

# PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

(215) 841-5001

SHIELDS L. DALTROFF  
VICE PRESIDENT  
ELECTRIC PRODUCTION

June 19, 1984

Docket Nos. 50-277  
50-278

Mr. John F. Stolz, Chief  
Operating Reactors Branch #4  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUBJECT: NUREG-0737, Item II.K.3.16  
Reduction of Challenges and Failures of  
Relief Valves - Peach Bottom Atomic Power  
Station - Units 2 and 3

REFERENCE: (1) Correspondence dated April 23, 1984  
(J. F. Stolz, NRC, to E. G. Bauer, Jr., PECO)  
(2) Correspondence dated April 2, 1981  
(J. W. Gallagher, PECO, to D. G. Eisenhut, NRC)

Dear Mr. Stolz:

This letter provides the information requested in reference (1) and updates our previous position on this issue identified in reference (2).

By letter dated March 31, 1981, the BWR Owners' Group submitted the results of a feasibility study and evaluation of various actions and modifications which might reduce the challenges and failures of relief valves to achieve the objectives of NUREG-0737, Item II.K.3.16. Subsequently, Philadelphia Electric Company proposed the following modifications, based on the BWR Owners' Group evaluation, as a means of implementing II.K.3.16:

- (1) Lower the reactor pressure vessel water level isolation setpoint for main steam isolation valve (MSIV) closure from Level 2 to Level 1.

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- (2) Implement BWR Emergency Procedure Guidelines. This provides manual action which is equivalent to the low-low set relief logic.
- (3) Increase relief valve simmer margin.
- (4) Install analog transmitter/trip unit system.
- (5) Reduce MSIV Testing.

In reference (1), the NRC enclosed its safety evaluation of the BWR Owners' Group feasibility study. The following modifications were identified by the staff as acceptable to reduce SRV challenges and failures:

- (1) Low-Low Set Relief Logic System or Equivalent Manual Actions;
- (2) Lower the reactor pressure vessel water level isolation setpoint for main steam isolation valve closure from Level 2 to Level 1;
- (3) Increase safety/relief valve simmer margin; and
- (4) Preventive Maintenance Program.

We have implemented items 1, 3, and 4 and have submitted a change to the Technical Specifications to allow implementation of item 2 at Peach Bottom. Consequently, we will be in full compliance with the NRC's guidance in NUREG-0737, Item II.K.3.16. A response to each of the three questions posed in reference (1) follows:

1. Which, if any, of the staff recommended modifications have been implemented?

Response

- (a) Equivalent Manual Actions

The Peach Bottom Emergency Procedures follows the BWR Owners' Group guidelines by directing the operator to manually open one or more safety relief valves if they are cycling in order to maintain reactor pressure below 1090 psig. The operator is directed to reclose the SRV at 950 psig. These procedures were implemented in 1983.

(b) Increase safety-relief valve simmer margin

The safety-relief valve (SRV) setpoints were increased 25 psig during 1977-78 in accordance with License Amendment Nos. 36 and 41 for Units 2 and 3, respectively. The revised setpoints range from 1105 psig to 1125 psig. As concluded in the NRC's Safety Evaluation supporting amendment 36 to Facility License No. DPR-44, issued August 18, 1977, the higher SRV setpoints reduce the probability of excessive leakage around the pilot valve and subsequent spurious valve openings.

(c) Preventive Maintenance Program

The safety-relief valves are incorporated into the Peach Bottom Preventive Maintenance Program. This involves the removal of at least five of the eleven Target-Rock safety-relief valves every operating cycle (all valves are tested every two cycles). The valves are refurbished and setpoint tested.

2. Which, if any, of the staff recommended modifications do you propose to implement?

Response

- (a) Lower the reactor pressure vessel water level isolation setpoint for main steam isolation valve closure from Level 2 to Level 1.

This modification requires NRC approval of a pending Peach Bottom License Amendment Application. The Application was transmitted by letter dated April 19, 1984, and requests approval to lower the isolation setpoint as proposed. The modification will be implemented no later than the first refueling outage commencing after issuance of the license amendment.

The Peach Bottom Project Manager informed us, by telephone on May 3, 1984, of an inconsistency in our April 19, 1984, Application between the description on page 11 and the proposed Technical Specification pages. The description on page 11 refers to new footnotes on proposed Technical Specification pages 12, 61 and 63. These footnotes appeared on early drafts of our Application and were deleted from the final draft sent to the NRC without revising the description. Therefore, please ignore the last sentences of the middle paragraph on page 11 of the description. A revised page 11 is

attached for your use. We were advised to formally notify the staff in this correspondence.

3. Have you implemented or propose to implement any of the other modifications or actions discussed in NUREG-0737, Item II.K.3.16, or in the BWR Owners' Group Report?

Response

- (a) Lower Reactor Pressure Isolation Setpoint for MSIVs

We plan to initiate a license amendment application later this year, proposing a reduction in the reactor pressure isolation setpoint for main steam line isolation. This modification will not only reduce the potential for a plant transient, but as reported in the BWR Owners' Group Report, will result in a slight reduction in SRV challenges. The plans for implementing this modification are mentioned here only for your information and should not be considered as being necessary to the implementation of Item II.K.3.16.

- (b) Analog Transmitter/Trip Unit System

The BWR Owners' Group Evaluation Report concluded that the use of analog transmitter/trip unit system would reduce the number of reactor scrams resulting from procedural and physical errors during surveillance tests. Analog instruments have been installed at Peach Bottom on trip systems associated with the measurement of drywell pressure, reactor vessel pressure, reactor vessel water level, main steam line flow, and main condenser vacuum. These improved trip systems permitted a reduction in the calibration frequency from quarterly to once per operating cycle, and allowed the monthly functional test to be limited to the injection of an electrical signal into the trip unit in lieu of valving the sensor in and out-of-service. These changes in testing reduce the potential for a spurious initiation of a plant transient. The analog components are also highly stable and easily testable. While this improvement was not assessed in the NRC Safety Evaluation Report (reference 1), it should be recognized as making a contribution to meeting the objectives of NUREG-0737, Item II.K.3.16.

- (c) Early Removal of Leaking Valves

Further, a diagnostic technique is currently utilized to monitor pilot stage leakage and the potential for spurious valve opening. The technique is based on a

rough correlation between leakage and measured noise using acoustic sensors installed on each SRV. If the data indicates a potential for a spurious valve opening, the SRV is scheduled for removal and refurbishing. This program may be modified from time to time based on our assessment of its effectiveness and value in predicting potential problems.

Proposal (5) in our April 2, 1981, submittal (reference 2), was not assessed in the NRC evaluation and is therefore withdrawn as a proposal to meet Item II.K.3.16. This change involved a reduction in the potential for inadvertent isolations by reducing the testing frequency of main steam isolation valves. As stated in our submittal, an application for a License Amendment regarding reduced testing frequencies would depend upon NRC conclusions regarding this matter. Considering the low operability failure rate exhibited during full closure tests, a reduction in testing frequency appears to have merit. Currently, we are supporting a BWR Owners' Group task to develop a methodology for justifying changes in the testing frequencies for Reactor Protection System and Emergency Core Cooling System initiation components. If this task meets with favorable results, we would consider expanding the program to cover other systems such as the MSIV's.

Should you have any questions regarding this submittal, please do not hesitate to contact us.

Very truly yours,



WCB:vdw

Attachment

cc: A. R. Blough, Site Inspector

ATTACHMENT

clarified in example (vii) of 48 FR 14870 for actions not likely to involve a significant hazards consideration.

Licensee requests that the pages 11a, 12, 15, 21, 61, 63, 72 and 79 of the proposed Technical Specifications take effect immediately upon approval of this Amendment application to Facility Operating Licenses DPR-44 and DPR-56, and that pages 80, 89, 182 and 199 of the proposed Technical Specifications take effect upon completion of the modifications, authorized by approval of this Amendment Application, to lower the actuation of the Group 1 Primary Containment Isolation Valves from -48 inches indicated level (low-low reactor water level) to -160 inches indicated level (low-low-low reactor water level).

- 3) Licensee hereby requests that the requirement for auditing of the Facility Emergency Plan and Implementing Procedures, as specified in Section 6.5.2.8.e on page 252 of Appendix A of the Operating Licenses, be revised to specify performing the audit at least "once per year" rather than "once per two years". The proposed revision would bring the Licensee's existing plant - specific technical specifications into