November 14, 2002

Mr. John L. Skolds, President
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNIT 1 - ISSUANCE OF AMENDMENT RE: CHANGE IN MINIMUM CRITICAL POWER RATIO SAFETY LIMIT (TAC NO. MB5209)

Dear Mr. Skolds:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 210 to Facility Operating License No. DPR-29 for the Quad Cities Nuclear Power Station, Unit 1. The amendment consists of changes to the Technical Specifications in response to your application dated May 30, 2002, as supplemented August 15 and October 18, 2002.

The amendment revises the safety limit minimum critical power ratio for two-loop and single-loop operation for Unit 1 for Cycle 18.

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Carl F. Lyon, Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-254

Enclosures: 1. Amendment No. 210 to DPR-29
2. Safety Evaluation

cc w/encls: See next page

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OFFICE	PM:LPD3-2	LA:LPD3-2	SRXB/SC	OGC	SC:LPD3-2
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OFFICIAL RECORD COPY

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EXELON GENERATION COMPANY, LLC

AND

MIDAMERICAN ENERGY COMPANY

DOCKET NO. 50-254

QUAD CITIES NUCLEAR POWER STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 210

License No. DPR-29

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

   A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated May 30, 2002, as supplemented August 15 and October 18, 2002, 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 3.B. of Facility Operating License No. DPR-29 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 210, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA by John Stang for/

Anthony J. Mendiola, Chief, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 14, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 210

FACILITY OPERATING LICENSE NO. DPR-29

DOCKET NO. 50-254

Replace the following page of the Appendix “A” Technical Specifications with the attached page. The revised page is identified by number and contains marginal lines indicating the areas of change.

Remove Page	Insert Page
2.0-1	2.0-1

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 210 TO FACILITY OPERATING LICENSE NO. DPR-29

EXELON GENERATION COMPANY, LLC

AND

MIDAMERICAN ENERGY COMPANY

QUAD CITIES NUCLEAR POWER STATION, UNIT 1

DOCKET NO. 50-254

1.0 INTRODUCTION

By application dated May 30, 2002 (Reference 1), as supplemented August 15 (Reference 2) and October 18, 2002 (Reference 3), Exelon Generation Company, LLC (the licensee) requested changes to the Technical Specifications (TSs) for the Quad Cities Nuclear Power Station, Unit 1. The supplements dated August 15 and October 18, 2002, provided additional information that clarified the application, did not change 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 July 9, 2002 (67 FR 45569).

The proposed changes would revise the safety limit (SL) minimum critical power ratio (MCPR) for two-loop and single-loop operation for Unit 1 Cycle 18. The change is necessary because a specific SLMCPR is required to be calculated for each cycle in accordance with the General Electric Company's (GE's) standard safety analysis methodology, GESTAR II. The Unit 1 Cycle 18 core will contain a mixture of Global Nuclear Fuel (GNF) and Framatome ANP fuel bundles, including 296 fresh GE14 fuel bundles, 235 once-burned ATRIUM-9B fuel bundles, and 193 twice-burned ATRIUM-9B fuel bundles. The proposed changes are specifically described below.

1.1 TS 2.1.1.2

The licensee proposes to revise the value of the SLMCPR in TS 2.1.1.2 to read, "With the reactor steam dome pressure $\geq$ 785 psig and core flow $\geq$ 10% rated core flow:

For Unit 1, MCPR shall be $\geq$ 1.10 for two recirculation loop operation or $\geq$ 1.11 for single recirculation loop operation.

For Unit 2, MCPR shall be $\geq$ 1.11 for two recirculation loop operation, or for single recirculation loop operation, MCPR shall be $\geq$ 1.12."

2.0 REGULATORY EVALUATION

The design bases for the fuel are described in the Updated Final Safety Analysis Report, Section 4.2.1.1. The critical power ratio limit was established to meet, in part, the requirements of 10 CFR 50.46 by avoiding fuel damage due to severe overheating of the fuel cladding. The fuel cladding integrity SLMCPR was established to assure that at least 99.9 percent of the fuel rods in the core do not experience boiling transition during normal operation and anticipated operational occurrences. The requirement is derived, in part, from General Design Criteria (GDC) 10 of Appendix A to 10 CFR Part 50 regarding acceptable fuel design limits.

For the reasons set forth below, the staff concludes that the proposed TS changes will maintain compliance with the regulatory requirements of GDC 10.

3.0 TECHNICAL EVALUATION

The licensee proposes to change the SLMCPR values in TS 2.1.1.2 for Unit 1 Cycle 18 from 1.11 to 1.10 for two recirculation loop operation and from 1.12 to 1.11 for single recirculation loop operation with the reactor vessel steam dome pressure greater than or equal to 785 psig and core flow greater than or equal to 10 percent of rated core flow.

In its submittal, the licensee described the approved methodologies used to calculate the proposed SLMCPR values. The Cycle 18 SLMCPR analysis was performed by GNF using plant- and cycle-specific fuel and core parameters and NRC-approved methodologies, including NEDC-32694P-A (Power Distribution Uncertainties for Safety Limit MCPR Evaluations), NEDC-32601P-A (Methodology and Uncertainties for Safety Limit MCPR Evaluations), NEDC-32981P, Revision 0 (GEXL Correlation for ATRIUM-9B Fuel), and Amendment 25 to NEDE-24011-P-A (GESTAR II).

In Reference 3, the licensee stated that the proposed changes to the SLMCPR values were analyzed based on NRC-approved methodologies, including an approach to simulate (1) different vendor's fuel bundles in mixed core conditions and (2) the penalty for correlation uncertainties in the analyses for GE14 fuel related to the up-skew power shape data. The staff has reviewed the licensee's submittal, as supplemented, and finds that the justification for the proposed TS changes is acceptable because: (1) approved methodologies were used in conjunction with the Unit 1 plant- and cycle-specific parameters, such as an effective total bundle uncertainties; (2) the penalty for GE14 fuel was considered for the entire core through Cycle 18 operation; and (3) the difference between the Cycle 17A and Cycle 18 calculations for SLMCPR was clearly identified and explained (Reference 3). The proposed Cycle 18 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. Therefore, the staff concludes that the licensee's proposed change of the SLMCPR value to 1.10 for two recirculation loop operation and to 1.11 for single recirculation loop operation is acceptable for Unit 1 Cycle 18.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change 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 amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (67 FR 45569). Accordingly, the amendments meet 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 amendments.

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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

1. Letter (RS-02-095) from P. R. Simpson to USNRC, " Request for Technical Specifications Change for Minimum Critical Power Ratio Safety Limit," May 30, 2002.

2. Letter (RS-02-145) from P. R. Simpson to USNRC, "Supplemental Request for Technical Specifications Change for Minimum Critical Power Ratio Safety Limit," August 15, 2002.

3. Letter (RS-02-182) from P. R. Simpson to USNRC, "Additional Information Supporting the Request for Technical Specifications Change for Minimum Critical Power Ratio Safety Limit," October 18, 2002.

Principal Contributor: T. Huang

Date: November 14, 2002