

September 15, 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
Docket Nos. 50-277 and 50-278

Subject: License Amendment Request
Revise Control Rod Scram Time Testing Frequency
Consolidated Line Item Improvement Process (TSTF-460)

Pursuant to 10 CFR 50.90 Exelon Generation Company, LLC, (Exelon) hereby requests the following amendments to the Technical Specifications (TS), Appendix A, of Renewed Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3.

The proposed amendments would revise the TS testing frequency for the Surveillance Requirement (SR) in TS 3.1.4, "Control Rod Scram Times," from "120 days cumulative operation in MODE 1" to "200 days cumulative operation in MODE 1." These changes are based on TS Task Force (TSTF) change traveler TSTF-460, Revision 0, which has been approved generically for the Boiling Water Reactor (BWR) Standard TS, NUREG-1433 (BWR/4). A notice announcing the availability of this proposed TS change using the Consolidated Line Item Improvement Process was published in the *Federal Register* on August 23, 2004 (69 FR 51864).

The NRC has previously approved similar amendment requests to the TS for Browns Ferry Nuclear Plant, Units 2 and 3, Fermi 2, Brunswick Steam Electric Plant, Units 1 and 2, Columbia Generating Station, and Cooper Nuclear Station. The subject License Amendment Request proposes to adopt surveillance testing requirements similar to those discussed in the previously approved amendments.

Exelon requests approval of the proposed amendments by September 30, 2007, with the amendments being implemented within 60 days upon issuance. The requested approval date and implementation period will allow sufficient time for effective planning and scheduling of affected activities associated with scram time testing.

These proposed changes have been reviewed by the Plant Operations Review Committee, and approved by the Nuclear Safety Review Board.

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Pursuant to 10 CFR 50.91(b)(1), a copy of this License Amendment Request is being provided to the designated official of the Commonwealth of Pennsylvania.

If any additional information is needed, please contact Mr. Richard Gropp at 610-765-5557.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 15th day of September 2006.

Respectfully,

Pamela B. Cowan

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

Attachments: 1 - Description of Proposed Changes
2 - Markup of Proposed Technical Specifications Pages
3 - Markup of Proposed Technical Specifications Bases Pages
4 - List of Commitments

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

ATTACHMENT 1

Description of Proposed Changes

PBAPS, Units 2 and 3 Renewed Facility Operating License Nos. DPR-44 and DPR-56

“Reduce Scram Time Testing Frequency”

- 1.0 DESCRIPTION
- 2.0 ASSESSMENT
- 3.0 TECHNICAL ANALYSIS
- 4.0 REGULATORY ANALYSIS
 - 4.1 No Significant Hazards Consideration Determination
 - 4.2 Commitments
 - 4.3 Precedence
- 5.0 ENVIRONMENTAL EVALUATION
- 6.0 REFERENCES

ATTACHMENT 1
Description of Proposed Changes

1.0 DESCRIPTION

The proposed license amendments revise the required testing frequency for Surveillance Requirement 3.1.4.2 in Technical Specification 3.1.4, "Control Rod Scram Times." A notice announcing the availability of this proposed Technical Specifications (TS) change using the Consolidated Line Item Improvement Process (CLIIP) was published in the *Federal Register* on August 23, 2004 (69 FR 51864).

2.0 ASSESSMENT

These proposed TS changes are based on TS Task Force (TSTF) change traveler TSTF-460, Revision 0, which has been approved generically for the Boiling Water Reactor (BWR) Standard TS, NUREG-1433 (BWR/4). The required frequency, for control rod scram time testing as described in Surveillance Requirement (SR) 3.1.4.2, will be changed from "120 days cumulative operation in MODE 1" to "200 days cumulative operation in MODE 1."

The applicable regulatory requirements and guidance associated with this License Amendment Request are adequately addressed by the CLIIP Notice of Availability published on August 23, 2004 (69 FR 51864) and TSTF-460.

3.0 TECHNICAL ANALYSIS

Exelon Generation Company, LLC (Exelon) has reviewed the safety evaluation published on August 23, 2004 (69 FR 51864) as part of the CLIIP Notice of Availability. This verification included a review of the NRC staff's safety evaluation and the supporting information provided to support TSTF-460. Exelon has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, and justify this amendment for the incorporation of the changes to the PBAPS, Units 2 and 3, TS. Exelon is not proposing variations or deviations from the TS changes described in TSTF-460 or in the content of the NRC staff's model safety evaluation published on August 23, 2004 (69 FR 51864).

As described in the CLIIP model safety evaluation, part of the justification for the change in surveillance frequency is the high reliability of the PBAPS, Units 2 and 3, Control Rod Drive System. As requested in the CLIIP Notice of Availability published on August 23, 2004 (69 FR 51864), the historical performance of the Control Rod Drive System (CRD) at PBAPS, Units 2 and 3, is described below.

PBAPS, Unit 2 Test Results

PBAPS, Unit 2, has 185 control rods. Historical CRD scram time test results were reviewed for the period January 2000 through January of 2006. There were approximately 2,842 individual rod scram timing data points identified for the period. Of these, there were 14 rods that tested slow to position 46. No rods were slow to positions other than 46. Analysis of the documentation has shown that one of these slow control rods contained Buna-N Scram Solenoid Pilot Valve (SSPV) diaphragm material. All other rods identified as slow during this period contained Viton-A SSPV diaphragm material.

ATTACHMENT 1
Description of Proposed Changes

PBAPS, Unit 3 Test Results

PBAPS, Unit 3, has 185 control rods. Historical CRD scram time test results were reviewed for the period January 2000 through January of 2006. There were approximately 1,428 individual rod scram timing data points identified for the period. Of these, there were 4 rods that tested slow to position 46. No rods were slow to positions other than 46. Analysis of the documentation has shown that all control rods identified as slow during this period contained Viton-A SSPV diaphragm material.

Discussion

Significant operating experiences from multiple BWRs in the mid-1990s identified performance issues with the Buna-N diaphragm material originally installed in Automatic Switch Company (ASCO) "dual-type" SSPVs. Specifically, the Buna-N diaphragms experienced hardening under in-service conditions, resulting in increased times to valve actuation and start of motion following a scram initiation signal. Based on General Electric (GE) Services Information Letter (SIL) 584, "Scram Solenoid Pilot Valve Diaphragm Embrittlement," PBAPS instituted a program to replace Buna-N diaphragms with Viton-A diaphragms, which were demonstrated to be less susceptible to the hardening phenomenon. Shortly after its introduction, the industry identified Viton-A diaphragm performance issues that also resulted in delayed SSPV actuation. In the case of the Viton-A diaphragms, the material would occasionally adhere to the SSPV body following extended operation of the valve in the closed position, again resulting in a delayed actuation of the valve and start of rod motion. At the recommendation of GE, PBAPS subsequently established a program to replace all remaining Buna-N and Viton-A diaphragms with Viton-515AB diaphragms. The Viton-515AB formulation, also referred to as Viton-B, has been demonstrated to be resistant to both the hardening and adhesion issues associated with Buna-N and Viton-A diaphragm materials. All Buna-N diaphragms have now been replaced with Viton-515AB material on both PBAPS units. PBAPS is in the process of replacing all Viton-A diaphragms with Viton-515AB diaphragm material during Hydraulic Control Unit (HCU) corrective and scheduled preventative maintenance activities.

Summary

Control rod insertion time test data from a 6-year period has demonstrated the high reliability of the PBAPS, Units 2 and 3, CRD systems. The combined 0.42% incidence of slow rods for both units at PBAPS is exclusively attributable to well understood SSPV diaphragm material issues which are being addressed by the systematic replacement of Viton-A diaphragms with Viton-515AB material. The high reliability of the CRD system and ongoing SSPV diaphragm replacement program, in conjunction with the more restrictive slow rod acceptance criteria of 7.5%, support extension of the SR 3.1.4.2 surveillance frequency from 120 days of cumulative operation in Mode 1 to 200 days of cumulative operation in MODE 1.

4.0 REGULATORY ANALYSIS

4.1 NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Exelon has reviewed the proposed No Significant Hazards Consideration Determination published on August 23, 2004 (69 FR 51864), as part of the CLIIP. Exelon has concluded that the proposed determination presented in the notice is applicable to PBAPS, Units 2 and 3, and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

4.2 COMMITMENTS

As discussed in the CLIIP model safety evaluation published in the *Federal Register* on August 23, 2004 (69 FR 51864) for this TS improvement, Exelon is making the following regulatory commitment with the understanding that the NRC will include it as a condition for the issuance of the requested amendments:

Exelon will incorporate the revised acceptance criterion value of 7.5 percent into the TS Bases for PBAPS, Units 2 and 3, in accordance with the Bases Control Program described in TS 5.5.10.

Exelon will make the supporting changes to the TS Bases in accordance with TS 5.5.10, "Technical Specification (TS) Bases Control Program." Attachment 3 of this letter contains markup TS Bases pages for PBAPS, Units 2 and 3. These pages are being submitted for information only and do not require issuance by the NRC.

4.3 PRECEDENCE

This application is being made in accordance with the CLIIP. Exelon is not proposing variations or deviations from the TS changes described in TSTF-460 or in the content of the NRC staff's model safety evaluation published on August 23, 2004 (69 FR 51864). The NRC has previously approved similar amendment requests to the TS for Browns Ferry Nuclear Plant, Units 2 and 3, Brunswick Steam Electric Plant, Units 1 and 2, Columbia Generating Station, Cooper Nuclear Station, and Fermi 2. The subject License Amendment Request proposes to adopt surveillance testing requirements similar to those discussed in the previously approved amendments.

5.0 ENVIRONMENTAL EVALUATION

Exelon has reviewed the Environmental Evaluation included in the model safety evaluation published on August 23, 2004 (69 FR 51864) as part of the CLIIP. Exelon has concluded that the staff's findings presented in that evaluation are applicable to PBAPS, Units 2 and 3, and the evaluation is hereby incorporated by reference for this application.

ATTACHMENT 1
Description of Proposed Changes

6.0 REFERENCES

Federal Register Notice: Notice of Availability of Model Application Concerning Technical Specifications Improvement Regarding Revision to the Control Rod Scram Time Testing Frequency in STS 3.1.4, "Control Rod Scram Times," for General Electric Boiling Water Reactors Using the Consolidated Line Item Improvement Process, published August 23, 2004 (69 FR 51864).

ATTACHMENT 2

**PBAPS, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56**

“Reduce Control Rod Scram Time Testing Frequency”

Markup of Proposed Technical Specifications Page Changes

REVISED TS PAGES

Unit 2 Unit 3

3.1-13 3.1-13

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.1.4.2 Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure \geq 800 psig.</p>	<p style="text-align: center;">200</p> <p>120 days cumulative operation in MODE 1</p>
<p>SR 3.1.4.3 Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.</p>	<p>Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time</p>
<p>SR 3.1.4.4 Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure \geq 800 psig.</p>	<p>Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time</p> <p><u>AND</u></p> <p>Prior to exceeding 40% RTP after fuel movement within the affected core cell</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.4.2 Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure \geq 800 psig.	200 120 days cumulative operation in MODE 1
SR 3.1.4.3 Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4 Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure \geq 800 psig.	Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time <u>AND</u> Prior to exceeding 40% RTP after fuel movement within the affected core cell

2

ATTACHMENT 3

**PBAPS, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56**

“Reduce Control Rod Scram Time Testing Frequency”

Markup of Proposed Technical Specifications Bases Page Changes

REVISED TS BASES PAGES

Unit 2 Unit 3

B 3.1-26 B 3.1-26

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.1.4.2 (continued)

7.5%

if no more than ~~20%~~ of the control rods in the sample tested are determined to be "slow". With more than ~~20%~~ of the sample declared to be "slow" per the criteria in Table 3.1.4-1, additional control rods are tested until this ~~20%~~ criterion (i.e., ~~20%~~ of the active sample size) is satisfied, or until the total number of "slow" control rods (throughout the core, from all Surveillances) exceeds the LCO limit. For planned testing, the control rods selected for the sample should be different for each test. Data from inadvertent scrams should be used whenever possible to avoid unnecessary testing at power, even if the control rods with data may have been previously tested in a sample. The ~~120~~ day Frequency is based on operating experience that has shown control rod scram times do not significantly change over an operating cycle. This Frequency is also reasonable based on the additional Surveillances done on the CRDs at more frequent intervals in accordance with LCO 3.1.3 and LCO 3.1.5, "Control Rod Scram Accumulators."

7.5%

200

SR 3.1.4.3

When work that could affect the scram insertion time is performed on a control rod or the CRD System, testing must be done to demonstrate that each affected control rod retains adequate scram performance over the range of applicable reactor pressures from zero to the maximum permissible pressure. This surveillance can be met by performance of either scram time testing or Diaphragm Alternative Response Time (DART) testing, when it is concluded that DART testing monitors the performance of all affected components. The testing must be performed once before declaring the control rod OPERABLE. The required testing must demonstrate the affected control rod is still within acceptable limits. The limits for reactor pressures < 800 psig are established based on a high probability of meeting the acceptance criteria at reactor pressures ≥ 800 psig. Limits for ≥ 800 psig are found in Table 3.1.4-1. If testing demonstrates the affected control rod does not meet these limits, but is within the 7 second limit of Table 3.1.4-1, Note 2, the control rod can be declared OPERABLE and "slow."



(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.1.4.2 (continued)

7.5%

if no more than ~~20%~~ of the control rods in the sample tested are determined to be "slow". With more than ~~20%~~ of the sample declared to be "slow" per the criteria in Table 3.1.4-1, additional control rods are tested until this ~~20%~~ criterion (i.e., ~~20%~~ of the active sample size) is satisfied, or until the total number of "slow" control rods (throughout the core, from all Surveillances) exceeds the LCO limit. For planned testing, the control rods selected for the sample should be different for each test. Data from inadvertent scrams should be used whenever possible to avoid unnecessary testing at power, even if the control rods with data may have been previously tested in a sample. The ~~120~~ day Frequency is based on operating experience that has shown control rod scram times do not significantly change over an operating cycle. This Frequency is also reasonable based on the additional Surveillances done on the CRDs at more frequent intervals in accordance with LCO 3.1.3 and LCO 3.1.5, "Control Rod Scram Accumulators."

7.5%

200

SR 3.1.4.3

When work that could affect the scram insertion time is performed on a control rod or the CRD System, testing must be done to demonstrate that each affected control rod retains adequate scram performance over the range of applicable reactor pressures from zero to the maximum permissible pressure. This surveillance can be met by performance of either scram time testing or Diaphragm Alternative Response Time (DART) testing, when it is concluded that DART testing monitors the performance of all affected components. The testing must be performed once before declaring the control rod OPERABLE. The required testing must demonstrate the affected control rod is still within acceptable limits. The limits for reactor pressures < 800 psig are established based on a high probability of meeting the acceptance criteria at reactor pressures ≥ 800 psig. Limits for ≥ 800 psig are found in Table 3.1.4-1. If testing demonstrates the affected control rod does not meet these limits, but is within the 7 second limit of Table 3.1.4-1, Note 2, the control rod can be declared OPERABLE and "slow."

(continued)

ATTACHMENT 4

**PBAPS, Units 2 and 3
Renewed Facility Operating License Nos. DRP-44 and DPR-56**

“Reduce Control Rod Scram Time Testing Frequency”

List of Commitments

ATTACHMENT 4

LIST OF COMMITMENTS

The following table identifies those actions committed to by Exelon Generation Company (Exelon), LLC, in this document. Any other statements in this submittal are provided for information purposes and are not considered to be commitments.

<u>COMMITMENT</u>	COMMITTED DATE OR "OUTAGE"	<u>COMMITMENT TYPE</u>	
		ONE-TIME ACTION (Yes/No)	PROGRAMMATIC (Yes/No)
Exelon will incorporate the revised acceptance criterion value of 7.5 percent into the TS Bases for PBAPS, Units 2 and 3, in accordance with the Bases Control Program described in TS 5.5.10.	Upon implementation of the Approved License Amendment	No	Yes