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JOSEPH W. GALLAGHER
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April 2, 1981

Re: Docket Nos. 50-277
50-278

Mr. Darrell G. Eisenhut, Director
Division of Licensing
US Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Information Requested by NUREG 0737,
"Clarification of TMI Action Plan Requirements"

Dear Mr. Eisenhut:

Several of the TMI related requirements identified in NUREG 0737 request the licensee to submit proposed modifications and the results of engineering studies evaluating new design standards. A response to the following NUREG 0737 tasks is presented in the attachments. The number in parenthesis corresponds with the TMI Action Plan identification numbers.

Attachment A - Reduction of Challenges and Failures of Relief Valves - Feasibility Study and System Modification (II.K.3.16)

Attachment B - Modification of Automatic Depressurization System Logic - Feasibility For Increased Diversity for Some Event Sequences. (II.K.3.18)

Attachment C - Control Room Habitability Requirements (III.D.3.4)

We believe these enclosures provide the information requested by the NRC. Should you have any questions regarding this submittal, please do not hesitate to contact us.

Very truly yours,

Joe Gallagher

Enclosure

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PEACH BOTTOM ATOMIC POWER STATION

ATTACHMENT A

NUREG 0737 Requirement: Reduction of Challenges and Failures of Relief Valves

An investigation of the feasibility of reducing challenges to the relief valves should be conducted. Changes should be implemented to reduce challenges by an order of magnitude. The changes shall be accomplished during the next scheduled refueling outage following staff approval or no later than one year following staff approval.

Response

Philadelphia Electric Company participated in the General Electric BWR Owners' Group evaluation of this NRC requirement. The Owners Group's evaluation report was submitted to the NRC with a cover letter dated March 31, 1981, D. B. Waters, Chairman, BWR Owners' Group to D. G. Eisenhut, NRC. We generally concur with the Owners Group's position on this task as provided in the referenced report.

The report concludes that adequate core cooling is maintained following a Stuck Open Relief Valve (SORV) event under degraded conditions. Therefore, the reduction of the frequency of SORV events is not of great concern for a BWR. The report identifies a number of candidate modifications and their benefit for reducing challenges to relief valves. It is left to each licensee to select those modifications that would be appropriate for implementation on their facility. We have selected the modifications listed below. Two of these modifications have already been implemented at Peach Bottom and appropriate credit has therefore been taken. We propose implementation of the remaining three options in accordance with an appropriate schedule following notification of NRC staff approval. The number in the parenthesis below refers to the applicable section in the Owners' Group report.

The proposed modifications are:

1. Low Water Level Isolation Setpoint (3.1.1.1)

This modification involves lowering the reactor water level isolation setpoint for the MSIVs from level 2 to level 1 thereby potentially reducing the frequency of reactor isolation events. This modification is already a part of our current commitment to the NRC to implement ATWS Alternate 3A modifications. Verification of the acceptability of this modification in terms of the ECCS analysis must be complete prior to implementation.

2. BWR Emergency Procedure Guidelines (3.1.3.1)

This modification takes credit for the Emergency Procedure guidelines currently being implemented at Peach Bottom which instruct the operator to manually open an SRV if they are cycling so that the reactor pressure is maintained below the minimum SRV setpoint. This limits cycling of the SRVs and thereby reduces the potential for an SORV event.

3. Revised Relief Valve Setpoints (3.1.3.2)

This modification revises the relief valve setpoints upward to allow additional margin to the relief valve opening setpoint, thereby minimizing the challenges to the SRVs. This modification has already been implemented at Peach Bottom.

4. Analog Transmitter/Trip Unit System (3.1.4.1)

This modification incorporates analog transmitters and bistable trip units in place of the direct acting differential pressure, pressure and water level switches. This permits longer intervals between surveillance tests, therefore reducing the potential for inadvertent scrams due to valving errors. This modification has already been implemented at Peach Bottom.

5. Reduced MSIV Testing (3.1.4.4)

This modification reduces the potential for inadvertent isolations by reducing the frequency of testing of the MSIVs. Such a reduction would involve a change in the

Technical Specifications to allow a reduction in the number of closure timing tests of the MSIVs from once per quarter to once per refueling cycle. Analysis of Peach Bottom surveillance test results during the past 3 years indicates that the recommended reduction in the frequency of full closure tests will not compromise the operation of the MSIVs. During this period there were no instances of a valve failing to close when called upon, and out of 260 individual valve closure timing tests, only three valves failed to meet the 3 to 5 sec Technical Specification requirement, closing in approximately 2 seconds in each of the three instances. This results in a closure timing test pass rate of approximately 99%. An application for a Operating License Amendment regarding reduced testing frequencies will depend upon the NRC conclusions regarding this matter.

A maximum reduction of approximately eighty percent in the incidence of SORV events can be achieved by the above modifications. We consider such a reduction to be responsive to the NRC requirement.

It should be noted that a modification discussed in the Owners' Group Report involves more stringent leakage criteria and early removal of leaking relief valves. This modification has the potential for reducing SORV events by a significant amount. However, a commitment to adhere to such a leakage criteria would probably result in unwarranted shutdowns and is therefore not cost effective when compared to the minimal safety impact. Some credit, however, should be given for the current program at Peach Bottom of monitoring leakage and repairing/replacing leaking valves during planned outages. This program, combined with the modifications noted above, should satisfy the NRC requirement for an order of magnitude reduction in SORV event frequencies.

PEACH BOTTM ATOMIC POWER STATION

ATTACHMENT B

NUREG 0737 Requirement Automatic Depressurization System Logic (II.K.3.18)

The automatic depressurization system (ADS) actuation logic should be modified to eliminate the need for manual actuation to assure adequate core cooling. A feasibility and risk assessment study is required to determine the optimum approach. One possible scheme that should be considered is ADS actuation on low reactor-vessel water level provided no high-pressure coolant injection (HPCI) or high-pressure coolant system (HPCS) flow exists and a low-pressure emergency core cooling (ECC) system is running. The logic would complement, not replace, the existing ADS actuation logic. The licensee shall describe the proposed modifications for staff approval by April 1, 1982.

Response

Philadelphia Electric Company participated in the General Electric BWR Owners Group's feasibility and reliability assessment study. The study was submitted to the NRC with a cover letter dated March 31, 1981, D. B. Waters, Chairman, BWR Owners' Group to D. G. Eisenhut, NRC. We concur with the conclusion of this study.

Five options, including an assessment of the current design of ADS and the scheme suggested for consideration by the NRC, were evaluated in the study. The results showed that although the current design coupled with implementation of the emergency procedure guidelines is satisfactory, an ADS modification will further reduce plant risk. We concur with the evaluation report that certain of the five options are preferred and have selected Option 3 for Peach Bottom. Option 3 involves the addition of a bypass of the high drywell pressure initiation signal if the reactor water level remains below the low pressure ECCS initiation setpoint for a sustained period. Detailed implementation will require consideration of broader scope issues, such as the final resolution of the Anticipated Transient Without Scram issue (which may affect the ADS logic). We are proceeding to do the detailed design work necessary with the intent of describing the proposed modification to the NRC by April 1, 1982 as required. Implementation will subsequently be completed in accordance with the schedule contained in NUREG 0737.

PEACH BOTTOM ATOMIC POWER STATION

ATTACHMENT C

NUREG 0737 Requirement:

Control Room operators shall be adequately protected against the effects of an accidental release of toxic and radioactive gases. Specific design criteria for control room habitability were identified. Modifications needed for compliance shall be implemented by January 1, 1983.

Response

The results of our control room habitability study were presented in Attachment O of the January 8, 1981 letter, S. L. Daltroff to D. G. Eisenhut, NRC. The only potential hazard identified was the on-site storage of chlorine. Our investigation of possible modifications concludes that the most effective means of eliminating this hazard involves the replacement of the liquified chlorine gas system with a sodium hypochlorite biocide system. An engineering effort is underway to install the sodium hypochlorite system with the intent of meeting the schedule completion date of January 1, 1983.

Presently, self-contained breathing apparatus are available for use by control room personnel in the event of a smoke, tox gas, or radioactive gas hazard.