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 RECIP. NAME RECIPIENT AFFILIATION  
 BULTER, W. R. Project Directorate I-2

SUBJECT: Responds to request for addl info re design/operation of standby liquid control sys. Standby liquid control sys mods will be made during upcoming refueling & insp outage scheduled to commence on 870912.

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# Pennsylvania Power & Light Company

Two North Ninth Street • Allentown, PA 18101 • 215/770-5151

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

JUL 20 1987

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

SUSQUEHANNA STEAM ELECTRIC STATION  
STANDBY LIQUID CONTROL SYSTEM  
REQUEST FOR ADDITIONAL INFORMATION  
FILES A17-20A, P-10, A17-2, R41-2  
PLA-2890

References: 1) PLA-2833 dated April 6, 1987  
2) PLA-2838 dated April 8, 1987

Dear Dr. Butler:

Reference 1) transmitted a report which demonstrated the adequacy of Susquehanna Units 1 and 2 Standby Liquid Control (SLC) System, Alternate Rod Injection (ARI) System, and Reactor Recirculation Pump Trip (RPT) System; pursuant to 10CFR50.62(C)(6).

Reference 2) requested a modification to Technical Specification Figure 3.1.5-2 (entitled "Sodium Pentaborate Solution Concentration") which would increase the maximum allowable concentration from 13.8% to 15.6%.

Recently a NRC reviewer requested PP&L provide additional information related to the design/operation of our standby liquid control system. In particular, the following questions were asked:

1. QUESTION: Is the modification to two-pump operation or increase in concentration of sodium pentaborate?

RESPONSE: As documented in Reference 1), for purposes of meeting the requirements of 10CFR50.62, the standby liquid control system will be modified into a two-pump system. However, Reference 2) is still valid and PP&L also requests the upper limit for sodium pentaborate solution concentration be increased to 15.8%.

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THE UNITED STATES OF AMERICA  
DEPARTMENT OF JUSTICE  
FEDERAL BUREAU OF INVESTIGATION  
WASHINGTON, D. C. 20535

MEMORANDUM FOR THE DIRECTOR  
FROM THE SAC, [illegible]  
SUBJECT: [illegible]

RE: [illegible] (1)  
[illegible] (2)

[illegible text]

[illegible text]

[illegible text]

[illegible text]

[illegible text]

[illegible text]

2. QUESTION: If it is a two-pump operation, please provide data to handle NPSHA and vibration problems. Calculations are not enough.

RESPONSE: Actual test data is not available at this time. The SLC system modifications will be made during the upcoming refueling and inspection outage - scheduled to commence September 12, 1987. Prior to terminating the outage a two-pump test will be performed. PP&L will provide test data to NRC at that time.

3. QUESTION: For audit calculation, the following data are necessary for the Staff:

M = mass of water in the reactor vessel and recirculation system at hot rated conditions (lbs.)

Q = expected SLC flow rate (gpm)

C = sodium pentaborate solution concentration (weight percent)

E = B10 isotope enrichment (19.8% for natural boron), atom percent

RESPONSE: The above variables constitute the equation for demonstrating compliance with the ATWS rule (i.e. 86 gpm at 13%). PP&L's compliance with the ATWS rule is documented in Reference 1) which in part states our support of the BWR Owners Group Licensing Topical Report LTR-NEDE-31096-A entitled "Anticipated Transients Without Scram; Response to NRC ATWS Rule, 10CFR50.62".

The equation - which can be found in the Topical Report and the Staff's SER for the Topical - is as follows:

$$Q \geq 86 \times \frac{M}{M_{251}} \times \frac{13}{C}$$

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PP&L has not performed a specific calculation for M, however, the NRC approved Topical Report states that such a calculation is not required and the value of  $M/M_{251}$  is = 1. Also, as previously documented in reference 1), the minimum flow rate of our SLC system will be 82.4 gpm and the minimum sodium pentaborate solution concentration will be 13.6%. Further natural boron is used, therefore the enrichment is 19.8%.

If you have any questions, please contact D. J. Walters at (215) 770-6536.

Very truly yours,



H. W. Keiser  
Vice President - Nuclear Operations

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1. The first part of the report deals with the general situation in the country. It is noted that the economy is in a state of stagnation and that the government is unable to meet its obligations. The report also mentions that the population is suffering from a lack of food and clothing.

2. The second part of the report discusses the political situation. It is noted that the government is corrupt and that the people are dissatisfied with the current leadership. The report also mentions that there is a growing movement for independence.

3. The third part of the report deals with the social situation. It is noted that the majority of the population is poor and that there is a high level of unemployment. The report also mentions that the education system is in a state of decline.

4. The fourth part of the report discusses the military situation. It is noted that the army is poorly equipped and that there is a lack of discipline. The report also mentions that there are rumors of a coup d'état.

5. The fifth part of the report deals with the international situation. It is noted that the country is isolated and that it has few friends. The report also mentions that the United States is providing aid to the government.

6. The sixth part of the report discusses the future of the country. It is noted that the country is in a state of crisis and that the people are looking for a new leader. The report also mentions that there is a possibility of a military takeover.

7. The seventh part of the report deals with the conclusion. It is noted that the country is in a state of deep crisis and that the people are suffering. The report also mentions that the government is unable to solve the country's problems.

8. The eighth part of the report discusses the recommendations. It is noted that the government should be replaced and that the people should elect a new leader. The report also mentions that the country should be reformed.

PLA-2890  
FILES A17-20A,P-10,A17-2,R41-2  
Dr. W. R. Butler

cc: NRC Document Control Desk (original)  
NRC Region I  
Mr. L. R. Plisco, Resident Inspector  
Mr. M. C. Thadani, Project Manager

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