March 11, 2003

Mr. John L. Skolds, President
and Chief Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
200 Exelon Way, KSA 3-E
Kennett Square, PA 19348

SUBJECT: LIMERICK GENERATING STATION, UNIT 2 - ISSUANCE OF AMENDMENT RE: REVISION TO TECHNICAL SPECIFICATIONS SAFETY LIMIT MINIMUM CRITICAL POWER RATIO FOR CYCLE 8 OPERATION (TAC NO. MB6884)

Dear Mr. Skolds:

The Commission has issued the enclosed Amendment No. 127 to Facility Operating License No. NPF-85 for the Limerick Generating Station, Unit 2. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated November 21, 2002, as supplemented by letter dated February 25, 2003.

This amendment revises the TSs for the safety limit for the minimum critical power ratio from its current value of 1.09 to 1.07 for two recirculation-loop operation, and from 1.11 to 1.09 for single recirculation-loop operation.

A copy of the safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's Biweekly *Federal Register* Notice.

Sincerely,

***/RA/***

Scott P. Wall, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-353

Enclosures: 1. Amendment No. 127 to License No. NPF-85
2. Safety Evaluation

cc w/encls: See next page

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200 Exelon Way, KSA 3-E
Kennett Square, PA 19348

SUBJECT: LIMERICK GENERATING STATION, UNIT 2 - ISSUANCE OF AMENDMENT RE: REVISION TO TECHNICAL SPECIFICATIONS SAFETY LIMIT MINIMUM CRITICAL POWER RATIO FOR CYCLE 8 OPERATION (TAC NO. MB6884)

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Sincerely,

***/RA/***

Scott P. Wall, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-353

Enclosures: 1. Amendment No. 127 to License No. NPF-85
2. Safety Evaluation

cc w/encls: See next page

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* SE input provided - no major changes made
** See previous concurrence

ACCESSION NO. ML 030710018

| OFFICE | PD1-2/PM | PD1-2/LA | SRXB/BC* | OGC** | PDI-2/SC |
|---|---|---|---|---|---|
| NAME | SWall | MO'Brien/ CRaynor | RCaruso | RWeisman | SRichards for JClifford |
| DATE | 3/10/03 | 3/11/03/ CR 3/5/03 SE | SE dated 02/28/03 | 03/10/03 | 3-11-03 |

**Official Record Copy**

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-353

LIMERICK GENERATING STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 127
License No. NPF-85

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Exelon Generation Company, LLC (the licensee), dated November 21, 2002, as supplemented by letter dated February 25, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I.

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-85 is hereby amended to read as follows:

   Technical Specifications

   The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 127, are hereby incorporated into this license. Exelon Generation Company, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented prior to startup for Cycle 8 operations, scheduled for March 2003.

FOR THE NUCLEAR REGULATORY COMMISSION

***/RA by SRichards for/***

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: March 11, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 127

FACILITY OPERATING LICENSE NO. NPF-85

DOCKET NO. 50-353

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

| Remove | Insert |
|---|---|
| 2-1 | 2-1 |
| B 2-1 | B 2-1 |

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 127 TO FACILITY OPERATING

LICENSE NO. NPF-85

EXELON GENERATION COMPANY, LLC

LIMERICK GENERATING STATION, UNIT 2

DOCKET NO. 50-353

## 1.0 INTRODUCTION

By letter dated November 21, 2002 (Reference 1), as supplemented by letter dated February 25, 2003 (Reference 2), Exelon Generation Company, LLC (Exelon, the licensee) submitted a request for changes to the Limerick Generating Station (LGS), Unit 2, Technical Specifications (TSs) for Cycle 8 operation. The requested change would incorporate revised safety limit minimum critical power ratios (SLMCPRs) in TS 2.1.2 due to the cycle-specific analysis performed by Global Nuclear Fuel - Americas (GNF-A). The February 25, 2003, letter provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on January 7, 2003 (68 FR 802).

## 2.0 REGULATORY EVALUATION

Section 50.36 of Title 10 of the *Code of Federal Regulations* (10 CFR 50.36) provides that nuclear plant TSs will be derived from the analyses and evaluations included in the safety analysis report, and amendments thereto, submitted pursuant to 10 CFR 50.34 (which addresses, among other things, contents of the Final Safety Analysis Report). The existing TS requirements, as well as the licensee's proposed amendment, are based on such analyses and evaluations.

General Design Criterion (GDC) 10 of Appendix A, 10 CFR Part 50, requires that the reactor core and associated coolant, control, and protection systems be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences. The SLMCPR is developed to assure compliance with GDC 10 for fuel cladding integrity. The SLMCPR ensures sufficient margin to the onset of transition boiling (a departure from nucleate boiling, MCPR=1.00) so that, during normal operation and in the event of an anticipated operational occurrence, at least 99.9 percent of the fuel rods in the core do not experience transition boiling. At every refueling, the SLMCPR is recalculated due to fuel replacement.

The licensee requested the amendment in accordance with the provisions of 10 CFR 50.90. The NRC staff's evaluation is set forth below.

## 3.0 TECHNICAL EVALUATION

The licensee requested a change to the LGS Unit 2 TSs for Cycle 8 in accordance with 10 CFR 50.90. Specifically, the licensee proposed to change the SLMCPR values in TS 2.1.2 from 1.09 to 1.07 for two recirculation-loop operation and from 1.11 to 1.09 for single recirculation-loop operation with the reactor vessel steam dome pressure greater than 785 psig and core flow greater than 10 percent of rated core flow.

The licensee described the approved methodologies used to calculate the SLMCPR value for the proposed TS change in the submittal. The Cycle 8 SLMCPR analysis was performed by GNF-A using plant- and cycle-specific fuel and core parameters, and NRC-approved methodologies including NEDC-32505P, Revision 1 (R-Factor Calculation Method for GE11, GE12 and GE13 Fuel), NEDE-10958-A (GETAB), NEDC-32601P(Methodology and Uncertainties for Safety Limit MCPR Evaluations), NEDC-32694P (Power Distribution Uncertainties for Safety Limit MCPR Evaluation), and Amendment 25 to NEDE-24011-P-A (GESTAR II).

The NRC staff reviewed the licensee's application dated November 21, 2002, and the response to the NRC staff's request for additional information dated February 25, 2003, including the detailed summary results of the analysis for LGS, Unit 2, Cycle 8 operation in Tables 1 and 2 of Attachment 4 (Reference 1) to determine whether the proposed changes to LGS, Unit 2, Cycle 8 SLMCPR values were justified.

The staff has reviewed the justification for the changes to the SLMCPR from 1.09 to 1.07 for two recirculation loop operation and from 1.11 to 1.09 for single recirculation loop operation using the approach stated in Amendment 25 to GESTAR II. The staff has also reviewed: (1) a possible impact on SLMCPR values due to particular axial power shapes during LGS, Unit 2, Cycle 8 operation; and (2) the cause for the large decrease of the SLMCPR values as a result of major core design differences between Cycle 7 and Cycle 8. The licensee explained in Reference 2 that: (1) the axial power shapes were properly considered in the calculations; and (2) the proposed SLMCPR values are based on the results of an actual Monte Carlo calculation using an NRC-approved methodology for LGS, Unit 2, Cycle 8 operation. The staff finds the justification for the proposed Cycle 8 SLMCPR values acceptable because NRC approved methodologies (Reference 3) are used to perform the calculation for the SLMCPR values.

Based on the results of the review, the staff finds that the SLMCPR analysis for LGS, Unit 2, Cycle 8 operation using the plant- and cycle-specific values of input parameters in conjunction with the approved method is acceptable. The proposed Cycle 8 SLMCPR values will ensure that 99.9 percent of the fuel rods in the core will not experience boiling transition, which satisfies the requirements of GDC 10 of Appendix A to 10 CFR Part 50 regarding acceptable fuel design limits. The staff has also concluded that the justification for analyzing and determining the SLMCPR value of 1.07 for two recirculation loop operation and of 1.09 for single recirculation loop operation is acceptable for LGS, Unit 2, Cycle 8 since approved methodologies are used.

We have reviewed the request by Exelon to revise the TSs for LGS, Unit 2, Cycle 8 operation. For the reasons set forth above, we conclude that the proposed changes are acceptable.

Since the Bases are not a part of the TSs, the NRC staff reviewed the Bases change only to ensure consistency with the proposed TS change. The NRC staff is not approving the Bases change, but is including the revised Bases page for completeness.

## 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendment. The State official had no comments.

## 5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (68 FR 802). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

## 7.0 REFERENCES

1. Letter from Michael P. Gallagher, Exelon, to NRC, "License Amendment Request 02-00643 Safety Limit Minimum Critical Power Ratio (SLMCPR) Change," dated November 21, 2002.

2. Letter from Michael P. Gallagher, Exelon, to NRC, "License Amendment Request 02-00643 Safety Limit Minimum Critical Power Ratio (SLMCPR) Change," dated February 25, 2003.

3. NEDC-32601P-A, "Methodology and Uncertainties for Safety Limit MCPR Evaluations," August 1999.

Principal Contributor: T. Huang

Date: March 11, 2003