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March 16, 1988

Docket Nos. 50-277
50-278

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

Subject: Special Report - Both Fire Pumps Out of
Service at Peach Bottom Atomic Power Station

- References:
- (1) Telephone Conversation at 2315 hours on March 2, 1988 between Mr. D. Warfel (PECo) and Mr. Smith (NRC Operations Response Center)
 - (2) Letter dated March 3, 1988 from J. F. Franz (PECo-PBAPS) to W. T. Russell (NRC-Region I)
 - (3) Telephone conversation between Mr. J. Kovalcnick (PECo) and Mr. Gould (NRC Operations Response Center)
 - (4) Letter dated March 7, 1987 from J. F. Franz (PECo-PBAPS) to NRC Document Control Desk

Gentlemen:

This report addresses the simultaneous inoperability of both fire pumps. Peach Bottom Atomic Power Station Technical Specification 3.14.A.3 requires that if two fire pumps are inoperable, the Commission must be notified by telephone within 24 hours, and in writing within one working day. Technical Specification 3.14.A.3 also requires that a report be submitted within 14 days outlining the actions taken and the plans and schedule for restoring the equipment to an operable status. There are two fire pumps at Peach Bottom common to both units; a motor driven pump and a diesel engine driven pump. On March 2, 1988 both pumps were inoperable for 30 minutes due to a spurious breaker trip. The event was reported to the NRC by telephone and in writing (references 1 and 2) as required. On March

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5, 1988 it was determined that while the motor driven fire pump was inoperable, the fuel oil volume in the diesel engine driven fire pump storage tank was slightly less than the Technical Specification surveillance requirement. The event was reported to the NRC by telephone and in writing (references 3 and 4) as required. This report fulfills the 14-day reporting requirement for both events.

Unit Conditions Prior to Both Events:

- o Unit 2 in Cold Condition
- o Unit 3 Reactor Vessel Off-Loaded, Pipe Replacement in Progress

Description of Events:

On March 2, 1988 at 2104 hours, the E-224 440 volt emergency load center supply breaker tripped open, thereby removing the power supply for the motor driven fire pump. At the time, the diesel engine driven fire pump was blocked out of service to permit maintenance on the fuel oil transfer pump. Consequently, both fire pumps were inoperable. Thirty minutes later the E-224 breaker closed, restoring the motor driven fire pump's power supply. The spurious breaker trip and spurious breaker closure were investigated and determined to be caused by failure of the undervoltage relay on the E-22 4Kv emergency bus. The E-22 4Kv bus supplies power to the E-224 440 volt bus through the E-224 breaker and a step-down transformer. As a temporary measure to ensure a source of power to the E-224 bus's loads, including the fire pump, a feed was installed between the E-224 bus and E-424 bus at 0503 hours on March 3, 1988. Subsequently, the E-22 bus was removed from service to permit replacement of the failed undervoltage relay. While the motor driven fire pump was on this alternate power supply, it was considered inoperable even though it was functional.

This event will also be discussed in LER 2-88-04 which will be submitted by April 1, 1988 (because of engineered safety feature actuations that occurred).

At 1410 hours on March 4, 1988 the diesel engine driven fire pump was unblocked and returned to operable status after performing the operability surveillance test (ST 6.17). At 1325 hours on March 5, 1988 the motor driven fire pump was blocked out of service to permit repair of a pressure switch. At 1500 hours on the same day it was discovered that there was slightly less fuel oil in the diesel engine driven fire pump storage tank than the minimum specified by the Technical Specifications surveillance requirement. Technical Specification 4.14.A.1.e(1) requires verification at least once per 31 days that there is at least 300 gallons of fuel in the storage tank;

however, there was 290 gallons of fuel in the tank at the time. This volume was recorded on a daily operator round sheet from the 11 p.m. to 7 a.m. shift earlier that day. Within one hour from discovery, additional fuel was added to the tank to bring the volume above 300 gallons. Therefore, from 1325 hours (when the motor driven pump was blocked) to 1600 hours (when more fuel was added to the storage tank) the motor driven fire pump was inoperable and the diesel engine driven fire pump was inoperable, but was capable of operating during this period.

Cause of the Events:

The cause of the March 2, 1988 event was failure of the undervoltage relay on the E-22 bus (General Electric Company relay, Model No. 12HGA14AH6A). This failure will be discussed in more detail in LER 2-88-04.

The diesel engine driven fire pump was returned to operable status with less than 300 gallons of fuel in the storage tank because of a procedural deficiency. Prior to restoring the pump to operable status, the operability surveillance test (ST 6.17) was performed. This test is supposed to verify that the pump's operability requirements are satisfied; however, the test does not address the available fuel quantity.

Significance of Events:

The safety significance of these events is considered to be minimal because of the short time periods of inoperability involved. On March 2, 1988 both pumps were unavailable for only 30 minutes. On March 5, 1988 the volume of diesel fuel in the storage tank was approximately 96% of the Technical Specification required amount. That quantity, including the fuel in the day tank, is estimated to have been enough for the pump to operate for approximately 15 hours at full load. The ten gallon deficiency is of minimal significance considering that additional fuel was readily available on-site.

Corrective Actions:

The failed relay was replaced on March 6, 1988 at approximately 1700 hours and the motor driven fire pump's normal power supply (E-22 bus) was restored.

The diesel engine driven fire pump operability surveillance test (ST 6.17) will be revised by April 8, 1988 to add a verification

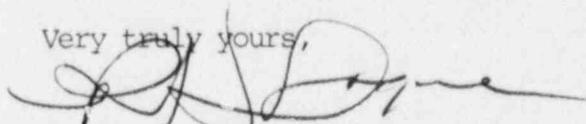
that there is at least 300 gallons of fuel in the storage tank at the completion of the test.

Previous Similar Occurrences:

Both fire pumps were inoperable on June 29, 1984 (reported in LER 2-84-13) and on July 31, 1987 (reported in August 14, 1987 special report).

If you have any questions or require additional information, please do not hesitate to contact us.

Very truly yours,



R. H. Logue
Assistant to the Manager
Nuclear Support Division

cc: W. T. Russell, Administrator, Region I, USNRC
T. P. Johnson, USNRC Resident Inspector