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MEMORANDUM FOR: T. Novak, Chief
Reactor Systems Branch, DSS

W. Butler, Chief
Containment Systems Branch, DSS

FROM: V. Benaroya, Chief
Auxiliary Systems Branch, DSS

SUBJECT: FORT CALHOUN ACCIDENT ANALYSIS - MAIN
STEAM LINE BREAK INSIDE CONTAINMENT

POOR ORIGINAL

Attached for your review and evaluation is the subject accident analysis. This analysis was requested by the staff as a result of a potential unresolved safety issue identified by some licensees of plants with manually initiated auxiliary feedwater systems (AFWS). The present Fort Calhoun AFWS system is automatically started in part; e.g., the turbine driven pump starts automatically on demand with or without loss of off-site power; the motor driven AFWS pump must be connected to an emergency diesel generator bus by the operator. The issue arose as a result of requesting such licensees to install an automatic initiated AFWS in accordance with Lessons Learned (NUREG 0578) recommendation 2.1.7.a. Completion of implementation of this recommendation is now part of Task II.E.1 of Post-TMI Implementation Action Items for which ASB currently has primary technical review responsibility.

The safety concern of the analysis deals with increased containment pressure increase and potential return to reactor power following a main steam or main feed line break inside containment. Therefore, CSB is requested to evaluate the former concern and RSB is requested to evaluate the latter concern.

Based on the enclosed analysis, the licensee plans to submit an AFWS auto initiation system which delays AFWS flow for 3 minutes after the pipe break. ASB can accept this feature if RSB can verify that this ~~time~~ delay will still result in sufficient water level in the intact steam generator to maintain primary system heat removal after the blowdown of the affected steam generator, particularly for the main feed line break inside containment case. During the B&O TF AFWS system reliability study, the licensee stated that with two intact steam generators, they would not boil dry for approximately 15 minutes following loss of main feed flow.

Also RSB should verify that (1) the 3 minute delay in AFWS flow is not in conflict with SBLOCA or other emergency procedure guidelines which call for immediate operator action to start AFWS flow and which were accepted

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for CE plants by B&O TF and (2) that no operator action is required in less than 10 minutes to isolate the affected SG and realign AFW valves to direct AFW flow only to the intact SG.

If these concerns cannot be resolved, it may be necessary that the AFW system automatic initiation system contain logic to automatically isolate the affected SG and direct AFW flow only to the intact SG. This could have a major impact on the AFW auto initiation system design.

It is noted that Fort Calhoun did not analyze the case of main feed line break inside containment as mentioned in the NRC letter of 12/21/79. This may not be significant with only a 3 minute delay in ~~initiating~~ AFW flow.

Fort Calhoun is currently shutdown for refueling and estimates startup on 3/15/80. ICSB is evaluating the AFW auto start system design. The licensee desires to resolve this issue and install the new AFW initiation system during this outage.

You are requested to evaluate the attached analysis and submit an SER direct to P. Erickson, ORPM to support this schedule. Please send copies of any questions and your SER to ASB and ICSB.

If you have additional technical questions, contact P. Matthews, 227883.

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Victor Benaroya, Chief
Auxiliary Systems Branch
Division of Systems Safety

cc: w/o attachment

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DATE	1/25/80	1/24/80			

AUTO START ANALYSIS

Doc 1-23

Need soon, please
Fort Calhoun is not refueling
they are due to start up on March 15, 80.

Get to ...
See ...
all OK ...
John ...

Omaha Public Power District

1823 HARNEY OMAHA, NEBRASKA 68102 TELEPHONE 538-4000 AREA CODE 402

January 10, 1980

Director of Nuclear Reactor Regulation
ATTN: Mr. Robert W. Reid, Chief
Operating Reactors Branch No. 4
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

- References:
- (1) Docket No. 50-285
 - (2) NRC Letter from Robert W. Reid to W. C. Jones
Regarding Automatic Initiation of Auxiliary
Feedwater Systems at Fort Calhoun, Dated
December 21, 1979

Gentlemen:

The referenced letter requested Fort Calhoun response to a concern regarding the applicability of the current analysis for main steam line break and requested Fort Calhoun to resolve this concern by submitting an analysis within twenty (20) days from the receipt of that letter.

The attachments to this letter provide the NRC staff with sufficient information to resolve this concern. The attachments to this letter include the following:

- 1. Best Estimate MSLB Analysis to Assess NSSS and Containment Response With Automatic Auxiliary Feedwater Actuation
- 2. Evaluation of the Impact of Automatic Initiation of Auxiliary Feedwater on MSLB Analysis

Based on the best estimate analysis provided, it is our belief that the control grade system proposed presents a safe means of operation. It is also our belief that current means of manual actuation of auxiliary feedwater is also safe. We do not share your opinion that the questions in the referenced letter are applicable to the manual mode of operation, since operators are directed to isolate the affected steam generator on a steam line break.

In addition to the best estimate analysis, the effect of automatically initiating auxiliary using licensing assumptions. tions computing return to power

DUPLICATE DOCUMENT

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