

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Cooper Nuclear Station										DOCKET NUMBER (2) 0 5 0 0 0 2 9 8				PAGE (3) 1 OF 03	
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TITLE (4) Setpoint Drift of Safety and Safety Relief Valves															
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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	5	2	0	8	5	8	5	0	0	3	0	0	7	0	3	8	5	0	5	0	0	0		

OPERATING MODE (9) N		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)													
POWER LEVEL (10) 0 0 1 0	20.402(b)		20.406(c)		60.73(a)(2)(iv)		73.71(b)								
	20.406(a)(1)(i)	X	60.36(c)(1)		60.73(a)(2)(v)		73.71(c)								
	20.406(a)(1)(ii)		60.36(c)(2)		60.73(a)(2)(vii)		OTHER (Specify in Abstract below and in Text, NRC Form 306A)								
	20.406(a)(1)(iii)	X	60.73(a)(2)(i)		60.73(a)(2)(viii)(A)										
	20.406(a)(1)(iv)		60.73(a)(2)(ii)		60.73(a)(2)(viii)(B)										
	20.406(a)(1)(v)		60.73(a)(2)(iii)		60.73(a)(2)(ix)										

LICENSEE CONTACT FOR THIS LER (12)															
NAME E. M. Mace, Plant Engineering Supervisor										TELEPHONE NUMBER AREA CODE 4 0 1 2 8 1 5 - 1 3 1 8 1 1					

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	
B	S	B R V	D 2 4 5	Y		B	S	B R V	T 0 2 0	N	
B	S	B R V	T 0 2 0	Y							

SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR			
X YES (If yes, complete EXPECTED SUBMISSION DATE)										NO		0	9	0	1	8	5

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

Cooper Nuclear Station utilizes eight Target Rock steam safety relief valves and three Dresser steam safety valves to provide reactor coolant boundary overpressure protection. CNS Technical Specifications require that approximately half of the safety and safety relief valves be tested or replaced with bench tested valves once per operating cycle and that all valves be tested every two cycles. Accordingly, four of eight safety relief valves and two of three safety valves were removed for testing during the 1984-85 refueling and maintenance outage.

The "as found" setpoints of two Target Rock safety relief valves and one Dresser safety valve were found out of the Technical Specification tolerance of +/- 1% of valve setpoint pressure. Following adjustments and/or repairs to the relief valves, retesting was successfully completed, with setpoints within Technical Specification tolerances.

An engineering evaluation is presently being conducted to verify that the aforementioned safety relief and safety valve setpoint anomalies would have had no adverse impact on the transient and safety analysis for Cooper Nuclear Station reload #8 (cycle #9). When completed, the results of this evaluation will be submitted as a revision to this Licensee Event Report.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

CNS Technical Specifications require that approximately half of the three main steam safety valves and eight main steam safety relief valves be tested or replaced with bench tested valves once per operating cycle and that all valves be tested every two cycles. With the plant in a scheduled shutdown, two of the three Dresser safety valves and four of the eight two-stage Target Rock safety relief valves were removed for the purpose of conducting this required testing. On May 29, 1985, the testing of the subject valves began and the following discrepancies were noted:

- 1) The "as found" set pressure on Dresser safety valve BL 2461 was 1222 psig which was not within the $\pm 1\%$ of its nameplate set pressure of 1240 psig as required by Technical Specifications. This particular valve exhibited some initial valve leakage prior to the test. This leakage was most likely the result of the normal relaxation of the spring's compressive force and a slight misalignment of the valve disc to the valve seat. The misalignment could have been the result of mishandling the valve during shipment, or foreign particles trapped between the seating surface of the valve. Regardless of the cause of the misalignment, the valve manufacturer indicated that the valve would have realigned itself after actuating. Although the specific reason for the safety valve lifting at a pressure lower than its design setpoint cannot be positively identified, previous experience indicates that valves with seat leakage generally lift below the design set pressure. Accordingly, adjustments were made to the valve's spring assembly to bring the setpoint within $\pm 1\%$ of the design setpoint.
- 2) The "as found" set pressure on two of four Target Rock safety relief valves, one of which was designed to lift at 1090 psig (S/N 383) and the other at 1100 psig (S/N 382), were above the $\pm 1\%$ of design set pressure as specified by Technical Specifications. The "as found" setpoints were 1117 psig and 1112 psig, respectively.

The BWR Owners Group has developed a diagnostic program to address the high setpoint drift phenomenon experienced by some two-stage Target Rock safety relief valves in operating BWRs. Results to date indicate that the most probable causes are excessive friction between the labyrinth seal and its guide surface, and/or the pilot disc sticking in its seat. As such, preliminary diagnostic testing of Target Rock safety relief valve pilot valves is now routinely conducted prior to "as found" and recertification testing. Accordingly, diagnostic testing was conducted on the four safety relief valves removed during this refueling outage. None of the safety relief valves, including S/N 382 and S/N 383, displayed any significant abnormalities. However, subsequent "as found" testing performed on the four safety relief valves identified the S/N 382 and S/N 383 setpoint anomalies.

With the diagnostic testing complete, S/N 382 and S/N 383 were dimensionally inspected and refurbished by Target Rock personnel. The clearances in the pilot valve labyrinth seal area, which is considered one of the areas that induce upward setpoint drift, were within the design limits and thus considered acceptable. One aspect of the valve

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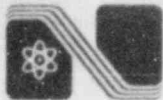
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TEXT (If more space is required, use additional NRC Form 368A's) (17)

refurbishment consisted of lapping the pilot seat and disc, removing any and all evidence of corrosion bonding. Following valve refurbishment, final safety relief valve recertification testing was satisfactorily completed. A detailed test report of refurbishment and certification testing activities is available at Cooper Nuclear Station.

An evaluation is presently being conducted to determine what effect, if any, the high safety relief valve settings and low safety valve setting had on the transient and safety analysis for reload #8 (cycle #9). This analysis will address the impact of the setpoint anomalies on pressure margin, operating thermal margin, peak clad temperature, and containment responses. A preliminary evaluation by General Electric suggests that neither the low safety valve setpoint nor the high safety relief valve setpoints were a concern and that the margins to safety limits were adequate. Verification of this preliminary evaluation will be submitted as a revision to this LER when it becomes available.

This event is repetitive and has generic implication; however, it presented no adverse consequences concerning public health and safety.



Nebraska Public Power District

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CNSS850369

July 3, 1985

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 85-003 is forwarded as an attachment to this letter.

Sincerely,

P. V. Thomason
Division Manager of
Nuclear Operations

PVT:lb

Attach.

cc: R. D. Martin
L. G. Kunc1
J. D. Weaver
L. R. Berry
INPO Records Center
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