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RS-07-048

April 10, 2006

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Quad Cities Nuclear Power Station, Unit 1
Renewed Facility Operating License No. DPR-29
NRC Docket No. 50-254

Subject: Additional Information Supporting Request for Technical Specifications Change for Minimum Critical Power Ratio Safety Limit

References:
1. Letter from K. R. Jury (Exelon Generation Company, LLC) to U. S. NRC, "Request for Technical Specifications Change for Minimum Critical Power Ratio Safety Limit," dated January 16, 2007
2. Letter from J. F. Williams (U. S. NRC) to C. M. Crane (Exelon Generation Company, LLC), "Quad Cities Nuclear Power Station, Unit 1 – Request for Additional Information Related to Proposed Change to Minimum Critical Power Ratio Safety Limit (TAC No. MD4008)," dated March 19, 2007

In Reference 1, Exelon Generation Company, LLC (EGC) requested an amendment to Renewed Facility Operating License No. DPR-29 for Quad Cities Nuclear Power Station (QCNPS) Unit 1. The proposed change revises the values of the safety limit minimum critical power ratio (SLMCPR) in Technical Specification (TS) Section 2.1.1, "Reactor Core SLs." Specifically, the proposed change would require that for Unit 1, the minimum critical power ratio shall be $\geq$ 1.11 for two recirculation loop operation, or $\geq$ 1.13 for single recirculation loop operation.

In Reference 2, the NRC requested additional information to complete its review. In response to Reference 2, EGC is providing the attached information.

Attachment 2 contains information proprietary to Westinghouse Electric Company, LLC; it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit, provided in Attachment 3, sets forth the basis on which the information may be withheld from public disclosure by the NRC and addresses with specificity the

considerations listed in paragraph (b)(4) of 10 CFR 2.390, "Public inspections, exemptions, requests for withholding." Accordingly, it is requested that the information be withheld from public disclosure in accordance with 10 CFR 2.390. A non-proprietary version of the information contained in Attachment 2 is also provided in Attachment 3.

EGC has reviewed the information supporting a finding of no significant hazards consideration that was previously provided to the NRC in Attachment 1 of Reference 1. The information provided in this submittal does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration.

There are no new regulatory commitments made in this letter. Should you have any questions concerning this letter, please contact Mr. David Gullott at (630) 657-2819.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 10th day of April 2007.

Respectfully,

Patrick R. Simpson
Manager – Licensing

Attachments:

Attachment 1: Response to Request for Additional Information
Attachment 2: Westinghouse Recommended Response to NRC Requests for Additional Information, Quad Cities Unit 1 Cycle 20 (QC1C20) SLMCPR (PROPRIETARY), NF-BEX-07-49 P-Attachment, Revision 1
Attachment 3: Westinghouse Application for Withholding, Affidavit, and Non-Proprietary Version of Attachment 2

ATTACHMENT 1
Response to Request for Additional Information

NRC Request 1

Describe how the minimum critical power ratio safety limit (SLMCPR) analysis is conducted for legacy fuel. Discuss the burnup characteristics of modeled fuel type QAG4.

Response 1

Response is provided in Attachment 2.

NRC Request 2

Fuel vendor documentation identifies a subset of legacy fuel, loaded in potentially limiting positions in the core, that was loaded in cycle 18A. Provide a comparison of predicted exposures of fuel loaded in cycles 18, 18A, and 19 at the start of QC1R20.

Response 2

Response is provided in Attachment 2.

NRC Request 3

Provide the highest SLMCPR technical specification values for the legacy fuel for Quad Cities Unit 1.

Response 3

The first QCNPS Unit 1 cycle with GE14 fuel was Cycle 18. In support of Cycle 18, Exelon Generation Company, LLC, submitted a license amendment request to change the SLMCPR values in Technical Specification (TS) 2.1.1, "Reactor Core SLs." This license amendment request established a TS SLMCPR value of 1.10 for two recirculation loop operation and 1.11 for single recirculation loop operation. These TS SLMCPR values were consistent with the Global Nuclear Fuels (GNF) calculated SLMCPR values. The NRC approved these TS SLMCPR values in Reference 1.

As part of the QCNPS Unit 1 Cycle 18A and Cycle 19 reloads, GNF calculated new SLMCPR values (presented in table below). Since the Cycle 18 SLMCPR values were more conservative then those calculated for Cycles 18A and 19, QCNPS retained the conservative TS SLMCPR values approved in Reference 1 and elected not to submit a license amendment request to change the TS SLMCPR values.

The table below provides the GE14 calculated SLMCPR and TS SLMCPR history for QCNPS Unit 1 since Cycle 18.

ATTACHMENT 1
Response to Request for Additional Information

QCNPS Unit 1 Cycle	Calculated SLMCPR for GE14 Fuel (DLO/SLO)	TS SLMCPR (DLO/SLO)
Cycle 18	1.10 / 1.11	1.10 / 1.11
Cycle 18A	1.08 / 1.09	1.10 / 1.11
Cycle 19	1.07 / 1.08	1.10 / 1.11

Note: DLO refers to dual recirculation loop operation, SLO refers to single recirculation loop operation

NRC Request 4

Model assembly type QAG4 using the USAG14 correlation and provide assembly histograms through 10201 effective full power hours comparing the critical power ratio performance of the QAG4 bundles when modeled using D4.1.1 as compared to USAG14 to show that there is no significant impact of modeling with D4.1.1, which is not explicitly approved to model the lattice geometry contained in fuel assembly QAG4.

Response 4

Response is provided in Attachment 2.

Reference:

1. Letter from C. F. Lyon (U. S. NRC) to J. L. Skolds (Exelon Generation Company, LLC), "Quad Citied Nuclear Power Station, Unit 1 – Issuance of Amendment Re: Change in Minimum Critical Power Ratio Safety Limit (TAC No. MB5209)," dated November 14, 2002