



PECO NUCLEAR

A UNIT OF PECO ENERGY

PECO Energy Company
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965 Chesterbrook Boulevard
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June 28, 1996

Docket Nos. 50-352
50-353

License Nos. NPF-39
NPF-85

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

Subject: Limerick Generating Station, Units 1 and 2
Technical Specifications Change Request No. 95-14-0
Adoption of Performance Based, 10 CFR 50, Appendix J,
Option B Testing

Gentlemen:

PECO Energy Company (PECO Energy) is submitting Technical Specifications (TS) Change Request No. 95-14-0, in accordance with 10 CFR 50.90, requesting a change to TS (i.e., Appendix A) of Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2.

The purpose of this letter is to notify the NRC of PECO Energy's desire to perform containment leakage-rate testing in accordance with 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing For Water-Cooled Power Reactors," Option B. In addition, PECO Energy proposes TS changes to implement the requirements of Option B, performance based testing.

Under a separate cover letter, PECO Energy will also request revisions to a currently approved relief request from the requirements of Section XI of the American Society of Mechanical Engineers (ASME) code, in order to fully implement 10 CFR 50, Appendix J, Option B.

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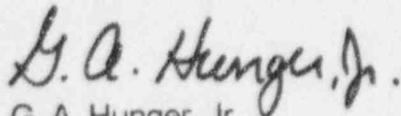
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Page 2

Information supporting the TS Change Request is contained in Attachment 1 to this letter, and copies of the marked-up TS pages for the LGS, Units 1 and 2, TS are contained in Attachment 2. The TS change information is being submitted under affirmation, and the required affidavit is enclosed.

We request that if approved, the TS Change be issued by January 1, 1997, and become effective within 30 days of issuance.

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

Very truly yours,



G. A. Hunger, Jr.
Director-Licensing

Enclosure, Attachments

cc: T. T. Martin, Administrator, Region I, USNRC (w/ enclosure, attachments)
N. S. Perry, USNRC Senior Resident Inspector, LGS (w/ encl, attachments)
R. R. Janati, PA Bureau of Radiation Protection (w/ enclosure, attachments)

COMMONWEALTH OF PENNSYLVANIA

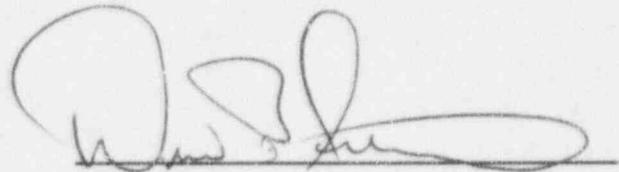
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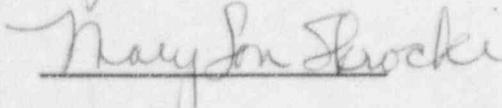
D. B. Fetters, being first duly sworn, deposes and says: That he is Vice President of PECO Energy Company the Applicant herein; that he has read the enclosed Technical Specifications Change Request No. 95-14-0 "Adoption of Performance Based, 10 CFR 50, Appendix J, Option B Testing," for Limerick Generating Station, Unit 1 and Unit 2, Facility Operating License Nos. NPF-39 and NPF-85, 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.



Subscribed and sworn to

before me this 28th day

of June 1996.



Notary Public

Notarial Seal
Mary Lou Skrocki, Notary Public
Tredyffrin Twp., Chester County
My Commission Expires May 17, 1999

ATTACHMENT 1

LIMERICK GENERATING STATION

UNITS 1 AND 2

Docket Nos.

50-352

50-353

License Nos.

NPF-39

NPF-85

"Adoption of Performance Based, 10 CFR 50, Appendix J, Option B Testing"

Information Supporting Changes - 7 pages

DISCUSSION AND DESCRIPTION OF THE PROPOSED CHANGES

PECO Energy Company (PECO Energy) is requesting Technical Specifications (TS) changes which will incorporate performance based testing, in accordance with 10 CFR 50, Appendix J "Primary Reactor Containment Leakage Testing For Water-Cooled Power Reactors," Option B. This option allows utilities to extend the frequencies of the Type A Containment Leak Rate Test (ILRT), and Type B and C Local Leak Rate Tests (LLRTs) based on the performance and design of the containment and components.

The proposed TS changes were modeled from the TS detailed in NUREG-1433 "Standard Technical Specifications, General Electric Plants, BWR/4" and reviewed by the NRC by letter to the Nuclear Energy Institute (NEI) dated November 2, 1995.

Specifically, the test frequencies and testing details will be removed from the TS and reference will be made to the LGS Primary Containment Leakage Rate Testing Program (PCLRTP). The testing frequencies will be established through the PCLRTP for each component based on design and previous performance history. The LGS program is in accordance with Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak Test Program" dated September, 1995 and NEI guideline document NEI 94-01, Revision 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50, Appendix J."

In addition, specific paragraph references to 10 CFR 50, Appendix J, will be deleted from the Facility Operating License (FOL), paragraph 2.D, which addressed previous approved exemptions to 10 CFR 50, Appendix J.

TS SAFETY ASSESSMENT

The NRC approved for use a performance-based option for containment leak testing when it amended 10 CFR 50, Appendix J (60 FR 49495). In order to adopt the revised regulations, licensees are required to incorporate into their TS, by general reference, the NRC regulatory guide or other plant-specific implementing document used to develop the performance-based leakage testing program. A new Administrative Control subsection (i.e. 6.8.4.g) is proposed to be added to the LGS TS which will establish and maintain a LGS Primary Containment Leakage Rate Testing Program (PCLRTP). The LGS PCLRTP will be in accordance with NRC RG 1.163, and will be based on the criteria contained in NEI document 94-01, Revision 0.

NUREG-1493, "Performance-based Containment Leak Test Program," provides the technical basis for the LGS adoption of 10 CFR 50, Appendix J, Option B. This NUREG concluded that reducing the frequency of Appendix J, Type A tests (ILRTs) from the current three per 10 years to one per 10 years was found to lead to an imperceptible increase in risk. NUREG-1493 includes the results of a sensitivity study performed to explore the risk impact of several alternative leak rate test schedules.

The estimated increase in population exposure risk ranged from 0.02% to 0.14%. The risk impact was determined to be very small since Type B and C testing (LLRTs) can detect a very large percentage of overall containment leakages. The percentage of leakages detected by the ILRT is very small. Past test results experienced at Limerick Units 1 and 2 concur with these determinations. The NUREG also concluded that the overall unit risk is not very sensitive to changes in containment leakage rates. Given the insensitivity of risk to containment leak rates and the small fraction of leak paths detected solely by ILRT, increasing the interval between ILRTs is possible with minimal impact on public risk.

A risk impact assessment performed by EPRI, as defined in their report EPRI TR-104285 "Risk Impact Assessment of Revised Containment Leak Rate Testing Intervals," dated August 1994, states that an increase from 3 years to 10 years for performance of an ILRT results in a risk impact change of 0.029% for BWR's (less than 1 person-rem). LLRT analysis results also reflect a very small impact to risk; 0.0003-0.0005% for Type B, and 0.002-0.006% for Type C at 60 month intervals.

LLRTs identify the vast majority (97%) of all potential leakage paths. A review of Type B testing of electrical penetrations and 'O' rings at LGS Units 1 & 2 indicates that leakages through these paths are both infrequent and small. The vast majority of leakage paths are identified by LLRTs of containment isolation valves (Type C tests). NUREG-1493 concluded that, based on component failure verses time, the performance-based alternatives to current, local-leakage testing requirements are feasible without significant risk impacts. LGS design and performance is bounded by this study. In addition, this study permits the extension of 25% of test interval for scheduling purposes as allowed by the new 10 CFR 50, Appendix J, Option B. The model indicated that the number of components tested could be reduced by about 60% with less than a three-fold increase in the incremental risk due to containment leakage. Since under existing requirements, leakage contributes less than 0.1 percent of overall accident risk, the overall impact is very small.

A LGS LLRT tracking and trending database has been developed to record performances of Type B and C components. Determination of test intervals will be based on performance results.

The current LGS TS identifies exemptions to 10 CFR 50, Appendix J, which will be addressed as follows:

TS Limiting Conditions for Operation (LCO) 3.6.1.2.b identifies an exemption for separating the Main Steam Isolation Valves (MSIV) leakage rate from the combined leakage rate for all penetrations and all valves listed in TS Table 3.6.3-1, and for testing the MSIVs at a lower test pressure (i.e., 22 psig). This exemption will be retained in the LGS Unit 1 and Unit 2 License.

TS Surveillance Requirement (SR) 4.6.1.3.a.2 identifies an exemption that allows a 10 psig leak test on containment air lock seals prior to establishing Primary Containment Integrity when the airlock has been used and no maintenance has been performed on the air lock. This alternate test reference is no longer required since NRC RG 1.163 references NEI Guideline 94-01 which allows airlock seals to be tested at a pressure stated in the plant TS (i.e., 10 psig will be specified in TS Section 6.8.4.g). However, the exemption will be retained in the LGS Unit 1 and Unit 2 License in order to document the lower pressure.

TS SR 4.6.3.5 identifies a Traversing Incore Probe (TIP) System explosive (shear) isolation valve surveillance test that ensures that the valve will perform its intended function and exempts it from Type C testing requirements. This SR and exemption will be retained in TS, and in the LGS Unit 1 and Unit 2 Licenses.

10 CFR 50 Appendix J, Option B, paragraph V.B.1 allows specific exemptions to Option A of the Appendix that were formally approved by NRC per 10 CFR 50.12, to be still applicable to Option B of the Appendix, if necessary. Therefore, paragraph 2.D of the LGS Units 1 and 2 Facility Operating Licenses (FOL) will be revised to delete the specific Appendix J, paragraphs (i.e., Option A) identified, while still retaining documentation of the original Appendix J exemptions.

TS SR 4.6.1.2 identifies the use of BN-TOP-1 "Testing Criteria for Integrated Leak Rate Testing of Primary Containment Structures for Nuclear Power Plants: Bechtel Corporation Topical Report" as the methodology for performing ILRTs. NRC RG 1.163 references ANSI/ANS 56.8-1994 "Containment System Leakage Testing Requirements," for technical methods and techniques for performing ILRTs. BN-TOP-1 is not addressed in the NEI guideline or the ANSI standard. The ANSI/ANS method is the industry accepted method and provides the necessary details for conducting the test. Therefore, the LGS commitment to use BN-TOP-1 will be eliminated and will be deleted from the TS. LGS will commit to the guidance provided in ANSI/ANS 56.8-1994 as referenced in RG 1.163.

The PCLRTP will be identified as a program in TS Section 6.8.4.g, and will define the acceptance criteria, test frequencies and other pertinent details.

INFORMATION SUPPORTING A FINDING OF NO SIGNIFICANT HAZARDS CONSIDERATION

We have concluded that the proposed changes to the Limerick Generating Station (LGS) Unit 1 and Unit 2 TS which will incorporate the performance-based 10 CFR 50, Appendix J, Option B Testing, do 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 TS changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

Incorporation of the new 10 CFR 50, Appendix J, Option B at LGS, Units 1 and 2 does not increase the probability of occurrence of an accident previously evaluated. The containment structure including its isolation capability is not an accident initiator.

These changes do not involve any changes to the containment structure, system or components which could increase the probability of occurrence of an accident previously evaluated or act as a new accident initiator. Implementation of the proposed changes will affect the manner in which these structures, systems, or components (SSCs) are tested; however, the new testing schedule is not an initiator of any analyzed event. No equipment changes are involved with adoption of Option B; therefore, performance-based test intervals for Type A, B, and C tests do not increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated. No physical changes are being made to the plant, nor are there any changes being made in the operation of the plant as the result of increasing the test intervals. Additionally, the proposed TS changes will not alter the operation of equipment available for the mitigation of accidents or transients, therefore, this change will not result in any significant increase to onsite or offsite dose previously evaluated. The potential for time-based and activity-based failure mechanisms which could lead to excessive containment leakage has been determined to be minimal. Performance-based test intervals for Type A, B, and C tests will not alter any safety limits which ensure the integrity of fuel barriers, and will not increase the primary containment leakage limits.

Performance-based test intervals for Type A, B, and C leak tests do not increase the consequences of an accident previously evaluated. NUREG-1493 concluded that reducing the frequency of Type A tests from the current three per ten years to one per ten years was found to lead to an imperceptible increase in risk. NUREG-1493 includes the results of a sensitivity study performed to explore the risk impact of several alternative leak rate test schedules. The estimated increase in population exposure risk ranged from

0.02% to 0.14%. The risk impact was determined to be very small since Type B and C testing (local leak rate tests) detect a very large percentage of overall containment leakages. The percentage of leakages detected by Type A tests is very small. Past test results experienced at Limerick Units 1 and 2 concur with these determinations. NUREG-1493 also concluded that the overall unit risk is not very sensitive to changes in containment leakage rates. Given the insensitivity of risk to containment leak rates and the small fraction of leak paths detected solely by the Type A tests, increasing the interval between Type A tests is possible with minimal impact on public risk.

NUREG-1493 also concluded that, based on a model of component failure with time, the performance-based alternatives to current, local-leakage testing requirements are feasible without significant risk impact. The LGS design and past performance is bounded by the NUREG study. The NUREG model indicated that the number of components tested could be reduced by about 60% with less than a three-fold increase in the incremental risk due to containment leakage. Since under existing requirements, leakage contributes less than 0.1 percent of overall accident risk, the overall impact is very small.

Therefore, the proposed TS changes will not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Performance-based test intervals for Type A, B, and C leak tests do not introduce a new or different type of accident or create the possibility of a different type of malfunction of equipment important to safety than previously evaluated. No physical changes are being made to the plant, nor are there any changes being made in the operation of the plant as the result of increasing the test intervals. No new failure modes of plant equipment previously evaluated will be introduced. Additionally, the TS changes will not alter the operation of equipment available for the mitigation of accidents or transients. The safety function of the primary containment will be retained since the containment will continue to provide an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment for postulated accidents previously evaluated.

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

3. The proposed TS changes do not involve a significant reduction in a margin of safety.

The margin of safety is not reduced as a result of adopting 10 CFR 50, Appendix J, Option B. The effect of increasing containment leakage rate testing intervals was evaluated in NUREG-1493 using historical industry leakage rate testing results. Performance history at LGS is consistent with the conclusions reached in NUREG-1493 and NEI 94-01. The results of the NUREG evaluation conclude that the increased safety risk corresponding to the extended test intervals is small (less than 0.1% of total risk). The revised TS will continue to maintain the allowable leakage rate for the Type A tests. In addition, the requirement to perform a periodic general visual inspection of the primary containment has been maintained at the original interval of three times in 10 years as part of the performance-based leakage rate testing program.

The risk of a non-detectable increase of primary containment leakage is considered to be negligible due to the conclusion that 10 CFR 50, Appendix J, Type B and C testing program will continue to be conducted between Type A tests. A review of previous LGS Type A test results has concluded that the only failure mechanisms are activity-based. There is no indication of time-based failures that would not be identified during the performance of Type B and C tests. Therefore, we have concluded that the proposed adoption of the Option B intervals would not result in a non-detectable primary containment leakage rate in excess of the allowable value (i.e., 0.5% wt/day) established by the LGS TS.

The proposed TS will continue to maintain the allowable leakage rate for the combined Type B and C tests. As supported by the findings of NUREG-1493, the percentage of leakages detected by Type A tests is small (as stated above) and Type B and C leakage tests are capable of detecting more than 97% of containment leakages and virtually all such leakages are identified by local leak rate tests of containment isolation valves. The Type B and C test intervals will be established through the PCLRTP for each component based on design and previous LGS test performance history.

Therefore, the proposed TS changes do not involve a reduction in a margin of safety.

INFORMATION SUPPORTING AN ENVIRONMENTAL ASSESSMENT

An Environmental Assessment is not required for the TS changes proposed by this request because the requested changes to the LGS, Units 1 and 2, TS conform to the criteria for "actions eligible for categorical exclusion," as specified in 10 CFR 51.22(c)(9). The requested TS changes will have no impact on the environment. The proposed TS changes do not involve a Significant Hazards Consideration as discussed in the preceding section. The proposed changes do not involve a significant change in the types or significant increase in the amounts of any effluent that may be released offsite. In addition, the proposed TS changes do 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 these proposed changes to the LGS Units 1 and 2 TS, and have concluded that the changes do not involve an unreviewed safety question, and will not endanger the health and safety of the public.