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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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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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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:

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

   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

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