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MIDDLE SOUTH UTILITIES SYSTEM

June 15, 1981

W3P81-1478
Q-3-A29.05
Q-3-A29.18.19

Mr. R. L. Tedesco
Assistant Director of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

SUBJECT: Waterford 3 SES
Docket No. 50-382
Reactor Systems Branch (RSB)
SER Open Item Nos. 84, 85, 88

Dear Mr. Tedesco:

Attached please find additional information addressing the subject open items. Our submittal for Open Items 84 and 85 consists of a commitment to provide a startup channel alarm to back up the boronometer alarm for a boron dilution event.

It also commits to a setpoint analysis for all modes of operation, which will indicate the time available to loss of shutdown margin after alarm.

If you require any additional information, please contact us.

Yours very truly,

L. V. Maurin
Assistant Vice President
Nuclear Operations

LVM/MPF/ddc
Attachment
cc: Mr. E. L. Blake, Mr. W. M. Stevenson

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(cont'd)

It is our position, therefore, that the plant is protected for all postulated boron dilution events assuming the worst single active failure, including the failure of the boronometer. However, at the recommendation of the NRC staff, we will provide additional non-IE System to warn the operator of an unplanned boron dilution event. This will consist of a modification of the Ex-core Detector System startup and control channels to provide reactor power signals that can be processed by the process equipment cabinets to provide alarm inputs to the plant annunciator system. This will result in a control room alarm associated with an increase in reactor power above its expected shutdown power levels.

We will also perform the necessary analysis required to determine the alarm setpoints for all modes of operation. This analysis will indicate the time to loss of shutdown margin from time of alarm. For the Mode 5 (cold shutdown condition), the boron dilution event will be considered to occur with the RCS partially drained i.e. filled to the lower lip of the reactor vessel outlet nozzle.

Open Item 88 We require the applicant to provide information regarding the effects of the steam generator tube plugging with respect to the LOCA analysis.

Response

The Waterford ECCS analysis does not assume any Steam generator (SG) tubes are plugged.

The effect of tube plugging has been treated on as needed basis for C-E operating plants and to date tube plugging has been minimal. In one example, an ECCS analysis was performed assuming 500 tubes per SG plugged. The predicted ECCS performance changed very little and the allowable peak linear heat rate remained unchanged from the case with no SG tubes plugged. The method of the ECCS performance analysis with the SG tubes plugged is provided in Reference 1.

Since the NSSS design utilized in the Reference 1 calculation is very similar to the Waterford design, a similar conclusion is anticipated for this plant.

Reference 1: Letter from D C Switzer (NNECO) to R Reid (NRC), Docket No. 50-336, March 3, 1978.