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VICE PRESIDENT
NUCLEAR GROUP

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PERRY NUCLEAR POWER PLANT

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

Perry Nuclear Power Plant
Docket No. 50-440
Response to Notice of Deviation
50-440/89026-01

Gentlemen:

This letter acknowledges receipt of the Notice of Deviation contained within Inspection Report 50-440/89026 dated December 15, 1989. The report identified areas examined by Messrs. P. Hiland, G.F. O'Dwyer, and B. Drouin during their routine safety inspection conducted from October 12 through November 21, 1989 of activities at the Perry Nuclear Power Plant Unit 1.

Our response to Notice of Deviation 50-440/89026-01 is attached. Please call if you have any additional questions.

Very truly yours,

Al Kaplan
Vice President
Nuclear Group

AK:njc

Attachment

cc: T. Colburn
P. Hiland
R.C. Knop - USNRC, Region III

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50-440/89026-01
Restatement of Deviation

Perry Nuclear Power Plant Updated Safety Analysis Report, Revision 1, dated March 1989, Section 9.2.2.3 stated that the Unit 2 emergency closed cooling system is used as the Seismic Category I backup cooling water supply to the fuel pool heat exchangers. Further it was stated that: (1) "The Unit 2 emergency closed cooling system will be available to provide fuel pool heat exchanger cooling water prior to Unit 1 refueling;" and (2) "Any time after the start of emergency closed cooling system operation, cooling may be restored to the fuel pool heat exchangers by remote-manual action from the control room."

Contrary to the above; (1) the Unit 2 emergency closed cooling system was not available to provide fuel pool heat exchanger cooling water prior to Unit 1 refueling, and (2) the system cross-connect from Unit 1 emergency service water (current Seismic Category I backup) was not capable of being placed in service by remote-manual action from the control room. As identified in System Operating Instructions (SOI)-G41, "Fuel Pool Cooling and Cleanup System," Revision 6, dated December 30, 1988, and SOI-P45/49, "Emergency Service Water and Screen Wash Systems," Revision 0, dated August 22, 1989, the method utilized to provide a backup Seismic Category I source of fuel pool heat exchanger cooling was expected to take 24 hours to implement. In addition, those instructions required the selected Unit 1 emergency service water loop to be drained in order to remove "blind flanges." Draining of the selected Unit 1 emergency service water loop would make that loop incapable of performing other intended safety functions.

Background

The Perry Nuclear Power Plant was originally designed as a twin unit facility with specific support systems common to both operating units. For example, Unit 2 Emergency Closed Cooling (ECC) was intended to support the operation of Unit 2 as well as providing backup cooling water to the fuel pool heat exchangers during loss of normal cooling flow from the Nuclear Closed Cooling (NCC) System. Construction of Unit 2 was indefinitely postponed in 1983 and the Unit 2 ECC System was not completed. Design changes were made to enable Unit 1 Emergency Service Water (ESW) to be cross-tied into Unit 2 heat loads so that a safety related source of cooling water was available for the fuel pool heat exchangers. Design calculations were performed to ensure that Unit 1 ESW could supply enough cooling water to the fuel pool heat exchangers while still maintaining flow through the normal flow paths. At that time, it was estimated that the Unit 2 ECC System would be completed before completion of the Unit 1 first refuel outage (RFO-1). A change to the Perry Final Safety Analysis Report (FSAR) was processed in Amendment 17, effective March 6, 1985, that indicated the fuel pool heat exchanger cooling water would be supplied from Unit 1 ESW prior to Unit 2 operation. The original statement, Unit 2 ECC system will be available to provide fuel pool heat exchanger cooling water prior to Unit 1 refueling, was not deleted from the FSAR in Amendment 17 due to an administrative error.

Section 9.2.2 of the Updated Safety Analysis Report (USAR) provides a description of the Emergency Closed Cooling System which details the capability to restore fuel pool cooling from Unit 2 ECC by remote-manual action from the control room. This statement was intended to apply to the original two unit design and a postulated loss of NCC. It was not intended to apply to interim measures used prior to Unit 2 operation. Remote-manual action from the control room is not considered a design requirement for the alternate cooling supply to the fuel pool heat exchangers.

Corrective Actions

The present plant spent fuel pool heat loads were physically measured during RFO-1 to cause the fuel pool temperature to increase at a rate of 4 degrees Fahrenheit per day while fuel pool cooling and cleanup was out of service. Without alternate cooling measures, a loss of normal cooling would cause the normal spent pool temperatures (approximately 95 degrees F.) to increase to the the alarm setpoint (127 degrees F.) in approximately eight days. Equipment operation is not affected until 150 degrees F. is reached; this would occur in another five to six days. The transfer to Emergency Service Water System backup cooling involves draining the system to reverse spectacle flanges, and was demonstrated during the Startup Testing Program to take approximately 24 hours. Therefore, adequate time exists to implement the procedure prior to reaching excessive pool temperatures.

Additionally, for the current conditions, adequate time exists to implement other alternate cooling measures (such as system bleed and feed, fill and drain or use of temporary external cooling systems) if conditions do not allow the 24 hour shutdown of the Unit 1 ESW System.

Corrective actions included the calculation of a profile of heat generation from the stored fuel versus time for the first four fuel load discharges. This was used to plot spent fuel pool temperature over time after a loss of normal cooling. This engineering evaluation was reviewed for the most limiting condition with respect to the fuel pool heat exchangers. The most restrictive case occurs approximately 50 days after the second cycle core offload (presently estimated to occur in November, 1990). An engineering evaluation of this condition is in progress to determine if engineering or procedural changes need to be completed before the next refueling outage. A USAR Change Request is being processed to delete references to completion of Unit 2 ECC System prior to Unit 1 refueling outage. Additionally, the design requirements of backup cooling supply systems will be reviewed and appropriate action(s) taken.

Date of Full Compliance

A supplemental report will be provided to the Commission pursuant to this Notice of Deviation no later than Unit 1 startup following RFO-2.