

LICENSEE EVENT REPORT

CONTROL BLOCK: \_\_\_\_\_ (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

01 | M | D | C | C | N | I | 2 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 3 | 4 | 1 | 1 | 1 | 1 | 4 | 5

01 | L | 6 | 0 | 5 | 0 | 0 | 0 | 3 | 1 | 7 | 7 | 0 | 1 | 1 | 1 | 8 | 1 | 8 | 0 | 2 | 1 | 0 | 8 | 1 | 9

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)  
At 2100 on 01-11-81, it was determined that Auxiliary Feedwater flow (AFW) to the steam generators was only 480 GPM. The AFW regulating valves were reset to obtain a flow of 750 GPM at 1610, 1-12-81. The AFW manual bypasses remained operable during the event. This is not a repetitive occurrence.

09 | C | A | 11 | A | 12 | X | 13 | V | A | L | V | E | X | 14 | F | 15 | G | 16 | 17 | 8 | 1 | 21 | 22 | 0 | 0 | 2 | 24 | 26 | 27 | 0 | 3 | 28 | 29 | L | 30 | 0 | 32 | 32 | E | 18 | H | 19 | Z | 20 | Z | 21 | 0 | 0 | 0 | 0 | 22 | Y | 23 | N | 24 | A | 25 | M | 1 | 2 | 0 | 26 | 47

CAUSE DESCRIPTION AND CORRECTIVE ACTION (27)  
A 75% AFW feed regulating valve stroke limit was implemented under modifications required by NUREG 0578. The effect of this restriction was not fully verified by testing. This restriction has been removed as of 1-22-81. Procedure changes will prevent repetitive occurrences.

15 | L | 28 | 0 | 0 | 0 | 29 | NA | 30 | A | 31 | Operator Observation | 32 | 16 | Z | 33 | Z | 34 | NA | 35 | NA | 36 | 17 | 0 | 0 | 0 | 37 | Z | 38 | NA | 39 | 18 | 0 | 0 | 0 | 40 | NA | 41 | 19 | Z | 42 | NA | 43 | 20 | N | 44 | NA | 45

8102170123

K.G. Tietjen

LER NO. 81-02  
DOCKET NO. 50-317  
LICENSE NO. DPR-53  
EVENT DATE 01-11-81  
REPORT DATE 02-10-81  
ATTACHMENT

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (CONT'D)

At 2100 on 1-11-81, while feeding Steam Generators with the Auxiliary Feedwater System, the operator observed that he could only obtain a total flow of 480 GPM to the Steam Generators (130 GPM to #11, 350 GPM to #12) using the valve position controllers on the main control boards. This total flow was less than the value of design flow referenced in the T.S. Bases (700 GPM total). It was determined that the maximum valve stroke limit was too restrictive to allow design flow conditions to be reached utilizing the valve controllers alone. These valves were limited to 75% of full stroke under an approved design modification relating to the "Control Grade" AFW auto-start system (as required by NUREG 0578). The Shift Supervisor initiated maintenance action to reset the maximum stroke limit so that a total flow rate of 750 GPM could be achieved. This corrective action was completed at 1610 on 1-12-81.

It was subsequently determined that the system flow capability had not been tested upon implementation of approved design modifications relating to the "Safety Grade" AFW auto-start system (also required by NUREG 0578). However, the required flow rate with the restriction of valve opening was only required to be 460 GPM total, as per the approved design changes, which is sufficient to remove decay heat on a loss of feedwater accident. The basis for the Technical Specification refers to the AFW system design flow rate of 700 GPM which provides for decay heat removal and the capability to cooldown the plant to less than 300°F. In consideration of other design features (Manual Bypasses) of the AFW system, flow rates of at least 700 GPM were attainable throughout the period of valve restriction and thus public health and safety were not affected. This is not a repetitive occurrence.

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (CONT'D)

The cause of the reduced flow rates was determined to be the maximum opening setting of the AFW regulating valves. This restriction was implemented under special instructions relating to the "Control Grade" AFW auto-start system. The intent of this action was to limit the maximum flow rate of the AFW system in order to prevent AFW pump cavitation on a loss of instrument air to the valves and to the AFW pump speed controller. The flow rate required to remove decay heat and maintain hot-standby conditions was determined to be 460 GPM. With the valve restrictions in effect, a total flow of 480 GPM was achieved. Under the specific conditions of this modification, no testing was required. Upon implementation of the "Safety Grade" AFW auto-start modification, the special instructions for the "Control Grade" modification were continued in effect.

The Technical Specification Bases refer to a flow requirement in excess of 700 GPM. This number is based on the AFW system design capability to, not only remove decay heat in hot-standby, but also additional flow capability to cooldown the plant to less than 300°F. Only the capability to remove decay heat is analyzed in the FSAR Safety Analysis. The operators, believing the requirement to be 700 GPM, initiated correct maintenance action to restore capability to greater than 700 GPM. This action was not necessary since the actual requirement was 460 GPM and a flow rate of 480 GPM could be achieved. Also, the design of the AFW system includes manual bypass capabilities which could be used on cooldown to attain the higher flow rates if required.

Calvert Cliffs instructions refer to a requirement for verification testing of all safety-related modifications. Testing for non-safety related modifications is at the discretion of the responsible engineer or supervisor, and is accomplished on a as necessary basis. Since the flow restriction requirement was implemented as non-safety related, testing was not required at that time. However, on the subsequent upgrade to safety related, verification testing should have been performed, contrary to existing instructions, the requirement was omitted and no verification test was performed.

On subsequent review of this situation, it was decided to remove the 75% restriction on AFW regulating valve stroke. This was based upon the installation of a safety related air supply to the subject valves which obviates concern over loss of the normal air supply. This corrective action has been implemented. In addition, a memo was sent to the Engineering Department requesting that future modifications contain all special instructions necessary for implementation and that the use of cross referencing these instructions between different jobs be eliminated. This action provides increased assurances that a similar error will not occur again.