



PECO ENERGY

PECO Energy Company
Nuclear Group Headquarters
965 Chesterbrook Boulevard
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July 20, 1994

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. 94-11-0

Gentlemen:

PECO Energy Company is submitting Technical Specifications (TS) Change Request No. 94-11-0, in accordance with 10CFR50.90, requesting a change to the TS (i.e., Appendix A) of Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2.

This TS Change Request involves raising the Steam Leakage Detection System set-points that isolate the High Pressure Coolant Injection (HPCI) System and Reactor Core Isolation Cooling (RCIC) System equipment on equipment room high temperature and high delta temperature. The TS Change Request is supported by a LGS modification to increase the environmental qualifications limits of the HPCI and RCIC Systems to allow the systems to remain operable when equipment room cooling is unavailable.

Information supporting this TS Change Request is contained in Attachment 1 to this letter, and the proposed replacement pages for the LGS TS are contained in Attachment 2.

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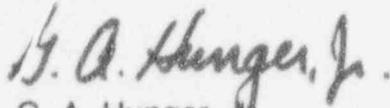
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We request that, if approved, this TS Change Request for LGS, Units 1 and 2, be approved prior to January 20, 1995 in support of the third Unit 2 refueling outage, and be effective within 30 days of issuance.

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

Very truly yours,



G. A. Hunger, Jr.
Director-Licensing

Attachments

Enclosure

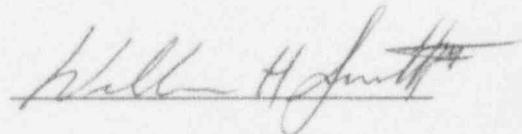
cc: T. T. Martin, Administrator, Region I, USNRC (w/ attachments and enclosure)
N. S. Perry, USNRC Senior Resident Inspector, LGS (w/attachments and enclosure)
R. R. Janati, PA Bureau of Radiological Protection (w/attachments and enclosure)

COMMONWEALTH OF PENNSYLVANIA :

: SS.

COUNTY OF CHESTER :

W. H. Smith, III, 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. 94-11-0 "Raising the Steam Leakage Detection System Set-points that Isolate the High Pressure Coolant Injection (HPCI) System and Reactor Core Isolation Cooling (RCIC) System Equipment on Equipment Room High Temperature and High Delta Temperature," 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.

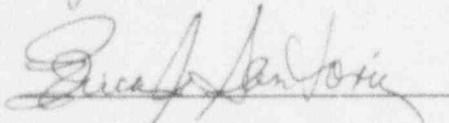


Vice President

Subscribed and sworn to

before me this 19th day

of July 1994.



Notary Public

Notarial Seal
Erica A. Santoni, Notary Public
Tredyffrin Twp., Chester County
My Commission Expires July 10, 1995

ATTACHMENT 1

LIMERICK GENERATING STATION
UNIT 1 AND UNIT 2

DOCKET NOs.

50-352

50-353

LICENSE NOs.

NPF-39

NPF-85

TECHNICAL SPECIFICATIONS CHANGE REQUEST

NO. 94-11-0

"Raising the Steam Leakage Detection System Set-points that Isolate the High Pressure Coolant Injection (HPCI) System and Reactor Core Isolation Cooling (RCIC) System Equipment on Equipment Room High Temperature and High Delta Temperature."

Supporting Information for Changes - 9 PAGES

PECO Energy Company, licensee under Facility Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2, requests that the Technical Specifications (TS) contained in Appendix A to the Operating License be amended, as proposed herein, to raise the Steam Leakage Detection System set-points that isolate the High Pressure Coolant Injection (HPCI) System and Reactor Core Isolation Cooling (RCIC) System equipment on equipment room high temperature and high delta temperature, prior to the Unit 2, third refueling outage scheduled to begin in January, 1995.

Discussion and Description of the Proposed Changes

The proposed activity requires a permanent change to the TS for LGS, Units 1 and 2, to raise the HPCI and RCIC equipment room temperature and delta temperature isolation trip set-points and allowable values shown in TS Table 3.3.2-2. The HPCI equipment room high temperature trip set-point (TS Item 4.d) will be increased from 175° F to 225° F, and the allowable value range will be increased from $\geq 165^{\circ}$ F, $\leq 200^{\circ}$ F to $\geq 218^{\circ}$ F, $\leq 247^{\circ}$ F. The HPCI equipment room high delta temperature trip set-point (TS Item 4.e) will be increased from $\leq 80^{\circ}$ F to $\leq 126^{\circ}$ F and the allowable value will be increased from $\leq 88^{\circ}$ F to $\leq 130.5^{\circ}$ F.

The RCIC equipment room high temperature trip set-point (TS Item 5.d) will be increased from 175° F to 205° F, and the allowable value range will be increased from $\geq 165^{\circ}$ F, $\leq 200^{\circ}$ F to $\geq 198^{\circ}$ F, $\leq 227^{\circ}$ F. The RCIC equipment room high delta temperature trip set-point (TS Item 5.e) will be increased from $\leq 80^{\circ}$ F to $\leq 109^{\circ}$ F and the allowable value will be increased from $\leq 88^{\circ}$ F to $\leq 113.5^{\circ}$ F.

The purpose of this TS Change for LGS, Units 1 and 2, is to support the HPCI environmental re-qualification under LGS Modification No. P-00212. The RCIC system is not an environmentally qualified system and as such is only being evaluated for the higher temperature. The isolation set-points for the instruments in the HPCI and RCIC pipe routing area (isolation valve compartment located on Unit 1 and Unit 2, Elevation 217') and the other isolation actuation instruments (steam line high flow, low pressure, etc.) will remain unchanged. Other leak detection methods (temperature alarms, sump activity, area radiation, etc.) used to detect small steam leaks in the reactor building will also be unaffected.

Presently, the HPCI and RCIC Systems are dependent on the operation of the Emergency Service Water (ESW) System as a support system. A loss of the ESW cooling supply to the RCIC or HPCI equipment compartment unit coolers will render the RCIC or HPCI system inoperable. Modifications to the HPCI system will allow the increase of the environmental qualification temperature limits of the HPCI System from 150° F to greater than 172° F. The RCIC System is being evaluated for the capability to operate at greater than 155° F. This will allow the RCIC and HPCI Systems to remain operable without the support of the equipment room unit coolers and the 'A' and 'B' loops of ESW, respectively. This independence will allow the isolation or loss of certain portions of the ESW System without the need to declare the HPCI and/or RCIC System(s) inoperable. Currently, loss of either the 'A' or 'B' loops of ESW would

require entry into the TS 3.5.1 or TS 3.7.3 ACTION statements, and in the case of the loss of the 'B' ESW loop to more than one of the 'B' ECCS compartments, entry into TS Limiting Condition for Operation 3.0.3 would be required. Therefore, by raising the qualification temperature limits of the HPCI and RCIC equipment, RCIC and HPCI System availability would be increased by being able to maintain their operability when compartment cooling is unavailable.

The qualification temperature limits are raised by Modification P-00212, resulting in a corresponding change to the HPCI and RCIC system isolation parameters. The margin between the lower system temperature isolation value and the postulated room operating conditions will be adequate to assure that inadvertent system isolation does not occur. The upper system temperature isolation value (indicative of a Reactor Coolant Pressure Boundary (RCPB) breach) will be low enough to prevent the excessive loss of reactor coolant or the release of significant amounts of radioactive material from the RCPB.

Physical changes to increase the HPCI and RCIC qualification temperature limits are planned to be implemented prior to the Unit 2, third refueling outage (January, 1995) in order to support the implementation of LGS Modifications to the ESW and Residual Heat Removal Service Water (RHRSW) Systems, which are scheduled to be installed during the Unit 2, third refueling outage (i.e., TS Change No. 94-04-1). The proposed TS changes will only be implemented upon completion of the HPCI and RCIC system temperature re-qualification effort and any associated equipment modifications. Verification that the instrument set-points have been properly reset will be performed using approved site procedures.

Safety Assessment

The failure effects which are potentially created by the proposed Technical Specification changes were considered. Those accidents which are potentially impacted by these changes require the isolation of the HPCI or RCIC system steam supply lines. This would include gross failures (pipe breaks) or significant leaks (pipe cracks) in the steam lines. Minor leaks that do not significantly affect the environment in the equipment compartments are only potential precursors to the development of a larger crack or break.

The proposed TS changes will not increase the probability of an accident since the changes will only increase the trip set-points of the instrumentation which detect increases in the temperature in the HPCI and RCIC equipment rooms. The physical establishment and setting of the proposed set-points of these accident detection and mitigation instruments will have no direct physical impact on the plant's normal operating conditions. This instrumentation is normally in a "monitoring mode," and is not actively supporting normal plant operation. Therefore, the proposed set-points can have no impact on the operating plant that would make an accident more likely to occur.

The design basis of the HPCI and RCIC isolation systems (Updated Final Safety Analysis Report (UFSAR) Section 5.2.5.2.2.4) is to prevent the excessive loss of reactor coolant and the release of significant amounts of radioactive materials from the RCPB by isolating the appropriate steam line. The alarms and isolation set-points associated with these temperature devices in the HPCI and RCIC equipment compartments were qualitatively selected to be high enough to avoid spurious isolation, yet low enough to provide timely detection and isolation of a HPCI or RCIC steam line break. Since the subject instruments provide for the alarm function coincident with the isolation function, then the alarm function only provides indication of the cause of the isolation rather than a separate leak detection function.

In order to determine that the subject technical specification change will not have an impact on the consequences of an accident, two cases were reviewed.

I. The first case involves any event which requires that the HPCI and/or RCIC System(s) remain operable and do not isolate prematurely. With the removal of the safety function of the HPCI and RCIC room unit coolers, it will be necessary to assume that the HPCI and RCIC Systems will operate without the corresponding room unit coolers functioning. It should be understood that, although the safety function of the room unit coolers is being removed, the room unit coolers will still be available. Without the room unit coolers operational, PECO Energy has calculated that the room temperature for the HPCI System will reach 172° F and the RCIC System will reach 155° F during the six hours post event when the system(s) are assumed to operate. The new HPCI and RCIC High Ambient Room Temperature isolation set-points will maintain at least a thirty five degree (Fahrenheit) margin to the isolation set-point from the highest calculated room temperature, assuming that the corresponding room unit coolers do not function. Therefore, by raising the isolation set-points for the Differential Temperature and the High Ambient Room Temperature, the set-points will ensure that the HPCI and/or the RCIC Systems will not isolate during any event for which they are required to operate.

II. The second case involves events which will require the isolation of the HPCI or RCIC Systems. The current subject set-points are not developed from any explicit calculation nor are they assumed as design inputs to any event analysis, including high energy line breaks (HELB). Accordingly, changing the set-points will not impact any design basis Licensing event. The set-points, as defined in the Limerick UFSAR and as stated before, simply serve as a means to allow for the isolation of the HPCI or RCIC System steam lines.

In order to ascertain the reduction in leak detection sensitivity, the following two areas were evaluated.

a) The first area evaluated is the impact of the subject changes on the room environment and the potential radiological release from the plant. In evaluating this area, the major concern for the subject changes is that the higher temperature isolation set-points could allow a larger leak to go undetected, and an unacceptable

release of steam from the reactor coolant pressure boundary and release off-site. PECO Energy has evaluated this concern and determined that, although the subject change will potentially result in a steam leak going undetected for a longer period of time, the maximum credible leakage from the RPCB will not exceed that which is assumed in the HELB Analysis for the HPCI and/or RCIC Rooms and will not exceed the radiological release calculated for the bounding SAR event which is the Main Steam Line Break Accident.

Although it is not part of Limerick's Licensing design basis, a qualitative assessment of the ability of the subject HPCI and RCIC Steam Leak Detection System set-points was performed to determine if the system will be capable of isolating on a 25 gpm leak. This assessment determined that, considering the location and the proximity of the detectors to the steam lines, there is high likely-hood that the isolation will occur in a timely manner. It should be noted that the Steam Leak Detection alarm (set at 125° F) and various other means of steam leak detection including flooding alarms, and radiation detectors, still provide operations personnel with an effective means to quickly detect and consequently isolate the affected steam line.

b) The second area evaluated is the potential affect the subject change could have on the environmental conditions in the HPCI and RCIC rooms during a steam line leak. The major concern in this area is that with the higher temperature isolation set-points, the steam leak could go undetected for a longer period of time and result in environmental conditions which could affect the operation of equipment required to function during an accident. PECO Energy has evaluated this concern, and determined that the only safety related equipment which is potentially impacted by this scenario are the temperature detectors located in the room. These temperature detectors have been qualified for a temperature greater than the peak isolation set-point (247° F) and are designed to fail safe (i.e., fail isolated) and therefore, will not be potentially impacted by the subject change.

Based on the above discussions, it is PECO Energy's conclusion that the subject changes will not result in an increase in consequences of any accident previously evaluated in the SAR. Additionally, any reduction in detection sensitivity is either bounded by an existing Licensing basis analysis or will not prevent timely detection.

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 raise the Steam Leakage Detection System Set-points that isolate the High Pressure Coolant Injection (HPCI) System and Reactor Core Isolation Cooling (RCIC) System equipment on equipment room high temperature and high delta temperature, 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.

Those accidents which are potentially impacted by these changes are any accidents or events that require the isolation of the HPCI or RCIC system steam supply lines. This would include gross failures (pipe breaks) or significant leaks (pipe cracks) in steam lines. Minor leaks that do not significantly affect the environment in the equipment compartments are only considered with regard to being potential precursors to the development of a larger crack or break. The ability to detect small steam leaks is not dependent on the isolation instrumentation and the proposed changes to the isolation instrumentation will not impact the detection methods.

The proposed TS changes will not increase the probability of an accident since the changes will only increase the trip set-points of the instrumentation which detect increases in the temperature in the HPCI and RCIC equipment rooms. The physical establishment and setting of the proposed set-points of these accident detection and mitigation instruments will have no direct physical impact on the plant's normal operating conditions. This instrumentation is normally in a "monitoring mode," and is not actively supporting normal plant operation. Therefore, the proposed set-points can have no impact on the operating plant that would make an accident more likely to occur.

Two perspectives were evaluated regarding the potential impact on the consequences of accidents. One case is the impact on accidents which do not require HPCI or RCIC steam line isolation, but that may require the operation of the HPCI or RCIC Systems. The other case is the impact resulting from HPCI and RCIC steam line break accidents.

In the first case, the proposed changes to the set-points of these accident mitigation instruments will have no direct physical impact on the plant's accident response, except during the HPCI or RCIC pipe break accidents. During all other pipe breaks or accidents, the bounding peak HPCI and RCIC equipment compartment temperatures will still be at least 35° F below the proposed TS lower allowable values (i.e., 218° F and 198° F, respectively), and the isolation instrumentation will remain in a "monitoring mode." The isolation instrumentation will only be required to continue to passively monitor the HPCI and RCIC compartment temperatures and will meet the design basis by not inadvertently isolating the HPCI or RCIC systems.

In the second case, the HPCI and RCIC pipe break accidents described in LGS, Updated Final Safety Analysis Report (UFSAR) Section 3.6 "Protection Against Dynamic Effects Associated with the Postulated Rupture of Piping," determine the peak pressures and temperatures for the affected compartments. These peak pressures for the HPCI and RCIC breaks are the bounding pressures for breaks in these lines and, since they occur quickly, they are unaffected by the leak detection and isolation actuation systems. The peak pressures predicted in the UFSAR for the largest HPCI and RCIC steam line breaks, in the HPCI, RCIC and isolation valve compartments, are the bounding values for breaks of all sizes in these compartments. In addition, the peak temperatures are not

affected by the proposed changes to the isolation actuation set-points. Therefore, the isolation of the HPCI and RCIC steam lines following a HPCI or RCIC steam line guillotine break is not dependent on the temperature trip functions, rather, the isolation is dependent on the high flow or low pressure trip functions where a delay in the response of the temperature isolation instrumentation will have no adverse impact on the consequences of the accidents described in the SAR.

An evaluation was performed to determine the potential impacts due to the proposed changes affecting the room temperatures used in the environmental qualification program. The results of this evaluation determined that the postulated peak temperatures for the HPCI pump room and the HPCI and RCIC piping areas would be at the saturation temperature for the HPCI or RCIC break blow-down in these compartments, therefore, these compartment temperatures values will not be exceeded. The RCIC pump room and isolation valve compartment environmental qualification temperatures were not postulated to be at the saturation temperature. However, this does not increase the consequences of any of the accidents described in the SAR because the equipment which is normally required for RCIC system operation and which is located in the RCIC pump compartment is not required to operate following breakage of the RCIC steam supply line. The only equipment in the RCIC pump compartment that is required to operate following a RCIC steam line break is the RCIC leak detection instrumentation which are qualified to operate at temperatures greater than the saturation temperature. Finally, the isolation valve compartment postulated peak temperatures result from a HPCI steam line break in the Unit 1 and 2 isolation valve compartments. This line break produces the highest isolation valve compartment temperatures which bounds the results of a RCIC steam line break in the isolation valve compartment and the HPCI and RCIC steam line breaks in the HPCI and RCIC pump rooms and piping areas. However, since the leak detection and isolation actuation trip set-points for the instruments in the isolation valve compartment are not being changed, then the environmental conditions in the isolation valve compartment will remain unchanged. This will assure that the isolation valves will be able to provide isolation when required.

For HPCI or RCIC leaks, the environmental conditions were not the only design basis considerations evaluated. The radiological affects were also considered. By increasing the upper allowable high ambient temperature or high delta temperature values for certain line break sizes there will be a larger total mass blow-down from the break due to the corresponding lengthening of the time to reach the higher temperature limit. However, the total integrated mass of blow-down prior to isolation of the HPCI or RCIC steam line break will still be bounded by the LGS UFSAR accident analysis and therefore, the radiological consequences of these breaks as described in the SAR will remain unchanged. These conclusions are supported by an evaluation that provided the design basis for the main steam line break and then examines the radiological consequences at the upper and lower end of the HPCI and RCIC break

spectrum. Since the largest HPCI and RCIC breaks are isolated based on high flow and not based on compartment temperature increases, then the proposed changes in the temperature set-points have no impact on the radiological consequences of the design basis HPCI or RCIC pipe break accidents as described in the SAR.

The impact of the proposed changes on the probability of a malfunction of the system isolation instrumentation, valves, or the HPCI or RCIC systems was evaluated. The isolation actuation instruments are qualified for the expected environmental conditions and the proposed set-points are within the normal operating range of the instruments. Therefore, these isolation actuation instruments are no more likely to randomly fail than before. In addition, by ensuring that there is no adverse impact on the ability of the HPCI or RCIC systems to respond to events which are caused by malfunctions of equipment, then the consequences of these events are not increased. An adequate margin between the proposed lower allowable trip values and the postulated equipment room environmental conditions is being maintained such that an inadvertent actuation of the HPCI or RCIC system isolation function is also no more likely to occur. The increase in the temperature isolation allowable trip values will allow increased blow-down from a pipe break or crack which will result in higher pump compartment temperatures and pressures than before for a given break size; however, the overall impact is still bounded by the LGS UFSAR Section 3.6 ruptured piping analyses. The isolation actuation instruments are qualified for the expected environmental conditions, and the proposed set-points are also within the normal operating range of the isolation instruments. Therefore, the instruments are no more likely to randomly fail and cause the loss of the HPCI or RCIC system than before. In fact, by increasing the qualification limits of the HPCI and RCIC systems, the systems will be able to remain operable with an even larger steam leak in the room when room cooling is available. Therefore, the changes will have no impact on the operating plant that would increase the possibility or consequences of a malfunction of equipment important to safety.

Since the proposed changes will maintain the HPCI or RCIC steam isolation system design basis, where the consequences are bounded by an analysis contained in the LGS UFSAR, and will only change the set-points of the existing instrumentation without impacting equipment important to safety, the proposed Technical Specifications changes do 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.

The proposed TS changes will not create the possibility of a different type of accident or malfunction of equipment since the changes will only increase the trip set-points of the instrumentation which detect increases in the temperature in the HPCI and RCIC equipment rooms. The physical establishment and resetting of the set-points of these accident detection and mitigation instruments

will have no direct physical impact on the plant's normal operating conditions and will not create any new accident initiators or failure modes. The severity of the potential piping system pressure transients caused by the isolation of the HPCI or RCIC steam lines at higher room temperatures remains unchanged since the isolation occurs after the postulated break blow-down has dropped to its steady state rate. Therefore, the changes will not result in a pipe break or result in any malfunction of equipment that has not previously been postulated to occur.

Therefore, the proposed set-points will not create the possibility of a different type of accident or possibility of a different type of malfunction of equipment important to safety than previously evaluated in the SAR.

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

The margin of safety for the isolation actuation instrumentation as defined in the TS bases is not reduced. The proposed system isolation TS trip set-points were selected to provide equivalent margins that ensure the effectiveness of the isolation systems to mitigate the consequences of accidents without compromising the operability of the HPCI and RCIC systems. The proposed trip set-points and proposed allowable value ranges maintain adequate margins between these new values and the operating range of the HPCI and RCIC systems in order to prevent the inadvertent actuation of the isolation system and the loss of either the HPCI or RCIC systems. The differences between the trip set-points and the allowable values are being maintained as an allowance for instrument drift. The trip set-points and the allowable ranges are within the specified range of the instruments and therefore, the accuracy and drift will provide the same margin of safety as previously assumed.

Therefore, the proposed TS changes do 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, 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 change 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 off-site. 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, Units 1 and 2, Technical Specifications, and have concluded that they do not involve an unreviewed safety question.