

10 CFR 50.12

10 CFR 50.90



PECO ENERGY

PECO Energy Company
Nuclear Group Headquarters
965 Chesterbrook Boulevard
Wayne, PA 19087-5691

November 21, 1994

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

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

Subject: Peach Bottom Atomic Power Station, Unit 3
Technical Specifications Change Request No. 94-14
and 10 CFR 50, Appendix J Exemption Request

Dear Sir:

PECO Energy Company hereby submits Technical Specifications Change Request (TSCR) No. 94-14 in accordance with 10 CFR 50.90, requesting changes to Appendix A of the Peach Bottom Atomic Power Station, Unit 3 Facility Operating License. The proposed change would extend the Type A test (i.e., Containment Integrated Leak Rate Test (CILRT)) interval on a one-time basis.

Additionally, pursuant to 10 CFR 50.12(a), PECO Energy Company requests a one time scheduler exemption from 10 CFR 50, Appendix J, Section III.D.1.(a) concerning the 10 CFR 50, Appendix J Type A test intervals.

Information supporting this TSCR is contained in Attachment 1 to this letter, and the proposed replacement page for the PBAPS, Unit 3 Technical Specifications is contained in Attachment 2. The proposed Exemption Request is contained in Attachment 3.

A similar TSCR and Exemption Request has been approved for PBAPS, Unit 2 (letter from J. W. Shea (USNRC) to G. A. Hunger, Jr. (PECO Energy) dated September 30, 1994).

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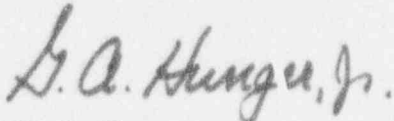
November 21, 1994

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We request that, if approved, the TSCR and Exemption Request for PBAPS, Unit 3 be effective by April 1, 1995, in order to eliminate the required performance of a Type A test during the upcoming Unit 3 refueling outage, scheduled for September 1995. Approval by April 1, 1995 will avail sufficient time for proper scoping and planning of the outage.

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

Very truly yours,

A handwritten signature in cursive script that reads "G. A. Hunger, Jr.".

G. A. Hunger, Jr.
Director - Licensing

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

cc: T. T. Martin, Administrator, Region I, USNRC
W. L. Schmidt, USNRC Senior Resident Inspector, PBAPS
R. R. Janati, Commonwealth of Pennsylvania

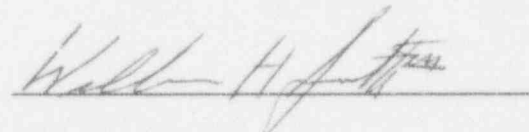
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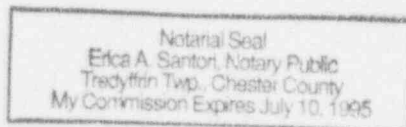
W. H. Smith, III, being first duly sworn, deposes and says:

That he is Vice President of PECO Energy Company; the Applicant herein; that he has read the attached Technical Specifications Change Request (Number 94-14) and Exemption Request 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.


Vice President

Subscribed and sworn to
before me this 21st day
of November 1994.


Notary Public



ATTACHMENT 1

**PEACH BOTTOM ATOMIC POWER STATION
UNIT 3**

Docket No. 50-278

License No. DPR-56

**TECHNICAL SPECIFICATIONS CHANGE REQUEST
No. 94-14**

**"Extend the Type A Test Interval
on a One-Time Basis"**

Supporting Information for Changes: 9 Pages

Introduction

PECO Energy Company (PECO Energy), Licensee under Facility Operating License No. DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Unit 3, requests that the Technical Specifications (TS) contained in Appendix A to the Operating License be amended and an exemption from the requirements of 10 CFR 50, Appendix J, be granted as proposed herein.

We request a TS change to extend the Type A test (i.e., Containment Integrated Leakage Rate Test (CILRT)) interval specified in TS 4.7.A.2.c.2 on a one-time basis.

The requested exemption involves a one time scheduler exemption from the requirements of 10 CFR 50, Appendix J, section III.D.1.(a) to perform Type A tests at approximately equal intervals and to extend the Appendix J 10-year service period.

A similar TS change and exemption has been previously approved for PBAPS, Unit 2, and Limerick Generating Station, Unit 1.

The Request for Exemption is contained in Attachment 3. The proposed change to TS page 167 is contained in Attachment 2.

The proposed change will not impact the proposed PBAPS, Units 2 and 3 Improved Technical Specifications (Technical Specifications Change Request No. 93-16) which were submitted to the U. S. Nuclear Regulatory Commission on September 29, 1994.

We request that, if approved, the amendment to the PBAPS, Unit 3, TS be effective by, and the associated exemption from 10 CFR 50, Appendix J be granted by, April 1, 1995, in order to eliminate performance of a Type A test during the upcoming PBAPS, Unit 3 refueling outage 10. Approval by April 1, 1995 will avail sufficient time for proper scoping and planning of the outage.

Discussion and Description of Proposed Changes

PBAPS, Unit 3 Technical Specifications SR 4.7.A.2.c.2 currently requires that "After the preoperational leakage rate tests, a set of three Type A tests shall be performed at approximately equal intervals during each 10 year service period."

10 CFR 50.54(o) requires that primary reactor containments for water cooled power reactors shall be subject to the requirements set forth in 10 CFR 50, Appendix J. 10 CFR 50, Appendix J, section III.D.1.(a) states, "After the preoperational leakage rate tests, a set of three Type A tests shall be performed, at approximately equal intervals during each ten year service period. The third test of each set shall be conducted when the plant is shutdown for the 10-year plant inservice inspections."

PBAPS, Unit 3 is at the end of its second Appendix J 10-year service period. Currently, TS and 10 CFR 50, Appendix J would require performing a Type A test during the PBAPS, Unit 3 refueling outage 10 scheduled for September, 1995 (i.e., approximately 46 months since the last Type A test in December 1991) in order to comply with the requirement to perform Type A tests at approximately equal intervals. The next opportunity to perform a Type A test on the PBAPS, Unit 3 containment is the Unit 3 refueling outage 11, scheduled for September, 1997. Additionally, 10 CFR 50, Appendix J would also require a Type A test to be performed during the next refueling outage (i.e., PBAPS, Unit 3 refueling outage 11 scheduled for September, 1997) in order to coincide with the end of the 10-year plant inservice inspection (ISI) interval. Performing the Type A test during two consecutive refueling outages in order to comply with TS and 10 CFR 50, Appendix J, would result in an unnecessary increase in personnel radiation exposure and increased cost by unnecessarily increasing the length of one of the affected refueling outages.

The proposed TS change to SR 4.7.A.2.c.2 and exemption would permit the extension of the Type A test interval specified in the TS and 10 CFR 50, Appendix J on a one-time basis such that the Type A test would be performed during the PBAPS, Unit 3 refueling outage 11 scheduled to begin in September, 1997. This one-time change will extend the Type A surveillance test interval by 24 months. The elapsed time since the last Type A test (December, 1991) will increase from 46 months to 70 months. Additionally, the 10 CFR 50, Appendix J 10-year service period will be extended.

The change to the TS and the exemption from 10 CFR 50, Appendix J will also allow the Type A test to coincide with the 10-year plant inservice inspection scheduled for PBAPS, Unit 3 refueling outage 11 (September, 1997), and will align the start of the third Appendix J 10-year service period with the start of the 10-year plant inservice inspection interval.

The difference between the 10-year plant inservice inspection interval and the 10 CFR 50, Appendix J 10-year service period is the result of a revision to the length of the second 10-year plant inservice inspection interval dates which was discussed in a letter from G. J. Beck (PECO Energy Company) to USNRC, dated February 25, 1991. Our February 25, 1991 letter established the revised second 10-year plant inservice inspection interval dates as December 23, 1985 to August 14, 1997.

We note that the 10-year inservice inspection interval is scheduled to end August 14, 1997. This interval will be extended a few months, in accordance with the ASME Code, to coincide with the end of the PBAPS, Unit 3 refueling outage 11 which was the original intent in the scheduling of the intervals. We also note that an additional CILRT has been performed during this Appendix J 10-year service period as a result of modifications which affected the primary containment boundary. This CILRT is in addition to the three CILRTs to be performed at approximately equal intervals, as required by 10 CFR 50, Appendix J.

Safety Assessment

PBAPS, Unit 3 TS currently requires that "After the preoperational leakage rate tests, a set of three Type A tests shall be performed at approximately equal intervals during each 10 year service period." In addition, 10 CFR 50, Appendix J, section III.D.1.(a) states, "After the preoperational leakage rate tests, a set of three Type A tests shall be performed, at approximately equal intervals during each 10-year service period. The third test of each set shall be conducted when the plant is shutdown for the 10-year plant inservice inspections."

The intent of the Type A test (i.e., CILRT) is to determine that the total leakage from containment does not exceed the maximum allowable leakage rate (i.e., designated L_a) as specified in TS, the PBAPS, Units 2 and 3 Updated Final Safety Analysis Report (UFSAR), and 10 CFR 50, Appendix J. The PBAPS, Unit 3 containment design maximum allowable leakage rate, measured in weight percent over 24 hours at the peak accident pressure of 49.1 psig is 0.5% wt/day. TS and 10 CFR 50, Appendix J require the measured Type A test acceptance criterion to be less than or equal to 75% of L_a , or 0.375% wt/day, to allow for deterioration of leakage paths between tests. The containment maximum allowable leakage rate, L_a , provides an input assumption to the calculation required to ensure that the maximum allowable offsite dose during a design basis accident does not exceed that specified in 10 CFR 100.

The proposed TS change and exemption introduce the possibility that primary containment leakage in excess of the allowable value would remain undetected during the proposed 24 month extension of the interval between performance of the Type A tests for the PBAPS, Unit 3 primary containment. The types of mechanisms which could cause the degradation of the containment can be categorized into two types. These are: 1) degradation due to work which is performed as part of a modification or maintenance activity on a component or system (i.e., activity-based), or; 2) degradation resulting from a time-based failure mechanism.

To address the potential of degradation due to an activity-based mechanism, a review was performed of all modifications performed during the last refueling outage (PBAPS, Unit 3 refueling outage 9) and other modifications performed since December, 1991 (the last time the CILRT was conducted). Also reviewed, were modifications which are scheduled to be performed during PBAPS, Unit 3 refueling outage 10. These reviews determined that the modifications either do not impact the boundaries which would be tested during the CILRT, or they have been or will be tested adequately (i.e., Type B and Type C tests) to ensure there is no degradation of the primary containment. Furthermore, at PBAPS there are administrative controls on maintenance activities, such as post maintenance testing, which ensure that any maintenance activity which affects a primary containment penetration is local leak rate tested after the activity. Based on the review of the plant modifications performed and the administrative controls at PBAPS, it is concluded that work performed or to be performed on the primary containment since the last CILRT will not adversely affect the containment boundary.

Regarding time-based failure mechanisms, the risk of a non-detectable increase in the primary containment leakage is considered to be negligible due to the 10 CFR 50, Appendix J Type B and Type C testing program which will detect most of the leakage. The Type B and Type C testing program will continue throughout the proposed extended test interval.

A review of the history of the PBAPS, Unit 3 CILRT results was performed to evaluate the risk of activity-based and time-based degradation. This review identified three component failures detected during CILRTs that would be detected under current conditions by Type B and C testing and supplemental leak testing. The CILRT results are given below:

<u>Test Date</u>	<u>Test Results</u>	<u>Leakage Rates % Wt/Day</u>
February, 1974 (Pre-Op)	Satisfactory	0.1160
April, 1977	Unsatisfactory	1.104 (Approx.)
Retest	Satisfactory	0.322
September, 1981	Unsatisfactory	0.389
Retest	Satisfactory	0.185
August, 1983	Unsatisfactory	0.7840
Retest	Satisfactory	0.0580
January, 1986	Satisfactory	0.08791
November, 1989	Satisfactory	0.2294
December, 1991	Satisfactory	0.1383

The unsatisfactory test results are discussed below.

1. April, 1977 test - Analysis of the CILRT data indicated that leakage from the containment was at the rate of about 10 standard cubic feet per minute (scfm) of air. A leakage survey was conducted, and the leak was discovered on the air side of a torus water level instrument. The leak was isolated by closing a root valve. The CILRT was subsequently completed successfully, with a test duration of eight hours. The torus water level instrumentation is now included in the Local Leak Rate Test (LLRT) program to ensure that leakage via this path is detected and measured.
2. September, 1981 test - The major leakage source was identified as a missing O-ring on pressure transmitter PT-3-5-12C. Failure to install the O-ring was an activity-based omission during maintenance on the instrument. After isolating this instrument, leakage from this source was measured to be on the order of

0.88 scfm. Following installation of the missing O-ring, the subsequent CILRT was satisfactory. Current instrumentation and control maintenance procedures are in place to leak test the instrumentation pressure boundary if disturbed due to instrument maintenance. Also, CILRT procedures preclude this type of CILRT failure by providing for local leak rate testing of instruments.

3. August, 1983 test - The major leakage source was identified as packing leakage from valve MO-3-10-34A (RHR Loop A Full Flow Test Line Block Valve). The valve was repacked on backseat, and the CILRT was then successfully performed. This packing leak was not revealed by local leak rate testing because the packing was not included in the test boundary. Modification 2075 reviewed containment isolation valve configurations and made modifications, if necessary, to ensure that valve packing would be subjected to local leak rate test pressure. Block valves and/or test connections were added to ensure that adequate local leak rate tests of containment isolation valves can be performed. Current test procedures ensure that valve packing leakage is adequately measured.

Review of the past unsatisfactory CILRT results concludes that improved maintenance and testing practices and procedures currently in place will identify and quantify the types of leak paths that have contributed to past unsatisfactory CILRT results. Therefore, the potential for time-based and activity-based failure mechanisms is minimal.

The test results do not indicate any trend of containment structure degradation, since the CILRT results display both upward and downward trends. In all cases, the final CILRT results were satisfactory. The last three successive CILRTs were all successfully performed, with test results well within the acceptance limit of 0.375 % wt/day, which can be attributed in part to improvements in maintenance and test procedures. The majority of leakage can be attributed to Type B and C tested penetrations since the containment structure was not altered in any fashion.

Therefore, we have concluded that the proposed extended test interval would not result in a non-detectable PBAPS, Unit 3 primary containment leakage rate in excess of the allowable value (i.e., 0.5% wt/day) established by the PBAPS TS and 10 CFR 50. Appendix J.

Although our review concluded that the risk of non-detected primary containment degradation is not increased, the Individual Plant Examination (IPE) for PBAPS, Units 2 and 3 was also reviewed in order to assess the impact of exceeding the primary containment allowable leakage rate, if a non-mechanistic activity type (i.e., time-based) failure were to occur. The IPE included an evaluation of the effect of various containment leakage sizes under different scenarios. The IPE results showed that a containment leakage rate of 35% wt/day would represent less than a 5% increase in risk to the public of being exposed to radiation. This evaluation was based on a study performed by Oak Ridge National Laboratory for light water reactors which evaluated the impact of leakage rates on public risk. As stated earlier, the current value of La for

PBAPS, Unit 3, is 0.5% wt/day, which is significantly less than the 35% wt/day discussed in the IPE evaluation.

Information Supporting a Finding of No Significant Hazards Consideration

We have concluded that the proposed change to the PBAPS, Unit 3 TS 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 Specifications (TS) change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The accidents which are potentially adversely impacted by the proposed change are any Loss of Coolant Accident (LOCA) inside primary containment as described in the PBAPS, Units 2 and 3 UFSAR.

The proposed change increases the surveillance interval of the 10 CFR 50, Appendix J Type A test (i.e., Containment Integrated Leakage Rate Test (CILRT)) from 46 months to 70 months. This test is performed to determine that the total leakage from containment does not exceed the maximum allowable primary containment leakage rate (i.e., designated L_a) at a calculated peak containment internal pressure (P_a), as defined in 10 CFR 50, Appendix J. The primary containment limits the leakage of radioactive material during and following design bases accidents in order to comply with the offsite dose limits specified in 10 CFR 100. Accordingly, the primary containment is not an accident initiator. It is an accident mitigator. No physical or operational changes to the containment structure, plant systems, or components would be made as a result of the proposed change. Therefore, the probability of occurrence of an accident previously evaluated is not increased.

The failure effects that are potentially created by the proposed one-time TS change have been considered. The relevant components important to safety which are potentially affected are the containment structure, plant systems, and containment penetrations. There are no physical or operational changes to any plant equipment associated with the proposed TS change. Therefore, the probability or consequences of a malfunction of equipment important to safety is not increased.

The proposed change introduces the possibility that primary containment leakage in excess of the allowable value (i.e., L_a) would remain undetected during the proposed 24 month extension of the interval between the Type A tests. The types of mechanisms which could cause degradation of the primary containment can be categorized into two types. These are: 1) degradation due to work which is performed as part of a modification or maintenance activity on

a component or system (i.e., activity-based), or; 2) degradation resulting from a time-based failure mechanism.

A review of the history of the PBAPS, Unit 3 CILRT results was performed to evaluate the risk of activity-based and time-based degradation. This review has determined that the potential for a time-based and activity-based failure is minimal. The PBAPS LLRT program would identify most types of penetration leakage. The LLRT program involves measurement of leakage from Type B and Type C primary containment penetrations as defined in 10 CFR 50, Appendix J.

The 10 CFR 50, Appendix J, Type B tests are intended to detect local leaks and to measure leakage across pressure containing or leakage-limiting boundaries other than valves, such as containment penetrations incorporating resilient seals, gaskets, expansion bellows, flexible seal assemblies, door operating mechanism penetrations that are part of the containment system, doors, and hatches. 10 CFR 50, Appendix J, Type C testing is intended to measure reactor system primary containment isolation valve leakage rates. The frequency of the Type B and Type C testing is not being altered by the proposed TS change. The acceptance criterion for Type B and Type C leakage is 0.6 La (i.e., 0.3 % wt/day) which, when compared to the Type A test acceptance criterion of 0.75 La (i.e., 0.375 % wt/day), is a significant portion of the Type A test allowable leakage.

The proposed TS change only extends the interval between two consecutive Type A tests. The Type B and Type C tests will be performed as required. The Type B and Type C tests will continue to be used to confirm that the containment isolation valves and penetrations have not degraded. Containment system components that would not be tested are the containment structure itself and small-diameter instrumentation lines. Time-based degradation of any of the instrumentation lines would most likely be identified by faulty instrument indication or during instrument calibrations that will be performed during the PBAPS, Unit 3 refueling outage 10. In examining the potential for a time-based failure mechanism that could cause significant degradation of the containment structure, we concluded that the risk, if any, of such a mechanism is small since the design requirements and fabrication specifications established for the containment structure are in themselves adequate to ensure containment leak tight integrity.

Based on the above evaluation, we have concluded that the proposed TS change will have a negligible impact on the consequences of any accident previously evaluated.

Although this review concluded that the risk of undetected primary containment degradation is not increased, the Individual Plant Examination (IPE) for PBAPS, Units 2 and 3, was also reviewed in order to assess the impact of exceeding the primary containment allowable leakage rate, if a non-mechanistic activity type (i.e., time-based) failure were to occur. The IPE included an evaluation of the effect of various containment leakage sizes under different scenarios. The IPE results showed that a containment leakage rate of 35% wt/day would represent less than a 5% increase in risk to the public of being exposed to radiation. This evaluation was based on a study performed by Oak Ridge National Laboratory for light water reactors that evaluated the impact of leakage rates on public risk. As stated earlier, the current value of L_a for PBAPS, Unit 3, is 0.5% wt/day, which is significantly less than the 35% wt/day discussed in the IPE evaluation.

Therefore, the proposed TS change involving a one-time extension of the Type A test interval and performing the Type A test after the second Appendix J 10-year service period will not involve an increase in the probability or consequences of an accident previously evaluated.

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

The proposed change is an increase of a surveillance test interval and does not make any physical or operational changes to existing plant systems or components. Primary containment acts as an accident mitigator not initiator. Therefore, the possibility of a different type of accident than any previously evaluated or the possibility of a different type of equipment malfunction is not introduced.

Therefore, the proposed TS change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

The total primary containment leakage rate ensures that the total containment leakage volume will not exceed the value assumed in the safety analyses at the peak accident pressure. As an added conservatism, the measured overall leakage rate is further limited to less than or equal to 0.75 L_a during performance of periodic tests to account for possible degradation of the containment leakage barriers between leakage tests. There is the potential that containment degradation could remain undetected during the proposed 24 month surveillance interval extension and result in the containment leakage exceeding the allowable value assumed in safety analysis. A review of the history of the PBAPS, Unit 3 CILRT results was performed to evaluate the risk of activity-based and time-based degradation. This review has determined that the

potential for a time-based and activity-based failure is minimal. The PBAPS LLRT program would identify most types of penetration leakage. The LLRT program involves measurement of leakage from Type B and Type C primary containment penetrations as defined in 10 CFR 50, Appendix J.

The 10 CFR 50, Appendix J, Type B tests are intended to detect local leaks and to measure leakage across pressure containing or leakage-limiting boundaries other than valves, such as containment penetrations incorporating resilient seals, gaskets, expansion bellows, flexible seal assemblies, door operating mechanism penetrations that are part of the containment system, doors, and hatches. 10 CFR 50, Appendix J, Type C testing is intended to measure reactor system primary containment isolation valve leakage rates. The frequency of the Type B and Type C testing is not being altered by the proposed TS change.

Therefore, we have concluded that the proposed extended test interval would not result in a non-detectable PBAPS, Unit 3 primary containment leakage rate in excess of the allowable value (i.e., 0.5% wt/day) established by the TS and 10CFR50, Appendix J.

Therefore, the proposed TS 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 Specifications (TS) change proposed by this Change Request because the requested change to the PBAPS, Unit 3 TS conforms to the criteria for "actions eligible for categorical exclusion," as specified in 10 CFR 51.22(c)(9). The requested TS change will have no impact on the environment. The proposed TS change does not involve a Significant Hazards Consideration as discussed in the preceding Change Request. The proposed change does not involve a significant change in the types or a significant increase in the amounts of any effluent that may be released offsite. In addition, the proposed TS change does not involve a significant increase in individual or cumulative occupational radiation exposure.

Conclusion

The Plant Operations Review Committee and the Nuclear Review Board have reviewed this proposed change to the PBAPS, Unit 3, Technical Specifications (TS) and have concluded that the change does not involve an unreviewed safety question, and will not endanger the health and safety of the public.

ATTACHMENT 2

**PEACH BOTTOM ATOMIC POWER STATION
UNIT 3**

Docket No. 50-278

License No. DPR-56

**TECHNICAL SPECIFICATIONS CHANGE REQUEST
No. 94-14**

List of Attached Pages

Unit 3

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