Update Report - Previous Report Date Was 9/18/79

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

CONTROL BLOCK: (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

Line	Field	Value
01	LICENSEE CODE (2)	S C H B R 2
01	LICENSE NUMBER (3)	0 0 - 0 0 0 0 0 - 0 0
01	LICENSE TYPE (4)	4 1 1 1 1
01	CAT (5)	
01 CON'T	REPORT SOURCE (6)	L
01 CON'T	DOCKET NUMBER (7)	0 5 0 0 0 2 6 1
01 CON'T	EVENT DATE (8)	0 9 1 8 7 9
01 CON'T	REPORT DATE (9)	0 3 2 5 8 2

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

02 While performing the monthly periodic test of the AFW System, the motor operated iso-
03 lation valve in the AFW line to "A" S/G, AFW-V2-16A, failed to open. The valve was
04 declared inoperable at 1900 hours. This resulted in operation in a degraded mode
05 permitted by T.S. 3.4.3 and constitutes a reportable occurrence per T.S. 6.9.2.b.2.
06 Throughout the event both main feed pumps and three auxiliary feedwater pumps were
07 available. Also, V2-16A was manually operable if required. Therefore, there was no
08 threat to either plant or public safety. (LER 79-32) (LER 79-33).

Line	SYSTEM CODE (11)	CAUSE CODE (12)	CAUSE SUBCODE (13)	COMPONENT CODE (14)	COMP. SUBCODE (15)	VALVE SUBCODE (16)
09	H H	E	B	V A L V O P	A	Z

(17) LER/RO REPORT NUMBER	EVENT YEAR		SEQUENTIAL REPORT NO.		OCCURRENCE CODE	REPORT TYPE		REVISION NO.
	7 9	—	0 3 4	/	0 3	L	—	1

ACTION TAKEN (18)	FUTURE ACTION (19)	EFFECT ON PLANT (20)	SHUTDOWN METHOD (21)	HOURS (22)	ATTACHMENT SUBMITTED (23)	NPRD-4 FORM SUB. (24)	PRIME COMP. SUPPLIER (25)	COMPONENT MANUFACTURER (26)
E	X	Z	Z	0 0 0 2	Y	Y	A	L 2 0 0

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 The operator on V2-16A failed to open due to the operator power supply breaker having
11 tripped on the previous closure. The breaker was reset, and the valve declared
12 operable at 2032 hours after having been stroked several times with no problems. The
13 root cause of the failure was subsequently determined to be a worn gear in the valve
14 operator. The valve has been replaced, and no further corrective action is necessary.

Line	FACILITY STATUS (28)	% POWER (29)	OTHER STATUS (30)	METHOD OF DISCOVERY (31)	DISCOVERY DESCRIPTION (32)
15	E	0 9 6	N/A	A	Operator Observation

Line	ACTIVITY RELEASED (33)	CONTENT OF RELEASE (34)	AMOUNT OF ACTIVITY (35)	LOCATION OF RELEASE (36)
16	Z	Z	N/A	N/A

PERSONNEL EXPOSURES

Line	NUMBER (37)	TYPE (38)	DESCRIPTION (39)
17	0 0 0	Z	N/A

PERSONNEL INJURIES

Line	NUMBER (40)	DESCRIPTION (41)
18	0 0 0	N/A

LOSS OF OR DAMAGE TO FACILITY (43)

Line	TYPE (42)	DESCRIPTION
19	Z	N/A

PUBLICITY

Line	ISSUED (44)	DESCRIPTION (45)	NRC USE ONLY
20	N	N/A	

8204080378 820326
PDR ADOCK 05000261
S PDR

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SUPPLEMENTAL INFORMATION
FOR
LICENSEE EVENT REPORT 79-34R1

1. Cause Description and Analysis

The valve failures occurred when the motor driven auxiliary feedwater pumps were started and AFW-V2-16A failed to open. This failure occurred initially when the AFW pumps were being used to maintain steam generator level with the reactor at zero power on 9/5/79 and again during the performance of the monthly periodic test of the AFW System on 9/6/79 and 9/18/79.

Immediate investigation in each case revealed that the thermal overcurrent relay in the power supply breaker to the valve operator had been tripped. This overcurrent relay provides for motor protection. Additional investigations, performed subsequent to the 9/18/79 failure, traced the overcurrent trip to a torque switch designed to de-energize the operator after the valve has closed. The torque switch is contacted by a worm which operated against a spring mechanism when valve stem movement is restricted. Specifically, motor torque is converted to worm translation which is resisted by the spring. When valve stem travel stops, sufficient torque results in enough worm translation to contact the torque switch at a given setpoint. In this case, it was determined that the torque switch was not being contacted on every valve closure. Since the valve was closed but power was not de-energized from the motor, the motor operated in a locked rotor condition until the thermal overcurrent trip operated. Subsequent investigation of the operator internals revealed a badly worn worm gear. The excessive wear of the worm gear is believed to have prevented the transmission of sufficient torque through the worm to cause the torque switch to be tripped during valve closure. The excessive worm gear wear is believed to have occurred from overstressing of the gear on previous occasions when the valve stuck closed from thermal binding as a result of system backleakage.

The main feed pumps and both motor driven auxiliary feedwater pumps were available to supply steam generator feedwater throughout the 9/5/79 and 9/6/79 occurrences. Throughout the 9/18/79 occurrence, the steam driven auxiliary feedwater pump was also available. Throughout each event, the AFW-V2-16A was manually operable if required. There was, therefore, no threat to either plant or public safety during any of these occurrences.

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2. Corrective Action

Following the 9/5/79 and 9/6/79 failures, the thermal overcurrent relay in the power supply breaker was reset, and the valve was stroked several times. The failure would not repeat, and the valve was declared operable. Following the 9/18/79 failure, investigations revealed that the torque switch was not being contacted. The thermal overcurrent relay was reset, and the torque switch setting was reduced as temporary corrective action. The proper operation of the valve with the reduced torque switch setting was verified by stroking.

Following the investigation of the valve operator internals, which revealed the excessive worm gear wear, the worn worm gear was replaced and the operator was returned to service in satisfactory condition.

3. Corrective Action To Prevent Further Occurrence

In order to eliminate system backleakage and thermal binding problems in the Auxiliary Feedwater System motor operated valves, the three motor operated valves in the motor driven train (V2-16A, B, and C) and the three motor operated valves in the steam driven train (V2-14A, B, and C) have been replaced with double disk gate valves. The original valves were solid wedge gate valves which were far more susceptible to this problem. These valves were replaced during the 1980 refueling outage, and no further problems have been experienced with these valves to date. No further corrective action is deemed necessary.

This revision to LER 79-34 also supplements and closes LER 79-32 and 79-33.

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