

PHILADELPHIA ELECTRIC COMPANY

NUCLEAR GROUP HEADQUARTERS

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WAYNE, PA 19087-5691

(215) 640-6000

November 17, 1989

Docket Nos. 50-352  
50-353

License Nos. NPF-39  
NPF-85

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555

SUBJECT: Limerick Generating Station, Units 1 and 2  
Technical Specifications Change Request

Dear Sir:

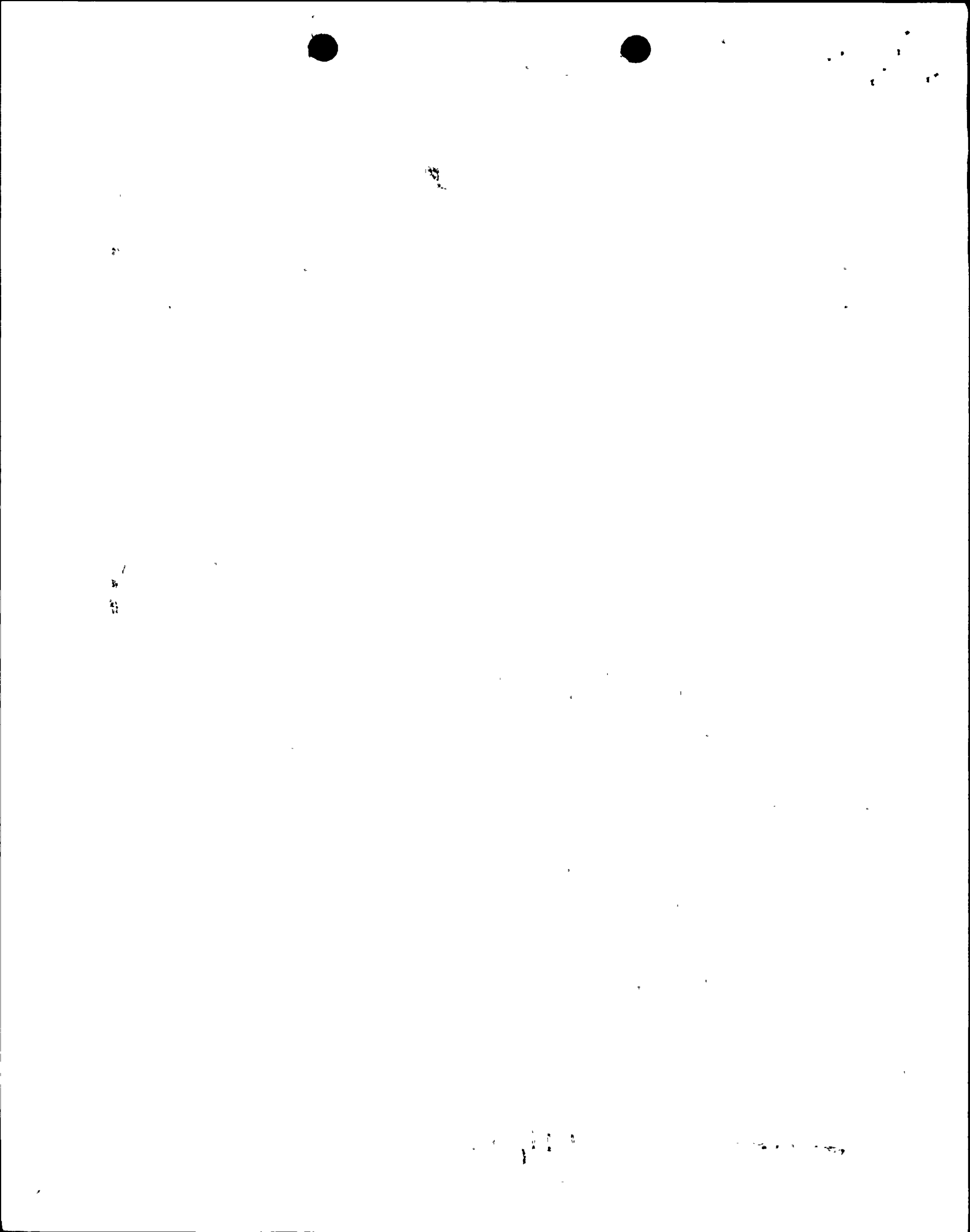
Philadelphia Electric Company hereby submits Technical Specifications Change Request No. 89-12, in accordance with 10 CFR 50.90, requesting an amendment to the Technical Specifications (TS) (Appendix A) of Operating License Nos. NPF-39 and NPF-85. Information supporting this Change Request is contained in Attachment 1 to this letter, and the proposed replacement pages are contained in Attachment 2.

This submittal requests changes to TS Section 3/4.1.3, Limiting Condition for Operation (LCO) 3.1.3.5 and Surveillance Requirement (SR) 4.1.3.5, for the control rod sram accumulators. A misapplication of the requirements of TS Section 3/4.1.3 resulted in our request for a temporary waiver of compliance dated June 9, 1989 and an emergency TS Change Request dated June 10, 1989. The NRC letter approving the temporary waiver of compliance, dated June 9, 1989, allowed continued operation until the emergency TS Change request was approved. As committed to in our request for the emergency TS Change, dated June 10, 1989, we are proposing TS changes to provide a final resolution of this issue.

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The changes proposed herein were modeled after the corresponding TS approved for use at Hope Creek Generating Station, License No. NPF-57.

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

Very truly yours,



G. A. Hunger, Jr.  
Director

Licensing Section  
Nuclear Services Department

Attachments

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

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 modify the control rod scram accumulator Technical Specifications, 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.

*D.R. Helwig*  
\_\_\_\_\_  
Vice President

Subscribed and sworn to  
before me this 17<sup>th</sup> day  
of November 1989.

*Angela G. Olenzinski*  
\_\_\_\_\_  
Notary Public

NOTARIAL SEAL  
ANGELA G. OLENGINSKI, Notary Public  
Wayne, Chester County  
My Commission Expires Sept 31, 1992



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ATTACHMENT 1

LIMERICK GENERATING STATION

Docket Nos. 50-352  
50-353

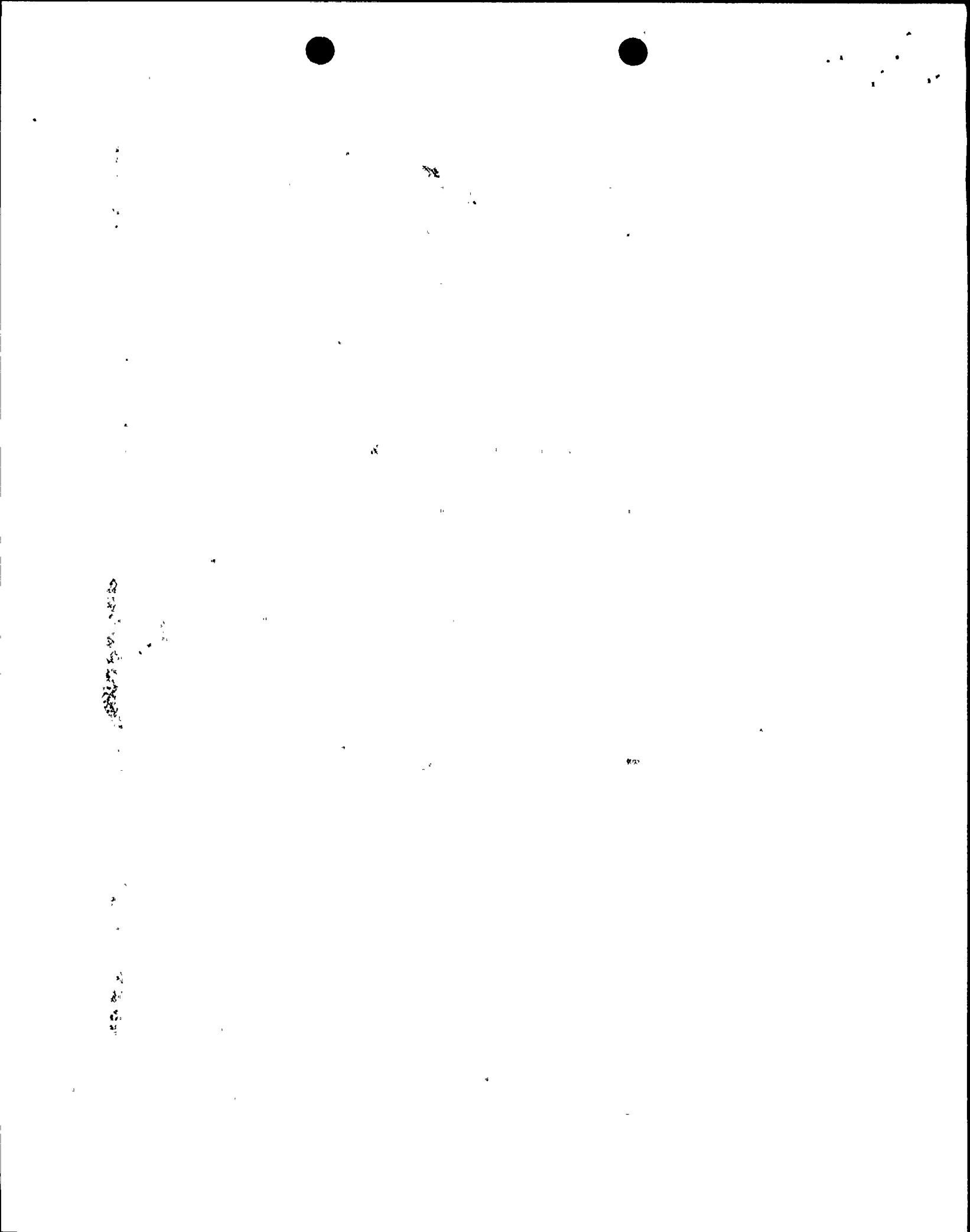
License Nos. NPF-39  
NPF-85

TECHNICAL SPECIFICATIONS CHANGE REQUEST

"Control Rod Scram Accumulator Technical Specifications Changes"

*No. 89-12*

Supporting Information for Changes - 8 pages



Philadelphia Electric Company, Licensee under Facility Operating Licenses NPF-39 and NPF-85 for Limerick Generating Station (LGS) Unit 1 and Unit 2 respectively, hereby requests that the Technical Specifications (TS) contained in Appendix A of the Operating Licenses be amended as proposed herein to modify TS Section 3/4.1.3, Limiting Condition for Operation (LCO) 3.1.3.5 and Surveillance Requirement (SR) 4.1.3.5. The proposed changes are indicated with a vertical bar in the margin of pages 3/4 1-9 and 3/4 1-10 for both LGS Unit 1 and Unit 2 TS, and are contained in Attachment 2.

Philadelphia Electric Company (PECo) requests the changes proposed herein to be effective upon issuance of the Amendments.

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

#### Discussion of Changes:

On June 9, 1989, prior to receipt of the Unit 2 Operating License, with Unit 1 at 50% power, we discovered that seventeen (17) Unit 1 control rod drive (CRD) scram accumulators did not satisfy SR 4.1.3.5.b.2 during a leak test performed on May 9, 1989. Failure to satisfy the criteria of SR 4.1.3.5.b.2, which requires a leak test of each accumulator check valve, renders the associated control rods inoperable and thus requires a plant shutdown. However, since Unit 1 was in a condition where the accumulators were determined to not be necessary to comply with design bases scram requirements, the NRC issued a temporary waiver of compliance allowing continued operation and subsequently, an emergency TS change was issued revising the applicability of the affected SR. As committed in our request for the emergency TS change dated June 10, 1989, we are proposing the following TS changes as an appropriate final resolution of this issue.

- A) Remove SR 4.1.3.5.b.2 (and the associated footnote) which requires CRD scram accumulator check valve testing once per 18 months and specifies test acceptance criteria.
- B) Modify LCO 3.1.3.5.a.2.a to allow the reactor operator twenty (20) minutes to restart a tripped CRD pump provided that reactor pressure is greater than or equal to 900 psig. If reactor pressure is less than 900 psig the operator will immediately place the reactor mode switch in the Shutdown position.



In addition, since we are proposing changes to the scram accumulator TS, we are also using this Change Request to propose a change to the scram accumulator low nitrogen pressure alarm setpoint. A number of TS violations have occurred at operating nuclear power plants due to setpoint drift of the nitrogen accumulator pressure sensors. As a result, General Electric Service Information Letter (SIL) 429, Revision 1, "HCU Accumulator Pressure Switches," issued January 18, 1988, recommends lowering the low nitrogen pressure alarm setpoint of the scram accumulators to equal to or greater than 940 psig. This recommendation is intended to maintain the validity of the alarm setpoint while reducing the risk of a TS violation which could occur due to setpoint drift. We have determined that GE SIL 429, Rev. 1 is applicable to LGS, although we have not experienced a TS violation due to setpoint drift of the pressure sensor for the low nitrogen pressure alarm. To avoid such a TS violation, we are proposing a TS change consistent with the intent of the GE SIL. However, the change we are proposing is more conservative than the change recommended by GE in that the proposed alarm setpoint is equal to or greater than 955 psig.

- (C) Change the 18 month scram accumulator pressure sensor channel calibration (setpoint), SR 4.1.3.5.b.1.b. from "970 plus or minus 15 psig" to "equal to or greater than 955 psig".

#### Safety Assessment

The changes proposed in (B) above ensure the scram capability of all control rods. Control rod scram accumulators and accumulator check valves are required to support the scram function at reactor pressure less than 600 psig. At reactor pressures above 600 psig, reactor pressure alone is sufficient to scram the control rods. The proposed TS changes require an immediate shutdown if reactor pressure is less than 900 psig. Therefore, the scram capability of all control rods is ensured. When reactor pressure is greater than 900 psig, the allowance of 20 minutes to restart a CRD pump provides plant staff a reasonable time to restore pump operation. The additional LCO Action (i.e., shutdown if reactor pressure is less than 900 psig) proposed provides for prompt operator action to prevent reactor operation in a condition where the accumulators are required to support the scram function.

Removal of SR 4.1.3.5.b.2, proposed change (A) above, does not compromise proper testing and maintenance of the scram accumulator check valves since operability is ensured by TS SR 4.0.5 which requires inservice testing (IST) in accordance with Section XI of the ASME Boiler and Pressure Vessel Code. The IST program requires a reverse flow surveillance test of the scram accumulator

check valves once per calendar quarter if the plant is in Cold Shutdown. This will ensure check valve testing at least during every Refueling Outage (i.e., 18 months). To verify that the check valves close, the charging water header is depressurized and the accumulator pressure and low pressure alarms are monitored. This testing requirement ensures that the check valves are periodically tested, maintained as needed, installed properly and function correctly following maintenance. Therefore, proper testing and operation of the scram accumulator check valves will continue to be ensured by TS required IST program.

In addition, the current TS SR for the 18 month surveillance test of scram accumulator check valves does not need to be required in the TS as the scram accumulators are not required to safely shut down the plant during normal reactor operation. A failed accumulator check valve would allow the accumulator pressure to bleed down on that one drive only if the CRD pump was tripped. An operable CRD pump maintains charging water pressure at a higher pressure than the accumulator nitrogen pressure for all CRDs. Given a loss of the CRD pump and failure of a scram accumulator check valve, the accumulator pressure would bleed down and not be able to assist that particular drive in a scram condition. However, reactor pressure in excess of 600 psig is sufficient to fully insert a control rod with a failed check valve. At 600 psig reactor pressure, the scram insertion time of an individual control rod with zero accumulator pressure would be within TS and design basis requirements. Also, the average scram time for all drives would continue meet design requirements. Therefore, failure of an accumulator or accumulator check valve is not significant with respect to the ability to shut down the plant during normal operating conditions.

The recommended TS change described in part (C) above would change the low nitrogen pressure alarm setpoint of the scram accumulator to "equal to or greater than 955 psig." This change is justifiable since the proposed setpoint maintains the same minimum alarm pressure currently allowed by TS. An upper limit is not necessary since, setting the low alarm setpoint greater than 955 psig provides a more conservative setting (i.e., will result in earlier detection of decreasing pressure). This proposed TS change is in accordance with the GE recommendation (SIL 429 Rev. 1) to provide for adequate instrument drift allowance to avoid possible violations of the TS while maintaining sufficient nitrogen pressure for required scram performance.

The proposed TS changes for the control rod accumulators were reviewed against the design basis of the LGS Final Safety Analysis Report (FSAR). This review showed that the proposed changes would have no significant effects on system operation,



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average scram times, Minimum Critical Power Ratio (MCPR), or the "Anticipated Transient Without Scram" (ATWS) design bases and assumptions.

FSAR Section 15.1.3 "Pressure Regulator Failure - Open", discusses a loss of reactor pressure event. The analysis does not require the scram accumulators to shut down the plant.

FSAR Section 4.6.2 "Evaluations of the CRD System," discusses control rod operability assuming CRD equipment failure such as hydraulic line breaks. However, the analysis does not require the scram accumulators to shut down the plant.

FSAR Section 15.8 "Anticipated Transient Without Scram," which discusses mitigation of an ATWS event does not require the scram accumulators to mitigate the event.

In conclusion, the proposed changes to the TS do not represent a change in the plant or the design bases as described in the LGS FSAR.

In summary, the changes proposed are acceptable because operability of the scram accumulators will continue to be ensured by compliance to TS requirements. The reliability of the control rods to scram is enhanced by the proposed Action statement, and the proposed changes do not change the design bases as described in the FSAR.

#### Information Supporting a Finding of No Significant Hazards Consideration

We have concluded that the proposed changes to the LGS scram accumulator TS, do not constitute a Significant Hazards Consideration. In support of this determination, an evaluation of each of the three 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.

Three changes have been proposed.

- A) Remove SR 4.1.3.5.b.2 which requires CRD scram accumulator check valve testing once per 18 months and specifies test acceptance criteria.

- B) Modify LCO 3.1.3.5.a.2.a to allow the reactor operator twenty (20) minutes to restart a tripped CRD pump provided that reactor pressure is greater than or equal to 900 psig. If reactor pressure is less than 900 psig the operator will immediately place the mode switch in the Shutdown position.
- C) Change the 18 month scram accumulator pressure sensor channel calibration (setpoint), SR 4.1.3.5.b.1.b from "970 plus or minus 15 psig" to "equal to or greater than 955 psig."

The safety function of the scram accumulator is to assist in control rod insertion when reactor pressure alone is insufficient. The proposed changes do not change the capability of the control rod to perform its safety function and provide proper reactivity insertion within the required time.

Removal of the 18 month leak test specified by SR 4.1.3.5.b.2 does not affect the reliability of the check valves since operability of the scram accumulator check valves is assured by TS Section 4.0.5 which requires that inservice testing of the check valves comply with the ASME Code, Section XI.

The proposed additions to the TS LCO action statement 3.1.5.a.2.a described in (B) above impose additional requirements on operations personnel to prevent plant operation in a condition when the accumulators are required to support the scram function.

Finally, GE SIL 429 Rev. 1 provides a recommendation to change the applicable TS to allow for scram accumulator pressure instrument setpoint drift and thus avoid an unnecessary TS violation. The setpoint we have proposed in accordance with this GE SIL is within the currently allowed range but does not provide an upper limit. An upper limit is unnecessary since any pressure alarm activation above the minimum setpoint value is more conservative than alarm actuation at the minimum setpoint value.

In summary, the proposed will not affect nor change any plant hardware, plant design or plant system operation from that already described in the FSAR. Therefore the proposed changes do not modify or add any initiating parameters that would significantly increase the

probability or consequences of any accident previously analyzed.

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

As discussed in (1) above, the design bases of the LGS will remain the same. Therefore, the current FSAR will remain accurate with respect to its discussion of the licensing basis events and its analysis of plant response and consequences. The proposed changes do not affect any equipment nor do they involve any potential initiating events that would create any new or different kind of accident. As such, the plant initial conditions utilized for the design basis accident analyses are still valid.

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

As discussed in item (1) above, the safety function of the scram accumulator is to assist in control rod insertion when reactor pressure alone is insufficient. The proposed changes do not change capability of the control rod to perform its safety function and provide proper reactivity insertion within the required time.

TS Section 3/4.1.3 requires that any control rod with an inoperable scram accumulator be restored to operable status or be declared as being inoperable and inserted. This requirement is unchanged by the proposed TS changes.

At normal reactor pressure (i.e., greater than 900 psig) reactor pressure alone is sufficient to scram the control rods. The proposed TS allow the plant operator 20 minutes to restore a tripped CRD pump if there is more than one inoperable scram accumulator and reactor pressure is equal to or greater than 900 psig. Control rod scram accumulators and accumulator check valves are required to support the scram function only at reactor pressure less than 600 psig. To prevent approaching the 600 psig limit, the proposed TS require plant operators to immediately scram the reactor if there is more than one inoperable scram accumulator and there is not a CRD pump operating when reactor pressure is less than 900 psig.

ATTACHMENT 2

LIMERICK GENERATING STATION

Docket Nos. 50-352  
50-353

License Nos. NPF-39  
NPF-85

PROPOSED TECHNICAL SPECIFICATIONS CHANGES

List of Attached Change Pages

Unit 1

3/4 1-9  
3/4 1-10

Unit 2

3/4 1-9  
3/4 1-10