

February 12, 2002

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

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 - ISSUANCE OF  
AMENDMENTS RE: REACTOR PRESSURE VESSEL LEVEL  
INSTRUMENTATION SURVEILLANCE FREQUENCIES AND ALLOWABLE  
VALUES (TAC NOS. MB2733 AND MB2734)

Dear Mr. Kingsley:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 204 to Facility Operating License No. DPR-29 and Amendment No. 200 to Facility Operating License No. DPR-30 for the Quad Cities Nuclear Power Station, Units 1 and 2, respectively. The amendments are in response to your application dated August 13, 2001, as supplemented by letters dated December 17, 2001, December 26, 2001, and January 10, 2002.

The amendments revise the Technical Specifications (TSs) to support your planned upgrade of the reactor water level instrumentation, including changes to surveillance requirements frequencies, functional testing, and allowable values.

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/**

Mahesh Chawla, 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. 204 to DPR-29  
2. Amendment No. 200 to DPR-30  
3. Safety Evaluation

cc w/encls: See next page

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cc w/encls: See next page

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**Package Accession No.: ML020580543**

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**ADAMS Accession No.: ML020240427**

\*SE dated 1/16/02 \*\*Previously concurred

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DATE	2/7/02

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Units 1 and 2

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Units 1 and 2

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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. 204  
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 August 13, 2001, as supplemented by letters dated December 17, 2001, December 26, 2001, and January 10, 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. 204, 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 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: February 12, 2002

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. 200  
License Nos. 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 August 13, 2001, as supplemented by letters dated December 17, 2001, December 26, 2001, and January 10, 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-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. 200, 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 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: February 12, 2002



ATTACHMENT TO LICENSE AMENDMENT NOS. 204 AND 200

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

DOCKET NOS. 50-254 AND 50-265

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

Remove Pages

3.3.2.2-2  
3.3.5.1-8  
3.3.5.1-9  
3.3.5.1-10  
3.3.5.1-11  
3.3.5.1-12  
3.3.5.1-13  
3.3.5.2-3  
3.3.5.2-4

Insert Pages

3.3.2.2-2  
3.3.5.1-8  
3.3.5.1-9  
3.3.5.1-10  
3.3.5.1-11  
3.3.5.1-12  
3.3.5.1-13  
3.3.5.2-3  
3.3.5.2-4

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 204 TO FACILITY OPERATING LICENSE NO. DPR-29  
AND AMENDMENT NO. 200 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 application dated August 13, 2001, as supplemented by letters dated December 17, 2001, December 26, 2001, and January 10, 2002, Exelon Generation Company, LLC (the licensee), requested changes to the Technical Specifications (TSs) for the Quad Cities Nuclear Power Station, Units 1 and 2. The proposed amendment modifies certain surveillance requirement (SR) frequencies and allowable values (AVs) to reflect a planned upgrade to the reactor vessel (RPV) water level instrumentation. The proposed TS changes will permit replacement of Yarway mechanical level switches, which have exhibited unacceptable drift performance, with analog transmitter/trip units (ATUs), which have proven reliable in similar applications at Quad Cities. The upgrade to ATUs will have no impact on the actuation logic.

The licensee proposes the following changes to TS Section 3.3.2.2, "Feedwater System and Main Turbine High Water Level Trip Instrumentation," TS Section 3.3.5.1, "ECCS Instrumentation," and TS Section 3.3.5.2, "RCIC System Instrumentation":

- (1) Extend the channel functional test interval from 31 days to 92 days.
- (2) Add a new SR to calibrate ATU devices every 92 days.
- (3) Extend channel calibration to 24 months.
- (4) Revise AVs in TS 3.3.2.2, SR 3.3.2.2.3, from  $\leq 54.4$  inches to  $\leq 50.34$  inches, in TS 3.3.5.1, function 3.c, from  $\leq 54.23$  inches to  $\leq 50.34$  inches, and in functions 1.a, 2.a, 3.a, 4.a, and 5.a from  $\geq -56.78$  inches to  $\geq -55.2$  inches, and in TS 3.3.5.2, function 1, from  $\geq -56.78$  to  $\geq -55.2$  inches, and in function 2 from  $\leq 54.23$  inches to  $\leq 50.34$  inches.
- (5) Make minor format changes to the TS to facilitate the proposed revisions.

The December 17, 2001, December 26, 2001, and January 10, 2002, supplements provided clarifying information that was within the scope of the original *Federal Register* notice and did not change the staff's initial proposed no significant hazards considerations determination.

## 2.0 BACKGROUND

In order to address RPV water level instrumentation performance issues, the licensee committed by letter from R. Krich (licensee) to NRC, "Proposed TSs Change – Surveillance Test Intervals and Allowable Outage Times for Protective Instrumentation," dated December 27, 1999, to upgrade the current level instruments during upcoming refueling outages for Unit 2 in February 2002 and for Unit 1 in October 2002. The Yarway mechanical level switches currently in use will be replaced with ATUs, which have proven reliable in similar applications at Quad Cities, e.g., the reactor protection system low reactor level scram function. The use of ATUs at Quad Cities was previously reviewed and approved by the staff in Amendment Nos. 198 and 194 for Units 1 and 2, respectively, dated March 28, 2001, and in Amendment Nos. 199 and 195 for Units 1 and 2, respectively, dated March 30, 2001. The Yarway level switches have historically exhibited unacceptable drift performance. The upgrade from Yarways to ATUs will have no impact on the underlying design functions of the instrumentation and the actuation logic will not be modified.

The upgrade provides sensing devices for RPV water level signals and indications that are more reliable, with less drift and less frequent SRs. In addition, the licensee intends to update the transmitters supplying the signals with current models. The licensee's modification includes the addition of new analog trip system cabinets and a reconfiguration of certain existing ATUs to improve separation and diversity. The Yarway upgrade is consistent with General Electric (GE) Topical Report NEDO-21617-A, "Analog Transmitter/Trip Unit System for Engineered Safeguard Sensor Trip Inputs," which was approved by the NRC by letter and Safety Evaluation Report (SER) dated June 27, 1978.

## 3.0 EVALUATION

The existing RPV instrumentation uses Yarway level switches. The licensee stated that the Yarway level switches exhibited unacceptable drift performances. The licensee intends to replace these mechanical switches with more reliable electronic ATUs. The ATUs replace the trip function at the sensor level with no corresponding change to the actuation logic. The licensee has used these solid-state devices for similar applications at Quad Cities, for example, in the reactor protection system scram function for low reactor water level. The licensee stated that the replacement ATUs have continuous monitoring capability, and are designed to improve instrument performance, which also benefits test and surveillance requirements. The ATUs have proven reliability, and lower drifts, which will allow the licensee to increase the channel functional test intervals, device calibration intervals, and channel calibration intervals, and improve upon instrument setpoint AVs. The licensee further stated in its application that its equipment upgrade from Yarways to ATUs is consistent with GE Topical Report NEDO-21617-A, "Analog Transmitter/Trip Unit System for Engineering Safeguard Sensor Trip Inputs," which was approved by the NRC by letter and SER dated June 27, 1978.

The proposed TS changes modify SRs and instrumentation AVs to reflect improved ATU performance and design features. The licensee proposes to increase the channel functional test interval from 31 days to 92 days, in conformance with similar TS functions that employ

ATUs, for example, TS Table 3.3.1.1, Function 4, Reactor Vessel Water Level - Low. The licensee proposes to add a new surveillance requirement for calibration of ATUs every 92 days to conform with other functions that use ATUs, for example, SR 3.3.1.1.11. The licensee stated that their evaluation is based on the following NRC-approved GE and Boiling Water Reactor Owner's Group (BWROG) topical reports:

- a. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-Of-Service Times to Selected Instrumentation Technical Specifications." The NRC approved this topical report by letter dated July 21, 1992, and GE published the approved version in April 1992.
- b. GENE-770-06-2, "Addendum to Bases for Changes to Surveillance Test Intervals and Allowed Out-Of-Service Times to Selected Instrumentation Technical Specifications." The NRC approved this topical report by letter dated July 30, 1992, and GE published the approved version in December 1992.
- c. NEDC-30936P-A, "BWR Owners Group Technical Specification Improvement Methodology (with Demonstration for BWR ECCS Actuation Instrumentation), Part 1 and Part 2." This report was approved by the NRC by letter dated December 9, 1988, and the BWROG published the approved version in December 1988.
- d. NEDC-30851P, "Technical Specifications Improvement Analysis for BWR RPS." The NRC approved this topical report by letters dated July 15, 1987, and January 24, 1988, and the BWROG published the approved version in May 1988.

The licensee proposes to change the channel calibration interval to 24 months. The licensee stated that their channel calibration intervals are based on their setpoint methodology described in their Nuclear Standard NES-EIC-20.4, "Analysis of Instrument Channel Setpoint Error and Instrument Loop Accuracy," which it submitted to the NRC by letter dated March 24, 2000, and which the NRC approved by letter dated January 4, 2001. The licensee confirmed that the proposed AVs were calculated in accordance with their Nuclear Engineering Standard NES-EIC-20.04.

The licensee also proposed minor administrative changes, such as renumbering, to conform to TS format. The format changes have no impact on the intent of the TSs, and are acceptable to the staff.

The proposed TS changes are in conformance to the NRC-approved topical reports and calculation methodologies, and are consistent with NUREG-1433, "Standard Technical Specifications, General Electric Plants, BWR/4." Therefore, the proposed changes are acceptable to the staff.

#### 4.0 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.

## 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change an inspection or a surveillance requirement. 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 (66 FR 52800). 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 proposed changes are associated with replacement of Yarway mechanical level switches, which exhibit unacceptable drift performance, by NRC-approved solid-state ATUs, which have demonstrated more reliable drift performance for comparable instrument functions at Quad Cities. Furthermore, the licensee used NRC-approved topical reports and calculation methodologies, which should result in improvements in instrument setpoint allowable values, and device and channel calibration intervals. Therefore, the staff concludes that the proposed changes are acceptable.

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.

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Date: February 12, 2002