NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Fort Calhoun Station, Unit No. 1	0 5 0 0 0 2 8 5	1 OF 0 3

TITLE (4)
Inoperable Check Valves on SIRWT Bubblers

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
0 4	1 5	8 8	8 8	0 1 0	0 0	0 5	1 6	8 8	N	0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	1 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	XX 50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Mark Hollinsed - Shift Technical Advisor	4 0 2 4 2 6 - 4 0 1 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	XX NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On April 15, 1988 at 1455 hours while operating at 100 percent power, testing revealed that check valves in instrument air lines to bubbler level instrumentation on the Safety Injection and Refueling Water Tank (SIRWT) failed to hold a back-pressure, as would be required after a loss of instrument air. If a LOCA occurred with a coincident loss of instrument air pressure under this condition, it is possible that a Recirculation Actuation Signal would have actuated earlier in the transient than designed, resulting in a loss of safety injection and containment spray flow. At 1539 hours on April 15, 1988, the NRC was notified in accordance with 10 CFR 50.72 b.1.ii.B.

Upon discovery of the failure, the check valves were replaced with a different type check valve. The new valves were tested to ensure operability, and the system was returned to normal.

To ensure continued operability, the check valves have been incorporated into the station's in-service-inspection (ISI) program. Present plans call for the valves to be tested as part of the ISI program during the scheduled 1988 outage.

IE22
1/1

NRC Form 366
(9-83)

On April 15, 1988, while operating at 100 percent power, leak tests were performed on check valves IV-383-A/FIC-C, IV-383-B/FIC-C, IV-383-C/FIC-C, and IV-383-D/FIC-C, upstream of accumulators on the instrument air lines feeding the Safety Injection and Refueling Water Tank (SIRWT) bubbler level control instrumentation. The bubblers are designed to monitor water level in the SIRWT after a LOCA and initiate a SIRWT Low Signal (STLS). The valves were tested in conjunction with a program to systematically check the operability of Instrument Air system check valves which maintain accumulator pressure following a loss of instrument air. Other check valves on instrument air lines to safety related valves had been successfully tested during the 1987 refueling and maintenance outage.

Based on testing conducted on April 15, 1988, it was concluded at 1455 hours on the same day that the 4 tested check valves were unable to hold a back-pressure, thus failing their design function. If a loss of instrument air were to occur, the loss of air pressure to the bubblers would cause the instrumentation to perceive a low level in the SIRWT and initiate a STLS. STLS in combination with either a Pressurizer Pressure Low Signal or a Containment Pressure High Signal will initiate a Recirculation Actuation Signal (RAS). Among the actions initiated by the RAS are the following:

1. Trips and locks out the Low Pressure Safety Injection pumps
2. Realigns the suction of the High Pressure Safety Injection and Containment Spray pumps from the SIRWT to the containment sump.

The inability of these check valves to hold a back-pressure presented no safety concerns during normal operations. If a LOCA would have occurred, however, with a coincident loss of instrument air pressure, it is possible that the RAS would have actuated earlier in the transient than designed. This premature realignment could result in insufficient flow to the safety injection and containment spray pumps due to a lack of water supply in the containment sump.

The testing required isolation of the instrument air header feeding the bubblers. Prior to the isolation, portable nitrogen bottles were connected to the two SIRWT level transmitters and the four bubblers. This was done to ensure operability of all 4 instrumentation channels during and after testing.

After the testing of the failed valves was complete, plant personnel notified the NRC resident inspector, and at 1539 hours on April 15, 1988, notified the NRC in accordance with 10 CFR 50.72.b.1.ii.B.

The failed valves (Crane Model 27) were replaced with a different type check valve (NUPRO B-8C-1). This work was completed on the same day as discovery. The new check valves were then tested prior to and following installation, and the system was returned to normal.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Fort Calhoun Station, Unit No. 1	0 5 0 0 0 2 8 5	8 8	— 0 1 0	— 0 0	0 3 OF 0 3

TEXT (If more space is required, use additional NRC Form 366A's) (17)

The check valves have been incorporated into the station's in-service-inspection (ISI) program. Present plans call for the valves to be tested as part of the ISI program during the scheduled 1988 outage. A modification request has been initiated to install isolation valves between the instrument air header and each check valve on the four bubbler lines to allow isolation of individual bubbler channels for on-line testing. This request will also provide documentation to clear the Mechanical Jumper Log. It is anticipated that the isolation valves will be installed during the 1988 Refueling and Maintenance outage.

A fault tree analysis has been initiated on the SI System. The results of this analysis will be compared with the SI System Q-list, Surveillance Tests, and ISI Program to verify all critical components are properly identified and tested. The fault tree analysis will also evaluate systems which interface with the SI System.

Omaha Public Power District
1623 Harney Omaha, Nebraska 68102-2247
402/536-4000

May 16, 1988
LIC-88-346

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Reference: Docket No. 50-285

Gentlemen:

SUBJECT: Licensee Event Report for the Fort Calhoun Station

Please find attached Licensee Event Report 88-010 dated May 16, 1988. This report is being submitted per requirements of 10 CFR 50.73.

Sincerely,

R. L. Andrews for
R. L. Andrews
Division Manager
Nuclear Production

RLA/me

Attachment

c: R. D. Martin, NRC Regional Administrator
A. Bournia, NRC Project Manager
P. H. Harrell, NRC Senior Resident Inspector
INPO Records Center
American Nuclear Insurers

IE22
1/1