

PHILADELPHIA ELECTRIC COMPANY

NUCLEAR GROUP HEADQUARTERS

955-65 CHESTERBROOK BLVD.

WAYNE, PA 19087-5691

(215) 640-6000

January 31, 1991

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

Gentlemen:

Philadelphia Electric Company is submitting Technical Specifications (TS) Change Request No. 90-17-0, in accordance with 10 CFR 50.90, requesting amendments to the TS (Appendix A) of Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2, respectively. This submittal requests that the frequency for performing Source Range Monitor (SRM) channel functional tests be reduced by eliminating TS Surveillance Requirement (SR) 4.9.2.b.1, requiring channel functional tests within twenty four (24) hours prior to the start of core alterations, while retaining the existing SR to perform the same test at least once per seven (7) days. Information supporting this Change Request is contained in Attachment 1 to this letter, and the proposed replacement pages for the LGS, Units 1 and 2, TS are contained in Attachment 2.

We request that, if approved, the NRC issue the Amendments to the LGS, Units 1 and 2, TS in time for use during the upcoming Unit 2 refueling outage currently scheduled to begin on March 23, 1991. Therefore, we request that the approved Amendments be effective upon issuance.

9102120010 910131  
PDR ADUCK 05000352  
P PDR

*Ad  
11*

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

Very truly yours,



G. J. Beck  
Manager  
Licensing Section  
Nuclear Engineering and Services

Attachments

cc: T. T. Martin, Administrator, Region I, USNRC (w/ attachments)  
T. J. Kenny, USNRC Senior Resident Inspector, LGS  
(w/ attachments)  
T. M. Gerusky, Director, PA Bureau of Radiological Protection  
(w/ attachments)

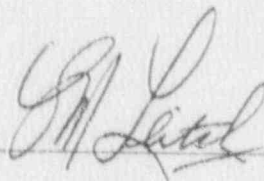
COMMONWEALTH OF PENNSYLVANIA :

: SS.

COUNTY OF CHESTER :

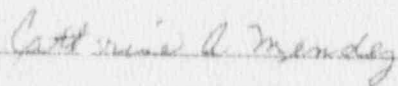
G. M. Leitch, being first duly sworn, deposes and says:

That he is Vice President of Philadelphia Electric Company; the Applicant herein; that he has read the foregoing Application for Amendment of Facility Operating License Nos. NPF-39 and NPF-85 (Technical Specification Change Request No. 90-17-0) to reduce the frequency of performing Source Range Monitor (SRM) channel functional tests during refueling operations, and know that 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.

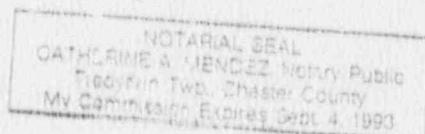


Vice President

Subscribed and sworn to  
before me this 31<sup>st</sup> day  
of *January* 1991.



Notary Public



ATTACHMENT 1

LIMERICK GENERATING STATION  
Units 1 and 2

Docket Nos. 50-352  
50-353

License Nos. NPF-39  
NPF-85

TECHNICAL SPECIFICATIONS CHANGE REQUEST

No. 90-17-0

"Deletion of Source Range Monitor (SRM) Channel  
Functional Test Surveillance Requirement"

Supporting Information for Changes - 6 pages

Philadelphia Electric Company (PECo), Licensee under Facility Operating License Nos. NPF-39 and NPF-85 for Linerick Generating Station (LGS), Units 1 and 2 respectively, requests that the Technical Specifications (TS) contained in Appendix A of the Operating Licenses NPF-39 and NPF-85 be amended as proposed herein to reduce the frequency of performing Source Range Monitor (SRM) channel functional tests during refueling operations. Specifically, this Change Request proposes to reduce the frequency of performing SRM channel functional tests during refueling operations by eliminating the TS Surveillance Requirement (SR) 4.9.2.b.1, requiring the performance of a channel functional test within twenty four (24) hours prior to the start of core alterations, while retaining the SR to perform the same test at least once per seven days. This proposed change will allow for a reduction in refueling outage critical path time and better utilization of skilled manpower during refueling operations. The proposed change to the LGS, Units 1 and 2, TS is indicated by a vertical bar in the margin of TS page 3/4 9-4. The proposed TS change pages are contained in Attachment 2.

This Change Request for LGS, Units 1 and 2, provides a discussion and description of the proposed TS change, a safety assessment of the proposed TS change, information supporting a finding of No Significant Hazards, and information supporting an Environmental Assessment.

We are requesting that, if approved, the NRC issue the Amendments to the LGS, Units 1 and 2, TS in time for use during the upcoming Unit 2 refueling outage currently scheduled to begin on March 23, 1991. Therefore, we request that the approved Amendments be effective upon issuance.

#### Discussion and Description of the Proposed Change

The SRM is a subsystem of the Neutron Monitoring System used to 1) monitor neutron flux levels in the core at very low power levels during controlled plant start-ups and shutdowns, and 2) provide signals to block control rod withdrawal if certain preestablished conditions are not met. During refueling operations the SRMs monitor neutron flux levels in the core to verify that the reactor is not approaching criticality. The SRM subsystem provides no safety-related function and is not assumed to operate during any design basis accident or transient. However, if core shutdown margin has not been demonstrated, the SRMs do provide the compensatory protection of a reactor SCRAM during the time a control rod is being withdrawn since TS Limiting Conditions for Operation require that the SRM logic shorting links be removed from the Reactor Protection System circuitry which would, if necessary, result in a non-coincident reactor SCRAM signal.

The current TS SR for performing SRM channel functional testing in Operational Condition 5 (Refueling) requires that SRMs undergo channel functional testing within twenty-four (24) hours prior to the start of core alterations, and at least once every seven (7) days. This proposed TS change requests that TS SR 4.9.2.b.1 (i.e., requiring SRM channel functional test within twenty four (24) hours prior to the start of core alterations) be eliminated. TS SR 4.9.2.b.2 (i.e., requiring functional testing once every seven (7) days) will, however, be retained. Eliminating SR 4.9.2.b.1 will allow for a reduction in outage critical path time and better utilization of manpower during refueling operations.

### Safety Assessment

The SRMs do not provide any safety-related function and are not assumed to operate during any design basis accident or transient. Additionally, there are no specific regulatory requirements concerning SRMs. The SRMs are designed to monitor neutron flux levels in the core at very low power levels during controlled plant start-ups and shutdowns, and to block control rod withdrawal if certain preestablished conditions are not met. During refueling activities, SRMs monitor neutron flux levels in the core to verify that the reactor is not approaching criticality. However, if core shutdown margin has not been demonstrated, the SRMs do provide the compensatory protection of a reactor SCRAM during the time a control rod is being withdrawn since the SRM logic shorting links are required to be removed which would, if necessary, result in a non-coincident reactor SCRAM signal.

This proposed TS change for LGS, Units 1 and 2, involves reducing the frequency of performing SRM channel functional tests during refueling activities by eliminating TS SR 4.9.2.b.1 (i.e., requiring SRM functional testing within twenty-four (24) hours prior to the start of core alterations) while retaining TS SR 4.9.2.b.2 (i.e., requiring functional testing once every seven (7) days).

In accordance with the guidance provided by ANSI/IEEE Standard 352-1987, "IEEE Guide for General Principles of Reliability Analysis of Nuclear Power Generating Station Safety Systems," an historical assessment was performed on past SRM channel functional test data. This assessment provided an indicator concerning the unavailability of the SRM subsystem for LGS, Units 1 and 2. The data obtained from this assessment were then compared to existing industry data collected for Boiling Water Reactors (BWRs) during the period 1975 through 1985. This industry data is documented in NEDO-31558, March 1988, "Position on NRC Regulatory Guide 1.97, Revision 3, Requirements for Post-Accident Neutron Monitoring System." The results of this data analysis for LGS, Units 1 and 2, are described below.

#### Unit 1

The SRM channel functional test data were collected for the period of October 15, 1984 through July 2, 1990. During this period, 438 SRM channel functional tests were performed on the SRMs. A review of the data for the 438 tests indicated that the required limits for the upscale and downscale trips were never exceeded as a result of mechanical failure and no system functional failures occurred during this time period. However, three (3) surveillance test failures were identified during this period due to incorrect setpoints. These failures are not associated with any instrument malfunctions, and were corrected.

#### Unit 2

The SRM channel functional test data were collected for the period of June 5, 1989 through July 22, 1990. During this period, 102 SRM channel functional tests were performed on the SRMs. A review of the data for the 102 tests indicated no system functional failures for the period.

Based on the historical assessment of SRM channel functional test data, the SRMs for LGS, Units 1 and 2, were never declared inoperable due to system functional failures. The BWR industry data documented in NEDO-31558 for the period 1975 through 1985 also indicated that the SRMs in BWRs are highly reliable and not subject to frequent failures.

The LGS Updated Final Safety Analysis Report (UFSAR), Section 15.9.5.1, states that the appropriate surveillance interval is determined by consideration of the effect of system operability on plant safety and the effect of testing on plant safety. Since the historical assessment of SRM channel functional test data concluded that the systems were never inoperable due to functional failures and UFSAR Section 7.7.1.6 states that the SRMs are non-safety related, reducing the surveillance frequency for SRMs during refueling operations to once every seven (7) days will not effect plant safety. Reducing the surveillance frequency can also reduce unnecessary testing of the SRMs which may shorten the lifetime of components in the SRMs and reduce the possibility for improper restoration after testing. This proposed TS change will not involve any modifications to the SRMs or other plant equipment; therefore, there is no fire protection or radiological concerns associated with this proposed change.

Additionally, TS SR 4.9.2.c.2 requires that a count rate of at least 3.0 counts per second (cps) be verified on an SRM channel once every twelve (12) hours during core alterations; thereby, verifying SRM system operability. This proposed TS change to eliminate TS SR 4.9.2.b.1 (i.e., perform channel functional test within 24 hours prior to the start of core alterations), is consistent with the surveillance requirements specified in the proposed improved BWR TS currently under review by the NRC.

Information Supporting a Finding of No Significant Hazards Consideration

We have concluded that the proposed change to the LGS, Units 1 and 2 TS, which involves reducing the frequency of performing SRM channel functional testing, does not constitute 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 change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed TS change involves reducing the frequency of performing SRM channel functional tests during refueling operations by eliminating TS SR 4.9.2.b.1 (i.e., requiring a channel functional test within 24 hours prior to the start of core alterations) while retaining TS SR 4.9.2.b.2 (i.e., requiring a channel functional test at least once every seven (7) days).

The SRMs provide no safety-related function and are not assumed to operate during any design basis accident or transient. The SRMs were not designed as Class 1E and do not provide any automatic plant trips during power operation. The SRMs provide on-scale monitoring of neutron flux levels in the core during start-up and refueling operations, and can initiate control rod withdraw blocks if neutron flux level limits are exceeded. Prevention and mitigation of prompt reactivity excursions during refueling and low power operation is controlled by refueling interlocks, the Intermediate Range Monitor (IRM) neutron flux reactor SCRAM, the Average Power Range Monitor (APRM) neutron flux SCRAM, Control Rod Block instrumentation, and maintenance of the core shutdown margin. However, if shutdown margin has not been demonstrated, the SRMs do provide the compensatory protection of a reactor SCRAM during the time a control rod is being withdrawn since the SRM logic shorting links are required to be removed which would, if necessary, result in a non-coincident reactor SCRAM signal.



Additionally, an historical assessment of SRM channel functional test data concluded that the operability of the SRM system will not be affected by reducing the channel functional test surveillance frequency. Monitoring the the count rate of an SRM channel once every twelve (12) hours as required by TS SR 4.9.2.c.2 verifies system operability. Reducing the SRM surveillance frequency during refueling operations will not inhibit the response of any systems described in the UFSAR designed to mitigate the consequences of an accident.

Therefore, based on the evaluation described above, reducing the SRM surveillance frequency during refueling operations does not increase the probability or consequences of an accident previously evaluated.

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

The proposed TS change involves reducing the frequency of performing SRM channel functional tests during refueling operations. The SRMs provide no safety-related function and are not assumed to operate during any design basis accident or transient analysis. The SRMs provide on-scale monitoring of neutron flux levels in the core during start-up and refueling, and initiate control rod withdraw blocks if neutron flux level limits are exceeded. The SRMs are not designed as Class 1E and do not initiate any automatic plant trips during power operation. Prevention and mitigation of prompt reactivity excursions during refueling and low power operation is controlled by refueling interlocks, the IRM neutron flux reactor SCRAM, the APRM neutron flux reactor SCRAM, control rod block instrumentation, and maintenance of the core shutdown margin. However, if shutdown margin has not been demonstrated, the SRMs do provide compensatory protection of a reactor SCRAM during the time a control rod is being withdrawn since the SRM logic shorting links are required to be removed which would, if necessary, result in a non-coincident reactor SCRAM signal. Reducing the surveillance frequency will not inhibit the response of any system (e.g., IRMs, APRMs) designed to mitigate the consequences of an accident. Furthermore, this proposed TS change does not increase the potential for fuel failures, or release of reactor coolant or other radioactive material.

Therefore, based on the evaluation described above, reducing the SRM channel functional test surveillance frequency during refueling, by eliminating TS SR 4.9.2.b.1, does not involve any potential initiating event that would create the possibility of a new or different kind of accident from any accident previously evaluated.

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

The proposed TS change involves reducing the SRM channel functional test surveillance frequency. The SRMs provide no safety-related function and are not assumed to operate during any design basis accident or transient. Reducing the surveillance frequency will not prevent the SRM subsystem from functioning as designed to provide neutron flux level indication, control rod withdraw blocks, or a reactor SCRAM. An historical assessment of SRM channel functional test data concluded that the operability of the SRM system will not be affected by reducing the surveillance frequency. Monitoring the count rate recorded on an SRM channel once every twelve (12) hours during refueling as required by TS SP 4.9.2.c.2 verifies system operability.

Therefore, based on the evaluation described above, reducing the SRM channel functional test surveillance frequency does not involve a reduction in a margin of safety.

#### Information Supporting an Environmental Assessment

An environmental assessment is not required for the change proposed by this Change Request because the requested change to the LGS, Units 1 and 2, TS conforms to the criteria for "actions eligible for categorical exclusion" as specified in 10 CFR 51.22(c)(9). The requested change will have no impact on the environment. The proposed change does not involve a significant hazards consideration as discussed in the preceding section. The proposed change does not involve a significant change in the types or significant increase in the amounts of any effluents that may be released offsite. In addition, the proposed change does not involve an 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 LGS, Units 1 and 2, TS and have concluded that it does not involve an unreviewed safety question, or a significant hazards consideration, and will not endanger the health and safety of the public.