaSalle
U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
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REQUEST FOR ADDITIONAL INFORMATION

LASALLE COUNTY STATION, UNIT 1

LICENSE AMENDMENT REQUEST REGARDING

PROPOSED SAFETY LIMIT MINIMUM CRITICAL POWER RATION CHANGE

DOCKET NO. 50-373

By letter dated October 12, 2011 (Agencywide Documents Access and Management System Accession (ADAMS) Accession No. ML112860067), Exelon Generation Company LLC (Exelon, the licensee) submitted a license amendment request (LAR) proposing to modify technical specification (TS) Section 2.1, "Safety Limits," for LaSalle County Station (LSCS), Unit 1. The requested change involved revised safety limit minimum critical power ratios (SLMCPRs) calculated as a result of the cycle-specific analysis performed by Global Nuclear Fuel (GNF) to support operation in the upcoming LSCS, Unit 1, Cycle 15. The U.S. Nuclear Regulatory Commission (NRC) staff has been reviewing the submittal and has determined that additional information is needed to complete its review.

1. In the LAR, Attachment 6, Tables RAI-06-1 and RAI-06-2, provide core map to show those bundles experienced 0.1 boiling transition criterion of limiting cases for single-loop operation (SLO) and two-loop operation (TLO). Please provide identification of bundle group and number of bundles in the Figure 1, Attachment 5, corresponding to their burnup status (once-burned, twice-burned, or fresh fuel) for Cycle 15.
2. Core design is an iterative process designed to develop an optimal configuration that meets operational requirements. In the LAR, Attachment 7, for the slides titled "Pre-Estimation - Linear Reactivity," please provide the most current updated parameters applicable to LSCS, Unit 1, Cycle 15. Also, provide the details of a plant-specific final core loading pattern as shown in Figure 1 including core design procedures, guidelines, criteria, and approved methodologies used for this Cycle 15 analysis with respect to a mixed core application.
3. GNF2 fuel deviates from traditional 10x10 design through the introduction of a partial length rod configuration, the use of higher linear power, and the use of mixing vanes. The NRC staff considers this a new fuel design with regards to the four restrictions identified in the safety evaluation of General Electric (GE) Licensing Topical Reports NEDC-32601P, NEDC-32694, and Amendment 25 to NEDE-24011-P-A. Given that LSCS, Unit 1, Cycle 15, uses a core loading pattern which includes GNF2 fuel, provide the following: (1) an evaluation of the four restrictions in NEDC-32601P, NEDC-32694 and Amendment 25 to NEDE-24011-P-A and the applicability to mixed core with ATRIUM 10 fuel; (2) a description that explains under what conditions the methodologies listed in Section 1.0 of Attachment 5 are sufficient and applied to the LSCS, Unit 1, Cycle 15, application; and (3) a clarification for the statement "no new GNF2 fuel designs are being introduced in LSCS, Unit 1, Cycle 15," in Section 2.5 of Attachment 5.
4. The LSCS, Unit 1, Cycle 15, is a mixed core with once and twice burned ATRIUM 10 fuel. Please provide: (1) a detailed description of the methodologies used and procedures applied

to the LSCS, Unit 1, Cycle 15, calculation for the proposed SLMCPR values based on Figure 3, Attachment 5; and (2) justification that the methodologies related to ATRIUM 10 fuel may not be needed in this application because none is listed in Section 1.0, Attachment 5.

5. Please identify the breakdown of the 10x10 data shown in Attachment 5, Figure 5, by fuel type (i.e., GE14, GNF2), because Figure 5 only shows combined data points for the two fuel types. Also, provide: (1) details of the application of Figure 5 data to a mixed core with ATRIUM 10 fuel; and (2) justification that the estimation formula for SLMCPR value is still valid for LSCS, Unit 1, Cycle 15, application.
6. Please clarify that there is no effect of GNF2 bent spacer wing to LSCS, Unit 1, Cycle 15, operation. If there is an adverse impact, please provide an assessment of the impacts on operations and fuel thermal performance.
7. Please provide an updated version of power/flow map for Cycle 15 operation including stability Option III features of scram region and controlled entry region for backup stability protection based on the Boiling-Water Reactor Owners Group position stated in NEDO-31960A for SLO and TLO.

DRAFT