



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

September 15, 1992

Docket No. 50-440

Mr. Michael D. Lyster, Vice President  
Nuclear - Perry  
The Cleveland Electric Illuminating  
Company  
10 Center Road  
Perry, Ohio 44081

Dear Mr. Lyster:

SUBJECT: PERRY NUCLEAR POWER PLANT, UNIT 1 - TEMPORARY WAIVER OF COMPLIANCE  
FROM TECHNICAL SPECIFICATION 3.6.4, CONTAINMENT ISOLATION VALVES  
(TAC NO. M84459)

This letter confirms the verbal granting by the NRC of a Temporary Waiver of Compliance (TWOC) from the requirements of Technical Specification (TS) 3.6.4, "Containment Isolation Valves," for the Perry Nuclear Power Plant, Unit 1. In a telephone conference with the NRC staff at 12:00 AM on September 12, 1992, the Cleveland Electric Illuminating Company (CEI) requested the TWOC for the Reactor Core Isolation Cooling (RCIC) steam supply outboard containment isolation valve (1E51-F064) and the Reactor Water Cleanup (RWCU) system outboard containment isolation valve (1G33-F004), which had been declared inoperable as a result of an engineering evaluation. This evaluation was performed using assumptions considered appropriate by the NRC staff, which were conveyed to your staff in a meeting held on September 10, 1992, followed by additional discussions on September 11, 1992.

The specific relief requested was a waiver from TS 3.6.4, Action a., which requires that inoperable valves be restored to operable status, or the associated penetrations isolated, within four hours. If these conditions are not met, the plant is to be brought to cold shutdown. During the verbal request (and in your subsequent letter of September 12, 1992 documenting the request), you provided a safety assessment to justify plant startup and operation with the valves in their current condition. You requested that the waiver be granted until such time that a Technical Specification change could be processed. This proposed change (to be submitted on or about September 18, 1992) would allow continued plant operation with the valves in their current condition until the next refueling outage, scheduled to begin in September of 1993. Prior to restart from that outage, the valves will be restored to an operable status. Following your verbal request, the TWOC was granted at 12:40 AM on September 12 by the Office of Nuclear Reactor Regulation (NRR), with the concurrence of the NRC's Region III office.

At the time of the declaration of inoperability of the two valves, the plant was in Operational Condition 3, Hot Shutdown, preparing for a mode change to Startup. Due to the complexity of potential design fixes and the associated planning needed to restore the valves to an operable status, the respective systems would have had to have been isolated to comply with the TS, thereby precluding plant startup for an extended period of time.

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The NRR staff evaluated the information provided in your September 12, 1992 letter. We conclude that it provides an acceptable basis for the staff's granting of the waiver, and accurately documents your verbal request. A discussion of the technical basis for the waiver follows.

The function of these RCIC and RWCU valves is to isolate the associated containment penetrations for these systems upon receipt of an appropriate signal. These valves are maintained in the open position during normal operation to assure system availability. For the scenarios of concern, i.e. a RCIC steam line break or an RWCU suction line break, these valves could be called upon to close against a high differential pressure (dP). In reviewing your calculations in support of your operability determination for these valves, the staff was concerned that these valves may not be capable of closing against the maximum postulated dP used for the design basis assumptions. Based on discussions with the staff, you declared the valves inoperable for the specific case of an RCIC steam line or RWCU suction line break occurring coincident with a degraded grid voltage of 95% and the concurrent failure of the respective inboard isolation valve. Although the valves are considered to be inoperable under this narrow set of circumstances, this condition is not considered to impact the ability of the RCIC or RWCU systems to operate as designed in situations not involving line breaks. In addition, it is likely that the valves will be able to fully close under a wide range of postulated pipe breaks for which the resulting dP would be considerably below the design basis case.

In your safety assessment, you calculated the frequency of the simultaneous occurrence of the events identified above to be  $2.17 \text{ E-11/year}$ . While the staff does not endorse that value, we agree that the scenario in question is an extremely low probability event. Our basis for that conclusion is consistent with the discussion provided in your assessment. The likelihood of a pipe break in either the RCIC steam supply line or the RWCU suction line is very low, due to the design standards of the piping, the low potential for a water hammer event, the minimal potential for erosion/corrosion due to limited use of the RCIC steam line, the application of the erosion/corrosion monitoring program for the RWCU piping, and the low susceptibility of the piping downstream of the valves to intergranular stress corrosion cracking (IGSCC) effects. Plant design provides for redundant leak detection capability for high energy lines external to containment; therefore, identification of leaks and isolation of the valves in question is likely before the high differential pressure associated with a design basis pipe rupture would occur.

In the event that a single failure of the inboard valve is assumed in one of the lines and the outboard valve fails to close completely against the maximum dP due to a torque switch trip, the outboard valve could probably be closed on a subsequent attempt following blowdown. The staff will continue to evaluate your planned actions to improve the performance of the inboard and outboard isolation valves for these lines. However, even if the performance of the inboard valves is marginal, since the valves in each system receive coincident isolation signals, the combined effect of closing both valves simultaneously is that the dP across each valve in the line would be reduced. Therefore, it

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is likely that one or both valves would close. The staff also agrees that a degraded grid condition is unlikely to occur coincident with a postulated line break and the failure of an inboard isolation valve.

The design of the emergency core cooling system (ECCS) rooms protects the ECCS from the consequences of flooding, in the event of an RCI steam line or RWCU supply line break. This assures the availability of sufficient makeup water to prevent the reactor core from being uncovered. In addition, safe shutdown capability would not be impacted.

In your letter, you also committed to implement interim administrative controls to require the starting and transfer of loads to the Division 1 diesel generator, if the bus voltage decreases to the TS degraded voltage point. This action will ensure that a reduced voltage condition at the valve operators will not result, providing greater assurance that the valves will close as designed.

We understand that you are actively evaluating methods for restoring the operability of the valves in question, in parallel with the preparation of an emergency Technical Specification change request. The staff strongly encourages the timely restoration of these valves. However, this TWOC has been granted until the staff acts upon your proposed TS change, which we understand will be submitted by September 18, 1992. If your intentions are different than described, or you have any questions regarding this matter, please contact me.

Sincerely, Original signed by L. B. Marsh for:

John A. Zwolinski, Assistant Director  
for Region III Reactors  
Division of Reactor Projects III/IV/V  
Office of Nuclear Reactor Regulation

cc:

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