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

February 8, 2016

Mr. Bryan C. Hanson
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNIT 2 - ISSUANCE OF AMENDMENT RE: SAFETY LIMIT MINIMUM CRITICAL POWER RATIO CHANGE (CAC NO. MF5383)

Dear Mr. Hanson:

The Commission has issued the enclosed Amendment No. 304 to Renewed Facility Operating License No. DPR-44 for the Peach Bottom Atomic Power Station (PBAPS), Unit 2. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated December 5, 2014, as supplemented by letter dated April 30, 2015.

The amendment revises the TSs related to the Safety Limit Minimum Critical Power Ratios. The proposed changes result from a cycle-specific analysis performed to support the operation of PBAPS, Unit 2, in the current Cycle 21. The re-analysis was performed to accommodate operation in the Maximum Extended Load Line Limit Analysis Plus operating domain based on a separate license amendment request dated September 4, 2014.

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

Sincerely,

Richard B. Ennis, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-277

Enclosures:
1. Amendment No. 304 to Renewed DPR-44
2. Safety Evaluation

cc w/enclosures: Distribution via Listserv

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

EXELON GENERATION COMPANY, LLC

PSEG NUCLEAR LLC

DOCKET NO. 50-277

PEACH BOTTOM ATOMIC POWER STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 304
Renewed License No. DPR-44

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

   A. The application for amendment by Exelon Generation Company, LLC (Exelon Generation Company) and PSEG Nuclear LLC (the licensees), dated December 5, 2014, as supplemented by letter dated April 30, 2015, 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.

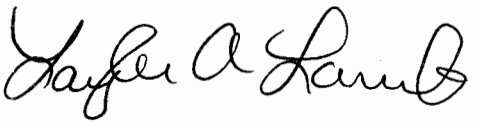
2. Accordingly, the license is amended as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Renewed Facility Operating License No. DPR-44 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 304, are hereby incorporated in the license. Exelon Generation Company shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented prior to operation in the Maximum Extended Load Line Limit Analysis Plus operating domain.

FOR THE NUCLEAR REGULATORY COMMISSION



Douglas A. Broaddus, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility Operating
License and Technical Specifications

Date of Issuance: February 8, 2016

ATTACHMENT TO LICENSE AMENDMENT NO. 304

RENEWED FACILITY OPERATING LICENSE NO. DPR-44

DOCKET NO. 50-277

Replace the following page of the Renewed Facility Operating License with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

Remove	Insert
3	3

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

Remove	Insert
2.0-1	2.0-1

(5) Exelon Generation Company, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not to separate, such byproduct and special nuclear material as may be produced by operation of the facility, and such Class B and Class C low-level radioactive waste as may be produced by the operation of Limerick Generating Station, Units 1 and 2.

C. This renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Section 50.54 of Part 50, and Section 70.32 of Part 70; all applicable provisions of the Act and the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

(1) Maximum Power Level

Exelon Generation Company is authorized to operate the Peach Bottom Atomic Power Station, Unit 2, at steady state reactor core power levels not in excess of 3951 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 304, are hereby incorporated in the license. Exelon Generation Company shall operate the facility in accordance with the Technical Specifications.

(3) Physical Protection

Exelon Generation Company shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822), and the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans[1], submitted by letter dated May 17, 2006, is entitled: "Peach Bottom Atomic Power Station Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, and Independent Spent Fuel Storage Installation Security Program, Revision 3." The set contains Safeguards Information protected under 10 CFR 73.21.

Exelon Generation Company shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The Exelon Generation Company CSP was approved by License Amendment No. 281 and modified by Amendment No. 301.

(4) Fire Protection

The Exelon Generation Company shall implement and maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report for the facility, and as approved in the NRC Safety Evaluation Report (SER) dated May 23, 1979, and Supplements dated August 14, September 15, October 10 and November 24, 1980, and in the NRC SERs dated September 16, 1993, and August 24, 1994, subject to the following provision:

[1] The Training and Qualification Plan and Safeguards Contingency Plan are Appendices to the Security Plan.

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 With the reactor steam dome pressure < 785 psig or core flow < 10% rated core flow:

THERMAL POWER shall be ≤ 23% RTP.

2.1.1.2 With the reactor steam dome pressure ≥ 785 psig and core flow ≥ 10% rated core flow:

MCPR shall be ≥ 1.15 for two recirculation loop operation or ≥ 1.15 for single recirculation loop operation.

2.1.1.3 Reactor vessel water level shall be greater than the top of active irradiated fuel.

2.1.2 Reactor Coolant System Pressure SL

Reactor steam dome pressure shall be ≤ 1325 psig.

2.2 SL Violations

With any SL violation, the following actions shall be completed within 2 hours:

2.2.1 Restore compliance with all SLs; and

2.2.2 Insert all insertable control rods.

(continued)

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 304

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-44

EXELON GENERATION COMPANY, LLC

PSEG NUCLEAR LLC

PEACH BOTTOM ATOMIC POWER STATION, UNIT 2

DOCKET NO. 50-277

1.0 INTRODUCTION

By application dated December 5, 2014, as supplemented by letter dated April 30, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML14342A229 and ML15120A287, respectively), Exelon Generation Company, LLC (Exelon, the licensee), submitted a license amendment request (LAR) for the Peach Bottom Atomic Power Station (PBAPS), Unit 2. The proposed amendment would revise the Technical Specifications (TSs) related to the Safety Limit Minimum Critical Power Ratios (SLMCPRs). The proposed changes result from a cycle-specific analysis performed to support the operation of PBAPS, Unit 2, in the current operating cycle, Cycle 21. The re-analysis was performed to accommodate operation in the Maximum Extended Load Line Limit Analysis Plus (MELLLA+) operating domain based on a separate LAR dated September 4, 2014 (ADAMS Accession No. ML14247A503).

The supplement dated April 30, 2015, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the U.S. Nuclear Regulatory Commission (NRC or the Commission) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on March 3, 2015 (80 FR 11495).

2.0 REGULATORY EVALUATION

Background

Fuel design limits can be exceeded if the core exceeds critical power. Critical power is a term used for the power at which the fuel departs from nucleate boiling and enters a transition to

film boiling. For boiling-water reactors (BWRs), the critical power is predicted using a correlation known as the General Electric (GE) critical quality boiling length correlation, better known as the GEXL correlation. Due to core-wide and operational variations, the margin to boiling transition is most easily described in terms of a critical power ratio (CPR), which is defined as the rod critical power, as calculated by GEXL, divided by the actual rod power. The greater a CPR value exceeds 1.0, the greater the margin to boiling transition is. The SLMCPR is calculated using a statistical process that takes into account operating parameters and uncertainties. The Operating Limit Minimum Critical Power Ratio (OLMCPR) is equal to the SLMCPR plus a CPR margin for transients. At the OLMCPR, at least 99.9 percent of the rods avoid boiling transition during steady state-operation and transients caused by a single operator error or equipment malfunction.

General Design Criteria

The construction permit for PBAPS, Units 2 and 3, was issued by the Atomic Energy Commission (AEC) on January 31, 1968. As discussed in Appendix H to the PBAPS Updated Final Safety Analysis Report (UFSAR), during the construction/licensing process, both units were evaluated against the then-current AEC draft of the 27 General Design Criteria (GDC) issued in November 1965. On July 11, 1967, the AEC published, for public comment in the *Federal Register* (32 FR 10213), a revised and expanded set of 70 draft GDC (hereinafter referred to as the "draft GDC"). Appendix H of the PBAPS UFSAR contains an evaluation of the design basis of PBAPS, Units 2 and 3, against the draft GDC. The licensee concluded that PBAPS, Units 2 and 3, conform to the intent of the draft GDC.

On February 20, 1971, the AEC published in the *Federal Register* (36 FR 3255) a final rule that added Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "General Design Criteria for Nuclear Power Plants" (hereinafter referred to as the "final GDC"). Differences between the draft GDC and final GDC included a consolidation from 70 to 64 criteria. As discussed in the NRC's Staff Requirements Memorandum for SECY-92-223, dated September 18, 1992 (ADAMS Accession No. ML003763736), the Commission decided not to apply the final GDC to plants with construction permits issued prior to May 21, 1971. At the time of promulgation of Appendix A to 10 CFR Part 50, the Commission stressed that the final GDC were not new requirements and were promulgated to more clearly articulate the licensing requirements and practice in effect at that time. Each plant licensed before the final GDC were formally adopted was evaluated on a plant-specific basis determined to be safe and licensed by the Commission.

The licensee has made changes to the facility over the life of the plant that may have invoked the final GDC. The extent to which the final GDC have been invoked can be found in specific sections of the UFSAR and in other plant-specific design and licensing basis documentation.

The NRC staff identified that final GDC-10, "Reactor design," is applicable to this LAR. Final GDC-10 requires that the reactor core and associated coolant, control, and protection systems be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences.

Technical Specification Requirements

In 10 CFR 50.36, "Technical specifications," the NRC established its regulatory requirements related to the content of TSs. Pursuant to 10 CFR 50.36, TSs are required to include items in

the following five specific categories: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation; (3) surveillance requirements; (4) design features; and (5) administrative controls. The regulation does not specify the particular requirements to be included in a plant's TSs.

As discussed in 10 CFR 50.36(c)(1), safety limits for nuclear reactors are limits upon important process variables that are found to be necessary to reasonably protect the integrity of certain of the physical barriers that guard against the uncontrolled release of radioactivity. If a safety limit is exceeded, the reactor must be shut down. TS 2.1.1 specifies the reactor core safety limits for PBAPS, Unit 2. The LAR would change the SLMCPR values in TS 2.1.1.2 as follows:

Parameter	Current SLMCPR Value	Proposed SLMCPR Value
Two Recirculation Loop Operation	≥ 1.10	≥ 1.15
Single Recirculation Loop Operation	≥ 1.14	≥ 1.15

3.0 TECHNICAL EVALUATION

3.1 Cycle 21 Core

As discussed above in safety evaluation (SE) Section 1.0, the proposed SLMCPR changes result from a cycle-specific analysis performed to support the operation of PBAPS, Unit 2, in the current operating cycle, Cycle 21. Unit 2 entered Cycle 21 following the completion of the fall 2014 refueling outage. The Cycle 21 core loading consists of 328 fresh GNF2 fuel bundles, 288 once-burnt GNF2 fuel bundles, and 148 twice-burnt GNF2 fuel bundles.

The SLMCPR changes would be implemented to support operation in the MELLLA+ operating domain. PBAPS, Units 2 and 3, operation in the MELLLA+ operating domain is being evaluated under a separate LAR dated September 4, 2014.

3.2 Major Contributors to SLMCPR Change

In general, the calculated safety limit is dominated by two key parameters: (1) flatness of the core bundle-by-bundle MCPR distribution; and (2) flatness of the bundle pin-by-pin power/R-Factor distribution. Greater flatness in either parameter yields more rods susceptible to boiling transition and thus a higher calculated SLMCPR. The MCPR Importance Parameter (MIP) measures the core bundle-by-bundle. The MCPR distribution and R-Factor Importance Parameter (RIP) measures the bundle pin-by-pin power/R-Factor distribution. The impact of the fuel loading pattern on the calculated two-loop-operation (TLO) SLMCPR has been correlated to the parameter MIPRIP, which combines the MIP and RIP values. Another factor besides core MCPR distribution or bundle R-factor distribution that significantly impacts the SLMCPR is the expansion of the analysis domain that comes with the initial application of MELLLA+ (Reference 2). The rated power/minimum core flow point is analyzed at a lower core flow (than without MELLLA+), using increased uncertainties (see Section 2.2.1.1 of Reference 2) that tend to increase the SLMCPR.

3.3 Methodology

Global Nuclear Fuel (GNF) developed the PBAPS, Unit 2, Cycle 21 SLMCPR values using the following NRC-approved methodologies and uncertainties:

- NEDC-32601P-A, Revision 0, "Methodology and Uncertainties for Safety Limit MCPR Evaluations" (Reference 3)
- NEDC-32694P-A, Revision 0, "Power Distribution Uncertainties for Safety Limit MCPR Evaluations" (Reference 4)
- NEDE-24011-P-A, Revision 20, "General Electric Standard Application for Reactor Fuel" (referred to as GESTAR-II) (Reference 5)
- NEDC-32505P-A, Revision 1, "R-Factor Calculation Method for GE11, GE12 and GE13 Fuel" (Reference 6)
- NEDC-33173P-A, Revision 4, "Applicability of GE Methods to Expanded Operating Domains" (Reference 7)

Plant-specific use of these methodologies must adhere to certain restrictions as discussed below.

3.3.1 Methodology Restrictions

Based on the review of Licensing Topical Reports NEDC-32601P-A, NEDC-32694P-A, and Amendment 25 to NEDE-24011-P-A, the NRC staff identified the following restrictions for the use of these Topical Reports:

1. The TGBLA (lattice physics code) fuel rod power calculational uncertainty should be verified when applied to fuel designs not included in the benchmark comparisons of Table 3.1 of NEDC-32601P-A, since changes in fuel design can have a significant effect on calculation accuracy.

2. The effect of the correlation of rod power calculation uncertainties should be reevaluated to ensure the accuracy of the R-Factor uncertainty when the methodology is applied to a new fuel lattice.

3. In view of the importance of MIP (MCPR Importance Parameter) criterion and its potential sensitivity to changes in fuel bundle designs, core loading, and operating strategies, the MIP criterion should be reviewed periodically as part of the procedural review process to ensure that the specific value recommended in NEDC-32601P-A is applicable to future designs and operating strategies.

Restrictions (1) and (2)

With respect to restrictions (1) and (2), GNF stated in Reference 8 that the rod power calculational uncertainties are dominated by geometrical considerations and that the uncertainty for GE14 fuel is identical to GE12 fuel. GNF stated in Reference 9 that GNF2 fuel is designed for mechanical, nuclear, and thermal-hydraulic compatibility with the other 10x10 GNF fuel designs. The design has features of the currently operating GE10, GE11/13, and

GE12/14 fuel, including pellet-cladding interaction resistant barrier cladding, high performance spacers, part length rods, interactive thick corner/thin wall channel, and axial enrichment loading. The GNF2 design is a 10x10 array with 92 fuel rods, 2 large central water rods, and 14 part length fuel rods. The part length rod configuration improves efficiency and reactivity margins. Tables 2.1 and 3.1 of NEDC-32601P-A provide a summary of SLMCPR uncertainties and a summary of pin power comparisons for a typical GNF fuel design. The values given in these tables are representative of the values being calculated for GE14 and GNF2 fuel.

In a request for additional information (RAI), the NRC staff asked the licensee to explain the differences in design and geometrical considerations between GNF2 and GE14 fuel. In response to the staff's question (Reference 10), the licensee stated that GNF2 is an evolutionary fuel product based on GE14 and that it is not considered a new fuel design, as it maintains the previously established 10x10 array.

Based on the above discussion, the NRC staff concludes that the SLMCPR and the rod power calculational uncertainties used by GNF to develop the PBAPS, Unit 2, Cycle 21 SLMCPR values are valid for GNF2 fuel and that the response to the RAI addresses the staff's concern and is acceptable.

Restriction (3)

The limiting control rod patterns used to calculate the SLMCPR reasonably assure that at least 99.9 percent of the fuel rods in the core would not be expected to experience boiling transition during normal operation or anticipated operational occurrences during the operation of PBAPS, Unit 2, Cycle 21. The NRC staff determined that the rod patterns used produce a limiting MCPR distribution that reasonably bounds the MCPR distributions that would be expected during the operation of the PBAPS, Unit 2, core throughout Cycle 21 in conjunction with the MELLLA+ LAR. In accordance with NEDC-33173P-A, Revision 4 (Reference 7), a 0.02 SLMCPR penalty was added for operation in the MELLLA+ region.

In summary, the NRC staff concludes that the licensee has adequately addressed the restrictions of Licensing Topical Reports NEDC-32601P-A, NEDC-32694P-A, Amendment 25 to NEDE-24011-P-A, NEDC-33173P-A, and NEDC-32505P-A, and that the use of these reports to evaluate the PBAPS, Unit 2, Cycle 21 SLMCPR is acceptable.

3.4 Departures from NRC-Approved Methodology

No departures from NRC-approved methodologies were identified by the NRC staff's review.

3.5 Deviations from the NRC-Approved Calculational Uncertainties

3.5.1 R-Factor

The R-factor is an input into the GEXL correlation used to describe the local pin-by-pin power distribution and the fuel assembly and channel geometry on the fuel assembly critical power. The R-factor uncertainty analysis includes an allowance for power peaking modeling uncertainty, manufacturing uncertainty, and channel bow uncertainty. GNF has increased this uncertainty for all SLMCPR calculations to account for the potential impact of control blade shadow corrosion induced bow. GNF has generically increased the GEXL R-Factor uncertainty (Reference 6) to account for an increase in channel bow due to the emerging unforeseen phenomenon called control blade shadow corrosion-induced channel bow, which is not

accounted for in the channel bow uncertainty component of the approved R-Factor uncertainty. The PBAPS, Unit 2, Cycle 21 analysis shows that the expected channel bow uncertainty is bounded by the GEXL R-Factor uncertainty. Thus, the NRC staff finds that the use of a GEXL R-Factor uncertainty (Reference 6) adequately accounts for the expected control blade shadow corrosion-induced channel bow for PBAPS, Unit 2, Cycle 21.

3.5.2 Core Flow Rate and Random Effective Traversing In-Core Probe (TIP) Reading

As a result of issues reported to the NRC pursuant to 10 CFR Part 21(Reference 11), GNF has expanded the state points previously used in the determination of the SLMCPR. Consistent with the discussion in Reference 11, GNF now performs analyses at the rated core power and minimum licensed core flow point, in addition to analyses at the rated core power and rated core flow point. The NRC-approved SLMCPR methodology is applied at each statepoint that is analyzed. For the TLO calculations performed in the MELLLA+ domain at rated power/minimum core flow and off-rated power/off-rated core flow, the approved uncertainty values for the core flow rate (2.5 percent) and the random effective TIP reading (1.2 percent) are conservatively adjusted by using the single-loop-operation (SLO) uncertainty values of 6.0 percent and 2.85 percent for the core flow rate and random effective TIP reading respectively. The treatment of the core flow and random effective TIP reading uncertainties is based on a conservative assumption that the signal-to-noise ratio deteriorates as core flow is reduced.

In accordance to the limitation and conditions of NEDC-33006P-A, Revision 3 (Reference 12), SLO uncertainties are applied to TLO conditions for operation in the MELLLA+ region.

For PBAPS, Unit 2, Cycle 21, the most limiting SLMCPR calculation occurred at the 78.8 percent rated power/55 percent rated flow point. At low core flows, the search spaces for the limiting rod pattern and the nominal rod pattern are essentially the same. Hence, the rod pattern used to calculate the SLMCPR at 78.8 percent rated power/55 percent rated flow reasonably assures that at least 99.9 percent of the fuel rods in the core would not be expected to experience boiling transition during normal operation or anticipated operational occurrences during the operation of PBAPS, Unit 2, Cycle 21. Consequently, the SLMCPR value calculated from the 78.8 percent rated power/55 percent rated core flow condition limiting MCPR distribution reasonably bounds this mode of operation for PBAPS, Unit 2, Cycle 21. The NRC staff finds that the uncertainty used in the analysis should bound the original non-flow dependent uncertainties and, therefore, the staff finds it acceptable for PBAPS, Unit 2, Cycle 21.

3.6 Core Monitoring System

For PBAPS, Unit 2, Cycle 21, the GNF 3D MONICORE system will be used as the core monitoring system. The 3D MONICORE system is in widespread use throughout the GNF fueled fleet of BWRs similar to PBAPS. Use of a current version of 3D MONICORE provides the plant capability to perform the reactivity anomaly surveillance. Use of 3D MONICORE has been previously evaluated and accepted by the NRC in a letter dated March 11, 1999 (Reference 4). Therefore, the NRC staff finds the use of the GNF 3D MONICORE system for PBAPS, Unit 2, Cycle 21 to be acceptable.

3.7 Technical Evaluation Conclusion

Based on the discussion in SE Sections 3.1 through 3.6, the NRC staff concludes that the proposed amendment is acceptable.

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 (80 FR 11495). 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) there is reasonable assurance that 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.

7.0 REFERENCES

1. Exelon letter to the NRC, "License Amendment Request - Maximum Extended Load Line Limit Analysis Plus," dated September 4, 2014 (ADAMS Accession No. ML14247A503).

2. Safety Evaluation of GE Licensing Topical Report NEDC-33006P, "General Electric Boiling Water Reactor Maximum Extended Load Line Limit Analysis Plus," Revision 2, dated October 2008 (ADAMS Accession No. ML081130008).

3. General Electric Nuclear Energy Licensing Topical Report NEDC-32601P-A, Revision 0, "Methodology and Uncertainties for Safety Limit MCPR Evaluations," dated August 1999 (ADAMS Accession Nos. ML003740145 (non-public) and ML14093A216 (public)).

4. NRC letter to General Electric, "Acceptance for Referencing of Licensing Topical Reports NEDC-32601P, Methodology and Uncertainties for Safety Limit MCPR Evaluations; NEDC-32694P, Power Distribution Uncertainties for Safety Limit MCPR Evaluations; and

Amendment 25 to NEDE-24011-P-A on Cycle-Specific Safety Limit MCPR," dated March 11, 1999 (ADAMS Accession No. ML993140059).

5. Global Nuclear Fuel, Licensing Topical Report NEDE-24011-P-A, Revision 20, "General Electric Standard Application for Reactor Fuel," dated December 2013 (ADAMS Accession No. ML13352A474).

6. GE Nuclear Energy, Licensing Topical Report NEDC-32505P-A, Revision 1, "R-Factor Calculation Method for GE11, GE12 and GE13 Fuel," dated July 1999 (ADAMS Accession No. ML060520634).

7. GE Hitachi Nuclear Energy, Licensing Topical Report NEDC-33173P-A, Revision 4, "Applicability of GE Methods to Expanded Operating Domains", dated November 2012 (ADAMS Accession No. ML123130130).

8. Global Nuclear Fuel letter to NRC, "Confirmation of 10x10 Fuel Design Applicability to Improved SLMCPR, Power Distribution and R-Factor Methodologies," dated September 24, 2001 (ADAMS Accession No. ML012710272).

9. Global Nuclear Fuel, Licensing Topical Report NEDE-31152P, Revision 9, "Global Nuclear Fuels Fuel Bundle Designs," dated May 2007 (ADAMS Accession No. ML071510276).

10. Letter from Exelon to NRC, "Safety Limit Minimum Critical Power Ratio Change – Supplement 1, Response to Request for Additional Information," dated April 30, 2015 (ADAMS Accession No. ML15120A287).

11. GE Nuclear Energy letter MFN 04-081 to NRC, "Part 21 Reportable Condition and 60-Day Interim Report; Notification: Non-conservative SLMCPR," dated August 24, 2004 (ADAMS Accession No. ML042720293).

12. GE Hitachi Nuclear Energy, Licensing Topical Report NEDC-33006P-A, "General Electric Boiling Water Reactor Maximum Extended Load Line Limit Analysis Plus," Revision 3, dated June 2009 (ADAMS Accession No. ML091800530).

13. Letter from Exelon to NRC, "License Amendment Request, Safety Limit Minimum Critical Power Ratio Change," dated December 5, 2014 (ADAMS Accession No. ML14342A229).

Principal Contributors: F. Forsaty
R. Ennis

Date: February 8, 2016

February 8, 2016

Mr. Bryan C. Hanson
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNIT 2 - ISSUANCE OF AMENDMENT RE: SAFETY LIMIT MINIMUM CRITICAL POWER RATIO CHANGE (CAC NO. MF5383)

Dear Mr. Hanson:

The Commission has issued the enclosed Amendment No. 304 to Renewed Facility Operating License No. DPR-44 for the Peach Bottom Atomic Power Station (PBAPS), Unit 2. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated December 5, 2014, as supplemented by letter dated April 30, 2015.

The amendment revises the TSs related to the Safety Limit Minimum Critical Power Ratios. The proposed changes result from a cycle-specific analysis performed to support the operation of PBAPS, Unit 2, in the current Cycle 21. The re-analysis was performed to accommodate operation in the Maximum Extended Load Line Limit Analysis Plus operating domain based on a separate license amendment request dated September 4, 2014.

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

Sincerely,
/RA/
Richard B. Ennis, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-277

Enclosures:
1. Amendment No. 304 to Renewed DPR-44
2. Safety Evaluation

cc w/enclosures: Distribution via Listserv

DISTRIBUTION:
PUBLIC
LPL1-2 R/F
RidsNrrDorlDpr Resource
RidsNrrDorlLpl1-2 Resource
RidsNrrPMPeachBottom Resource
RidsNrLALRonewicz Resource
RecordsAmend
RidsACRS_MailCTR Resource
RidsRgn1MailCenter Resource
RidsNrrDssStsb Resource
RidsNrrDssSrxb Resource
WMacFee, NRR
FForsaty, NRR

ADAMS Accession No.: ML15343A165

OFFICE	DORL/LPL1-2/PM	DORL/LPL1-2/LA	DSS/SRXB/BC	DSS/STSB/BC	OGC
NAME	REnnis	LRonewicz	CJackson	RElliott (MHamm for)	DRoth
DATE	12/14/15	12/10/15	12/21/15	12/22/15	12/29/15
OFFICE	DORL/LPL1-2/BC	DORL/LPL1-2/PM			
NAME	DBroaddus (TLamb for)	REnnis			
DATE	12/30/15	2/8/16			

OFFICIAL RECORD COPY