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 BUTLER, W. R. Project Directorate I-2

SUBJECT: Describes mod currently underway to mitigate problem caused by improperly set torque switch on HPCI F002 valve & 870514 request for emergency Tech Spec change to allow continued operation until third refueling outage.

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# Pennsylvania Power & Light Company

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MAY 21 1987

Harold W. Keiser  
Vice President-Nuclear Operations  
215/770-7502

Director of Nuclear Reactor Regulation  
Attention: Dr. W. R. Butler, Project Director  
Projector Directorate I-2  
Division of Reactor Projects  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION  
INFORMATION ON MODIFICATION IN SUPPORT  
OF EMERGENCY REQUEST - PROPOSED  
AMENDMENT 97 TO LICENSE NO. NPF-14  
PLA-2863                      FILES A17-2, R41-2

Docket No. 50-387

- References: 1. Letter, PLA-2859, B.D. Kenyon to W. R. Butler, Dated May 14, 1987  
2. Letter, PLA-2861, H. W. Keiser to W. R. Butler, Dated May 19, 1987

Dear Dr. Butler:

Reference 1 proposed an emergency change to the Susquehanna SES Unit 1 Technical specifications in order to allow continued operation until the third refueling and inspection outage. This change is required by 10:00 A.M. on Saturday, May 23, 1987 to achieve that goal. Reference 2 provided a discussion of several possible actions that could be taken to mitigate the problem caused by the improperly set torque switch on the HPCI F002 valve.

The purpose of this letter is to describe to the staff the modification (which is currently underway) that we have chosen to mitigate this problem.

### Description of Modification and Safety Assessment

The modification will provide bypass capability of the torque switch in question in order to allow the operator to complete closure of the F002 valve from 97% to 100% closed. This will be accomplished by additional circuitry and the use of a momentary contact switch in a protected, accessible area in the Control Structure - the Upper Relay Room (this room is two (2) floors above the Main Control Room and can be reached by stairs or an elevator). Using this bypass, an operator will only be able to accomplish this closure function if any one of eight HPCI isolation signals is "in"; this is not an

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Dear Mr. [Name]  
I have your letter of the 11th and am glad to hear that you are well.  
I am sorry that I cannot be of more help to you at present.  
I am sure that you will understand my position.  
I am, Sir, very respectfully,  
Yours faithfully,  
[Name]

I am sorry that I cannot be of more help to you at present.  
I am sure that you will understand my position.  
I am, Sir, very respectfully,  
Yours faithfully,  
[Name]

administrative control, but part of the logic circuitry in the design. The installation of this modification will meet all applicable electrical separation requirements; we have also verified the seismic adequacy of the switch.

In order to fully assess the safety impact associated with this modification, the valve's performance of its intended function of closing at high differential pressure conditions with the modification in place and the valve's integrity when intentionally closed with the torque switch bypassed were evaluated.

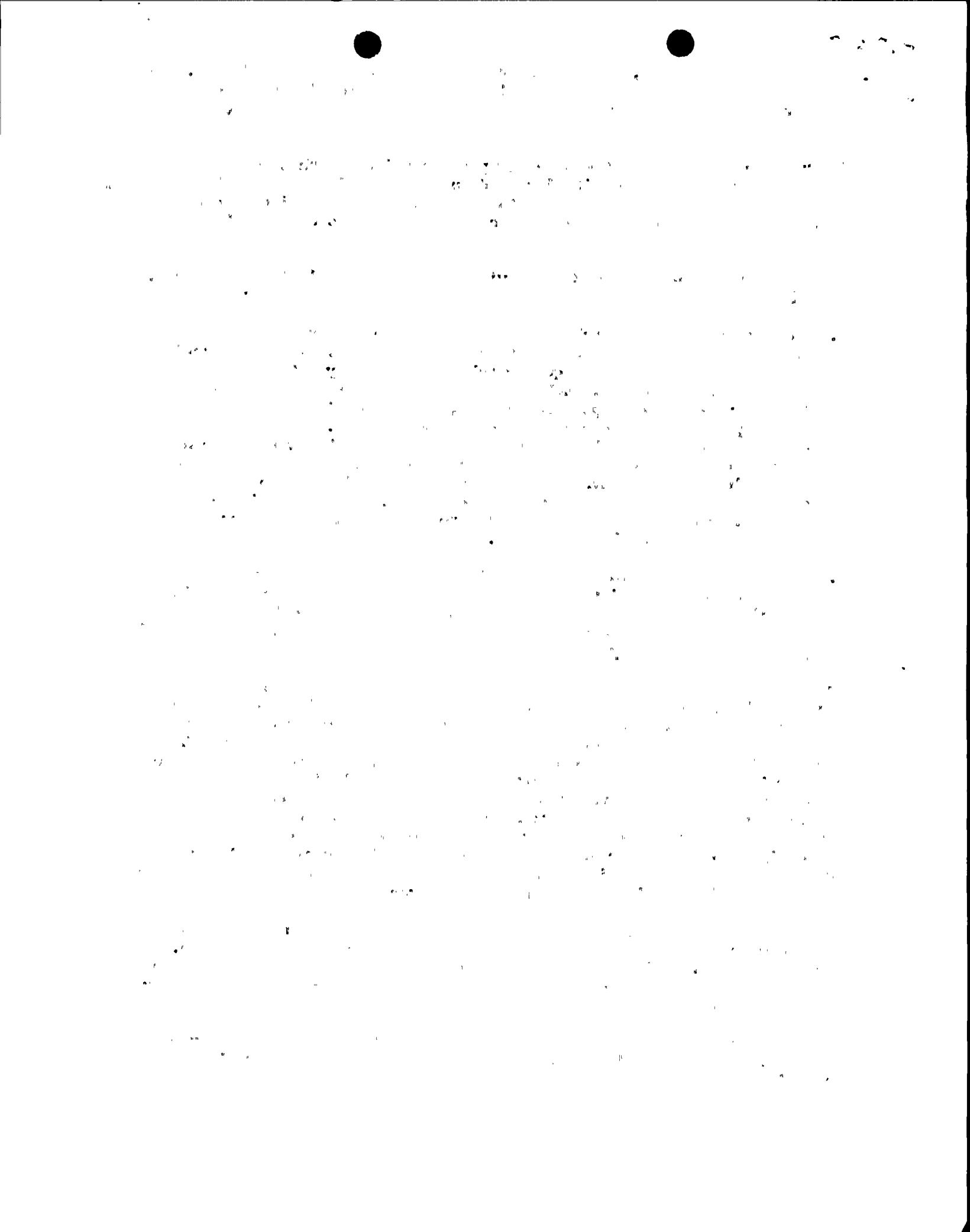
PP&L is assured that the F002 valve will perform its isolation function at high differential pressure conditions for the following reasons:

1. The current torque switch setting conservatively assumes 97% closure of the valve automatically on a HPCI isolation signal. The modification is designed to bypass the torque switch as long as any HPCI isolation signal to the F002 is present, such that when an operator depresses the new bypass switch in the upper relay room, the valve will no longer be interrupted at 97% and can proceed to 100% closure. We have conservatively given the operators guidance that the switch should be depressed for 3 seconds to achieve full closure. We have confidence in this value based on MOVATS testing data which indicates normal 100% closure of the identical F002 valve on Unit 2 takes approximately 27 seconds. Therefore, the valve will probably reach full closure in significantly less than 3 seconds.
2. We have calculated the forces on all pressure-retaining components in the valve, using the maximum torque the valve operator can develop. These calculations, as well as discussions with the valve vendor (Anchor Darling) provide adequate assurance that the valve integrity will not be compromised due to bypassing the torque switch.

The only component potentially affected by the bypassing of the torque switch would be the valve motor operator, which would fail if the bypass switch was depressed long enough such that the valve was trying to close after it had fully seated. PP&L does not believe that this will occur, given the 3-second minimum, 10-second maximum guidance provided to the operators. The valve design will maintain motor integrity for approximately 10 seconds under locked rotor current. We fully understand that an operator could depress the switch for this length of time in error; however, we do not believe, even if the motor failed, that safety is compromised since the valve would have performed its design isolation function given a HPCI isolation event. During such an event, HPCI injection availability is not of concern; after the event the unit would be shutdown until the condition was corrected.

Once the subject modification is installed, the logic circuitry will be tested to ensure that the appropriate relay energizes to ensure valve closure. Any other testing involving actual valve stroking with the torque switch bypassed would involve some risk to the valve motor, and given our confidence in our analysis, we have decided such testing is unnecessary.


PP&L has implemented procedural changes and operator training to ensure that in the event of a HPCI isolation, isolation of the F002 valve will occur unconditionally.



Conclusion

PP&L believes that the modification, testing, and procedure changes described above coupled with the information provided in Reference 1, are adequate to mitigate any safety concern associated with operation until the Unit 1 Third Refueling and Inspection Outage. Any questions on this submittal should be directed to Mr. R. Sgarro at (215) 770-7916.

Very truly yours,



H. W. Keiser

Vice President-Nuclear Operations

cc: NRC Document Control Desk (original)  
NRC Region I  
Mr. M. C. Thadani, NRC Project Manager  
Mr. T. M. Gerusky, Pa. DER