



PECO ENERGY

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

December 22, 1995

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. 95-18-0
Increase Purge System Operational Time Limits

Gentlemen:

PECO Energy Company (PECO) is submitting Technical Specifications (TS) Change Request No. 95-18-0, 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 proposed changes will revise LGS TS 3.6.1.8 "Drywell and Suppression Chamber Purge System," increasing the Drywell and Suppression Chamber Purge System operating time limit from 90 hours each 365 days to 180 hours each 365 days.

A similar TS amendment was approved by the NRC on October 16, 1995 for Public Service Electric and Gas Company's Hope Creek Generating Station which increased the purge operating limit from 120 hours to 500 hours per 365 days.

Information supporting this TS Change Request is contained in Attachment 1 to this letter. The proposed changes to the LGS, Units 1 and 2, TS pages 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 June 21, 1996, 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.

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/enclosure, attachments)
R. R. Janati, PA Bureau of Radiation Protection (w/enclosure, attachments)

9512290040 951222
PDR ADOCK 05000352
P PDR

290000

ADD1

COMMONWEALTH OF PENNSYLVANIA :

: ss.

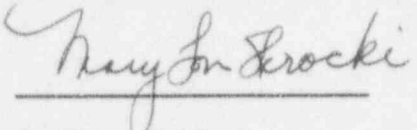
COUNTY OF CHESTER :

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. 95-18-0 "Increase Purge System Operational Time Limits," 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.



Vice President

Subscribed and sworn to
before me this 22ND day
of December 1995.



Notary Public

Notarial Seal
Mary Lou Skrocki, Notary Public
Tredyfirin Twp., Chester County
My Commission Expires May 17, 1998

ATTACHMENT 1

LIMERICK GENERATING STATION

UNITS 1 AND 2

Docket Nos.
50-352
50-353

License Nos.
NPF-39
NPF-85

"Increase Purge System Operational Time Limits"

Information Supporting Changes - 4 pages

DISCUSSION AND DESCRIPTION OF THE PROPOSED CHANGES

PECO Energy Company (PECO Energy) is requesting Technical Specifications (TS) changes which will revise LGS TS 3.6.1.8 "Drywell and Suppression Chamber Purge System," increasing the Drywell and Suppression Chamber Purge System operating time limit from 90 hours each 365 days to 180 hours each 365 days.

The Limerick Generating Station (LGS) TS and Updated Final Safety Analysis Report (UFSAR) commitments currently limit the operating time of the Drywell and Suppression Chamber Purge System to 90 hours each 365 days during Operational Conditions 1, 2, and 3. This operating restriction was placed on the use of the vent and purge valves since in the Limerick design several exceptions were taken to the Standard Review Plan 6.2.4 "Containment Isolation System" and Branch Technical Position CSB 6-4 "Containment Purging During Normal Plant Operations." The intent of the restriction is to reduce the probability of, and minimize the consequences of, equipment damage resulting from a Loss Of Coolant Accident (LOCA) during the time that the large purge and vent valves are open.

This evaluation assesses revising the Drywell and Suppression Chamber Purge System operating limit from 90 hours each 365 days to 180 hours each 365 days. During the 1995 operational year the LGS units experienced planned and unplanned outages which required the use of the Drywell and Suppression Chamber Purge Systems. As an example, the Unit 1 purge system was operated a total of 85.1 hours. The added 90 hours will provide additional operational flexibility and obviate the need for a future request for enforcement discretion if similar circumstances were to occur and the current limit was reached.

SAFETY ASSESSMENT

Technical Specification 3.6.1.8 for the Drywell and Suppression Chamber Purge System limits the operation of this system to 90 hours each 365 days for Operational Conditions 1, 2, and 3. This limit is proposed to be changed from 90 hours to 180 hours each 365 days. The Bases for this Technical Specification states that this limit is imposed to protect the integrity of the Standby Gas Treatment System (SGTS) filters. Analysis indicates that should a LOCA occur while this pathway is being utilized, the design pressure of the duct-work and the design differential pressure of the SGTS filters may be exceeded. Imposing the 90 hour operational limit reduces the likelihood that a LOCA will occur during the time that the vent and purge valves are open. Although this operation limit has been imposed, an analysis (UFSAR Section 9.4.5.1.2.2) was performed to determine the consequences of a LOCA during high volume purging operations. This analysis concluded that failure of the operating SGTS filter bank is of little significance due to the limited benefit derived from SGTS for accident sequences important to plant risk and that the backup filter bank would be operable. It is noted that the Offsite Dose Calculation Manual (ODCM) paragraph 3.3.6 requires that both SGTS trains be operable prior to purging through the SGTS. When the purge system is in use during Operational Conditions 1, 2 and 3 only one SGTS train shall be used to prevent damage to both trains should a LOCA occur. System operating procedures for venting and purging require that the backup SGTS filter train be isolated (reference system procedures S57.1.A "Inerting Primary Containment", S57.5.A "De-inerting and Purging Primary Containment", and S57.5.B "De-inerting and Purging the Drywell Only"), thus assuring the availability of SGTS should a LOCA occur as postulated in the above scenario. Even if failure of the backup SGTS train occurs (postulated single active failure), the analysis also showed that total failure of SGTS during a LOCA would not result in significant releases.

The operational limit was required since in the Limerick design several exceptions to Standard Review Plan 6.2.4 and Branch Technical Position (BTP) CSB 6-4 were taken. The high volume purge exceptions are discussed in paragraph 6.2.4.3 of the LGS Safety Evaluation Report (SER), NUREG 0991, and are as follows:

- 1) The use of the high volume purge lines, which are larger than the 8-inch line size specified in BTP CSB 6-4, during startup, power operation, and hot shutdown (i.e., larger lines create the potential for larger releases).
- 2) Contrary to BTP CSB 6-4, Position B.5.b, if a LOCA occurs while the purge system containment isolation valves are open, it is possible that safety-related duct-work and/or the Standby Gas Treatment System filters could be damaged by the pressure surge preceding valve closure and/or the moisture content of the released gases. Duct failure could result in additional equipment failures in the reactor enclosure due to duct impact, impingement, and/or the resulting environmental conditions.

The consequences of a LOCA occurring while the high volume purge system containment isolation valves are open have been evaluated and previously found to be acceptable by the NRC based on the following. The radiological consequences have been evaluated as a means of justifying the line sizes. Using assumptions in BTP CSB 6-4, the resulting dose was determined to be well below 10CFR100 guideline values (reference UFSAR Section 9.4.5.1.2.2 and SER Section 6.2.4.3). Additional analysis also concluded that failure of the SGTS is of little significance because of the limited benefit derived from the SGTS for beyond design basis severe accident sequences related to plant risk. It was further determined that the environmental qualification of equipment is sufficient to ensure operability under the predicted environmental conditions if duct-work does rupture, and, the potential does not exist for impact or impingement-related damage to essential equipment from duct ruptures.

UFSAR Section 9.4.5.1.2.2 contains the operating time limits for high volume purging. The UFSAR also contains the evaluated consequences of a LOCA should the vent and purge valves be open. The conclusions of the analysis are as follows:

1. The containment isolation valves would close rapidly (less than 6 seconds after receipt of an isolation signal) and would terminate the release. Isolation will be complete long before any fuel damage or significant offsite exposure would occur.
2. Failure of the operating SGTS filter bank as a result of over-pressurization or moisture is of little significance since failure of SGTS during a LOCA does not contribute to any significant releases. Additionally, the backup filter bank would be operational.

Based on the above analysis and the subject operational limit, the NRC concluded in the SER that the impact on plant risks resulting from a LOCA while purging and the potential for failure of the SGTS contribute little to the likelihood of an uncontrolled radioactive release. Increasing the operational limit for the Drywell and Suppression Chamber Purge system from 90 hours to 180 hours each 365 days increases the risk to containment integrity following a design basis accident; however, this increase in risk was evaluated under a Level 2 Probabilistic Safety Assessment (PSA) analysis and has been determined to be acceptable since it is well within the bounds of the EPRI PSA Applications Guideline for permanent changes. Although these changes involve an acceptable increase in risk, they will not alter or impact the previous LOCA analyses.

This activity does not affect the ability of the Drywell and Suppression Chamber Purge isolation valves to function in response to a LOCA but does increase the probability that these valves will be open during the initiation of a LOCA. The probability that one of the two SGTS filter trains will be damaged as a consequence of high volume purging will increase as a result; therefore, the following information supporting a Finding of No Significant Hazards Consideration was prepared.

Information Supporting a Finding of No Significant Hazards Consideration

We have concluded that the proposed changes to the Limerick Generating Station, Unit 1 and Unit 2, Technical Specifications, which will revise the drywell and suppression chamber purge system operating limit from 90 hours each 365 days to 180 hours each 365 days, 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 Technical Specifications changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

These TS changes do not increase the probability of occurrence of an accident previously evaluated in the SAR. This activity involves changing the allowable operating limit for the Drywell and Suppression Chamber Purge System from 90 hours each 365 days to 180 hours each 365 days. This change increases the probability that this system will be in service should a LOCA occur, but does not increase the probability that a LOCA will occur.

Increasing the operating limit for the Drywell and Suppression Chamber Purge System from 90 hours to 180 hours each 365 days does not increase the consequences of a LOCA as previously evaluated in the SAR. These proposed TS changes increase the probability of a LOCA occurring during the time the Drywell and Suppression Chamber Purge System is in operation, and therefore, increase the probability of the failure of the operating SGTS filter bank. However, the risk to containment integrity was previously evaluated and found to be acceptable (UFSAR Section 9.4.5.1.2.2 and WASH - 1400 "Reactor Safety Study").

Increasing the duration that the vent/purge line isolation valves may be open does not increase the probability that these valves will not perform as designed (i.e., close upon receipt of an isolation signal) in response to a LOCA. However, the changes will increase the likelihood that the vent and purge valves will be called on to close. As discussed in UFSAR Section 6.2.4.2, the containment purge valves have undergone extensive testing and analyses to demonstrate the operability of these valves following a LOCA.

In addition to the existing Safety Analysis Report (SAR) evaluations, a Level 2 PSA Analysis (containment failure) was performed to determine the additional risk associated with changing the operating limit from 90 to 180 hours each 365 days. The PSA evaluation conservatively assumed a 200 hour vent/purge duration per a 365 day period. The figure of merit evaluated is the large early release frequency (LERF) which represents the likelihood of containment failure following core damage that could significantly affect the public (e.g., release of a large amount of radioactive material early enough in the accident that evacuation of the public has not occurred). The 200 hour vent/purge duration increased the LERF approximately 3% from the base value of 2.57E-8 for all PSA initiators. This analysis concluded that the increase in risk of containment failure is well within the bounds of the EPRI PSA Applications Guideline for permanent changes. The same relative increase applies to the large Design Basis Accident LOCA LERF.

These changes do not directly or indirectly degrade the performance of any other safety systems (assumed to function in the accident analysis) below their design basis. The potential for other equipment failures in the reactor enclosure due to duct-work impact, impingement, and the resulting environmental conditions was evaluated. It was concluded that the environmental qualifications for the LGS equipment are sufficient to ensure operability under the predicted environmental conditions, and there is no impact or impingement - related damage to essential equipment. Although the probability of occurrence of a malfunction of equipment important to safety is increased, the existing SAR analysis and Level 2 PSA Analysis demonstrate the increased risk and radiological consequences are not significant.

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

This activity does not change the function of the Drywell and Suppression Chamber Purge System, the containment isolation system, or SGTS as previously evaluated in the SAR. Changing the duration of operation of the vent and purge system does not create an accident initiator not considered in the SAR. Therefore, the possibility of an accident of a different type is not created.

This activity does not create a failure mode not considered in the SAR. All possible equipment failures that could occur as a result of a LOCA during high volume purging have previously been identified and evaluated in the SAR. Therefore, this activity does not create the possibility of a different type of malfunction of equipment important to safety.

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

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

The Bases of Technical Specification 3.6.1.8 states that the intent of the 90 hour per 365 day operating limit for the Drywell and Suppression Chamber Purge System is to protect the integrity of the SGTS filters. As discussed above, the requirements specified in ODCM paragraph 3.3.6 assure the availability of the backup SGTS filter train during operation of the vent and purge system. Furthermore, as discussed above, revising the operating limit from 90 hours to 180 hours each 365 days does not involve a significant increase in risk. The margin of safety as defined in the Bases of Technical Specification 3.6.1.8 is maintained.

Therefore, the implementation of the proposed TS changes will not involve a significant reduction in a margin of safety.

Information Supporting an Environmental Assessment

An Environmental Assessment is not required for the Technical Specifications changes proposed by this Change Request because the requested changes to the Limerick Generating Station, Unit 1 and Unit 2, TS conform to the criteria for "actions eligible for categorical exclusion," as specified in 10CFR51.22(c)(9). The requested changes will have no impact on the environment. The proposed TS changes do not involve a Significant Hazards Consideration as discussed in the preceding safety assessment 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 Limerick Generating Station, Unit 1 and Unit 2, Technical Specifications, and have concluded that they do involve an unreviewed safety question; however, they do not involve a significant hazards consideration, and will not endanger the health and safety of the public.