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10CFR50.46

August 22, 2006

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Peach Bottom Atomic Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277 and 50-278

Subject: 10 CFR 50.46 30-Day Report

- References:
1. Letter from Pamela B. Cowan (Exelon Generation Company, LLC) to U. S. Nuclear Regulatory Commission, "10 CFR 50.46 Annual Report," dated December 1, 2005
 2. Letter from GE, 10 CFR 50.46 Notification Letter 2006-01, "Impact of Top Peaked Power Shape for Small Break LOCA Analysis," July 28, 2006

The purpose of this letter is to submit a 30-day report in accordance with 10 CFR 50.46(a)(3)(ii) for a calculated Peak Cladding Temperature (PCT) change more than 50 degrees for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3. The most recent annual 50.46 report for Peach Bottom Atomic Power Station (Reference 1) provided the cumulative PCT errors for the most recent fuel designs through November 30, 2005.

As discussed in the Reference 2 letter GE identified a change in the calculated PCT more than 50 degrees. GE reported a newly discovered sensitivity to the assumed axial power shape for small break Loss-of-Coolant Accident (LOCA) cases. This sensitivity may result in higher calculated PCT values for top-peaked axial power shapes. Due to this sensitivity, the calculated PCT for PBAPS, Units 2 and 3 was higher than the previously calculated value. The PCT impact of the new power shape sensitivity was determined to be 150°F for GE14 fuel. The 0.08 ft² Small Break in a Recirculation Discharge Pipe is the Licensing Basis PCT event for Peach Bottom for GE14 fuel.

Peach Bottom Atomic Power Station, Units 2 and 3
10 CFR 50.46 30-Day Report
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Two attachments are included with this letter that provide the current Peach Bottom Atomic Power Station, Units 2 and 3 10 CFR 50.46 status with this additional change. Attachments 1 and 2 ("Peak Cladding Temperature Rack-Up Sheet") provide updated information regarding the PCT for the Licensing Basis event evaluations for Peach Bottom Atomic Power Station, Units 2 and 3, respectively. Attachment 3, "Assessment Notes," contains a detailed description for each change or error reported.

If you have any questions, please contact Tom Loomis at 610-765-5510.

Respectfully,



Pamela B. Cowan
Director, Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Attachments:

- 1) Peak Cladding Temperature Rack-Up Sheet (Peach Bottom Atomic Power Station, Unit 2)
- 2) Peak Cladding Temperature Rack-Up Sheet (Peach Bottom Atomic Power Station, Unit 3)
- 3) Assessment Notes (Peach Bottom Atomic Power Station, Units 2 and 3)

cc: S. J. Collins, USNRC Administrator, Region I
J. Kim, USNRC Project Manager, PBAPS
F. L. Bower, USNRC Senior Resident Inspector, PBAPS

ATTACHMENT 1

10 CFR 50.46

**“Acceptance Criteria For Emergency Core Cooling Systems
For Light-Water Nuclear Power Reactors”**

**Report of the Emergency Core Cooling System
Evaluation Model Changes and Errors**

30-Day Report

**Peak Cladding Temperature Rack-Up Sheet
Peach Bottom Atomic Power Station, Unit 2**

**Report of the Emergency Core Cooling System
Evaluation Model Changes and Errors
30-Day Report
Peak Cladding Temperature Rack-Up Sheet, PBAPS U2**

**Attachment 1
Page 1 of 2**

| | |
|--------------------------|----------------------------|
| PLANT NAME: | <u>Peach Bottom Unit 2</u> |
| ECCS EVALUATION MODEL: | <u>SAFER/GESTR-LOCA</u> |
| REPORT REVISION DATE: | <u>08/22/06</u> |
| CURRENT OPERATING CYCLE: | <u>16</u> |

ANALYSIS OF RECORD

Evaluation Model:

1. NEDC-23785-1-PA Rev. 1, "The GESTR-LOCA and SAFER Models for the Evaluation of the Loss-Of-Coolant Accident Volume II, SAFER – Long Term Inventory Model for BWR Loss-Of-Coolant Analysis," October 1984.
2. NEDC-30996P-A, "SAFER Model for Evaluation of Loss-of-Coolant Accidents for Jet Pump and Non-jet Pump Plants, Volume I, SAFER – Long Term Inventory Model for BWR Loss-of-Coolant Analysis," October 1987.
3. NEDC-32950P, "Compilation of Improvements to GENE's SAFER ECCS-LOCA Evaluation Model," January 2000.
4. NEDC-23785-1-PA Rev. 1, "The GESTR-LOCA and SAFER Models for the Evaluation of the Loss-Of-Coolant Accident Volume III, SAFER/GESTR Application Methodology," October 1984.
(Jet Pump Plant – SAFER)

Calculations:

1. "Peach Bottom Atomic Power Station, Units 2 and 3 SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis," NEDC-32163P, January 1993.
2. "Peach Bottom Atomic Power Station ECCS-LOCA Evaluation for GE14," General Electric Company, GENE-J11-03716-09-02P, July 2000.

Fuel Analyzed in Calculations: P8x8R, GE9, GE11/13 and GE14

Limiting Fuel Type: GE14 (Note: P8x8R, GE9 and GE11/GE13 are no longer in operation and are not considered for defining the limiting fuel type)

Limiting Single Failure: Battery Failure

Limiting Break Size and Location: 0.08 ft² Small Break in a Recirculation Discharge Pipe

Reference Peak Cladding Temperature (PCT) – GE14

PCT = 1450°F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

| | |
|--|--------------------------|
| 10 CFR 50.46 Report dated June 4, 2001 (See Note 1) | GE14 Δ PCT = 55°F |
| 10 CFR 50.46 Report dated December 18, 2002 (See Note 2) | GE14 Δ PCT = 45°F |
| 10 CFR 50.46 Report dated December 03, 2004 (See Note 3) | GE14 Δ PCT = 0°F |
| 10 CFR 50.46 Report dated December 01, 2005 (See Note 4) | GE14 Δ PCT = 0°F |
| <u>Net PCT (GE14)</u> | 1550 °F |

B. CURRENT LOCA MODEL ASSESSMENTS

| | |
|---|-------------------------------|
| 10 CFR 50.46 Report dated July 28, 2006 (See Note 5) | GE14 Δ PCT = 150°F |
| Total PCT change from current assessments (GE14) | $\Sigma \Delta$ PCT = 150°F |
| Cumulative PCT change from current assessments (GE14) | $\Sigma \Delta$ PCT = 150°F |
| <u>Net PCT (GE14)</u> | 1700 °F |

ATTACHMENT 2

10 CFR 50.46

**“Acceptance Criteria For Emergency Core Cooling Systems
For Light-Water Nuclear Power Reactors”**

**Report of the Emergency Core Cooling System
Evaluation Model Changes and Errors**

30-Day Report

**Peak Cladding Temperature Rack-Up Sheet
Peach Bottom Atomic Power Station, Unit 3**

**Report of the Emergency Core Cooling System
Evaluation Model Changes and Errors
30-Day Report
Peak Cladding Temperature Rack-Up Sheet, PBAPS U3**

**Attachment 2
Page 1 of 2**

| | |
|--------------------------|----------------------------|
| PLANT NAME: | <u>Peach Bottom Unit 3</u> |
| ECCS EVALUATION MODEL: | <u>SAFER/GESTR-LOCA</u> |
| REPORT REVISION DATE: | <u>08/22/06</u> |
| CURRENT OPERATING CYCLE: | <u>16</u> |

ANALYSIS OF RECORD

Evaluation Model:

1. NEDC-23785-1-PA Rev. 1, "The GESTR-LOCA and SAFER Models for the Evaluation of the Loss-Of-Coolant Accident Volume II, SAFER – Long Term Inventory Model for BWR Loss-Of-Coolant Analysis," October 1984.
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(Jet Pump Plant – SAFER)

Calculations:

1. "Peach Bottom Atomic Power Station, Units 2 and 3 SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis ", NEDC-32163P, January 1993.
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Fuel Analyzed in Calculations: P8x8R, GE9, GE11/13 and GE14

Limiting Fuel Type: GE14 (Note: P8x8R, GE9 and GE11/GE13 are no longer in operation and are not considered for defining the limiting fuel type)

Limiting Single Failure: Battery Failure

Limiting Break Size and Location: 0.08 ft² Small Break in a Recirculation Discharge Pipe

Reference Peak Cladding Temperature (PCT) – GE14

PCT = 1450°F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

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| 10 CFR 50.46 Report dated December 01, 2005 (See Note 4) | GE14 Δ PCT = 0°F |
| <u>Net PCT (GE14)</u> | 1550 °F |

B. CURRENT LOCA MODEL ASSESSMENTS

| | |
|---|-------------------------------|
| 10 CFR 50.46 Report dated July 28, 2006 (See Note 5) | GE14 Δ PCT = 150°F |
| Total PCT change from current assessments (GE14) | $\Sigma \Delta$ PCT = 150°F |
| Cumulative PCT change from current assessments (GE14) | $\Sigma \Delta$ PCT = 150°F |
| <u>Net PCT (GE14)</u> | 1700 °F |

ATTACHMENT 3

10 CFR 50.46

**“Acceptance Criteria For Emergency Core Cooling Systems
For Light-Water Nuclear Power Reactors”**

**Report of the Emergency Core Cooling System
Evaluation Model Changes and Errors**

**Assessment Notes
Peach Bottom Atomic Power Station, Units 2 and 3**

1. Prior LOCA Assessment

The referenced letter reported two GE LOCA errors related to a SAFER condensation error and a SAFER pressure rate error. The PCT impact for the new errors was determined to be 45°F and 10°F, respectively. These PCT errors applied to all fuel types. This letter constituted a 30-day report. The total PCT impact of these errors on GE14 fuel was determined to be 55°F.

[Reference: Letter from J. A. Hutton (PECO Nuclear) to U.S. NRC, Peach Bottom Atomic Power Station, Units 2 and 3 10 CFR 50.46 Reporting Requirements," dated June 4, 2001.]

2. Prior LOCA Assessment

The referenced letter provided the annual 50.46 report for Units 2 and 3. This letter reported GE LOCA errors related to a SAFER core spray sparger elevation error and a SAFER bulk water level error. The PCT impact for the new errors was determined to be 40°F and 5°F, respectively. These PCT errors applied to all fuel types. The total PCT impact of these errors on GE14 fuel was determined to be 45°F.

[Reference: Letter from Michael P. Gallagher (Exelon) to U.S. NRC, "10 CFR 50.46 Reporting Requirements," dated December 18, 2002.]

3. Prior LOCA Assessment

The referenced letter provided the annual 50.46 report for Units 2 and 3. This letter reported GE LOCA errors related to a GESTR file interpolation error, a SAFER computer platform change, a WEVOL S1 volume error, a SAFER level/volume table error, a SAFER separator pressure drop error and a new heat source. The PCT impact for the new errors was determined to be 0°F for each error. The total PCT impact of these errors on GE14 fuel was determined to be 0°F.

[Reference: Letter from Michael P. Gallagher (Exelon Generation Company, LLC) to U.S. NRC, "10 CFR 50.46 Annual Report," dated December 3, 2004.]

4. Prior LOCA Assessment

The referenced letter provided the annual 50.46 report for Units 2 and 3. This letter reported that no vendor 50.46 change/error notifications had been received since the last annual report. Therefore, the annual PCT change for GE14 fuel was reported as 0°F.

[Reference: Letter from Pamela B. Cowan (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "10 CFR 50.46 Annual Report", dated December 01, 2005.]

5. Current LOCA Assessment

GE reported a newly discovered sensitivity to the assumed axial power shape for small break LOCA cases. This sensitivity may result in higher calculated PCT values for top-peaked axial power shapes. Due to this sensitivity, the calculated PCT for Peach Bottom was higher than the previously calculated value. The PCT impact of the new power shape sensitivity was determined to be 150°F for GE14 fuel. The 0.08 ft² Small Break in a Recirculation Discharge Pipe is the Licensing Basis PCT event for Peach Bottom for GE14 fuel.

[Reference: GE 10 CFR 50.46 Notification Letter, 2006-01, July 28, 2006.]