

Power Generation Group

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United States Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Perry Nuclear Power Plant
Docket No. 50-440
License Amendment Request Pursuant to 10 CFR 50.90: Proposed Revision of the LCO 3.0.4
Exception for the Main Steam Isolation Valve Leakage Control System Technical Specification

Ladies and Gentlemen:

Nuclear Regulatory Commission review and approval of a license amendment for the Perry Nuclear Power Plant is requested. The proposed Technical Specification (TS) change would revise the existing exception to Limiting Condition for Operation (LCO) 3.0.4 as it applies to LCO 3.6.1.9 for the Main Steam Isolation Valve Leakage Control System. The LCO 3.0.4 exception has previously been approved for the fifth and sixth cycles of plant operation (Amendments 63 and 71). This proposed change has been developed for implementation prior to the completion of the sixth refueling outage. In order to support the implementation process, issuance of this amendment is requested by October 9, 1997.

Attachment 1 provides the Summary, Description of the Proposed Change, Introduction, Safety Analysis, and Environmental Consideration. Attachment 2 provides the Significant Hazards Consideration. Attachment 3 provides the annotated TS page reflecting the proposed change. Attachment 4 provides a copy of the associated Bases page, for information.

If you have questions or require additional information, please contact Mr. Henry L. Hegrat, Manager - Regulatory Affairs, at (216) 280-5606.

Very truly yours,

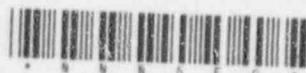
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Attachments

cc: NRC Project Manager
NRC Resident Inspector
NRC Region III
State of Ohio

AO12/11

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I, Lew W. Myers, being duly sworn state that (1) I am Vice President, Nuclear of the Centerior Service Company, (2) I am duly authorized to execute and file this certification on behalf of The Cleveland Electric Illuminating Company and Toledo Edison Company, and as the duly authorized agent for Duquesne Light Company, Ohio Edison Company, and Pennsylvania Power Company, and (3) the statements set forth herein are true and correct to the best of my knowledge, information and belief.

Lew W Myers
Lew W. Myers

Sworn to and subscribed before me, the 2nd day of MAY,
1997.

Caroline M Balog

CAROLINE M. BALOG
Notary Public, State of Ohio
My Commission expires May 23, 2000
(recorded in Lake County)

SUMMARY

The proposed change requests revision of the Perry Nuclear Power Plant (PNPP) Technical Specifications (TS) to revise the existing exception to Limiting Condition for Operation (LCO) 3.0.4 as it applies to LCO 3.6.1.9 for the Main Steam Isolation Valve (MSIV) Leakage Control System (LCS). The LCO 3.0.4 exception was initially added to the TS by Amendment 63 to the Operating License, and expired upon completion of the fifth cycle of plant operation. The existing LCO 3.0.4 exception was added to the TS by Amendment 71 to the Operating License, and will expire upon completion of the sixth cycle of plant operation. The reason the change was requested for only one operating cycle was the anticipation that activities would be completed in the sixth refueling outage (RFO6) to resolve the issues which require the Inboard MSIV LCS subsystem to be declared inoperable during plant operation below 50 percent rated thermal power (RTP). This issue was to be resolved by the design changes associated with the elimination of the MSIV LCS.

A submittal to request elimination of the TS requirements for the MSIV LCS was submitted to the Nuclear Regulatory Commission (NRC) in a letter dated August 27, 1996 (letter number PY-CEI/NRR-2076L). Recent discussions with the NRC Staff have indicated that final approval of this license amendment will not be completed prior to Operating Cycle 7. Therefore, this proposed revision will make the change, previously approved in Amendment 63 and Amendment 71, a permanent change, and will revise the existing exception to clarify that it only applies for the Inboard MSIV LCS subsystem. There will be no need to submit a subsequent amendment request to remove this LCO 3.0.4 exception, since it will be removed when the TS requirements for the MSIV LCS are eliminated.

This proposed change has been developed for implementation prior to the completion of RFO6. In order to support the implementation process, issuance of this amendment is requested by October 9, 1997.

DESCRIPTION OF THE PROPOSED CHANGE

The proposed change would revise the existing note contained in Required Action A.1 of LCO 3.6.1.9 such that it would read:

-----NOTE-----
LCO 3.0.4 is not
applicable for the
inboard MSIV LCS
subsystem.

Attachment 3 provides a copy of the annotated TS page.

INTRODUCTION

During the fourth refueling outage (RFO4) at PNPP, the outboard MSIV before-seat drain lines were sealed off to eliminate a previously unidentified and unanalyzed path for secondary containment bypass leakage.

The modification introduced a situation wherein the Inboard MSIV LCS subsystem is considered inoperable in MODES 1, 2, and 3 below 50 percent RTP. The inoperability is due to accumulated water in the bottom of the steam line between the MSIVs from condensation at low steam flows. During power escalation above 50 percent RTP, operability of the Inboard MSIV LCS subsystem is restored because the condensate collected between the MSIVs is swept downstream by the steam velocity and drained out through downstream drains. Since an alternate design could not be installed before the scheduled outage completion on July 17, 1994, an emergency TS change to the MSIV LCS Specification was requested on July 14, 1994, to provide an exception to LCO 3.0.4 during Operating Cycle 5. This exception allowed entry into Operational Conditions 1, 2, and 3 under the provisions of the Action statement for one inoperable MSIV LCS subsystem. The request was approved by Amendment 63 to the Operating License, dated July 15, 1994.

Consideration was given to an interim design change for the fifth refueling outage (RFO5) that would allow for restoration of a drain path during Operating Cycle 6. However, there was a significant cost associated with any possible design change that would re-establish the drain function and avoid the secondary containment bypass concern, with minimal adverse safety implication associated with continuing operations with the drain lines sealed. Therefore, a license amendment request to extend the exception to LCO 3.0.4 until the completion of Operating Cycle 6 was submitted to the NRC in a letter dated April 28, 1995. This change was granted for Operating Cycle 6 by Amendment 71 to the Operating License, issued on September 8, 1995. The reason the change was requested for only one operating cycle was the anticipation that activities would be completed in RFO6 to resolve the issues which require the Inboard MSIV LCS subsystem to be declared inoperable during plant operation below 50 percent RTP.

Activities for final resolution of these issues are ongoing. A submittal to request the elimination of the TS requirements for the MSIV LCS was submitted to the NRC in a letter dated August 27, 1996 (letter number PY-CEI/NRR-2076L). The issues described above will be resolved by the design changes associated with the elimination of the MSIV LCS. Recent discussions with the NRC staff have indicated that final approval of this license amendment will not be completed prior to the completion of Operating Cycle 6. Therefore, this proposed revision will make the change, previously approved in Amendment 63 and Amendment 71, a permanent change (until completion of the above described design changes, which will eliminate the necessity for the LCO 3.0.4 exception), and will revise the existing exception to clarify that it only applies for the

Inboard MSIV LCS subsystem. The alternative to issuance of the requested amendment would require expenditure of significant man-hours and funds on a design change which would provide minimal safety benefit and for which the need would be obviated after approval of the elimination of the MSIV LCS. There will be no need to submit a subsequent amendment request to remove this 3.0.4 exception, since it will be removed when the TS requirements for the MSIV LCS are eliminated.

SAFETY ANALYSIS

The modification to seal off the outboard MSIV before-seat drain lines was completed during RFO4 to eliminate a previously unidentified and unanalyzed source of secondary containment bypass leakage. However, this modification created a situation wherein the condensate from the steam generated during heatup and power ascension collects in the bottom of the steam line between the MSIVs and cannot be drained. This condition remains until the condensate can be carried over by increasing steam velocities to other downstream drains, at approximately 50 percent RTP. While the inlet to the Inboard MSIV LCS subsystem line is flooded, the Inboard MSIV LCS subsystem is unable to satisfy its instrumentation logic and depressurize the space between the MSIVs.

LCO 3.6.1.9 requires both subsystems of the MSIV LCS (i.e., Inboard and Outboard) to be Operable in MODES 1, 2, and 3. Condition A allows inoperability of a single subsystem of MSIV LCS for up to 30 days prior to entry into the shutdown statement (Condition C), which is the longest Completion Time period (for a TS which has a shutdown Required Action) in the TS. This long Completion Time reflects a low relative significance for the MSIV LCS function as compared to other accident mitigation systems. The only function of the MSIV LCS is to mitigate the consequences of a large-break Loss of Coolant Accident (LOCA), and even then the system is only necessary if it is postulated that this event results in release of the extremely conservative source term assumptions of Regulatory Guide 1.3, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Loss of Coolant Accident for Boiling Water Reactors." PNPP-specific Emergency Core Cooling System analyses performed in accordance with 10 CFR 50, Appendix K have shown that no fuel damage would actually occur in such an accident; therefore, the high source term that the MSIV LCS is designed to mitigate is conservative.

Should an accident occur during plant operation while the inlets to the Inboard MSIV LCS subsystem and the (now sealed) drain lines are flooded, leakage past the inboard MSIVs will be directed toward the outboard MSIVs. Leakage past the outboard MSIVs will be routed by the Outboard MSIV LCS subsystem to the annulus for filtration by the Annulus Exhaust Gas Treatment System.

While the plant is operating in the 30 day Allowable Outage Time for the Inboard MSIV LCS subsystem, it is not necessary to assume single failure of the Outboard MSIV LCS subsystem. This is because the concept behind Action statements is that

they address modes of operation during which the facility may not be capable of responding to an initiating event plus a concurrent or subsequent single failure of an active component. Therefore, the Action statements restrict operation to a limited period of time while in such configurations. As noted in the NRC Generic Letter dated April 10, 1980, "the specified time to take action, usually called the equipment out-of-service time, is a **temporary relaxation of the single failure criterion**, which, consistent with overall system reliability considerations, provides a limited time to fix equipment or otherwise make it OPERABLE" (emphasis added). Consistent with this concept, while operating in the Action statement for the Inboard MSIV LCS subsystem, leakage past the inboard MSIVs will be routed by the Outboard MSIV LCS subsystem to the Annulus Exhaust Gas Treatment System for treatment, as assumed in the PNPP design-basis radiological calculations. The exception to LCO 3.0.4 simply permits use of the existing Action statement (Condition A of LCO 3.6.1.9) during MODE changes.

The inoperability of the Inboard MSIV LCS subsystem is not likely to utilize the entire 30 day Allowable Outage Time provided by the Completion Time, since the time required to startup and raise power to 50 percent RTP, or to shut down from 50 percent RTP, has typically been well within 30 days. The application of an exception to LCO 3.0.4 will not allow violation of the Required Action, i.e., if the Inboard MSIV LCS subsystem can not be restored within 30 days, the plant is required to be shut down. Also, the Condition entered if both subsystems of MSIV LCS were to become inoperable also remains the same.

The existing plant configuration was analyzed and determined to be acceptable for safe plant operation in the design change package implemented during RFO4.

This license amendment request simply permits use of the existing Action statement (Condition A of LCO 3.6.1.9) during MODE changes. Based on the above discussions and the conclusions of the "Significant Hazards Consideration" in Attachment 2, it is concluded that the issuance of the proposed license amendment would have an insignificant impact on plant safety.

ENVIRONMENTAL CONSIDERATION

The proposed Technical Specification change request was evaluated against the criteria of 10 CFR 51.22 for environmental considerations. The proposed change does not significantly increase individual or cumulative occupational radiation exposures, does not significantly change the types or significantly increase the amounts of effluents that may be released off-site and, as discussed in Attachment 2, does not involve a significant hazards consideration. Based on the foregoing, it has been concluded that the proposed Technical Specification change meets the criteria given in 10 CFR 51.22(c)(9) for categorical exclusion from the requirement for an Environmental Impact Statement.

COMMITMENTS WITHIN THIS LETTER

There are no regulatory commitments made in this letter. Any actions discussed in this document represent intended or planned actions, are described for the NRC's information, and are not regulatory commitments. Please notify the Manager - Regulatory Affairs at PNPP of any questions regarding this document or any associated regulatory commitments.

SIGNIFICANT HAZARDS CONSIDERATION

The standards used to arrive at a determination that a request for amendment involves no significant hazards considerations are included in the Commission's Regulations, 10 CFR 50.92, which state that the operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety.

The proposed amendment has been reviewed with respect to these three factors and it has been determined that the proposed change does not involve a significant hazard because:

1. The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

This License Amendment application proposes a revision to the exception to Limiting Condition for Operation (LCO) 3.0.4 as it applies to the Technical Specification (TS) for the Main Steam Isolation Valve (MSIV) Leakage Control System (LCS). This revision is proposed to permit completion of activities necessary to implement the most appropriate permanent resolution for the issues that resulted from the elimination of the secondary containment bypass leakage path through the Main Steam Line drains. In addition, the revision clarifies that the exception only applies to the Inboard MSIV LCS subsystem. The drains will remain in their current configuration, which seals off the secondary containment bypass leakage path. The sealed drain path results in a temporary inoperability of the Inboard MSIV LCS subsystem when the plant is operated below 50 percent rated thermal power (RTP), due to condensate build-up in the bottom of the steam lines between the MSIVs. The requested 3.0.4 exception is necessary to permit plant startups with this temporary inoperability. The exception to LCO 3.0.4 simply permits use of the existing Action statement (Condition A of LCO 3.6.1.9) during MODE changes.

The probability of occurrence of a previously evaluated accident is not affected by the proposed revision of the LCO 3.0.4 exception since no change to the plant or to the manner in which the plant is operated is involved. The existing plant configuration will be maintained, and possible concerns resulting from that configuration have been analyzed. The extra weight of the water pooled between the MSIVs was analyzed with respect to piping supports and seismic considerations and was found to be acceptable, and condensate that is carried past the outboard MSIVs will be drained to the condenser by drain connections downstream of the outboard MSIVs before it can reach the turbine. The temporary inoperability of the Inboard MSIV LCS subsystem when below 50 percent RTP has no impact on accident initiation probability, since the MSIV LCS does not serve to prevent accidents, but is only used in mitigating the consequences of Loss of Coolant Accidents (LOCAs) that have already occurred.

SIGNIFICANT HAZARDS CONSIDERATION

The consequences of an accident are not affected in that the Outboard MSIV LCS subsystem will be available to perform the MSIV LCS function by mitigating the consequences of a LOCA during the temporary period in which the Inboard MSIV LCS subsystem is unavailable. Condensate that is carried past the outboard MSIVs will be drained to the condenser by drain connections downstream of the outboard MSIVs; therefore, no impairment of the Outboard MSIV LCS subsystem will result from condensed water. The Required Action and Completion Time for one inoperable MSIV LCS subsystem remains the same, and limits plant operation to the previously established 30-day Allowable Outage Time. The Required Action if both subsystems of MSIV LCS were to become inoperable also remains the same. The MSIV function of isolating the Main Steam Lines is also unaffected by the existing plant configuration, since MSIV performance will not be affected by the existence of accumulated water in the bottom of the steam lines between the MSIVs during plant operation below 50 percent RTP. Therefore, if necessary, the Main Steam Lines will be isolated, and leakage past the MSIVs will be routed for filtration as in the design-basis radiological analyses, and the safety and radiological consequences of previously evaluated accidents will remain unaffected.

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

The proposed change to permit inoperability of the Inboard MSIV LCS subsystem during periods of startup and power ascension to 50 percent RTP and during shutdown below 50 percent RTP does not create the possibility of a new or different kind of accident from any previously evaluated. The Inboard MSIV LCS subsystem is only credited during a large-break LOCA wherein Reactor Coolant System depressurization occurs. The temporary unavailability of the Inboard MSIV LCS subsystem can be mitigated by operation of the Outboard MSIV LCS subsystem. The amendment to the TS is an administrative change that does not involve change to the current plant design or methods of operation. No new plant equipment failure modes or accident initiators are introduced by the LCO 3.0.4 exception.

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

The response to a large-break LOCA will not be affected since the Outboard MSIV LCS subsystem can be assumed to be available during the limited period of time that the Technical Specifications permit the Inboard subsystem to be unavailable. Allowing entry into MODES 1, 2, and 3 while utilizing the existing Condition A and Required Action A.1 does not reduce the margin of safety since the Completion Time allowed for that Condition is not increased. The proposed change will have no adverse impact on the reactor coolant system pressure boundary nor will other system protective boundaries or safety limits be affected.