

PHILADELPHIA ELECTRIC COMPANY

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NUCLEAR ENGINEERING & SERVICES DEPARTMENT

April 3, 1992

Docket Nos. 50-277

50-278

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

Subject: Request For Additional Information Re: Emergency Service
Water System Technical Specification Change For Peach
Bottom Atomic Power Station, Units 2 and 3

Reference: Letter, USNRC, J. W. Shea, to PECO, G. J. Beck, dated
January 30, 1992.

Dear Sir:

After reviewing Philadelphia Electric Company's January 10, 1992 submittal, the Nuclear Regulatory Commission (NRC) has issued a request for additional information, dated January 30, 1992. This request was clarified during a February 11, 1992 telephone conversation between C. J. Siefert, PECO and S. Jones, USNRC.

The subject letter delineated four specific areas that the NRC requested additional information. Each of these requests is restated along with the PECO response.

Request 1

The staff does not consider the proposed 7 day AOT [Allowable Out of Service Time] for inoperability of one ESW pump (change request 1) to be consistent with the standard TSs. The system conditions described in the standard TSs corresponding to the 7-day AOT for the plant service water pumps would allow the system to accommodate an additional single failure and still perform its design function. The PBAPS ESW system is not credited with the capability to perform its design function following an additional single failure with one ESW pump inoperable. The standard TSs prescribe a 72-hour AOT when the plant service water system has an operational capability similar to that described above for PBAPS. Accordingly, the licensee is requested to provide additional justification for a 7-day AOT or propose a 72-hour AOT for a single inoperable ESW pump.

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Response

The ESW configuration at Peach Bottom is different than the plant service water configuration in standard TSs. The standard TS plant emergency service water system uses two loops; each loop with two 50 percent capacity pumps. Peach Bottom uses two ESW loops; each loop with a one hundred percent capacity pump. Because of these differences it is impossible to draw an exact parallel between the Standard TS and Peach Bottom; however, during the proposed seven day AOT and the standard TS 7 day AOT both plants would have 100% capacity available. Similar to the standard plant, PBAPS could not meet its design requirements with an additional single failure. The standard TS plant could only meet 50 percent of its emergency cooling requirements. Since PBAPS is different than the standard plant additional factors were considered in the proposed 7 day AOT.

The seven day AOT is being proposed because, as discussed in response 2, the impact on plant safety of establishing a 7 day AOT for an inoperable ESW pump is consistent with and bounded by existing TS AOTs for other safety related equipment. Further, the proposed 7 day AOT affords much greater flexibility. Specifically, a 7 day AOT would allow the station to perform routine preventative maintenance on an ESW pump. If the AOT was 72 hours only the most minor preventative maintenance and virtually no corrective maintenance could be completed without a dual unit shutdown.

Further, the proposed PBAPS AOT represents a significant change from the existing TS. The original TS took credit for the ECW pump as an equivalent ESW pump and allowed for an unlimited AOT for any of the three pumps and a thirty day AOT for two pumps out of service. The proposed TS would in essence declare the ECW inoperable and now require a seven day AOT if an additional pump were to be declared inoperable.

Request 2

Insufficient detail for staff evaluation was provided with the Probabilistic Risk Assessment (PRA) of the 7-day AOT for inoperability of one ESW pump (change request 1). The licensee is requested to identify and explain assumptions incorporated in the PRA, and provide additional appropriate information.

Response

A PRA analysis was conducted to support the TS Change Request. In conducting the analysis no credit was taken for the Emergency Cooling Water pump because that pump could not be proven to be equivalent to an ESW pump. The analysis compared the relative impact on core damage frequency for the existing AOTs for the High Pressure Coolant Injection (HPCI) System and each of the Diesel Generators to the proposed AOT for the ESW pumps. The HPCI and DGs were selected for comparison because all three systems are safety related systems with 7 day AOTs. In addition, the 7 day AOT for the HPCI system used as a basis for comparison is more restrictive than

the proposed 14 day AOT for the drafted improved TS (Draft NUREG 1433); therefore, the use of the HPCI AOT as a baseline is considered conservative. The impact on the core damage frequency was less in all cases for the 7 day AOT on the ESW pumps.

The PRA analysis that was performed used both industry and plant specific data. Three factors were considered in determining the availability of the ESW system, the Diesel Generators and the HPCI pump: 1) Testing and Maintenance, 2) Failure to Start and 3) Failure to Run. Where sufficient data exists to provide a statistically reliable availability factor the PRA analysis uses plant specific data. These included: the DG testing and maintenance factor, the DG failure to start factor and the HPCI pump testing and maintenance factor. The remaining factors were taken from industry sources as reported in NUREGS. A comparison between the NUREG factors for ESW failure to start and failure to run and plant specific data for these factors was conducted. The NUREG numbers and the plant specific numbers were consistent; however, the NUREG numbers were used because the data was generated from a larger population and are therefore more statistically accurate.

Request 3

Change Request 3 decreases the test interval of the Emergency Cooling Tower (ECT) fans to once every three months. The proposed change to the associated section of the TS bases (change request 6) states: "the testing of the emergency cooling tower fans, the ESW Booster pumps and the ECW pump, in accordance with existing ASME codes, assures the required availability of the equipment." The ECT fans are not currently part of the PBAPS In-service testing (IST) program described in Section XI of the ASME code. The licensee is requested to clarify the proposed testing requirements for the ECT fans.

Response

Because of an administrative error the Description of Changes section in the body of the submittal and the Proposed TS Bases pages provided as an attachment to the submittal are different. The correct versions of the proposed TS pages 235a for Unit 2 and Unit 3 are attached to this submittal and the Description of Changes section with the correction highlighted should read:

(8) Licensee proposes to revise the Bases of Section 4.9. The last paragraph of the section shall be revised to eliminate reference to the Emergency Cooling Water pump, the ESW Booster pumps and the Emergency Cooling Tower fans. This information belongs in the bases for the alternate heat sink facility as discussed in change 12. The last sentence of Section 4.11.B Bases will state: "the testing of the ESW Booster Pumps and the ECW pump is in accordance with existing ASME codes and assures the required availability of the equipment."

We regret any inconvenience this mistake has caused.

The proposed testing of the ECT fans every three months (as requested in change request 5) will assure the fans are operable. This testing frequency is being proposed because it is consistent with the testing frequency being proposed for the ESW Booster pumps and the ECW pump. The Section XI ASME code testing of the ECW pump and the ESW Booster Pumps will assure operability of the pumps and it is prudent to test the other components of the ECT on the same frequency.

Request 4

In the safety discussion regarding the addition of a surveillance requirement to inspect and clean the ESW pump intake structures, the licensee states that the operation of the pump which draws water from the intake structure being inspected may be blocked. The licensee also states that there is no concern that the proposed testing could decrease system availability. The licensee is requested to describe controls to assure system availability will not be reduced following completion of the proposed inspection.

Response

It may be necessary to have a diver enter the ESW pump wet well and remove silt and mud. The ESW pump would be blocked from service to allow a diver to enter the pump wet well safely. The normal blocking and clearing procedures will be used to assure that the work can be completed safely and the equipment returned to operation. These procedures are used anytime a piece of equipment is removed from service. The existing blocking and clearing practices are described in A-Procedure 41, "Control of Safety Related Equipment". This procedure is available for your review.

If you have any questions regarding this matter please feel free to contact us.



G. J. Beck, Manager
Licensing Section

cc: T. T. Martin, Administrator, Region I, USNRC
J. J. Lyash, USNRC Senior Resident Inspector, PBAPS
W. P. Donrsife, Commonwealth of Pennsylvania

PBAPS

3.11 BASES| Emergency Heat Sink

The emergency heat sink is provided as an alternate source of cooling water to the plants in the unlikely event of loss of the normal heat sink (Conowingo Pond) or the maximum credible flood. For the condition of loss of the normal heat sink, the contained volume of water (approximately 3.7 million gallons, which corresponds to a gauge reading of 17') provides a minimum of seven days cooling water to both plants for decay heat removal. The testing of the ESW Booster Pumps and the ECW pump is in accordance with existing ASME codes and assures the required availability of the equipment.

C. Emergency Shutdown Control Panels

The Emergency Shutdown Control Panels are provided to assure the capability of taking the plants to the hot shutdown condition external to the control room for the unlikely condition that the control room becomes uninhabitable.

D. Shock Suppressors (Snubbers) on Safety Related Systems

Snubbers are provided to ensure that the structural integrity of the reactor coolant system and all other safety-related systems are maintained during and following a seismic or other event initiating dynamic loads. Snubbers are designed to prevent unrestrained pipe motion under dynamic loads as might occur during an earthquake or severe transient while allowing normal thermal motion during startup and shutdown. The consequence of an inoperable snubber is an increase in the probability of structural damage to piping as a result of seismic or other event initiating dynamic loads. It is therefore required that all snubbers necessary to protect the primary coolant system or any other safety system or components be operable during reactor operation.

Because the snubber protection is required only during low probability events a period of 72 hours is allowed for repairs or replacements. A determined effort will be made to repair the snubber as soon as possible. This allowable repair period is consistent with the allowable repair items of other safety related components such as RHR pumps, HPCI subsystems, ADS valves and diesel generators.

An engineering analysis must be performed on supported components when a snubber is determined to be inoperable. The purpose of this analysis is to assure that the supported components have not been damaged as a result of the snubber inoperability.

PBAPS

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