

March 12, 2004

Mr. Christopher M. Crane
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 1 - ISSUANCE OF AMENDMENT
RE: SAFETY LIMIT MINIMUM CRITICAL POWER RATIO (TAC NO. MC1615)

Dear Mr. Crane:

The Commission has issued the enclosed Amendment No. 170 to Facility Operating License No. NPF-39 for the Limerick Generating Station, Unit 1. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated December 22, 2003, as supplemented by letter dated February 13, 2004.

This amendment revises the safety limit minimum critical power ratio value in TS 2.1 with the reactor steam dome pressure greater than 785 psig and core flow greater than 10% of rated core flow from the current specification of 1.10 to 1.07 for two recirculation-loop operation and from 1.11 to 1.08 for single recirculation-loop operation.

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

Sincerely,

/RA by DRoberts for/

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

Docket No. 50-352

Enclosures: 1. Amendment No. 170 to
License No. NPF-39
2. Safety Evaluation

cc w/encls: See next page

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DISTRIBUTION:

PUBLIC	PD1-2 R/F	DRoberts	SWall	MO'Brien	FAkstulewicz
OGC	ACRS	GHill (2)	TBoyce	THuang	CBixler, RGN-I
BPham					

Accession Number: ML040500593

TS(s): ML

Package: ML040720611

* Safety Evaluation dated February 24, 2004

** See previous concurrence

OFFICE	PDI-2\PM	SRXB\SC*	IROB\SC**	PDI-2\LA	OGC**	PDI-2\SC(A)
NAME	DRoberts for SWall	FAkstulewicz	TBoyce	MO'Brien	JHull	DRoberts
DATE	03/12/04	2/24/04	3/9/04	03/12/04	3/11/04	03/12/04

OFFICIAL RECORD COPY

Limerick Generating Station, Units 1 & 2

cc:

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Limerick Generating Station, Units 1 & 2

cc:

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P.O. Box 8469
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Chairman
Board of Supervisors
of Limerick Township
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Dr. Judith Johnsrud
National Energy Committee
Sierra Club
433 Orlando Avenue
State College, PA 16803

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-352

LIMERICK GENERATING STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 170
License No. NPF-39

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (the licensee), dated December 22, 2003, as supplemented by letter dated February 13, 2004, 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-39 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. 170, are hereby incorporated in the 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 within 30 days.

FOR THE NUCLEAR REGULATORY
COMMISSION

/RA/

Darrell J. Roberts, Acting 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 12, 2004

ATTACHMENT TO LICENSE AMENDMENT NO. 170

FACILITY OPERATING LICENSE NO. NPF-39

DOCKET NO. 50-352

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

2-1

B 2-1

Insert

2-1

B 2-1

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 170 TO FACILITY OPERATING LICENSE NO. NPF-57
EXELON GENERATION COMPANY, LLC
LIMERICK GENERATING STATION, UNIT 1
DOCKET NO. 50-352

1.0 INTRODUCTION

By application dated December 22, 2003, as supplemented by letter dated February 13, 2004, Exelon Generation Company, LLC (the licensee) requested changes to the Technical Specifications (TSs) for the Limerick Generating Station (LGS), Unit 1. The supplement dated February 13, 2004, 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 February 3, 2004 (69 FR 5203).

The proposed changes would revise the safety limit minimum critical power ratio (SLMCPR) value in TS 2.1 with the reactor steam dome pressure greater than 785 psig and core flow greater than 10% of rated core flow from the current specification from 1.10 to 1.07 for two recirculation-loop operation and from 1.11 to 1.08 for single recirculation-loop operation.

2.0 REGULATORY EVALUATION

The licensee identified the applicable regulatory requirements in Section 5.0 of its December 22, 2003, submittal. The regulatory requirements that the Nuclear Regulatory Commission (NRC) staff considered in its review of the application are in Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 36 (10 CFR 50.36), "Technical Specifications." The regulations (10 CFR 50.36) require that a safety limit be included in the plant-specific TSs. Part 50 of 10 CFR, Appendix A, General Design Criterion (GDC) 10, requires that the reactor core and associated coolant, control, and protective system be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded during steady state operation, normal operational transients, and anticipated operational occurrences. To ensure compliance with GDC 10 of Appendix A, 10 CFR Part 50, the staff will confirm, as part of its review, that the licensee performed the plant-specific SLMCPR analyses using NRC-approved methodologies as prescribed in NUREG-0800, Standard Review Plan, Section 4.4. The SLMCPR ensures that sufficient conservatism exists in the operating MCPR limit such that, in the event of an anticipated operational occurrence, at least 99.9% of the fuel rods in the core are expected to avoid boiling transition for the power distribution within the core, including all uncertainties.

3.0 TECHNICAL EVALUATION

In the December 22, 2003, submittal, the licensee referenced NRC-approved methodologies to calculate the proposed SLMCPR values. Global Nuclear Fuel (GNF) performed the SLMCPR analysis using plant- and cycle-specific fuel and core parameters. In addition, GNF used the NRC-approved methodologies, which include NEDC-32505-P, Revision 1, "R-Factor Calculation Method for GE11, GE12 and GE13 Fuel"; NEDO-10958-A, "General Electric Boiling Water Reactor Thermal Analysis Basis" (GETAB); NEDC-32601-P, "Methodology and Uncertainties for Safety Limit MCPR Evaluations"; NEDC-32694-P, "Power Distribution Uncertainties for Safety Limit MCPR Evaluations"; and Amendment 25 to NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel" (GESTAR II). The licensee's supplement of February 13, 2004, provided further information concerning the power shape penalty rationale and fuel bundle identification values.

The staff reviewed: (1) the licensee's justification for the change to the SLMCPR from 1.10 to 1.07 for two recirculation-loop operation, and from 1.11 to 1.08 for single recirculation-loop operation using the approach delineated in Amendment 25 to GESTAR II; and (2) the adequacy of the SLMCPR calculation with respect to the end-of-cycle (EOC) penalty for an upskew or double-hump power shape through the cycle.

The licensee explained the overall decrease of the SLMCPR values for the LGS1 Cycle-11 operation with respect to that for the Cycle-10 operation. Considering the increase of R-factor uncertainty, the net calculated reduction in SLMCPR values from Cycle 10 to Cycle 11 is due mainly to use of the NRC-approved revised power distribution model and its associated reduced power distribution uncertainties. The licensee also confirmed that there is no double-hump power shape through the cycle.

The staff has reviewed the licensee's justification to address the SLMCPR reduction of 0.03 for both two recirculation-loop operation and single recirculation-loop operation corresponding to the SLMCPR penalty issue. The staff has concluded that the licensee's justification for those two issues is acceptable because the calculation results, which are based on NRC-approved methodologies, indicate that the proposed SLMCPR values are indeed conservative. The proposed LGS1 Cycle-11 SLMCPR values will ensure that 99.9% of the fuel rods in the core will not experience boiling transition, which satisfies the requirements of GDC 10 regarding specified acceptable fuel design limits. The staff concludes that the justification for analyzing and determining the SLMCPR value of 1.07 for two recirculation-loop operation and 1.08 for single recirculation-loop operation is acceptable for LGS1 Cycle-11, since NRC-approved methodologies listed above are used.

The NRC staff has reviewed the request by Exelon Generation Company, LLC, to revise the TSs for LGS1 Cycle-11 operation. Based on the review, the staff concludes that the proposed TS changes are acceptable because the licensee used NRC-approved methodologies and followed their calculation procedures to verify the accuracy of the results.

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 (69 FR 5203). 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.

Principal Contributor: T. Huang

Date: March 12, 2004