

REVISED DRAFT REQUEST FOR ADDITIONAL INFORMATION RELATED TO
LICENSE AMENDMENT REQUEST FOR TECHNICAL SPECIFICATION CHANGES
TO SAFETY LIMIT MINIMUM CRITICAL POWER RATIO VALUES
PEACH BOTTOM ATOMIC POWER STATION – UNIT 3
DOCKET NO. 50-278

By letter to the Nuclear Regulatory Commission (NRC) dated June 8, 2011¹, Exelon Generation Company, LLC, (Exelon) submitted a License Amendment Request (LAR) for Peach Bottom Atomic Power Station (PBAPS), Unit 3. The submittal seeks to revise Technical Specification 2.1.1, “Reactor Core SLs [safety limits]” to reflect revised Safety Limit Minimum Critical Power Ratio (SLMCPR) values for operating cycle 19. The NRC staff has reviewed Exelon’s submittal and determined that additional information, as described below, is needed to complete the review. (Note that the “Attachment 4” referenced in the following RAIs is the non-publicly available, proprietary version of Attachment 5 associated with the submittal dated June 8, 2011.)

The NRC staff discussed initial draft questions² with Exelon representatives during a teleconference on August 2, 2011, to ensure that the questions were understandable, the regulatory basis for the questions was clear, and to determine if the information was previously docketed. The revised RAIs below reflect the changes discussed with Exelon representatives during the teleconference.

- RAI-01: Provide the PBAPS Unit 3 cycle-specific fuel quantity for each fuel type and state when the specific fuel types are loaded in the core (i.e., fresh, once, or twice burn) as depicted in Figure 1 of Attachment 4 for the Cycle 19 core loading diagram..
- RAI-02: Provide the information to obtain a final core loading pattern as shown in Figure 1 of Attachment 4 including procedures, guidelines, criteria, and approved methodologies used for this analysis.
- RAI-03: Provide the rationale for why a 35.1% reload batch fraction for GNF2 fuel caused the proposed SLMCPR to change by 0.02 for two recirculation loop operation (TLO) and 0.03 for single recirculation loop operation (SLO) for the proposed loading pattern in Figure 1 of Attachment 4.
- RAI-04: Confirm that the fuel related coefficients and constants are the same in the approximation of the correlation for the MCPR Importance Parameter (MIP) and the R-factor Importance Parameter (RIP) for all of the fuels shown in Figure 5 of Attachment 4.

¹ Agencywide Documents Access and Management System (ADAMS) Accession No. ML111600180
² ADAMS Accession No. ML112150451.

Background for RAI-05.1 – RAI-05.3:

Section 2.1, "Major Contributors to SLMCPR Change," states that Table 3 presents estimated impacts on the TLO SLMCPR due to methodology deviations, penalties, and/or uncertainties deviations from approved values.

- RAI-05.1: Provide calculation details and justify that the results listed in Table 3 are conservative related to methodology deviations, penalties, and/or uncertainties deviations from approved values.
- RAI-05.2: Provide a qualitative explanation of the impact on the SLMCPR estimate at rated power and rated flow versus minimum core using MIPRIP correlation as described in Section 2.1 of Attachment 4.
- RAI-05.3: Provide a justification that all affected factors including any fuel related Part 21 issues are reflected in Table 3.
- RAI-06: Provide a reactor core map that depicts the 0.1 percent of fuel bundles that may experience boiling transition for the limiting SLMCPR case. Include information regarding the fuel bundle group, group exposure, the number of bundles, fuel type and the percent contribution to the number of fuel rods that are subjected to boiling transition.
- RAI-07: Provide an updated version of the power/flow map for PBAPS Unit 3, Cycle 19, operation including stability Option III features of scram region and controlled entry region for back-up stability protection.