

CONDITION REPORT
CR 97-0930

PAGE: 1 of 2
DATE: 07/01/97

STATUS: CLOSED UNIT: 0 SYSTEM: AF INITIATED: 03/20/97 CLOSED: 07/01/97 MSS #:
INITIATOR: JOHN SCHROEDER ADMINISTRATOR: EDWARD HUDSON ISSUE MANAGER: EDWARD HUDSON
NUMBER OF OPEN ACTIONS : 0 NUMBER OF CLOSED ACTIONS : 1 TOTAL NUMBER OF ACTIONS : 1

Questions and concerns about the use of operator action to control AFW flow

DESCRIPTION:

A dedicated operator is currently being used to adjust the P-38A+B discharge pressure control valves AF-4012 and AF-4019 via the controllers on C01 for the motor driven AFW pump's to prevent pump motor trip on overcurrent when powered by a diesel generator at high frequency. The following questions and concerns are being raised with respect to the use of operator action to control AFW flow:

During the accident when AFW flow is most needed (i.e., complete loss of offsite power accident), P-38A+B would be powered by the EDGs and the instrument air (IA) compressors (and SA compressors) would be stripped on loss of voltage. If instrument air is lost, PCVs AF-4012 and AF-4019 would fail open and the dedicated operator would not be able to adjust flow via the PCV controller on C01. Additional operator action would then be needed to control flow by manually starting an IA compressor to regain control of the PCV or to manually gag the PCV or throttle the discharge MOV in the AFW pump room.

In a seismic event, the loss of all offsite AC Accident Analysis Basis Document (AABD Module 11) and FSAR 14.1.10 list the only required operator action for AFW flow as the switchover of the AFW suction supply from the CSTs to the Service Water system. Since AF-4012 and 4019 are fail open AOVs, and the IA system is non-seismic, a seismic event could result in loss of air to these valves requiring additional operator action to gag the pump discharge AOV or to throttle on the discharge MOV to control flow and prevent possible motor trip on overcurrent.

It can be noted that Calculation P-87-001 shows that when the PCV fails open, flow from P-38A or P-38B would be above the 240 gpm limit established on the dedicated operator instructions even with SG pressure above 1000 psig and assuming normal power supply frequency. AOP-58, Loss Of Instrument Air, lists that AF-4012 and AF-4109 fail open and that the mini-recirc valves fail shut, however the AOP only addresses the need to maintain a minimum flow by gagging open the mini-recirc valves. The only specified direction with respect to maximum flow is to utilize the turbine driven AFW pump to prevent excessive cooldown due to loss of flow control on the motor driven pump. The AOP does not address gagging AF-4012 and AF-4019 to limit flow to a maximum value.

Significance:

The additional operator actions described above may also need to be addressed in the dedicated operator issue of controlling flow from the motor driven AFW pumps to prevent motor trip on overcurrent due to high flow rates.

In a seismic event, the accident analysis basis document (AABD Module 11) and FSAR 14.1.10 list the only necessary operator action for AFW as the suction supply switchover from the CSTs to the SW system. The analysis does not describe the possible need to manually throttle flow in the AFW pump room if Instrument Air is lost during a seismic event. This may require a licensing basis change via 50.59.

AP-58, Loss Of Instrument Air, does not provide specific instructions to limit flow from P-38A/B if AF-4012/4019 fails open.

STATUS UPDATE:

(07/01/97 EH) Condition report closed to action taken.

SCREENED BY : EDWARD HUDSON	DATE: 03/26/97	COMMITMENT.....(Y/N): N
REGULATORY REPORTABLE.....(Y/N): Y	TS VIOLATION.....(Y/N): N	10 CFR 21.....(Y/N): N
TS LCO.....(Y/N): N	OPERABILITY IMPACT PER TS.(Y/N): Y	JCO REQUIRED.....(Y/N): N
MSS REVIEW.....(Y/N): N	SCAQ.....(Y/N): Y	OPERABILITY DETERMINATION.(Y/N): N

SUPPORTING DETERMINATIONS:

Four hour report made to the NRC and the electric motor driven AFW pumps were declared inoperable. Unit 1 is in cold shutdown and Unit 2 is defueled, so AFW not required to be operational.

TRENDING INFORMATION:

WHEN__ : FIRST QUARTER OF 1997	NON-OUTAGE
WHO__ :	
WHY__ : PROBLEM WAS NOT ANTICIPATED WHEN DESIGNED	
WHAT__ : MECHANICAL AOV VALVE OPERATOR RELATED	RESTART ISSUE
ELECTRICAL MOTOR RELATED	
SYSTEM: AUXILIARY FEEDWATER	

REFERENCES: AABD MODULE 11	AFW DBD-01	FSAR 14.1.10
FSAR 14.1.11	CALCULATION P87-001	AOP-58
RTS_S8	MR 97-038	

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CR 97-0930 ACTION NUMBER 1

DONE		DUE DATE: 06/13/97	PRIORITY: 62	EXTENSIONS MADE: 1
CREATED : 03/26/97	OER	EDWARD HUDSON	RECEIVED: 03/31/97	NMS PAUL HUFFMAN
WORK DONE: 06/29/97		JACK HAMMERS	APPROVED: 06/30/97	PAUL HUFFMAN
VERIFIED : 07/01/97		EDWARD HUDSON	CLOSED : 07/01/97	EDWARD HUDSON

Evaluate the concerns about AFW system operation as identified in this condition report and develop/initiate any corrective actions (as required) to resolve these concerns.

NOTE: Refer to the following recommendations of the condition report initiator for use in formulating corrective actions:

- * Evaluate the use of dedicated operators with respect to the loss of control air to the discharge pressure control valves wherever the AFW dedicated operator issue is addressed.
- * Consider revising the AABD and FSAR to describe all operator actions necessary to maintain AFW flow.
- * Revise AOP-5B to specify a maximum flow from P-38A/B.

(03/31/97 PWH) Received Action into Group: NMS
Responsible Person: JSH:JACK HAMMERS Due Date: 05/01/97

(03/31/97 PWH) Set Work Priority to 62.

(04/23/97 JSH) Evaluations performed indicate that a modification to the AOV's is necessary. A design change is currently being implemented to add a backup source of air to the AOV's.

(04/25/97 JSH) Evaluation of this CR has resulted in the initiation of MR 97-038, this CR will remain open until completion of MR 97-038.

(04/25/97 JSH) Requested Due Date: 06/13/97

(04/26/97 PWH) Changed the Due Date from: 05/01/97 to 06/13/97
Requested change in due date is to allow MR 97-038 to be installed, tested and evaluated before closure of CR. Current scheduled completion date for modification is 6/6/97. Other actions suggested by the CR are inappropriate because they do not address the root problem which is need to ensure operability of AFP's after a SG failure with loss of the associated P29.

(06/29/97 JSH) Passed to PAUL HUFFMAN for acceptance of work.

(06/30/97 PWH) Passed to EDWARD HUDSON for Verification.
Modification MR 97-038 added a nitrogen back system to the motor-driven AFW pump discharge valves. This modification provides pneumatic control capability for the valves during design basis accidents when the instrument air system is lost. With this control the availability of the motor-driven pumps and the control of the discharge valves is ensured. This modification resolves the issues raised by this condition report. The modification installation is complete with the exception of post-mod acceptance testing. A dedicated operator will not be used because the G-01 control system has been replaced with an electronic (zero speed drop) system. With addition of the nitrogen backup, the potential casualty workarround of operator action to gag the discharge control valves will be addressed. As a result of the change to G01 and the discharge AOV's, no revision is needed to the FSAR, the AABD or to AOP5B. Based on the above design changes, this action can be closed.

(07/01/97 EH) PLA Closure of Item.
Action accepted as complete.

REFERENCES: AABD MODULE 11	AFW DBD-01	FSAR 14.1.10
FSAR 14.1.11	CALCULATION P87-001	AOP-5B
RTS_S8	MR 97-038	

SIGNATURES	DATES
Issue Manager:	Date:
<i>E. Hudson</i>	7-1-97