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10 CFR 50.90

Docket No. 50-278

License No. DPR-56

May 30, 2001

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

Subject: Peach Bottom Atomic Power Station, Unit 3
License Amendment Request 01-00430

Dear Sir/Madam:

Exelon Generation Company, LLC, is submitting License Amendment Request 01-00430, in accordance with 10 CFR 50.90, requesting an amendment to the Technical Specifications (Appendix A) of Operating License No. DPR-56, for Peach Bottom Atomic Power Station (PBAPS), Unit 3. This proposed change will revise Technical Specifications (TS) Section 5.5.12 ("Primary Containment Leakage Rate Testing Program") to reflect a one-time deferral of the Type A Containment Integrated Leak Rate Test (ILRT) to no later than December, 2007.

Exelon Generation Company, LLC, is currently developing detailed performance based, risk-informed information to support this request. This information will be submitted no later than June 15, 2001.

We request that the amendment to the PBAPS, Unit 3 TS be approved by September 28, 2001, and be made effective prior to the restart from the upcoming PBAPS, Unit 3 refueling outage, currently scheduled to begin Fall of 2001.

A copy of this License Amendment Request, including the reasoned analysis about a no significant hazards consideration, is being provided to the appropriate Pennsylvania State official in accordance with the requirements of 10 CFR 50.91(b)(1).

If you have any questions, please do not hesitate to contact us.

Very truly yours,

J. A. Hutton /FSR

James A. Hutton
Director - Licensing

Enclosures: Affidavit, Attachment 1, Attachment 2, Attachment 3

cc: H. J. Miller, Administrator, Region I, USNRC
A. C. McMurtray, USNRC Senior Resident Inspector, PBAPS
R. R. Janati, Commonwealth of Pennsylvania

A017

COMMONWEALTH OF PENNSYLVANIA:

: ss.

COUNTY OF CHESTER :

J. J. Hagan, being first duly sworn, deposes and says:

That he is Senior Vice President of Exelon Generation Company, LLC; the Applicant herein; that he has read the attached License Amendment Request 01-00430, for Peach Bottom Facility Operating License DPR-56, and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.

Senior Vice President

Subscribed and sworn to
before me this 30th day
of May 2001.

Vivia V. Gallimore

Notary Public

Notarial Seal
Vivia V. Gallimore, Notary Public
Tredyffrin Twp., Chester County
My Commission Expires Oct. 6, 2003
Member, Pennsylvania Association of Notaries

ATTACHMENT 1

PEACH BOTTOM ATOMIC POWER STATION
UNIT 3

Docket No. 50-278

License No. DPR-56

LICENSE AMENDMENT REQUEST
01-00430

"Integrated Leak Rate Test Deferral"

Supporting Information - 9 Pages

May 30, 2001
LAR 01-00430

Docket No. 50-278
License No. DPR-56

Introduction

Exelon Generation Company, LLC, Licensee under Facility Operating License No. DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Unit 3, requests that the Technical Specifications contained in Appendix A to the Operating License be amended to revise Technical Specification Section 5.5.12 to reflect a one-time deferral of the Type A Containment Integrated Leak Rate Test (ILRT) to no later than December, 2007. The marked up Technical Specification page and final Technical Specification page are contained in Attachments 2 and 3, respectively.

This License Amendment Request provides a discussion and description of the proposed Technical Specification (TS) change, a safety assessment of the proposed TS change, information supporting a finding of No Significant Hazards Consideration and information supporting an Environmental Assessment.

Discussion and Description of the Proposed Change

The proposed change involves a one-time exception to the ten (10) year frequency of the performance-based leakage rate testing program for Type A tests as required by Nuclear Energy Institute (NEI) 94-01, Revision 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J." The current ten (10) year Containment Integrated Leak Rate Test (ILRT) for Peach Bottom Atomic Power Station (PBAPS), Unit 3 is due in December 2001 and is currently scheduled to be performed during Refueling Outage 3R13 in October 2001. The proposed exception would allow the next ILRT for PBAPS, Unit 3 to be performed within sixteen (16) years (December 2007) from the last ILRT as opposed to the current ten (10) year frequency.

The proposed change would revise Section 5.5.12 ("Primary Containment Leakage Rate Testing Program") of the PBAPS, Unit 3 Technical Specifications to add the following statement:

"b. Section 9.2.3: The first Type A test performed after the December, 1991 Type A test shall be performed no later than December, 2007."

This one-time exception will result in the following:

- Perform a Type A Containment ILRT during Refuel Outage 3R16, currently scheduled for October 2007.

- A substantial cost savings will be realized and unnecessary personnel radiation exposure will be avoided by deferring the Type A test for an additional six (6) years. Cost savings have been estimated for this outage at approximately $1.5 million, which includes labor, equipment and critical path outage time needed to perform the test. Personnel radiation exposure reduction is estimated at 2.0 rem.

- Performing the ILRT in 2007 will allow the test to coincide with the scheduled periodic inspections of the metal containment, per ASME Section XI, Subsection IWE. These inspections are required to be performed three times during the ten-year inspection interval per 10 CFR 50.55a(b)(2)(ix). Otherwise, PBAPS, Unit 3 will be required to perform inspections of the entire containment vessel four times during the current interval, in order to meet this requirement of one IWE inspection per inspection period.

Safety Assessment

a. 10 CFR 50, Appendix J, Option B

The testing requirements of 10 CFR 50, Appendix J, provide assurance that leakage from the primary containment, including systems and components that penetrate the containment, does not exceed the allowable leakage values specified in Technical Specifications. The limitation on containment leakage provides assurance that the primary containment will perform its design function following plant design basis accidents.

10 CFR 50, Appendix J was revised, effective October 26, 1995, to allow licensees to perform containment leakage testing in accordance with the requirements of Option A, "Prescriptive Requirements" or Option B, "Performance-Based Requirements." Amendment 219 was issued to PECO Energy Company (dated June 18, 1996) to permit implementation of 10 CFR 50, Appendix J, Option B. Amendment 219 revised Technical Specification Section 5.5 to require Type A, B and C testing in accordance with Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak-Test Program." RG 1.163 specifies a method acceptable to the Nuclear Regulatory Commission (NRC) for complying with 10 CFR 50, Appendix J, Option B by approving the use of NEI 94-01 and ANSI/ANS 56.8-1994, subject to several regulatory positions in the guide.

Exceptions to the requirements of RG 1.163 are permitted by 10 CFR 50, Appendix J, Option B, as discussed in Section V.B, "Implementation." Therefore, this application does not require an exemption from 10 CFR 50, Appendix J, Option B.

Adoption of the Option B performance-based containment leakage rate testing program did not alter the basic method by which Appendix J leakage rate testing is performed; however, it did alter the frequency at which Type A, B and C containment leakage tests must be performed. Under the performance-based option of 10 CFR 50, Appendix J, test frequency is based upon an evaluation that reviews "as-found" leakage history to determine the frequency for leakage testing which provides assurance that leakage limits will be maintained.

The allowed frequency for Type A testing, as documented in NEI 94-01, is based, in part, upon a generic evaluation documented in NUREG-1493. The evaluation documented in NUREG-1493 included a study of the dependence of reactor accident

risks on containment leak-tightness for five reactor/containment types including PBAPS, Unit 2, a GE designed boiling water reactor in a Mark I containment. The PBAPS, Unit 3 containment is the same reactor/containment type (Mark I) as PBAPS, Unit 2. NUREG-1493 made the following observations with regard to decreasing the test frequency:

- Reducing the Type A Integrated Leak Rate Test (ILRT) testing frequency to one per twenty (20) years was found to lead to imperceptible increase in risk. The estimated increase in risk is small because ILRTs identify only a few potential leakage paths that cannot be identified by Type B and C testing, and the leaks that have been found by Type A tests have been only marginally above the existing requirements. Given the insensitivity of risk to containment leakage rate, and the small fraction of leakage detected solely by Type A testing, increasing the interval between ILRT testing has minimal impact on public risk.

- While Type B and C tests identify the vast majority (greater than 95%) of all potential leakage paths, performance-based alternatives are feasible without significant risk impacts. Since leakage contributes less than 0.1 percent of overall risk under existing requirements, the overall effect is very small.

NEI 94-01 requires that Type A testing be performed at least once per ten (10) years based upon an acceptable performance history. Acceptable performance history is defined as two consecutive periodic Type A tests at least 24 months apart where the calculated performance leakage rate was less than $1.0L_a$. Based upon the acceptable November 1989 and December 1991 ILRTs, the current test interval for PBAPS, Unit 3 is once every ten (10) years, with the next test due to be performed by December 2001.

b. PBAPS Integrated Leak Rate Test History

Type A testing is performed to verify the integrity of the containment structure in its Loss of Coolant Accident (LOCA) configuration. Industry test experience has demonstrated that Type B and C testing detect a large percentage of containment leakages and that the percentage of containment leakages that are detected only by integrated containment leakage testing is very small.

PBAPS, Unit 3 has undergone 6 operational Type A tests in addition to the pre-operational Type A test. The results of these tests demonstrate that the PBAPS, Unit 3 containment structure remains an essentially leak-tight barrier and represents minimal risk to increased leakage. These plant specific results support the conclusions of NUREG-1493. The PBAPS, Unit 3 ILRT results are provided below:

Test Date	Acceptable Limit Note 4	Leakage Rate Note 4
2/74 (Pre-Operational)	0.500	0.116
4/77 (Note 1)	0.500	1.129
Retest	0.500	0.322
9/81 (Note 2)	0.500	0.389
Retest	0.500	0.185
8/83 (Note 3)	0.500	0.784
Retest	0.500	0.105
1/86	0.500	0.088
11/89	0.500	0.229
12/91	0.500	0.139

Notes:

1. Analysis of the ILRT data indicated that leakage from the containment was approximately 10 standard cubic feet per minute (SCFM). The leak was identified on the air side of a Torus water level instrument. The leak was isolated via the instrument root valve and the ILRT was completed successfully.

2. The major source of leakage was identified as a missing o-ring on Pressure Transmitter PT-3-05-012C (Drywell Pressure Transmitter). Failure to install the o-ring was an activity-based omission during instrument maintenance. Isolation of the instrument resulted in leakage from this source to be approximately 25,000 sccm. Following installation of the missing o-ring, the ILRT was completed successfully.

3. The major source of leakage was identified as packing leakage from MO-3-10-034A (RHR Loop A Full Flow Test Line Block Valve). The valve was repacked on backseat, and the ILRT was completed successfully.

4. Leakage rates are expressed in percent (%) of containment air by weight per day. The maximum allowable primary containment leakage rate (L_a) is 0.5% of containment air weight per day. Technical Specification leakage rate acceptance criteria for a Type A test for unit startup is $0.75L_a$ or 0.375% containment air weight per day as discussed in Technical Specification Section 5.5.12.

As indicated in the above table, no retests were required due to failure of as-found tests after 1983. Improved work practices and procedural controls have minimized the potential for maintenance related degradation.

c. Plant Operational Performance

PBAPS, Unit 3 is a GE designed boiling water reactor in a Mark I containment. During power operation the primary containment atmosphere is inerted with nitrogen to ensure that no external sources of oxygen are introduced into containment. The containment inerting system is used during the initial purging of the primary containment prior to power operation and provides a supply of makeup nitrogen to maintain primary containment oxygen concentration within Technical Specification limits. As a result, the primary containment is maintained at a slightly positive pressure during power operation. Primary containment pressure is continuously indicated and periodically monitored from the Main Control Room. Although this feature, that is inherent to the PBAPS BWR containment design, does not challenge the structural and leak tight integrity of the containment system at post-accident pressure, the fact that the containment is continuously pressurized by the containment inerting system, and is periodically monitored, provides assurance that gross containment leakage that may develop during power operation will be detected.

d. Containment Inspections

Effective September, 1996, the NRC endorsed Subsections IWE and IWL of ASME Section XI, 1992 Edition including 1992 Addenda. These subsections contain inservice inspection and repair and replacement rules for metal containment vessels (Class MC) and concrete containment vessels (Class CC), respectively. The reactor containments at PBAPS are free-standing structural steel containments, to which only the requirements of Subsection IWE apply. The PBAPS, Unit 3 containment inspection program was established in 1998 with the first ten (10) year interval spanning between 1998 and 2008. Containment inspection activities for the PBAPS, Unit 3 containment are as follows:

- In October 1999 (Refuel Outage 3R12), PBAPS performed the first inspection of the Unit 3 primary containment in accordance with the requirements of Subsection IWE of ASME Section XI, with acceptable results. The scope of this inspection did not include the wetted and submerged interior surfaces of the suppression pool which will be inspected during Refuel Outage 3R14 in Fall 2003. Reinspection of the primary containment, per IWE, is scheduled for 2003 (3R14) and 2007 (3R16), in order to meet the 10 CFR 50 requirement of IWE containment examination each inspection period (i.e., three times per inspection interval).

- Prior to the inception of the containment inservice inspection program, visual inspection of the accessible areas of the primary containment was performed each refueling outage in accordance with the requirements of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants" and 10 CFR 50, Appendix J prior to each Type A leakage test.

- Inspections of the wetted and submerged interior surfaces of the suppression pool have been performed and documented at PBAPS since 1991. This inspection program has been approved, via relief request, as an acceptable alternate to the augmented examination requirements of Examination Category E-C. The last such inspection for the Unit 3 containment was performed in October 1997 with acceptable results.

- Visual examination of the accessible and immersed surfaces of the containment is also performed periodically to assess the condition of containment coatings in accordance with the requirements of 10 CFR 50.65 and licensing commitments for Generic Letter 98-04 ("Potential for Degradation of the Emergency Core Cooling System and the Containment Spray System After a Loss-of-Coolant Accident Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment"). These periodic inspections serve to identify coating distress that may be indicative of degradation of containment structural integrity. Inspections performed to date have been acceptable.

The ASME Section XI IWE/IWL containment inspections provide a high degree of assurance that any degradation of the containment structure is identified and corrected before a containment leakage path is introduced.

e. Risk Assessment

Exelon Generation Company, LLC, is currently developing detailed performance based, risk-informed information to support this request. This information will be submitted no later than June 15, 2001.

Information Supporting a Finding of No Significant Hazards Consideration

We have concluded that the proposed change to the PBAPS, Unit 3 Technical Specifications, which will revise Technical Specification Section 5.5.12, does not involve a Significant Hazards Consideration. In support of this determination, an evaluation of each of the three (3) standards set forth in 10 CFR 50.92 is provided below.

1. The proposed Technical Specification change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed revision to Technical Specification 5.5.12 ("Primary Containment Leakage Rate Testing Program") involves a one-time extension to the current interval for Type A containment testing. The current test interval of ten (10) years would be extended on a one-time basis to no longer than sixteen (16) years from the last Type A test. The proposed Technical Specification change does not involve a physical change to the plant or a change in the manner in which the plant is operated or controlled. The reactor containment is designed to provide an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment for postulated accidents. As such the reactor containment itself and the testing requirements invoked to periodically demonstrate the integrity of the reactor containment exist to ensure the plant's ability to mitigate the consequences of an accident, and do not involve the prevention or identification of any precursors of an accident. Therefore, the proposed Technical Specification change does not involve a significant increase in the probability of an accident previously evaluated.

   The proposed change involves only the extension of the interval between Type A containment leakage tests. Type B and C containment leakage tests will continue to be performed at the frequency currently required by plant Technical Specifications. Industry experience has shown, as documented in NUREG-1493, that Type B and C containment leakage tests have identified a very large percentage of containment leakage paths and that the percentage of containment leakage paths that are detected only by Type A testing is very small. PBAPS, Unit 3 ILRT test history supports this conclusion. NUREG-1493 concluded, in part, that reducing the frequency of Type A containment leak tests

to once per twenty (20) years leads to an imperceptible increase in risk. The integrity of the reactor containment is subject to two types of failure mechanisms which can be categorized as (1) activity based and (2) time based. Activity based failure mechanisms are defined as degradation due to system and/or component modifications or maintenance. Local leak rate test requirements and administrative controls such as design change control and procedural requirements for system restoration ensure that containment integrity is not degraded by plant modifications or maintenance activities. The design and construction requirements of the reactor containment itself combined with the containment inspections performed in accordance with ASME Section XI, the Maintenance Rule and licensing commitments related to containment coatings serve to provide a high degree of assurance that the containment will not degrade in a manner that is detectable only by Type A testing. Therefore, the proposed Technical Specification change does not involve a significant increase in the consequences of an accident previously evaluated.

2. The proposed Technical Specification change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed revision to the Technical Specifications involves a one-time extension to the current interval for Type A containment testing. The reactor containment and the testing requirements invoked to periodically demonstrate the integrity of the reactor containment exist to ensure the plant's ability to mitigate the consequences of an accident and do not involve the prevention or identification of any precursors of an accident. The proposed Technical Specification change does not involve a physical change to the plant or the manner in which the plant is operated or controlled. Therefore, the proposed Technical Specification change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed Technical Specification change does not involve a significant reduction in a margin of safety.

The proposed revision to Technical Specifications involves a one-time extension to the current interval for Type A containment testing. The proposed Technical Specification change does not involve a physical change to the plant or a change in the manner in which the plant is operated or controlled. The specific requirements and conditions of the Primary Containment Leakage Rate Testing Program, as defined in Technical Specifications, exist to ensure that the degree of reactor containment structural integrity and leak-tightness that is considered in the plant safety analysis is maintained. The overall containment leakage rate limit specified by Technical Specifications is maintained. The proposed change involves only the extension of the interval between Type A containment leakage tests. Type B and C containment leakage tests will continue to be performed at the frequency currently required by plant Technical Specifications.

PBAPS, Unit 3 and industry experience strongly supports the conclusion that Type B and C testing detects a large percentage of containment leakage paths and that the percentage of containment leakage paths that are detected only by Type A testing is small. The containment inspections performed in accordance with ASME Section XI, the Maintenance Rule and the Coatings Program serve to provide a high degree of assurance that the containment will not degrade in a manner that is detectable only by Type A testing. Additionally, the on-line containment monitoring capability that is inherent to inerted BWR containments allows for the detection of gross containment leakage that may develop during power operation. The combination of these factors ensures that the margin of safety that is inherent in plant safety analysis is maintained. Therefore, the proposed Technical Specification change does not involve a significant reduction in a margin of safety.

Information Supporting an Environmental Assessment

An Environmental Assessment is not required for the one-time Technical Specification change because the proposed change to the PBAPS, Unit 3 Technical Specifications conforms to the criteria for "Actions Eligible for Categorical Exclusion" as specified in 10 CFR 1.22(c)(9). The proposed change will have no impact on the environment. The proposed change does not involve a Significant Hazards Consideration as discussed in the preceding section. The proposed change does not involve a significant change in the types, or a significant increase in the amounts, of any effluents that may be released offsite. In addition, the proposed change does not involve a significant increase in individual or cumulative occupational radiation exposure.

Conclusion

We have concluded that the proposed change to the PBAPS, Unit 3 TS does not involve a Significant Hazards Consideration.

ATTACHMENT 2

PEACH BOTTOM ATOMIC POWER STATION
UNIT 3

Docket No. 50-278

License No. DPR-56

MARKED UP TECHNICAL SPECIFICATION PAGE

Attached Page

TS Page 5.0-17

5.5 Programs and Manuals

5.5.11 Safety Function Determination Program (SFDP) (continued)

1. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or

2. A required system redundant to system(s) in turn supported by the inoperable supported system is also inoperable; or

3. A required system redundant to support system(s) for the supported systems (b.1) and (b.2) above is also inoperable.

c. The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

5.5.12 Primary Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995, as modified by the following exception to NEI 94-01, Rev. 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," Section 10.2:

a. MSIV leakage is excluded from the combined total of 0.6 L_a for the Type B and C tests.

b. Section 9.2.3: The first Type A test performed after the December, 1991 Type A test shall be performed no later than December, 2007.

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 49.1 psig.

The maximum allowable primary containment leakage rate, L_a, at P_a, shall be 0.5% of primary containment air weight per day.

Leakage Rate acceptance criteria are:

a. Primary Containment leakage rate acceptance criterion is $\leq$ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq$ 0.60 L_a for the Type B and Type C tests and $\leq$ 0.75 L_a for Type A tests;

(continued)

ATTACHMENT 3

PEACH BOTTOM ATOMIC POWER STATION
UNIT 3

Docket No. 50-278

License No. DPR-56

FINAL TECHNICAL SPECIFICATIONS CHANGES

Attached Page

TS Page 5.0-17

5.5 Programs and Manuals

5.5.11 Safety Function Determination Program (SFDP) (continued)

1. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or

2. A required system redundant to system(s) in turn supported by the inoperable supported system is also inoperable; or

3. A required system redundant to support system(s) for the supported systems (b.1) and (b.2) above is also inoperable.

c. The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

5.5.12 Primary Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995, as modified by the following exceptions to NEI 94-01, Rev. 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J":

a. Section 10.2: MSIV leakage is excluded from the combined total of 0.6 L_a for the Type B and C tests.

b. Section 9.2.3: The first Type A test performed after the December, 1991 Type A test shall be performed no later than December, 2007.

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 49.1 psig.

The maximum allowable primary containment leakage rate, L_a, at P_a, shall be 0.5% of primary containment air weight per day.

Leakage Rate acceptance criteria are:

a. Primary Containment leakage rate acceptance criterion is $\leq$ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq$ 0.60 L_a for the Type B and Type C tests and $\leq$ 0.75 L_a for Type A tests;

(continued)