

DCS MS-016

SEP 1 1982

Docket No. 50-285

Mr. W. C. Jones  
Division Manager, Production  
Operations  
Omaha Public Power District  
1623 Harney Street  
Omaha, Nebraska 68102

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Dear Mr. Jones:

SUBJECT: NUREG-0737, ITEM II.E.1.2, AUXILIARY FEEDWATER SYSTEM INITIATION AND FLOW.

The Commission has completed its evaluation of your submittals in response to NUREG-0737, item II.E.1.2, entitled "Auxiliary Feedwater System Initiation and Flow." Based upon our evaluation, we conclude that the Fort Calhoun, Unit 1, auxiliary feedwater automatic initiation and flow indication system complies with the staff's long term safety grade requirements, and therefore, is acceptable. Our safety evaluation report and supplemental safety evaluation report are enclosed.

We would like to note that in our review, we recognized that the District may have to establish an alternative auxiliary feedwater flow path through the main feedwater lines. We recommend that the District review its operating procedures to ensure that adequate provisions are made for establishing the alternate auxiliary feedwater flow path through the main feedwater lines, and that the operators are adequately trained in the use of such procedures.

This letter resolves this issue, and Item II.E.1.2 of NUREG-0737 is complete for the Fort Calhoun Station, Unit 1.

Sincerely,

Original signed by  
Robert A. Clark

Robert A. Clark, Chief  
Operating Reactors Branch #3  
Division of Licensing

8209230256 820901  
PDR ADOCK 05000285  
P PDR

Enclosures:  
As stated

cc: w/enclosures:  
See next page

OFFICE	DL:ORB#3	DL:ORB#3	DL:ORB#3			
SURNAME	PKreutzer	ETourigny	RAClark			
DATE	9/1/82	9/1/82	9/1/82			



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION

FORT CALHOUN - AUXILIARY FEEDWATER

AUTOMATIC INITIATION AND FLOW INDICATION

ACTION PLAN ITEM II.E.1.2

RECEIVED  
GENERAL INVESTIGATIVE  
DIVISION  
J. Robert  
NOV 19 1977

INTRODUCTION AND SUMMARY

To improve the reliability of Auxiliary Feedwater Systems (AFWS) at pressurized water reactor (PWR) facilities, the staff is requiring licensees to upgrade the system where necessary to ensure safety grade automatic initiation and flow indication. The criteria for this upgrading are contained in NUREG-0737 (Clarifications of TMI Action Plan Requirements), Section II.E.1.2.

The evaluation of the Fort Calhoun AFWS design was performed for the NRC by Franklin Research Center (FRC) as part of a technical assistance contract program. The results of the FRC evaluation are reported in the attached Technical Evaluation Report (TER-C5257-297).

Based on our review of the FRC TER, we conclude that the AFW automatic initiation and flow indication designs are acceptable with the exceptions noted below.

EVALUATION

The attached TER provides a technical evaluation of the electrical, instrumentation, and control design aspects of the Fort Calhoun AFWS with regard to automatic initiation and flow indication. As noted in the TER, OFF-AUTO selector switch "43/FW", which controls the automatic operation of the motor-driven AFW pump and other feed pump system pumps, does not actuate an alarm in the OFF AUTO position, which could prevent the motor-driven pump from being started by an automatic initiation signal. This switch should be modified to actuate an alarm in the control room when placed in the OFF AUTO position consistent with the requirements of Section

4.13 (Indication of Bypasses) of IFE-279 which states that if the protective action of some part of the system has been bypassed or deliberately rendered inoperative for any purpose, this fact shall be continuously indicated in the control room.

In addition to the design description provided in the TER, it should be noted that under certain accident conditions (main steamline break with loss of offsite power) it would be necessary to redirect AFW flow to the intact steam generator through the main feedwater lines given a single failure of one of the two series normally closed feedwater isolation valves. To accomplish this, cross-tie valve HCV-1384 and one of the two bypass valves (HCV-1105 or HCV-1106) would have to be opened. HCV-1384 is motor operated and powered from an emergency bus and can be opened from the control room. The bypass valves, however, are air operated and would have to be opened locally due to loss of air (the air compressors are not powered from the emergency buses). The staff is concerned that these valves may not be accessible following a main steamline break in sufficient time to provide AFW flow to the intact steam generator prior to loss of steam generator water inventory and hence loss of heat removal capability.

The licensee believes that AFW flow would not be needed for approximately 30 minutes and that the bypass valves (located in Room 81) could be accessed and manually opened within this time. Room 81 is equipped with blow out panels to relieve pressure following a break. In addition, the portions of the main steamlines in the vicinity of the bypass valves have been reinforced to lower the probability of a break in that area. The Instrumentation and Control Systems Branch (ICSB) and the Auxiliary Systems Branch (ASB) are currently pursuing resolution of this issue with the licensee.

The environmental qualification of safety related systems including AFWS circuits and components is being reviewed by the Environmental Qualification Branch as part of their review of licensee responses to "Guidelines for Evaluating Environmental Qualification of Class 1E Electrical Equipment in Operating Reactors," issued to the licensee in NRR letter dated March 5, 1980.

In order to adequately determine from the control room the performance of the AFWS, steam generator level instrumentation is used, in addition to flow indication. The requirements for this steam generator level instrumentation are specified in Regulatory Guide 1.97 Revision 2 (R.G. 1.97 - "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident"). The steam generator level instrumentation at Fort Calhoun should be in conformance with these requirements and implemented in accordance with the schedule indicated in the referenced R.G.

#### CONCLUSION

Based on our review of the Franklin Research Center TER, we agree with their findings that the Fort Calhoun AFWS automatic initiation and flow indication comply with the staff's long term safety grade requirements with the exception of the OFF AUTO-AUTO selector switch (43/FW) as noted above, contingent upon satisfactory resolution of the concern regarding the accessibility of bypass valves HCV-1105 and HCV-1106 following an accident. We have reviewed the proposed Technical Specifications regarding AFWS surveillance requirements for the automatic initiation and flow indication circuitry, and have found them acceptable.

Attachment:  
FRC Technical Evaluation  
Report