

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (continued)

Tech. Spec. 3.0.3 and Tech. Spec. 3.7.1.5 action statement requirements were met. Health/Safety of the public was not affected.

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (continued)

Subsequent to the failure of MSIVs Q2N11V001B and Q2N11V001C to close, the valve test cylinders were actuated to provide air assisted motion. This motion was sufficient to free the valves and MSIVs Q2N11V001B and Q2N11V001C were closed fully at 1711 and 1715, respectively, in accordance with Tech. Spec. 3.0.3. Inspection of the valve packing revealed no apparent hardening or other degradation. To preclude recurrence of this problem, Alabama Power Company will:

1. Inspect and replace the packing on all MSIVs during each refueling outage.
2. Stroke MSIVs to ensure free movement after packing adjustments during heatup.

The above actions will be continued until Alabama Power Company and the MSIV manufacturer determine that the problem has been eliminated or a design change has been made to preclude the need for the above actions.

At the time MSIV Q2N11V002B failed to fully close, the unit was in Mode 3 and being cooled down for a refueling outage. The cooldown was continued and the unit entered Mode 4 (MSIVs no longer required to be operable per Tech. Spec. 3.7.1.5) at 2124 on 9-17-83. Investigation revealed that the failure to fully close was caused by the failure of

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS - (continued)

all four disc fasteners resulting in the valve disc becoming separated from the disc arm. These valves are designed with Belleville washers to absorb the impact of MSIV closure under steam flow conditions and ensure proper disc to seat alignment. This design apparently allowed flexure during flow conditions while the valve was on the open stop. It is believed that this flexure exposed the fastener threads to cyclic loads which resulted in excessive thread wear and eventual failure. The four fasteners on MSIV Q2N11V002B failed and at least one fastener was found loose on each of the five remaining MSIVs (a total of eight additional fasteners were loose). All parts were recovered. A design change is being implemented to preclude recurrence of this problem. The design change consists of:

1. Adding two open stops to the body of each MSIV. These new stops and the existing stop will restrain the valve disc while in the normally open position, thus eliminating the flexure motion of the disc.
2. Replacing the four studs used to fasten the disc to the disc arm with studs that have interference fit threads. This design will eliminate the need for the fastener studs to rely on the Belleville washers to maintain preload. This change is to eliminate the excessive wear of the threads due to disc movement.
3. Utilizing an interference fit between the fastener stud hex nut and the stud and installing a set screw through the pitch diameter of the stud and nut. This will assure constant preload on the disc assembly via the Belleville washers.

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS - (continued)

An evaluation of the continued operation of Unit 1 has been conducted. It has been determined that operation of Unit 1 until the next refueling outage, currently scheduled for February 1984, is justified based on the following:

1. Vibration measurements were taken on Unit 2 in September prior to shutdown. Also, vibration measurements were taken on Unit 1 in July and again in September. The Unit 1 vibration levels were compared to those in Unit 2 and were found to be significantly lower. In addition, a predominant 115 Hz vibration was noted at the critical points monitored in the Unit 2 main steam valve room while the Unit 1 vibrations were of varying frequencies.

The July and September Unit 1 measurements were also compared with no increase in vibration levels noted. It is planned to take additional vibration measurements on both units in November to establish baseline data for Unit 2 and reevaluate any Unit 1 degradation.

2. The plant operators, shift supervisors and shift technical advisors have been instructed that the valve test cylinders are to be actuated should an MSIV fail to close when required.
3. The MSIV manufacturer has assured Alabama Power Company that even if the fasteners on an MSIV were severely degraded (e.g. three fasteners completely failed and the remaining one marginally attached), the MSIV would still function to isolate steam flow during postulated accident conditions.

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS - (continued)

4. The Unit 1 MSIVs were inspected in February 1981 after twenty-nine months of power operation and prior to a modification designed to preclude the nut from vibrating loose. This inspection revealed less fastener degradation than that observed on Unit 2 after twenty-four months of power operation. The Unit 1 MSIVs have been exposed to less than twenty-one months of power operation since the last inspection.

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USNRC REGION II
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Alabama Power

the southern electric system

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Docket No. 50-364

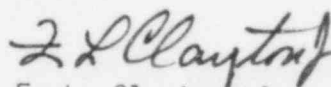
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II
101 Marietta Street, N.W.
Suite 3100
Atlanta, Georgia 30303

Dear Sir:

Joseph M. Farley Nuclear Plant, Unit 2, Licensee Event Report No. LER 83-039/01T-0 is forwarded with three (3) copies in accordance with FNP Technical Specification 6.9.1.12 to provide fourteen (14) days written notification of the occurrence.

If you have any questions, please advise.

Yours very truly,


F. L. Clayton, Jr.

FLCJr/KWM:nac

Enclosures

xc: Director, IE (40 copies)
Director, MIPC (3 copies)

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