December 20, 2001

Mr. Oliver D. Kingsley, President
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: ISSUANCE OF AMENDMENTS (TAC NOS. MB0168, MB0169, MB1327, AND MB1328)

Dear Mr. Kingsley:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 201 to Facility Operating License No. DPR-29 and Amendment No. 197 to Facility Operating License No. DPR-30 for the Quad Cities Nuclear Power Station, Units 1 and 2. The amendments are in response to your application dated September 29, 2000, as supplemented by letters dated March 1, July 13, August 9, August 13, August 27, and October 17, 2001. The September 29, 2000, application was submitted by the Commonwealth Edison Company (ComEd), which merged to form Exelon Generation Company, LLC (EGC, or the licensee). By letter dated February 7, 2001, EGC assumed responsibility for all pending Nuclear Regulatory Commission actions requested by ComEd.

The amendments change the technical specifications to reflect a change in fuel vendors from Siemens Power Corporation to General Electric, and a transition to GE14 fuel. As part of the transition, changes are made to (1) increase the number of required automatic depressurization system valves from four to five, and (2) remove an allowance to continue operating for 72 hours if certain combinations of emergency core cooling systems are inoperable.

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

Sincerely,

/RA/
Stewart N. Bailey, Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-254 and 50-265

Enclosures:
1. Amendment No. 201 to DPR-29
2. Amendment No. 197 to DPR-30
3. Safety Evaluation

cc w/encls: See next page

December 20, 2001

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Exelon Generation Company, LLC
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Warrenville, IL 60555

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PUBLIC	AMendiola	CRosenberg	OGC, O15B18
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ADAMS Accession Number: ML013390002 ---------- TS pages ML013610316

OFFICE	PM:LPD3-2*	LA:LPD3-2*	SC:SRXB*	OGC*	SC:LPD3-2
NAME	SBailey	THarris for CRosenberg	RCaruso	McNeill	AMendiola
DATE	12/20/01	12/11/01	12/17/01	12/20/01	12/20/01

* See previous concurrences OFFICIAL RECORD COPY

cc:

Exelon Generation Company, LLC
Site Vice President - Quad Cities
22710 206th Avenue N.
Cordova, Illinois 61242-9740

Exelon Generation Company, LLC
Station Manager - Quad Cities
22710 206th Avenue N.
Cordova, Illinois 61242-9740

Exelon Generation Company, LLC
Regulatory Assurance Manager - Quad Cities
22710 206th Avenue N.
Cordova, Illinois 61242-9740

U.S. Nuclear Regulatory Commission
Quad Cities Resident Inspectors Office
22712 206th Avenue N.
Cordova, Illinois 61242

William D. Leech
Manager - Nuclear
MidAmerican Energy Company
P.O. Box 657
Des Moines, Iowa 50303

Vice President - Law and
Regulatory Affairs
MidAmerican Energy Company
One River Center Place
106 E. Second Street
P.O. Box 4350
Davenport, Iowa 52808

Chairman
Rock Island County Board
of Supervisors
1504 3rd Avenue
Rock Island County Office Bldg.
Rock Island, Illinois 61201

Regional Administrator
U.S. NRC, Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Illinois Department of Nuclear Safety
Office of Nuclear Facility Safety
1035 Outer Park Drive
Springfield, Illinois 62704

Document Control Desk-Licensing
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, Illinois 60555

Mr. John Skolds
Chief Operating Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, Illinois 60555

Mr. John Cotton
Senior Vice President, Operation Support
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, Illinois 60555

Mr. William Bohlke
Senior Vice President, Nuclear Services
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, Illinois 60555

Mr. Robert J. Hovey
Vice President
Mid-West Regional Operating Group
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, Illinois 60555

Mr. Christopher Crane
Senior Vice President
Mid-West Regional Operating Group
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, Illinois 60555

Mr. Jeffrey Benjamin
Vice President - Licensing and Regulatory Affairs
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, Illinois 60555

Mr. K. A. Ainger
Director - Licensing
Mid-West Regional Operating Group
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, Illinois 60555

Mr. Robert Helfrich
Senior Counsel, Nuclear
Mid-West Regional Operating Group
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, Illinois 60555

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. 201
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 September 29, 2000, as supplemented by letters dated March 1, July 13, August 9, August 13, August 27, and October 17, 2001, 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. 201, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

In addition, the license is amended to add paragraph 3.U. to Facility Operating License DPR-29 as follows:

U. Fuel Burnup

The maximum rod average burnup for any rod shall be limited to 60 GWD/MTU until the completion of an NRC environmental assessment supporting an increased limit.

3. This license amendment is effective as of the date of its issuance and shall be implemented prior to reaching Startup (i.e., Mode 2) following refueling outage 17, scheduled for completion in November 2002.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

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: December 20, 2001

EXELON GENERATION COMPANY, LLC

AND

MIDAMERICAN ENERGY COMPANY

DOCKET NO. 50-265

QUAD CITIES NUCLEAR POWER STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 197
License No. DPR-30

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

   A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated September 29, 2000, as supplemented by letters dated March 1, July 13, August 9, August 13, August 27, and October 17, 2001, 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-30 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 197, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

In addition, the license is amended to add paragraph 3.T. to Facility Operating License DPR-30 as follows:

T. Fuel Burnup

The maximum rod average burnup for any rod shall be limited to 60 GWD/MTU until the completion of an NRC environmental assessment supporting an increased limit.

3. This license amendment is effective as of the date of its issuance and shall be implemented prior to reaching Startup (i.e., Mode 2) following refueling outage 16, scheduled for completion in February 2002.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

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: December 20, 2001

ATTACHMENT TO LICENSE AMENDMENT NOS. 201 AND 197

FACILITY OPERATING LICENSE NOS. DPR-29 AND DPR-30

DOCKET NOS. 50-254 AND 50-265

1. Remove Facility Operating License No. DPR-29, page 7, and insert replacement page 7. The replacement page is identified by the captioned amendment number and contains marginal lines indicating the area of change.

2. Remove Facility Operating License No. DPR-30, page 7, and insert replacement page 7. The replacement page is identified by the captioned amendment number and contains marginal lines indicating the area of change.

3. Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE	INSERT
3.1.4-3	3.1.4-3
3.5.1-1	3.5.1-1
3.5.1-2	3.5.1-2
3.5.1-3	3.5.1-3
3.5.1-6	3.5.1-6
5.6-4	5.6-4
5.6-5	5.6-5

R. EGC shall take all necessary steps to ensure that the decommissioning trust is maintained in accordance with the application for approval of the transfer of the Quad Cities, Unit 1, license and the requirements of the Order approving the transfer, and consistent with the safety evaluation supporting the Order.

S. EGC shall relocate certain Technical Specification requirements to EGC-controlled documents upon implementation of Amendment No. 199. The items and appropriate documents are as described in Table LA, "Removal of Details Matrix," and Table R, "Relocated Specifications," that are attached to the NRC's Safety Evaluation enclosed with Amendment No. 199.

T. The schedule for performing Surveillance Requirements (SRs) that are new or revised in Amendment No. 199 shall be as follows:

For SRs that are new in this amendment, the first performance is due at the end of the first surveillance interval that begins on the date of implementation of Amendment No. 199.

For SRs that existed prior to this amendment whose intervals of performance are being reduced, the first reduced surveillance interval begins upon completion of the first surveillance performed after implementation of Amendment No. 199.

For SRs that existed prior to this amendment that have modified acceptance criteria, the first performance is due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the implementation of Amendment No. 199.

For SRs that existed prior to this amendment whose intervals of performance are being extended, the first extended surveillance interval begins upon completion of the last surveillance performed prior to implementation of Amendment No. 199.

U. Fuel Burnup

The maximum rod average burnup for any rod shall be limited to 60 GWD/MTU until the completion of an NRC environmental assessment supporting an increased limit.

Q. EGC shall take all necessary steps to ensure that the decommissioning trust is maintained in accordance with the application for approval of the transfer of the Quad Cities, Unit 2, license and the requirements of the Order approving the transfer, and consistent with the safety evaluation supporting the Order.

R. EGC shall relocate certain Technical Specification requirements to EGC-controlled documents upon implementation of Amendment No. 195. The items and appropriate documents are as described in Table LA, "Removal of Details Matrix," and Table R, "Relocated Specifications," that are attached to the NRC's Safety Evaluation enclosed with Amendment No. 195.

S. The schedule for performing Surveillance Requirements (SRs) that are new or revised in Amendment No. 195 shall be as follows:

For SRs that are new in this amendment, the first performance is due at the end of the first surveillance interval that begins on the date of implementation of Amendment No. 195.

For SRs that existed prior to this amendment whose intervals of performance are being reduced, the first reduced surveillance interval begins upon completion of the first surveillance performed after implementation of Amendment No. 195.

For SRs that existed prior to this amendment that have modified acceptance criteria, the first performance is due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the implementation of Amendment No. 195.

For SRs that existed prior to this amendment whose intervals of performance are being extended, the first extended surveillance interval begins upon completion of the last surveillance performed prior to implementation of Amendment No. 195.

T. Fuel Burnup

The maximum rod average burnup for any rod shall be limited to 60 GWD/MTU until the completion of an NRC environmental assessment supporting an increased limit.

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 201 TO FACILITY OPERATING LICENSE NO. DPR-29

AND AMENDMENT NO. 197 TO FACILITY OPERATING LICENSE NO. DPR-30

EXELON GENERATION COMPANY, LLC

AND

MIDAMERICAN ENERGY COMPANY

QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2

DOCKET NOS. 50-254 AND 50-265

1.0 INTRODUCTION

By letter dated September 29, 2000, as supplemented by letters dated March 1, July 13, August 9, August 13, August 27, and October 17, 2001, the licensee requested an amendment to the Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2, operating licenses to support a change in fuel vendor from Siemens Power Corporation (SPC) to General Electric (GE), and a transition to GE-14 fuel. The September 29, 2000, application was submitted by the Commonwealth Edison Company (ComEd), which merged to form Exelon Generation Company, LLC (EGC, or the licensee). By letter dated February 7, 2001, EGC assumed responsibility for all pending Nuclear Regulatory Commission (NRC) actions requested by ComEd.

The September 29, 2000, application requested changes that reflect the GE approach to analyzing the core. Specifically, the licensee requested revisions to the technical specification (TS) control rod scram times and the core operating limits report (COLR) analytical methods. The application included changes to the then-current TSs and the improved technical specifications (ITS). The licensee had applied to convert QCNPS to the ITS by letter dated March 3, 2000. The ITS were approved for QCNPS on March 30, 2001.

By letter dated March 1, 2001, the licensee requested additional TS changes to support the fuel transition. These additional changes were identified by the licensee when performing the analyses to support the extended power uprate (EPU) for QCNPS (the EPU application was submitted on December 27, 2000). While the analyses did not specifically separate the effects of the fuel transition and change in methodology from those of the EPU, the licensee determined that it was appropriate to include the changes in the fuel transition. The specific changes were (1) increasing the number of required automatic depressurization system (ADS)

valves from four to five, (2) adding a surveillance requirement (SR) for the Target Rock safety/relief valve (SRV) to support crediting its ADS function, and (3) revising the required action when the high pressure coolant injection (HPCI) system is inoperable and one low pressure emergency core cooling system (ECCS) injection/spray subsystem is inoperable. These additional changes requested by the licensee were noticed on August 22, 2001, (66 FR 44172).

By letter dated July 13, 2001, the licensee responded to the staff's request for additional information regarding the acceptability of crediting the ADS function of the Target Rock SR; and by letter dated August 9, 2001, the licensee responded to the staff's request for additional information related to development of the GEXL14 critical power ratio (CPR) correlation used for GE-14 fuel.

By letter dated August 13, 2001, the licensee proposed a change to the previously requested SR for the Target Rock SRV. The licensee initially proposed an SR to verify every 24 months that the leakage from the SRV accumulator is acceptable. At the staff's request, the licensee replaced this with a SR to verify every 31 days that the SRV accumulator pressure is acceptable.

By letter dated August 27, 2001, the licensee proposed a license condition, at the staff's request, that limits the rod average burnup to 60 gigawatt-days per metric ton of uranium (GWD/mtU) until an environmental assessment is completed that supports higher burnup levels.

By letter dated October 17, 2001, the licensee provided revised TS pages to reflect the proposed changes.

The submittals dated July 13, August 9, August 13, August 27, and October 17, 2001, did not change the scope of the amendment or the proposed no significant hazards findings dated December 27, 2000, (65 FR 81912) and August 22, 2001 (66 FR 44172).

2.0 EVALUATION

The licensee proposed the following changes to the QCNPS operating licenses:

2.1 TS 3.1.4, "Control Rod Scram Times"

The licensee proposed to add new control rod scram times for GE analyzed cores in Table 3.1.4-1, "Control Rod Scram Times." The new scram times reflect the GE methodology of modeling control rod insertion during a scram. The staff reviewed the proposed changes and found them to be acceptable, based on consistency with the staff-approved GE methodology.

2.2 TS 3.5.1, "ECCS - Operating"

The licensee proposed three changes, which are evaluated as follows:

(1) Increase the number of ADS valves required to be operable from four to five.

(2) Add a new SR 3.5.1.12 to verify at least once every 31 days that the pressure of the ADS pneumatic supply header is $\geq$80 psig.

The proposed change of fuel vendor and transition to GE-14 fuel, along with the EPU, have resulted in the need for additional ADS capacity. The licensee proposed to increase the number of required ADS valves from four to five by allowing credit for the use of the ADS function of the Target Rock SRV. The ADS at QCNPS consists of four electromatic (electric power-actuated) relief valves (EMRVs) and one three-stage Target Rock SRV. The four EMRVs are currently credited with performing the ADS function. The Target Rock SRV receives an ADS actuation signal which actuates the valve with its air actuator, but is not currently credited for the ADS function.

The Target Rock SRV was previously not qualified for the ADS function because it did not satisfy the recommendation for qualification of the ADS accumulators in accordance with NUREG-0737, Item II.K.3.28. This item recommended that licensees verify that accumulators on ADS valves "are provided with sufficient capacity to cycle the valves open five times at design pressures." Item II.K.3.28 also stated that air (or nitrogen) leakage through valves must be accounted for in order to assure that sufficient inventory of compressed air is available to open the ADS valves five times. Further, Item II.K.3.28 stated that the ADS valves, accumulators, and associated equipment and instrumentation are to be capable of performing their functions during and following exposure to hostile environments, taking no credit for non-safety related equipment or instrumentation.

To ensure the qualification of the Target Rock SRV, the licensee stated that the accumulator size was verified to be capable of allowing five cycles of operation without makeup. The licensee replaced the makeup supply check valves with soft seated spring-loaded ball check valves to minimize leakage. The licensee also stated that the accumulator leakage surveillance performed in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code inservice testing (IST) requirements will continue to be a part of the IST program. Further, SR 3.5.1.12 is proposed to verify that the pneumatic supply pressure is at least 80 psig every 31 days. The licensee stated that the IST test of the accumulator leakage will verify that when supply pressure is 80 psig, the pressure will be at least 70 psig one hour after a loss of makeup supply. The licensee stated that, beginning with a pressure of 70 psig, the accumulator is sized such that the valve can open a minimum of five times with primary containment at atmospheric pressure. Ensuring the valve capability for five cycles is conservative since (1) during a small-break loss-of-coolant (LOCA) the valve may be required to open only once, and (2) subsequent maintenance of low pressure will be adequately ensured by the remaining four relief valves. One hour is adequate to depressurize the reactor following a small-break LOCA. This pressure is also sufficient for two cycles of valve operation with a primary containment pressure of 70 percent of design pressure, which the licensee determined is still adequate for the required depressurization capability.

The licensee stated that the piping and all associated components downstream of the isolation check valve are seismically supported, including the piping, the accumulator, and the Target Rock SRV. The licensee also stated that the SRV actuator and air solenoid valve are environmentally qualified, and that the SRV uses the same ADS function actuation instrumentation and logic circuitry as the four EMRVs that are already credited for ADS.

Further, the four EMRVs meet applicable seismic and environmental qualification requirements. Also, the electrical power for the ADS function of the Target Rock SRV is supplied by safety-related 125 volt dc power.

The licensee has provided information which adequately demonstrates the seismic and environmental qualification of the necessary components for ensuring the ADS function of the Target Rock SRV. Also, the proposed SR 3.5.1.12, together with the IST accumulator leakage test described above, provide adequate assurance that there will be sufficient accumulator pressure available for operating the SRV the necessary number of cycles for the limiting accident conditions. In addition, proposed SR 3.5.1.12 is consistent with the BWR/4 Standard Technical Specifications provided in NUREG-1433, Volume 1. This SR and the required IST for the SRV and its associated components provide reasonable assurance that the SRV will perform the ADS function as required. Therefore, the staff finds crediting of the Target Rock SRV for the ADS function and the proposed TS changes to be acceptable.

(3) Delete Action G, which allows continued operation for 72 hours in the Condition of the HPCI System inoperable with either one low pressure ECCS injection/spray system inoperable or one low-pressure coolant injection pump in each subsystem inoperable, revise action letter designations (editorial change), and specify that a shutdown is required within one hour for the above Condition (by including the above Condition in new Action I).

The licensee stated that these changes reflect the GE methodology and revised analyses for the fuel transition. With the introduction of GE-14 fuel, the LOCA analyses show that, for cases with two ECCS subsystems, such as HPCI and a low pressure ECCS injection/spray subsystem, out of service, the ECCS does not provide adequate core cooling to meet all of the required acceptance criteria. Consequently, the appropriate actions for this case would be an entry into LCO 3.0.3, which requires a reactor shutdown, as opposed to allowing continued operation for 72 hours. The staff finds this change to be acceptable.

2.3 TS 5.6.5, "Core Operating Limits Report (COLR)," and License Condition

The licensee proposed to add the following additional analytical methods to TS 5.6.5.b: (1) SPC Topical Report EMF-85-74(P), "RODEX2A (BWR) Fuel Rod Thermal Mechanical Evaluation Model," Supplement 1(P)(A) and Supplement 2(P)(A), February 1998, and (2) GE Topical Report NEDC-32981P, "GEXL96 Correlation for ATRIUM 9B Fuel," September 2000. Both of these topical reports have been approved by the NRC and are applicable for this fuel transition and vendor change.

Topical Report EMF-85-74(P) supports burnup limits up to 62 GWD/mtU for the SPC fuel that will be co-resident with the GE-14 fuel. However, a generic environmental assessment has not been completed to support this burnup level. Currently, the environmental assessment supports a rod average burnup of 60 GWD/mtU. At the staff's request, the licensee proposed a license condition to limit the burnup to 60 GWD/mtU until an environmental assessment has been completed that supports higher burnup levels. The staff finds the addition of the topical report, coupled with the license condition, to be acceptable.

As part of the review of the EPU for QCNPS, the staff conducted an audit of the GE analyses that are used to develop the core operating limits (known as GESTAR analyses, which are

performed in accordance with the staff-approved methodology described in Amendment No. 22 to NEDE-20411-P-A). As the result of the audit, by letter dated July 20, 2001, the staff requested additional information related to the development of the GEXL14 CPR correlation for GE-14 fuel and compliance with Amendment No. 22 to NEDE-20411-P-A. GE had augmented the CPR experimental data base with data generated by the COBRAG computer code. The staff determined that this did not comply with Amendment No. 22 to NEDE-20411-P-A. By letter dated August 9, 2001, the licensee provided GE's response to the staff's questions. GE indicated that the GEXL14 correlation would be re-evaluated using test data alone, and this would restore full compliance with Amendment No. 22 to NEDE-20411-P-A. The staff finds that GE's corrective action to re-correlate GEXL14 using available experimental data will ensure that the minimum critical power ratio (MCPR) limits are properly determined.

Based on the above, the staff finds that the proposed changes are acceptable.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32, and 51.35, an Environmental Assessment and Finding of No Significant Impact was published in the *Federal Register* on September 19, 2001, (66 FR 48281). Accordingly, based upon the environmental assessment, the Commission has determined that issuance of this amendment will not have a significant effect on the quality of the human environment.

5.0 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.

Principal Contributors: S. Bailey
C. G. Hammer
T. Huang

Date: December 20, 2001