



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

April 18, 2001

Mr. Oliver D. Kingsley, President  
Exelon Nuclear  
Exelon Generation Company, LLC  
Executive Towers West III  
1400 Opus Place, Suite 500  
Downers Grove, IL 60515

**SUBJECT: ISSUANCE OF AMENDMENTS RELATED TO THE USE OF THE BEST ESTIMATE LOCA ANALYSIS; BYRON STATION, UNITS 1 AND 2, AND BRAIDWOOD STATION, UNITS 1 AND 2 (TAC NOS. MB0412, MB0413, MB0410, AND MB0411)**

Dear Mr. Kingsley:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 118 to Facility Operating License No. NPF-37 and Amendment No. 118 to Facility Operating License No. NPF-66 for the Byron Station, Unit Nos. 1 and 2, respectively, and Amendment No. 112 to Facility Operating License No. NPF-72 and Amendment No. 112 to Facility Operating License No. NPF-77 for the Braidwood Station, Unit Nos. 1 and 2, respectively. The amendments are in response to Commonwealth Edison Company (ComEd) application dated October 24, 2000, as supplemented on March 26, 2001. Subsequent to the date of the amendment requests, ComEd was merged into Exelon Generation Company, LLC (Exelon). By letter dated February 7, 2001, Exelon informed the NRC that it assumed responsibility for all pending NRC actions that were requested by ComEd.

The amendments revise the technical specifications (TSs) to reference the generically approved Westinghouse Best-Estimate large break loss-of-coolant accident (LBLOCA) analysis methodology as the methodology used to perform LBLOCA analyses for the plants

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

By letter dated January 12, 2001, the staff issued Amendment No. 115 to the license for Byron Station, Units 1 and 2, reflecting the transfer ownership of Byron from ComEd to Exelon. Pages 1 and 2 of the license for Byron, Unit 1, contained typographical errors. The corrected pages are provided.

NRR-058

Mr. O. Kingsley

-2-

By letter dated February 13, 2001, the staff issued amendment 116 to the licenses for Byron Station, Units 1 and 2, and amendment 110 to the licenses for Braidwood Station, Units 1 and 2. The amendments revised the TSs to allow the use of the Westinghouse core monitoring and support system known as Best Estimate Analyzer for Core Operations Nuclear (BEACON). Because of pagination changes, the allowable value column for items 6 and 7 on Table 3.3.1-1, Reactor Trip System Instrumentation (page 3.3.1-14), incorrectly refers to Notes on pages 3.3.1-18 and 3.3.1-19 respectively. The Notes are actually on pages 3.3.1-17 and 3.3.1-18. This change is considered as a typographical error because the error was introduced inadvertently in the amendments and the erroneous change was not addressed in the notice to the public nor reviewed by the staff.

Sincerely,



George F. Dick, Jr., Project Manager, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-454, STN 50-455,  
STN 50-456 and STN 50-457

- Enclosures:
1. Amendment No. 118 to NPF-37
  2. Amendment No. 118 to NPF-66
  3. Amendment No. 112 to NPF-72
  4. Amendment No. 112 to NPF-77
  5. Safety Evaluation
  6. Corrected license page for Amendment No. 115 to NPF-37
  7. Corrected Technical Specification page 3.3.1-14 for Amendment No. 116 to NPF-37 and NPF-66; and Technical Specification page 3.3.1-14 for Amendment No. 110 to NPF-72 and NPF-77

cc w/encls: See next page

Mr. O. Kingsley

-2-

By letter dated February 13, 2001, the staff issued amendment 116 to the licenses for Byron Station, Units 1 and 2, and amendment 110 to the licenses for Braidwood Station, Units 1 and 2. The amendments revised the TSs to allow the use of the Westinghouse core monitoring and support system known as Best Estimate Analyzer for Core Operations Nuclear (BEACON). Because of pagination changes, the allowable value column for items 6 and 7 on Table 3.3.1-1, Reactor Trip System Instrumentation (page 3.3.1-14), incorrectly refer to Notes on pages 3.3.1-18 and 3.3.1-19 respectively. The Notes are actually on pages 3.3.1-17 and 3.3.1-18. This change is considered as a typographical error because the error was introduced inadvertently in the amendments and the erroneous change was not addressed in the notice to the public nor reviewed by the staff.

Sincerely,

/RA/

George F. Dick, Jr., Project Manager, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-454, STN 50-455,  
STN 50-456 and STN 50-457

- Enclosures:
1. Amendment No. 118 to NPF-37
  2. Amendment No. 118 to NPF-66
  3. Amendment No. 112 to NPF-72
  4. Amendment No. 112 to NPF-77
  5. Safety Evaluation
  6. Corrected license page for Amendment No. 115 to NPF-37
  7. Corrected Technical Specification page 3.3.1-14 for Amendment No. 116 to NPF-37 and NPF-66; and Technical Specification page 3.3.1-14 for Amendment No. 110 to NPF-72 and NPF-77

cc w/encls: See next page

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O. Kingsley  
Exelon Generation Company

Byron/Braidwood Stations

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

EXELON GENERATION COMPANY, LLC

DOCKET NO. STN 50-454

BYRON STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 118  
License No. NPF-37

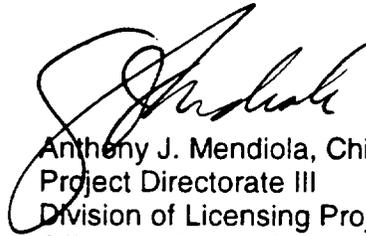
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated October 24, 2000, as supplemented on March 26, 2001, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (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 2.C.(2) of Facility Operating License No. NPF-37 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 118 and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented in concert with the Power Uprate amendment.

FOR THE NUCLEAR REGULATORY COMMISSION



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: April 18, 2001



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

EXELON GENERATION COMPANY, LLC

DOCKET NO. STN 50-455

BYRON STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 118  
License No. NPF-66

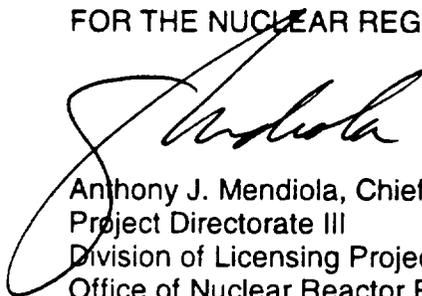
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated October 24, 2000, as supplemented on March 26, 2001, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (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 2.C.(2) of Facility Operating License No. NPF-66 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A (NUREG-1113), as revised through Amendment No. 118 and the Environmental Protection Plan contained in Appendix B, both of which were attached to License No. NPF-37, dated February 14, 1985, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented in concert with the Power Uprate amendment.

FOR THE NUCLEAR REGULATORY COMMISSION



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: April 18, 2001

ATTACHMENT TO LICENSE AMENDMENT NOS. 118 AND 118

FACILITY OPERATING LICENSE NOS. NPF-37 AND NPF-66

DOCKET NOS. STN 50-454 AND STN 50-455

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 Pages

5.6-4

5.6-5

Insert Pages

5.6-4

5.6-5

5.6 Reporting Requirements

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5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

5. ComEd letter from D. Saccomando to the Office of Nuclear Reactor Regulation dated December 21, 1994, transmitting an attachment that documents applicable sections of WCAP-11992/11993 and ComEd application of the UET methodology addressed in "Additional Information Regarding Application for Amendment to Facility Operating Licenses-Reactivity Control Systems."
  6. WCAP-12945-P-A, Volume 1, Revision 2, and Volumes 2 through 5, Revision 1, "Code Qualification Document for Best Estimate LOCA Analysis," March 1998.
  7. WCAP-10079-P-A, "NOTRUMP, A Nodal Transient Small Break and General Network Code," August 1985.
  8. WCAP-10054-P-A, "Westinghouse Small Break ECCS Evaluation Model using NOTRUMP Code," August 1985.
  9. WCAP-10216-P-A, Revision 1, "Relaxation of Constant Axial Offset Control - F<sub>0</sub> Surveillance Technical Specification," February 1994.
  10. WCAP-8745-P-A, "Design Bases for the Thermal Overpower  $\Delta T$  and Thermal Overtemperature  $\Delta T$  Trip Functions," September 1986;
- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met; and
  - d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

## 5.6 Reporting Requirements

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### 5.6.6 Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

- a. RCS pressure and temperature limits for heat up, cooldown, low temperature operation, criticality, and hydrostatic testing as well as heatup and cooldown rates, and Power Operated Relief Valve (PORV) lift settings shall be established and documented in the PTLR for the following:  
  
LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," and LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System";
- b. The analytical methods used to determine the RCS pressure and temperature limits shall be those previously reviewed and approved by the NRC, specifically those described in NRC letter dated January 21, 1998, "Byron Station Units 1 and 2, and Braidwood Station, Units 1 and 2, Acceptance for Referencing of Pressure Temperature Limits Report"; and
- c. The PTLR shall be provided to the NRC upon issuance for each reactor vessel fluence period and for any revision or supplement thereto.

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### 5.6.7 Post Accident Monitoring Report

When a report is required by Condition C or H of LCO 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

EXELON GENERATION COMPANY, LLC

DOCKET NO. STN 50-456

BRAIDWOOD STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.112  
License No. NPF-72

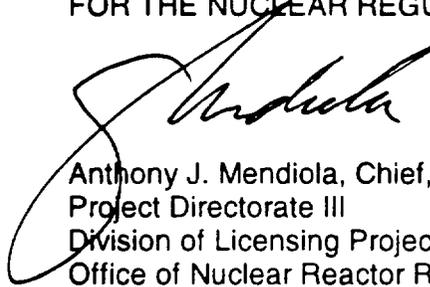
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated October 24, 2000, as supplemented on March 26, 2001, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (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 2.C.(2) of Facility Operating License No. NPF-72 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 112 and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented in concert with the Power Uprate amendment.

FOR THE NUCLEAR REGULATORY COMMISSION



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: April 18, 2001



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

EXELON GENERATION COMPANY, LLC

DOCKET NO. STN 50-457

BRAIDWOOD STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 112  
License No. NPF-77

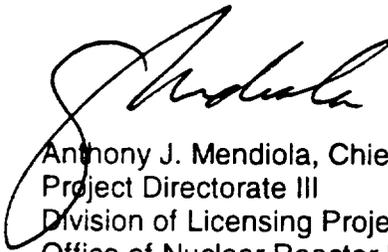
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Exelon Generation Company, LLC (the licensee) dated October 24, 2000, as supplemented on March 26, 2001, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (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 2.C.(2) of Facility Operating License No. NPF-77 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 112 and the Environmental Protection Plan contained in Appendix B, both of which were attached to License No. NPF-72, dated July 2, 1987, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented in concert with the Power Uprate amendment.

FOR THE NUCLEAR REGULATORY COMMISSION



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: April 18, 2001

ATTACHMENT TO LICENSE AMENDMENT NOS. 112 AND 112  
FACILITY OPERATING LICENSE NOS. NPF-72 AND NPF-77  
DOCKET NOS. STN 50-456 AND STN 50-457

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

Remove Pages

5.6-4  
5.6-5

Insert Pages

5.6-4  
5.6-5

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

5. ComEd letter from D. Saccomando to the Office of Nuclear Reactor Regulation dated December 21, 1994, transmitting an attachment that documents applicable sections of WCAP-11992/11993 and ComEd application of the UET methodology addressed in "Additional Information Regarding Application for Amendment to Facility Operating Licenses-Reactivity Control Systems."
  6. WCAP-12945-P-A, Volume 1, Revision 2, and Volumes 2 through 5, Revision 1, "Code Qualification Document for Best Estimate LOCA Analysis," March 1998.
  7. WCAP-10079-P-A, "NOTRUMP, A Nodal Transient Small Break and General Network Code," August 1985.
  8. WCAP-10054-P-A, "Westinghouse Small Break ECCS Evaluation Model using NOTRUMP Code," August 1985.
  9. WCAP-10216-P-A, Revision 1, "Relaxation of Constant Axial Offset Control -  $F_0$  Surveillance Technical Specification," February 1994.
  10. WCAP-8745-P-A, "Design Bases for the Thermal Overpower  $\Delta T$  and Thermal Overtemperature  $\Delta T$  Trip Functions," September 1986;
- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met; and
  - d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

## 5.6 Reporting Requirements

---

### 5.6.6 Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

- a. RCS pressure and temperature limits for heat up, cooldown, low temperature operation, criticality, and hydrostatic testing as well as heatup and cooldown rates, and Power Operated Relief Valve (PORV) lift settings shall be established and documented in the PTLR for the following:  
  
LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," and LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System";
- b. The analytical methods used to determine the RCS pressure and temperature limits shall be those previously reviewed and approved by the NRC, specifically those described in NRC letter dated January 21, 1998, "Byron Station Units 1 and 2, and Braidwood Station, Units 1 and 2, Acceptance for Referencing of Pressure Temperature Limits Report"; and
- c. The PTLR shall be provided to the NRC upon issuance for each reactor vessel fluence period and for any revision or supplement thereto.

---

### 5.6.7 Post Accident Monitoring Report

When a report is required by Condition C or H of LCO 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 118 TO FACILITY OPERATING LICENSE NO. NPF-37,  
AMENDMENT NO. 118 TO FACILITY OPERATING LICENSE NO. NPF-66,  
AMENDMENT NO. 112 TO FACILITY OPERATING LICENSE NO. NPF-72,  
AND AMENDMENT NO. 112 TO FACILITY OPERATING LICENSE NO. NPF-77  
EXELON GENERATION COMPANY, LLC  
BYRON STATION, UNIT NOS. 1 AND 2  
BRAIDWOOD STATION, UNIT NOS. 1 AND 2  
DOCKET NOS. STN 50-454, STN 50-455, STN 50-456 AND STN 50-457

1.0 INTRODUCTION

In a letter dated October 24, 2000, Commonwealth Edison Company (ComEd, the licensee) requested a license amendment to change the Core Operating Limits Report technical specification (TS) for Byron Station, Units 1 and 2, (Byron) and Braidwood Station, Units 1 and 2 (Braidwood) to reference the generically approved Westinghouse (W) Best-Estimate large break loss-of-coolant accident (LBLOCA) analysis methodology as the methodology used to perform LBLOCA analyses for the plants. The licensee described its process for grouping analyses into two reference analyses, one for Units 1 at Byron and Braidwood, and one for Units 2 at Byron and Braidwood. The licensee stated that analyses performed using the Braidwood and Byron plant-specific adaptation of the W Best-Estimate LBLOCA methodology apply to the plants. A meeting was held with the licensee on November 21, 2000, to discuss the amendment request. The meeting summary was dated December 22, 2000. Additional information was provided in the licensee's letter of March 26, 2001. The March 26, 2001, letter provided clarifying information that did not change the scope of the October 24, 2000, application or the proposed no significant hazards consideration determination.

Subsequent to the date of the amendment requests, ComEd was merged into Exelon Generation Company, LLC (Exelon). By letter dated February 7, 2001, Exelon informed the Nuclear Regulatory Commission (NRC) that it assumed responsibility for all pending NRC actions that were requested by ComEd.

2.0 EVALUATION

In its October 24, 2000, letter, the licensee proposed to implement the generically approved W best-estimate LBLOCA analysis methodology described in WCAP-12945-P-A, "Code Qualification Document for Best Estimate LOCA Analysis," March 1998, in its plant-specific

LBLOCA methodologies for the Byron/Braidwood plants. This methodology was approved for LBLOCA analyses of 3-loop and 4-loop plants of Westinghouse design. Byron and Braidwood are 4-loop plants of Westinghouse design, for which the methodology was approved, and therefore, the methodology may be applied as requested.

The staff reviewed the plant-specific adaptation of the W Best-Estimate LBLOCA methodology, and its applicability to the Braidwood and Byron plants. The staff also reviewed the TS changes proposed to include the plant-specific model in the references of the Braidwood and Byron core operating limits reports (COLRs).

## 2.1 Braidwood and Byron Plant-Specific Best-Estimate LOCA Methodologies

At the meeting on November 21, 2000, the licensee described its process for grouping the two units 1 and the two units 2 into two separate reference analyses. All four plants are of like design; however, the steam generators in the as-built Braidwood Unit 1 and Byron Unit 1 plants are different than the steam generators in the as-built Braidwood Unit 2 and Byron Unit 2 plants. Apart from the steam generator differences between the units 1 and units 2, the differences between the as-built plants are minor. In the licensee's process, one LBLOCA analysis will represent both Braidwood, Unit 1 and Byron, Unit 1, and another LBLOCA analysis will represent both Braidwood, Unit 2 and Byron, Unit 2, with the most conservative values for the minor differences used in the respective representative analyses. Each plant change will be tracked separately in its records required by 10 CFR 50.46. The peak cladding temperature (PCT) effect of the change will be tracked both in specific plant records and in its representative LBLOCA analysis of record.

The staff finds the licensee's representative analyses approach acceptable because each analysis represents two virtually identical plants, with the minor differences being treated in a conservative bounding manner; and because 10 CFR 50.46 reporting of changes will provide for identification of significant differences and allow for identification of resulting actions to be taken.

## 2.2 Applicability of the Plant-Specific Adaptation of the W Best Estimate LBLOCA Methodology to the Braidwood and Byron Plants

To show that a generically approved LOCA analysis methodology applies to a specific plant, the licensee must state that it and its vendor have ongoing processes in place that assure that the analysis input values for PCT-sensitive parameters bound their as-operated plant values.

The licensee demonstrated that analyses performed using the Braidwood and Byron plant-specific adaptation of the W Best-Estimate LBLOCA methodology apply to the plants by stating that the analysis input assumptions were confirmed to bound the "as-operated" plant parameters. The staff finds this to be acceptable for the present amendment. In a letter dated March 26, 2001, the licensee demonstrated that the plant-specific adaptation of the W Best-Estimate LBLOCA methodology applies to the Byron and Braidwood plants by stating that Exelon and its vendor have ongoing processes in place that assure that the Byron and Braidwood LBLOCA analysis input values for the parameters having an important effect on PCT bound the as-operated plant values for those parameters.

The staff finds that the models used for the initial analyses apply to the plants because the licensee and its vendor have ongoing processes in place that assure that the analysis input values for the input values for the parameters having an important effect on the PCT bound their as-operated plant values. The staff also concludes that the statements regarding the existence of ongoing processes for the evaluation of input parameters assures the continued applicability of the W Best-Estimate LBLOCA models to the plants.

### 2.3 Technical Specifications Changes

The licensee proposed to change Technical Specification (TS) 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)," for each of the Braidwood and Byron plants to include reference to Westinghouse report, WCAP-12945-P-A, March 1998, that describes the W best-estimate LBLOCA methodology which will be used to perform licensing basis LBLOCA analyses in upcoming operating cycles. The licensee also proposed to delete references to the previously used W Appendix K LBLOCA methodologies. These changes are acceptable because they properly identify the LBLOCA analysis which will be used for the plants, and because the methodology referred to is acceptable for plant-specific application to each of the four plants.

The licensee also proposed to change various TS BASES pages to reflect usage of a best-estimate LBLOCA methodology versus the previous Appendix K methodologies:

- a. Page B 3.2.4-1, APPLICABLE SAFETY ANALYSES, item a, the words "... during a large break LOCA there must be a high level of probability that the PCT does not exceed 2200°F" were added. This wording is consistent with 10 CFR 50.46(a)(1)(i), and is of particular relevance to best-estimate LOCA methodologies.
- b. Page B 3.5.1-4, item a, same change as on page B 3.2.4-1, and item d, continued on Pages B 3.5.1-5 through B 3.5.1-7, which discuss the ranges of acceptable accumulator volumes, pressures, and boron concentrations, based on LBLOCA and small break LOCA analyses and provides new ranges of values for these parameters for use in best-estimate methodologies,
- c. Page B 3.5.1-9, SR 3.5.1.5, which discusses surveillance requirements for the accumulators, to support the discussions on pages B 3.5.1-4 through 3.5.1-7, and
- d. Pages B 3.5.2-4 and -5, which add "... during a large break LOCA there must be a high level of probability that the PCT does not exceed 2200°F." This wording is consistent with 10 CFR 50.46(a)(1)(i), and is of particular relevance to best-estimate LOCA methodologies.

All of these changes are made to reflect the plant specific use of the generically approved W best-estimate LBLOCA methodology. The staff finds the changes acceptable because they correctly reflect the plant-specific use of a LBLOCA methodology which is acceptable, as discussed in Sections 2.1 and 2.2.

### 3.0 SUMMARY

The staff reviewed the plant-specific adaptations of the W Best-Estimate LBLOCA methodology to the Braidwood and Byron plants and found them acceptable as discussed in Section 2.1. The staff found the plant-specific methodology applicable to the initial analyses for the Braidwood and Byron plants. The staff also concluded that the licensee and its vendor have ongoing processes in place to assure that the analysis input values for the parameters having an important effect on PCT bound the as-operated plant values for those parameters.

The staff found the proposed technical specification changes associated with the change in LBLOCA methodologies appropriate and acceptable as discussed in Section 2.3.

### 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 a requirement with respect to the 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 (66 FR 11052). 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.

Principal Contributor: F. Orr

Date: April 18, 2001



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

EXELON GENERATION COMPANY, LLC

DOCKET NO. STN 50-454

BYRON STATION, UNIT NO. 1

FACILITY OPERATING LICENSE

License No. NPF-37

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

- A. The application for license filed by the applicant\* complies with the standards and requirements of the Atomic Energy Act of 1954, as amend (the Act), and the Commission's regulations set forth in 10 CFR Chapter I, and all required notifications to other agencies or bodies have been duly made;
- B. Construction of the Byron Station, Unit No. 1 (the facility) has been substantially completed in conformity with Construction Permit No. CPPR-130 and the application, as amended, the provisions of the Act, and the regulations of the Commission;
- C. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the regulations of the Commission (except as exempted from compliance in Section 2.D below);
- D. There is reasonable assurance: (i) that the activities authorized by this operating license 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 set forth in 10 CFR Chapter I (except as exempted from compliance in Section 2.D below);
- E. Exelon Generation Company, LLC is technically qualified to engage in the activities authorized by this license in accordance with the Commission's regulations set forth in 10 CFR Chapter I;
- F. Exelon Generation Company, LLC has satisfied the applicable provisions of 10 CFR Part 140 "Financial Protection Requirements and Indemnity Agreements," of the Commission's regulations;

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\*The Nuclear Regulatory Commission approved the transfer of the license from Commonwealth Edison Company to Exelon Generation Company, LLC on August 3, 2000.

- G. The issuance of this license will not be inimical to the common defense and security or to the health and safety of the public;
  - H. After weighing the environmental, economic, technical and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of this Facility Operating License No. NPF-37, subject to the conditions for protection of the environment set forth in the Environmental Protection Plan attached as Appendix B, is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied; and
  - I. The receipt, possession, and use of source, byproduct and special nuclear material as authorized by this license will be in accordance with the Commission's regulations in 10 CFR Parts 30, 40 and 70.
2. Pursuant to approval by the Nuclear Regulatory Commission at a meeting on February 12, 1985, the License for Fuel Loading and Low Power Testing, License No. NPF-23, issued on October 31, 1984, is superseded by Facility Operating License No. NPF-37 hereby issued to Exelon Generation Company, LLC (the licensee) to read as follows:
- A. The license applies to the Byron Station, Unit No. 1, a pressurized water nuclear reactor and associated equipment (the facility), owned by Exelon Generation Company, LLC. The facility is located in north central Illinois within Rockvale Township, Ogle County, Illinois and is described in the licensee's "Updated Final Safety Analysis Report," as supplemented and amended, and in the licensee's Environmental Report, as supplemented and amended.
  - B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses Exelon Generation Company, LLC:
    - (1) Pursuant to Section 103 of the Act and 10 CFR Part 50 to possess, use and operate the facility at the designated location in accordance with the procedures and limitations set forth in this license;
    - (2) Pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Updated Final Safety Analysis Report, as supplemented and amended;
    - (3) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

Table 3.3.1-1 (page 2 of 6)  
Reactor Trip System Instrumentation

| FUNCTION  | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS | REQUIRED CHANNELS | CONDITIONS | SURVEILLANCE REQUIREMENTS  | ALLOWABLE VALUE                             |
|---|--|-------------------|------------|--|---|
| 6. Overtemperature $\Delta T$                               | 1.2  | 4                 | E          | SR 3.3.1.1<br>SR 3.3.1.3<br>SR 3.3.1.6<br>SR 3.3.1.7<br>SR 3.3.1.10<br>SR 3.3.1.15 | Refer to Note 1 (Page 3.3.1-17)             |
| 7. Overpower $\Delta T$                                     | 1.2  | 4                 | E          | SR 3.3.1.1<br>SR 3.3.1.7<br>SR 3.3.1.10<br>SR 3.3.1.15                             | Refer to Note 2 (Page 3.3.1-18)             |
| 8. Pressurizer Pressure                                     |  |                   |            |  |   |
| a. Low  | 1(e)   | 4                 | K          | SR 3.3.1.1<br>SR 3.3.1.7<br>SR 3.3.1.10<br>SR 3.3.1.15                             | $\geq 1875$ psig                            |
| b. High   | 1.2  | 4                 | E          | SR 3.3.1.1<br>SR 3.3.1.7<br>SR 3.3.1.10<br>SR 3.3.1.15                             | $\leq 2393$ psig                            |
| 9. Pressurizer Water Level - High                           | 1(e)   | 3                 | K          | SR 3.3.1.1<br>SR 3.3.1.7<br>SR 3.3.1.10  | $\leq 93.5\%$ of instrument span            |
| 10. Reactor Coolant Flow - Low (per loop)                   | 1(e)   | 3                 | K          | SR 3.3.1.1<br>SR 3.3.1.7<br>SR 3.3.1.10<br>SR 3.3.1.15                             | $\geq 89.3\%$ of loop minimum measured flow |
| 11. Reactor Coolant Pump (RCP) Breaker Position (per train) | 1(e)   | 4                 | K          | SR 3.3.1.13  | NA  |

(continued)

(e) Above the P-7 (Low Power Reactor Trips Block) interlock.

Table 3.3.1-1 (page 2 of 6)  
Reactor Trip System Instrumentation

| FUNCTION  | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS | REQUIRED CHANNELS | CONDITIONS | SURVEILLANCE REQUIREMENTS  | ALLOWABLE VALUE                             |
|---|--|-------------------|------------|--|---|
| 6. Overtemperature $\Delta T$                               | 1.2  | 4                 | E          | SR 3.3.1.1<br>SR 3.3.1.3<br>SR 3.3.1.6<br>SR 3.3.1.7<br>SR 3.3.1.10<br>SR 3.3.1.15 | Refer to Note 1 (Page 3.3.1-17)             |
| 7. Overpower $\Delta T$                                     | 1.2  | 4                 | E          | SR 3.3.1.1<br>SR 3.3.1.7<br>SR 3.3.1.10<br>SR 3.3.1.15                             | Refer to Note 2 (Page 3.3.1-18)             |
| 8. Pressurizer Pressure                                     |  |                   |            |  |   |
| a. Low  | 1 <sup>(e)</sup>                               | 4                 | K          | SR 3.3.1.1<br>SR 3.3.1.7<br>SR 3.3.1.10<br>SR 3.3.1.15                             | $\geq 1875$ psig                            |
| b. High   | 1.2  | 4                 | E          | SR 3.3.1.1<br>SR 3.3.1.7<br>SR 3.3.1.10<br>SR 3.3.1.15                             | $\leq 2393$ psig                            |
| 9. Pressurizer Water Level - High                           | 1 <sup>(e)</sup>                               | 3                 | K          | SR 3.3.1.1<br>SR 3.3.1.7<br>SR 3.3.1.10  | $\leq 93.5\%$ of instrument span            |
| 10. Reactor Coolant Flow - Low (per loop)                   | 1 <sup>(e)</sup>                               | 3                 | K          | SR 3.3.1.1<br>SR 3.3.1.7<br>SR 3.3.1.10<br>SR 3.3.1.15                             | $\geq 89.3\%$ of loop minimum measured flow |
| 11. Reactor Coolant Pump (RCP) Breaker Position (per train) | 1 <sup>(e)</sup>                               | 4                 | K          | SR 3.3.1.13  | NA  |

(continued)

(e) Above the P-7 (Low Power Reactor Trips Block) interlock.