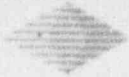


10 CFR 50.12  
10 CFR 50.90



PECO ENERGY

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

May 13, 1994

Docket No. 50-277  
License No. DPR-44

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

Subject: Peach Bottom Atomic Power Station, Unit 2  
Technical Specifications Change Request No. 94-05  
and 10 CFR 50, Appendix J Exemption Request

Dear Sir:

PECO Energy Company hereby submits Technical Specifications Change Request (TSCR) No. 94-05 in accordance with 10 CFR 50.90, requesting changes to Appendix A of the Peach Bottom Atomic Power Station, Unit 2 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 schedular 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 2 Technical Specifications is contained in Attachment 2. The proposed Exemption Request is contained in Attachment 3.

We request that, if approved, the TSCR and Exemption Request for PBAPS, Unit 2 be effective by September 24, 1994, in order to eliminate the required performance of a Type A test during the upcoming Unit 2 refueling outage.

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May 13, 1994

Page 2

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

Very truly yours,

*M. C. Kray for*

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

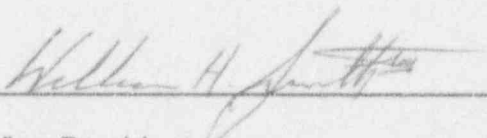
COMMONWEALTH OF PENNSYLVANIA :

: ss.

COUNTY OF CHESTER :

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 94-05) and Exemption Request for Peach Bottom Facility Operating License DPR-44, 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 13<sup>th</sup> day  
of May 1994.

  
\_\_\_\_\_  
Notary Public

Notarial Seal  
Erica A. Santori, Notary Public  
Tredyffrin Twp., Chester County  
My Commission Expires July 10, 1995

ATTACHMENT 1

PEACH BOTTOM ATOMIC POWER STATION  
UNIT 2

Docket No. 50-277

License No. DPR-44

TECHNICAL SPECIFICATION CHANGE REQUEST  
No. 94-05

"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-44 for Peach Bottom Atomic Power Station (PBAPS), Unit 2, 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 schedular 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 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.

We request that, if approved, the amendment to the PBAPS, Unit 2, TS be effective by, and the associated exemption from 10 CFR 50, Appendix J be granted by, September 24, 1994, in order to eliminate performance of a Type A test during the upcoming PBAPS, Unit 2 refueling outage 10.

## Discussion and Description of Proposed Changes

PBAPS, Unit 2 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 2 is nearing the end of its second Appendix J 10-year service period. Currently, TS and 10 CFR 50, Appendix J would require performing the third PBAPS, Unit 2 Type A test during PBAPS, Unit 2 refueling outage 10 scheduled for September, 1994 (i.e., approximately 42 months since the last Type A test in April 1991) in order to comply

with the requirement to perform three Type A tests at approximately equal intervals. The next opportunity to perform a Type A test on the PBAPS, Unit 2 containment is the Unit 2 refueling outage 11, scheduled for September, 1996. Additionally, 10 CFR 50, Appendix J would also require the third Type A test to be performed during the next refueling outage (i.e., PBAPS, Unit 2 refueling outage 11 scheduled for September, 1996) 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 2 refueling outage 11 scheduled to begin in September, 1996. This one-time change will extend the Type A surveillance test interval by 24 months. The elapsed time since the last Type A test (April, 1991) will increase from 42 months to 66 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 third Type A test to coincide with the 10-year plant inservice inspection scheduled for PBAPS, Unit 2 refueling outage 11 (September, 1996), 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 September 19, 1986 to November 4, 1997.

### Safety Assessment

PBAPS, Unit 2 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 2 containment design maximum allowable leakage rate measured in weight percent/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 second and third Type A test for the PBAPS, Unit 2 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 2 refueling outage 9) and other modifications performed since April 1991 (the last time the CILRT was conducted). Also reviewed, were modifications which are scheduled to be performed during PBAPS, Unit 2 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 2 CILRT results was performed to evaluate the risk of activity-based and time-based degradation. This review identified only one activity-based component failure detected during past CILRTs. The CILRT results are given below:

<u>Test Date</u>	<u>Test Results</u>	<u>Leakage Rates % Wt/Day</u>
May, 1973 (Pre-Op)	Satisfactory	0.1270
June, 1976	Satisfactory	0.0160
July, 1980	Satisfactory	0.1050
June, 1985 Retest	Unsatisfactory Satisfactory	0.7000 0.0516
Feb., 1989	Satisfactory	0.2340
April, 1991	Satisfactory	0.2159

The measured mass point and total time leakage rates measured for the June 1985 CILRT stabilized at approximately 0.70% wt/day, which failed to meet the TS criterion of less than 0.375% wt/day (0.75 La). A failed test was declared at 1730 on June 9, 1985. A packing leak on Torus Vacuum Relief Valve AO-2502B was identified as the major source of leakage. This and several other small packing leaks were not revealed by local leak rate testing because the packing was not included in the test boundary. Modification 2075 reviewed the containment isolation valve configurations and made modifications, when necessary, to ensure that the packing would be subjected to local leak rate test pressure. Block valves and/or test connections were also added to ensure that adequate local leak rate tests of containment isolation valves are performed.

Following the completion of repairs, the CILRT was started again and successfully passed with an as-left leakage of 0.0516% wt/day. The test results do not indicate a trend of containment structural degradation since the CILRT results display both upward and downward trends. In all cases, except the failure, the CILRT results are well within the acceptance limit of 0.375% wt/day.

Therefore, we have concluded that the proposed extended test interval would not result in a non-detectable PBAPS, Unit 2 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 2, 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 PEAPS, Unit 2 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 negatively 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 42 months to 66 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 La) at a calculated peak containment internal pressure (Pa), 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 second and third Type A test. 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 activity-based failure mechanisms has determined that the potential from degradation due to activity based mechanisms is minimal.

Regarding the potential for primary containment degradation due to a time-based mechanism, we have concluded that the PBAPS Local Leak Rate Test (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  $0.6 L_a$  (i.e., 0.3 % wt/day) which, when compared to the Type A test acceptance criterion of  $0.75 L_a$  (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 2 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. To support this conclusion, a review of the PBAPS, Unit 2 CILRT history was performed. This review identified that the only failure mechanism that has been detected during the past CILRTs is an activity based component failure, and that there is no indication of any time-based degradation that would not be identified during performance of Type B and Type C tests.

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 La for PBAPS, Unit 2, 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 third 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 La 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 activity-based failure mechanisms has determined that the potential from degradation due to activity based mechanisms is minimal.

Regarding the potential for primary containment degradation due to a time-based mechanism, we have concluded that the PBAPS Local Leak Rate Test (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.

Finally, a review of the results of previous PBAPS, Unit 2 CILRT results concluded that the only failure mechanism which has been detected during the past CILRTs is activity-based and that there is no indication of time-based failures that would not be identified during the performance of Type B and Type C tests. Therefore, we have concluded that the proposed extended test interval would not result in a non-detectable PBAPS, Unit 2 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 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 2 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 2, 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.