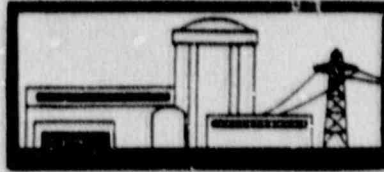


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November 15, 1989
OG-604

To: Mr. Ashok C. Thadani,
Assistant Director For Systems
Division of Engineering & Systems Technology
Office of Nuclear Reactor Regulation

- References: 1) Letter Thadani (NRC) to Smyth (B&WOG), NRC Evaluation of B&WOG Topical Report BAW-10167 and Supplement 1, "Justification for Increasing the Reactor Trip System On-Line Test Interval".
- 2) Letter Smyth (B&WOG) to Thadani (NRC), February 14, 1989, same subject.

Dear Mr. Thadani,

Reference 2 stated that the B&WOG planned to delay resubmittal of BAW-10167, "Justification For Increasing the Reactor Trip System On-Line Test Interval," pending further discussion and appeal of the 48-hour Allowed Outage Time (AOT) for one channel which had been specified in the SER. The B&WOG believes there is sufficient justification for one of the four Reactor Trip System (RTS) channels to be bypassed indefinitely (as currently allowed by many B&W plants Technical Specification), rather than requiring a 48-hour limitation. Accordingly, we have prepared the attached "Supplement Number 2" to BAW-10167 which responds to the SER and provides additional information supporting our request to retain the indefinite AOT for the fourth RTS channel.

Nominally the RTS instrument string channels operate in a two-out-of-four configuration. With an inoperable channel bypassed, the RTS instrument string channels operate in a two-out-of-three configuration until the AOT expires. After expiration of the NRC-proposed 48-hour AOT, the inoperable channel must be tripped; this produces a "half-trip" of the RTS and results in a one-out-of-three logic configuration of the remaining RTS instrument string channels.

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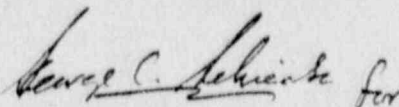
The analysis presented in Supplement 2 shows that with an inoperable channel, a two-out-of-three configuration (inoperable channel bypassed) provides greater safety benefit than a one-out-of-three configuration (inoperable channel tripped). This is because the two-out-of-three configuration provides reliability to trip on demand as well as protection against spurious trips. The one-out-of-three configuration is intolerant of single spurious channel trips.

Plant safety depends both on the reliability of the RTS to trip and its sensitivity to spurious trips. The best configuration balances the reliability of tripping on demand and a low spurious trip rate. This report uses Probabilistic Risk Assessment (PRA) results to analyze the reliability (to trip on demand) and spurious trip aspects of the two-out-of-three and one-out-of-three logic configurations which result from the indefinite and 48 hour AOT, respectively. Core melt risk is used to demonstrate that the two-out-of-three configuration provides a better balance of reliability and spurious trip frequency. The method of analysis, RTS model, assumptions, and data used for this analysis are from BAW-10167 which has been reviewed by the NRC and its subcontractor INEL, and approved in the SER for BAW-10167.

The B&WOG believes that for the B&W four-channel RTS design, a longer AOT provides greater safety benefit because, on the infrequent occasion when a failure cannot be repaired quickly, it allows the RTS to continue to operate with a two-out-of-three logic configuration.

We request your approval of the information presented in Supplement 2. No B&W plant is requesting the relief granted by the SER pending the outcome of your review. We will be happy to meet with you in the near future as necessary to discuss this matter.

Very truly yours,



Courtney W. Smyth, Chairman
B&WOG Technical Specification Committee
GPU Nuclear Company
P. O. Box 480
Middletown, PA 17057

CWS/vtw

Attachment

cc: V. H. Wilson - NRC
Scott Newberry - NRC
J. A. Calvo - NRC
J. H. Taylor - B&W
R. B. Borsum - B&W

Steering Committee (w/o attach.)

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