

## PHILADELPHIA ELECTRIC COMPANY

NUCLEAR GROUP HEADQUARTERS

955-65 CHESTERBROOK BLVD.

WAYNE, PA 19087-5691

(215) 640-6000

June 14, 1990

Docket Nos. 50-352

License Nos. NPF-39

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

SUBJECT: Limerick Generating Station, Unit 1  
 Technical Specifications Change Request No. 90-01-1

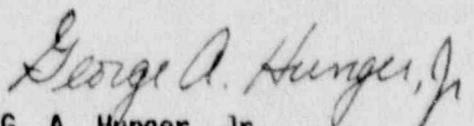
Dear Sir:

Philadelphia Electric Company (PECo) hereby submits Technical Specifications Change Request (TSCR) No. 90-01-1, in accordance with 10 CFR 50.90, requesting an amendment to the Technical Specifications (TS) (Appendix A) of Operating License No. NPF-39. Information supporting this Change Request is contained in Attachment 1 to this letter, and the proposed replacement pages are contained in Attachment 2.

This submittal requests changes to TS Section 3.6.3, "Primary Containment Isolation Valves," to replace the approximately thirteen hundred (1300) individual Hydraulic Control Unit (HCU) isolation boundaries with four newly installed isolation boundaries on the common Control Rod Drive (CRD) headers.

If you have any questions regarding this matter, please contact us.

Sincerely yours,



G. A. Hunger, Jr.  
 Manager  
 Licensing Section  
 Nuclear Engineering and Services

9006210541 900614  
 PDR ADDCK 05000352  
 P FDC

## Attachments

cc: T. T. Martin, Administrator, Region I, USNRC  
 T. J. Kenny, USNRC Senior Resident Inspector, LGS  
 T. M. Gerusky, Director, PA Bureau of Radiation Protection

*A001*  
*11*

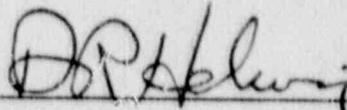
COMMONWEALTH OF PENNSYLVANIA :

: SS.

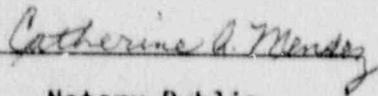
COUNTY OF CHESTER :

D. R. Helwig, 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 Licenses to incorporate the newly installed isolation valves on each common Control Rod Drive header and to eliminate the existing Hydraulic Control Unit isolation valves, and knows the contents thereof; and 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 *June* 1990.

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

NOTARIAL SEAL  
CATHERINE A. MENDEZ, Notary Public  
Tredyffrin Twp., Chester County  
My Commission Expires Sept. 4, 1993

ATTACHMENT 1

LIMERICK GENERATING STATION  
Unit 1

Docket No. 50-352

License No. NPF-39

TECHNICAL SPECIFICATIONS CHANGE REQUEST

No. 90-01-1

"Proposed Changes to the Technical Specifications to  
Replace the Hydraulic Control Unit (HCU) Isolation Boundaries"

Supporting Information for Changes - 5 pages

Philadelphia Electric Company, Licensee under Facility Operating License No. NPF-39 for Limerick Generating Station (LGS), Unit 1, hereby requests that the Technical Specifications (TS) contained in Appendix A to the Operating License be amended as proposed herein to reflect newly installed isolation valves on each common Control Rod Drive (CRD) header and to eliminate the existing individual Hydraulic Control Unit (HCU) isolation boundaries from TS. The proposed changes to the TS are indicated by the vertical bars in the margin of the TS pages 3/4 6-23 and 3/4 6-41. TS page 3/4 6-43 is included for information. All TS pages are contained in Attachment 2.

We request the changes proposed herein to be effective by September 30, 1990 to facilitate incorporation and use prior to the scheduled containment integrated leak rate test during the upcoming refueling outage scheduled to begin September 8, 1990.

This change request provides a discussion and description of the proposed TS changes, a safety assessment of the proposed TS changes, information supporting a finding of No Significant Hazards Consideration, and information supporting an Environmental Assessment.

#### Discussion and Description of the Proposed Changes

The Integrated Leak Rate Test (ILRT) is a pressurization of primary containment and measurement of total leakage from all isolation boundaries. This test by its nature is a critical path task during a Refueling outage. The current method of testing the isolation boundaries of the CRD system is to collect leakage through the HCUs at the vent valves on each of four supply headers during an ILRT. If the total leakage exceeds specified limits, approximately 1300 individual check valves or solenoid valves must be examined to find and repair leak paths. The process of identifying the leaking valves(s) can take many days of critical path outage time.

To minimize critical path outage time, new check valves will be installed in the CRD supply headers in four locations, effectively extending the isolation boundary from the HCUs to these new valves (See Figure 1). These four (4) new valves will reduce the number of testable CRD penetrations from approximately 1300 to four.

Although a TS change is not required prior to installation of the new valves, a TS change is required to take credit for these new isolation boundaries, and also to remove the current valves numbers for the HCU boundaries from TS. Therefore, we propose that TS Table 3.6.3-1, "Part A-Primary Containment Isolation Valves," be revised to remove the existing HCU isolation boundary valves and replace them with the newly installed isolation boundary valves. Note 12 of that table should also be revised as shown in Attachment 2 to reflect the addition of the new valves. Also, since the affected CRD lines are water filled and would remain water filled for a minimum of thirty days after a Loss of Coolant Accident (LOCA), Note 22 applies to these isolation valves.

## Safety Assessment

The current primary containment isolation design for the CRD insert and withdraw lines does not conform to 10 CFR 50, Appendix A General Design Criterion (GDC) 55, "Reactor coolant pressure boundary penetrating containment," because of the system's uniqueness of design, inherent safety features, and important safety function. The system was analyzed against GDC 55 requirements on a generic basis by General Electric and found acceptable by the NRC as cited in NUREG-0803, "Generic Safety Evaluation Report Regarding Integrity of BWR Scram System Piping." The existing isolation provisions for the CRD insert and withdraw lines at LGS Units 1 and 2 were found acceptable by the NRC as documented in LGS Safety Evaluation Report (SER) (NUREG-0991) Section 6.2.4.1. The present method of leakage monitoring was accepted by the NRC in SER Section 6.2.6.3.

The new design does not change the design criteria described above but enhances our ability to demonstrate the leak integrity of the existing analyzed design configuration. The testing of the new valves uses techniques and criteria accepted for other similar applications as documented in the LGS Final Safety Analysis Report (FSAR) Table 6.2-25, "Containment Penetrations - Compliance with 10 CFR, Part 50, Appendix J," Note 14.

The proposed TS change will take credit for the new check valves installed in each of the CRD headers to the HCUs (drive, cooling, charging, exhaust) between the main control station and the vent valve. These valves constitute a new isolation boundary. Each check valve station consists of two check valves, a block valve and two test connections. This enables each check valve to be tested individually instead of during the critical path ILRT. Each check valve station is accessible from an existing platform near the existing vent valves.

An analysis has been performed on the piping being upgraded for inclusion in the extended ILRT boundary. The piping and related pipe supports are designed to meet the criteria of Seismic Category I and ASME Code Section III, Class 2 or 3 as appropriate. Analysis has shown that the existing piping and the modified piping is within the ASME Code allowables. Piping supports have been evaluated and modified as necessary to accommodate the newly analyzed loads.

Mechanical environmental qualification of the check valves has been evaluated and confirmed to be acceptable. Dynamic qualification of each check valves and its mounting has been evaluated and confirmed to be acceptable. The valves that will be used for this modification have been used extensively at LGS in similar applications.

The hydraulic effect of the new valves has been evaluated. The most critical and limiting case is the cooling water header required to supply 50-60 gpm to the CRDs during normal operation. The exhaust header performs a pressure control function and normally has no flow. The pressure control function does not have a critical time component so flow resistance is not an issue. The drive water header has flow only during rod movement and then only four gpm. The charging header supplies pressure to the scram accumulators. The only operation requiring significant flow is during post scram or initial charging when time is not a critical parameter.

At a cooling water flow rate of 55 gpm, the pressure drop through the check valves will be one psi each and through the manual isolation globe valve 0.9 psi. The total for the valve station will be approximately 2.9 psi.

At the normal drive water flow rate of four gpm, the total pressure drop for the valve station will be approximately 0.8 psi.

In order to compare the calculated pressure drop with the available system pressure, data was obtained from the plant. On December 6, 1989, the following system performance was measured.

Process Water Temperature	130 <sup>o</sup> F
CRD Pump Suction Pressure	17 psi
CRD Pump Discharge Pressure	1420 psi
System Flow	55 gpm
Recirculation Pumps Seal Purge Flow	5.3 gpm
CRD Pump Minimum Flow	25 gpm

From this data, the CRD pump Total Dynamic Head (TDH) is calculated to be 1,424 psi and the total flow rate to be 85 gpm, resulting in performance somewhat below the pump curve but still above the required design point.

The scram function of the CRD system involves the scram valves and the accumulators both of which are part of the HCUs. The supply headers provide cooling water, drive and exhaust water for normal operation, and charging water for post scram recovery, but play no part in the scram function. The additional line loss due to the newly installed valves is less than three psi in the cooling header and less than one psi for the drive header. The available margin of CRD pump capacity is approximately 30 psi. Therefore, the additional line loss associated with the installation of the new valves will have no adverse effect on system performance.

Therefore, since the new isolation boundaries will continue to meet all design requirements, incorporation of these valves into the TS will not adversely affect safety.

Information Supporting a Finding of No Significant Hazards Consideration

We have concluded that the proposed changes to the LGS Unit 1 TS which reduce the number of isolation boundaries by changing the isolation boundary specified in TS from the HCL to newly install isolation valves on each common CRD header, do 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 changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

The piping to be included within the new isolation boundary complies with the same standards and specifications as the original boundary. The number of active components making up the boundary will be reduced from approximately 1300 to four.

Therefore, there will be no increase in the probability that the isolation boundary will be breached.

The current CRD isolation boundary includes the insert and withdraw lines, the scram discharge volume and the HCU's. The relocation of the boundary will add some of the supply header piping but will not affect the existing equipment. The added piping is small diameter (2" or less) comparable to the previously analyzed scram discharge drain line. The consequences of a pipe failure inside the isolation boundary remain within the envelope analyzed in NUREG 0803.

Therefore, the proposed changes do not involve an increase in the probability or consequences of an accident previously evaluated.

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

The proposed TS changes are intended to take credit for the newly installed isolation valves on the CRD common headers. These valves and associated piping are designed and installed in compliance with all applicable criteria. In addition, they will meet all performance requirements currently existing for the approximately 1300 HCU isolation boundaries. In effect, the only change will be to reduce the testable penetrations from 1300 to four. The proposed TS changes merely substitutes one isolation boundary for another and therefore cannot create a new or different kind of accident from any previously evaluated.

- (3) The proposed changes do not involve a significant reduction in a margin of safety.

As discussed in items 1 and 2 above, the newly installed valves and associated piping meet all applicable design requirements. In addition, the consequences of a pipe failure inside the isolation boundary remain within the envelope analyzed in NUREG 0803. The valves will be tested to ensure compliance with existing performance requirements for isolation boundaries. Further, the performance of the CRD system is well within the system capability for normal operation, and control rod scram performance is unaffected. Therefore, the proposed changes do not involve a reduction in a margin of safety.

#### Information Supporting an Environmental Assessment

An environmental assessment is not required for the changes proposed by this Change Request because the requested changes conform to the criteria for "actions eligible for categorical exclusion" as specified in 10 CFR 51.22(c)(9). The requested changes will have no impact on the environment. The proposed 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 effluents that may be released offsite. In addition, the proposed 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 TS and have concluded that they do not involve an unreviewed safety question, or a significant hazards consideration, and will not endanger the health and safety of the public.

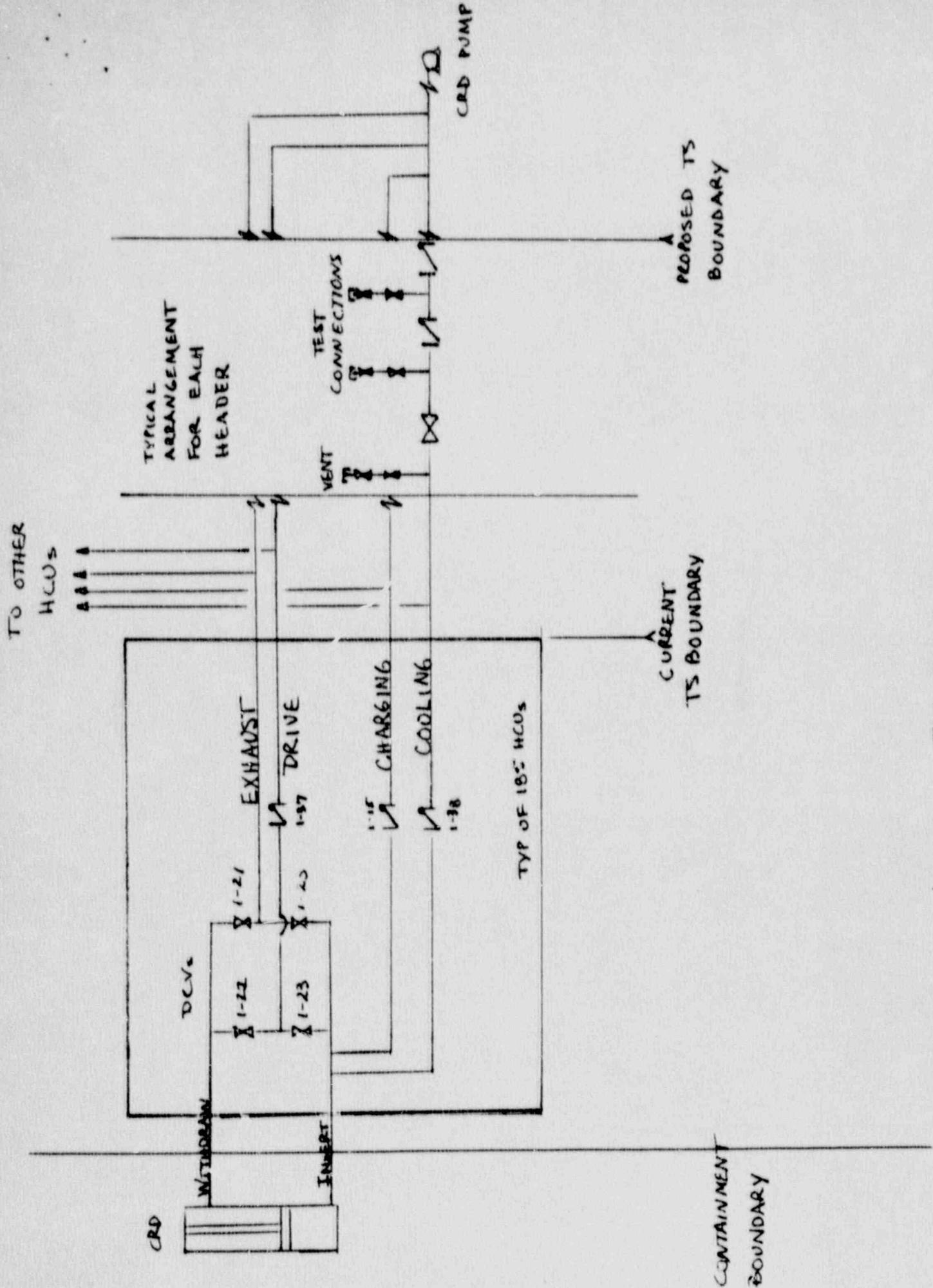


FIGURE 1