



November 18, 1996
LIC-96-0161

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, DC 20555

Reference: Docket No. 50-285

Subject: Licensee Event Report 96-009 Revision 0 for the Fort Calhoun
Station

Please find attached Licensee Event Report 96-009 Revision 0 dated
November 18, 1996. This report is being submitted pursuant to
10 CFR 50.73(a)(2)(i)(B). If you should have any questions, please contact me.

Sincerely,

T. L. Patterson
Division Manager
Nuclear Operations

TLP/epm

Attachment

c: Winston and Strawn
L. J. Callan, NRC Regional Administrator, Region IV
L. R. Wharton, NRC Project Manager
W. C. Walker, NRC Senior Resident Inspector
INPO Records Center

IE221/

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LICENSEE EVENT REPORT (LER)

(See reverse for required number of
digits/characters for each block)ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY
INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED
ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO THE
INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE
INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR
REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE
PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND
BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Fort Calhoun Station Unit No. 1

DOCKET NUMBER (2)

05000285

PAGE (3)

1 OF 5

TITLE (4)

Pressurizer Safety Valves As-Found Lift Appears Outside Acceptance Criteria

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 NAME	DOCKET NUMBER
10	17	96	96	-- 009	-- 00	11	18	96	FACILITY NAME	DOCKET NUMBER
										05000
										05000
OPERATING MODE (9)		5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (Check one or more) (11)							
POWER LEVEL (10)		0	20.2201(b)		20.2203(a)(2)(v)		X		50.73(a)(2)(i)	50.73(a)(2)(viii)
			20.2203(a)(1)		20.2203(a)(3)(i)				50.73(a)(2)(ii)	50.73(a)(2)(x)
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)				50.73(a)(2)(iii)	73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)				50.73(a)(2)(iv)	OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)				50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)		50.36(c)(2)				50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

Erick P. Matzke, Station Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

(402) 533-6855

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;)

X

NO

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On October 17, 1996, during a scheduled refueling outage, it was reported that the "As-Found" lift pressures of Pressurizer Safety Valves (PSVs) RC-141 and RC-142 appeared to be outside of their specified lift setting acceptance criteria. Fort Calhoun Station (FCS) Technical Specification (TS) 2.1.6(1) indicates that these valves are to have their lift settings adjusted to ensure RC-141 opens at 2545 psia +/-1% and RC-142 at 2500 psia +/-1%. The "As-Found" lift pressures were -1.1% for RC-141, and 1.3% for RC-142.

It was concluded that the root causes of this event were: 1) that valve bonnet upper temperature limits were not specified in the vendor test procedure, and 2) the valve test insulation box was not properly constructed and installed at the test facility to be consistent with plant conditions. Had the valve test temperatures been normal, OPPD has a high degree of confidence that the "As-Found" lift pressures for the safety valves would have been within the allowable range.

The vendor test procedure will be revised to specify acceptable upper limits on valve bonnet temperatures used prior to testing, and to ensure that either a correctly modified test insulation box or the plant insulation box is used and properly installed on the safety valve to be tested.

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		96	- 009 -	00	

TEXT (if more space is required, use additional copies of NRC Form 366A) (17)

BACKGROUND

Overpressure protection for the Reactor Coolant System (RCS) at the Fort Calhoun Station (FCS) is ensured by means of primary safety valves, secondary safety valves, Power Operated Relief Valves (PORVs) and the Reactor Protection System (RPS). Technical Specification (TS) 2.1.6(1) specifies that the reactor shall not be made critical unless the two Pressurizer Safety Valves (PSVs) are operable with their lift settings adjusted to ensure valve opening at 2500 psia +/-1% and 2545 psia +/-1%. The two PSVs are RC-141 and RC-142. The lift setting criterion for RC-141 is 2545 psia (2530 psig) +/-1% (i.e., a range of 2505 to 2555 psig), while the criterion for RC-142 is 2500 psia (2485 psig) +/-1% (i.e., a range of 2461 to 2509 psig).

EVENT DESCRIPTION

On October 17, 1996, Omaha Public Power District's (OPPD's) contractor for testing RC-141 and RC-142, Wyle Labs, reported that these valves lifted below the Technical Specification acceptance limit of -1.0%, of nameplate setpoint (-1.1% for RC-141, and -3.1% for RC-142). OPPD's review of the Wyle test data determined that the actual lift pressure for RC-142 had been 1.3% below the nameplate setpoint.

The test data from Wyle revealed that valve bonnet temperatures were significantly higher (30 to 100 degrees Fahrenheit) than it had been for past testing. Analysis predicts that these higher temperatures could account for a shift in setpoint of between -0.8% to -1.6%. A new insulation box had recently been fabricated by OPPD for use during testing. To determine if the new insulation box was the cause of the elevated temperatures, one of the in-plant insulation boxes was retrieved from the FCS Containment and shipped to Wyle for use during retesting. A senior FCS engineer went to Wyle to oversee and evaluate the retesting.

The FCS valve insulation configuration places an insulated box around the inlet flange, body and lower half of the bonnet (see figure 1). This is to ensure that loop seal water temperature remains near the flash point to minimize the formation of water slugs in the discharge piping. Analysis has demonstrated that an insulated valve minimizes the shift in setpoint which occurs between steam inlet conditions and those for a loop seal. Therefore, it is essential to maintain the current valve insulation configuration.

RC-142, which had not been adjusted since as-received testing, was retested on October 22, 1996, with the in-plant insulation box. Valve body and bonnet temperatures were consistent with past testing and much lower than the first test temperatures reported by Wyle. The measured setpoints of 2498 psig and 2487 psig, for the first two retest runs, were close to the as-left of 2483 psig, from 1995, and within the ±1% acceptance

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limits of 2509 psig and 2461 psig.

An inspection of the new insulation box, used for initial "As-Found" tests, revealed that the insulation box was too long and caused the bottom of the box to contact the lower spool piece flange. This flange is much larger than the inlet flange and resulted in the two halves of the box being splayed out from top to bottom. The Wyle technicians concluded that the box was intended to go on the valve with the long end up which produced a better fit but entirely enclosed the valve and bonnet within the box (see Figure 1). There are no markings on the box or sketches in the test procedure to indicate the correct orientation of the insulation box. In addition, the thickness of insulation within the new box is 1" compared to the 2" batting used for the in-plant boxes. The clearance between the valve body and insulation permitted hot convective currents to carry heat from the body to the bonnet which was enclosed within the inverted box. This caused the elevated temperatures, which in turn caused the setpoint to shift downward about 1.5% from the as-left settings from previous testing in 1995. These elevated temperatures are an upper bound on what the valve could experience and the resulting downward setpoint shift is therefore a lower bound.

Retesting of RC-141, which had been adjusted 3/4 flat clockwise (inward turn of the setpoint adjusting nut) during as-received testing, required readjusting 1/2 turn counter-clockwise when tested at temperatures similar to those obtained in past tests. The readjustment, essentially returned the valve to its prior state when received by Wyle. Subsequent lifts were between 2511 psig and 2514 psig compared to the as-left of 2518 psig from 1995. This demonstrates that the valve was most probably within the required setpoint tolerances in the as-received condition.

This report is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B).

SAFETY ASSESSMENT

Had the valve test temperatures been normal there is a high degree of confidence that the "As-Found" lift pressures for the safety valves would have been within the allowable range. Therefore, this event has minimal safety significance.

CONCLUSIONS

Valve bonnet upper temperature limits were not specified in the vendor test procedure and the test insulation box was improperly constructed and installed.

Had the valve test temperatures been normal, OPPD has a high degree of confidence that the "As-Found" lift pressures for the safety valves would have been within the allowable range.

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CORRECTIVE ACTIONS

The vendor test procedure will be revised to specify acceptable upper limits on valve bonnet temperatures used prior to testing, and to ensure that either a correctly modified test insulation box or the plant insulation box is used and properly installed on the safety valve to be tested. These procedure revisions will be completed by December 31, 1997.

The next refueling outage for FCS is currently scheduled for spring of 1998.

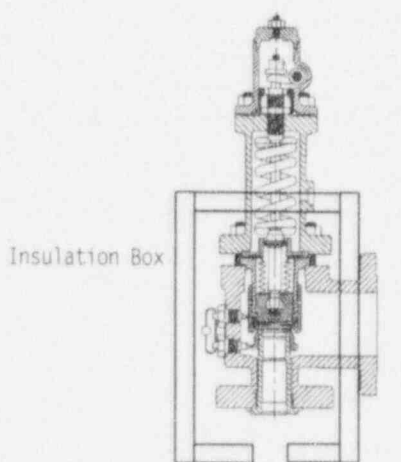
PREVIOUS SIMILAR EVENTS

PSVs RC-141 and RC-142 "As-Found" lift pressures have been found outside their +/-1% tolerance range on previous occasions as documented by LERs 76-038, 77-028, 83-001, 87-014, 92-023 and 93-013.

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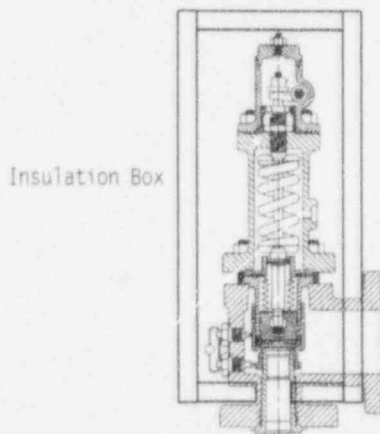
TEXT (if more space is required, use additional copies of NRC Form 366A) (17)



Insulation Box

Correct Installation

Drawings are not to scale



Insulation Box

Incorrect Installation

Figure 1