



# Nebraska Public Power District

COOPER NUCLEAR STATION  
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NLS950230

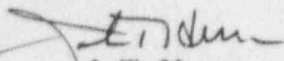
November 24, 1995

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555-0001

Dear Sir:

Cooper Nuclear Station Licensee Event Report 95-017 is forwarded as an attachment to this letter.

Sincerely,

  
J. T. Herron  
Plant Manager

CCT

Attachment

cc: L. J. Callan  
G. R. Horn  
J. H. Mueller  
R. G. Jones  
R. A. Sessoms  
M. F. Peckham  
R. L. Gardner  
N. E. Champlin  
T. N. Ferrando  
INPO Records Center  
NRC Resident Inspector  
R. Turnbull  
CNS Training  
CNS Quality Assurance

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<b>NRC FORM 366- (4-95)</b>  <b>U.S. NUCLEAR REGULATORY COMMISSION</b>  <b>LICENSEE EVENT REPORT (LER)</b>  (See reverse for required number of digits/characters for each block)	<b>APPROVED BY OMB NO. 3150-0104</b> <b>EXPIRES 04/30/98</b>  <small>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 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.</small>
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<b>FACILITY NAME (1)</b> COOPER NUCLEAR STATION	<b>DOCKET NUMBER (2)</b> 05000298	<b>PAGE (3)</b> 1 OF 4
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**TITLE (4)**  
 Safety Relief Valves Found Outside Technical Specification Limiting Safety System Setting

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	24	95	95	017	00	11	24	95	FACILITY NAME	DOCKET NUMBER

<b>OPERATING MODE (9)</b>	N	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)</b>								
		20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(I)		50.73(a)(2)(viii)
<b>POWER LEVEL (10)</b>	0	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)(iii)			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)			X 50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)	
<b>NAME</b> Calvin C. Taylor, Licensing and Compliance Specialist	<b>TELEPHONE NUMBER (Include Area Code)</b> (402) 825-3811

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
X	SB	RV	T020	Y					

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)		
<b>YES</b> (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

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

While in cold shut down for the current refueling outage, (RE16), eight Safety Relief Valves (SRVs) were removed and sent to the Westinghouse testing facility in Banning, California for testing in accordance with Cooper Nuclear Station (CNS) Technical Specifications (TS). In the period between October 24-26, 1995, four of the eight SRVs lift pressures were found higher than TS Limiting Safety System Settings tolerance of +/- 11 psi (+/- 1%). This has been a recurring problem in the industry with several failures noted at CNS as well as other nuclear facilities.

The cause of this event is attributed to corrosion bonding of the pilot disc to the pilot seat, (NUREG 1022, Appendix B, Cause Code B, Design, Manufacturing, Construction/Installation). CNS installed 0.3% platinum alloy discs in four of eight SRVs installed after testing in December 1994. CNS will continue to monitor industry efforts to resolve the corrosion bonding setpoint drift phenomena and if operation demonstrates that changing to 0.3% platinum discs in SRVs is effective, the remaining seats will be replaced in a future outage.

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		95 --	017 --	00	

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

PLANT STATUS

Cooper Nuclear Station (CNS) was in cold shutdown for the current refueling outage (RE16).

EVENT DESCRIPTION

Eight Safety Relief Valves (SRVs) [EIS identifier - RV] were removed and sent to the Westinghouse testing facility in Banning, California for testing in accordance with CNS Technical Specifications (TS). In the period between October 24-26, 1995, four of the eight SRVs lift pressures were found higher than TS Limiting Safety System Settings tolerance of +/- 11 psi, (1%). The SRVs were refurbished as necessary and recertified. The results of the testing are as follows:

Location	S/N	Set Press	As Found 1st, 2nd, 3rd Lifts	% Drift (Neg. value)	Test Date
MS-RV-71ARV	379	1100	1297, 1104, 1099	17.9, 0.4, (0.1)	10/26/95
MS-RV-71BRV	380	1100	1120, 1097, 1092	1.8, (0.3), (0.7)	10/25/95
MS-RV-71CRV	385	1090	1100, 1088, 1087	0.9, (0.2), (0.3)	10/25/95
MS-RV-71DRV	387*	1080	1080, 1082, 1080	none, 0.2, none	10/23/95
MS-RV-71ERV	377*	1090	1098, 1097, 1085	0.7, 0.6, (0.5)	10/24/95
MS-RV-71FRV	381*	1080	1106, 1074, 1072	2.4, (0.6), (0.7)	10/25/95
MS-RV-71GRV	376*	1100	1107, 1089, 1089	0.6, (1.0), (1.0)	10/24/95
MS-RV-71HRV	378	1090	1186, 1091, 1082	8.8, 0.1, (0.7)	10/24/95

\* Denotes valves with BWROG recommended platinum stellite pilot discs

CAUSE

The cause is attributed to corrosion bonding of the pilot disc to the pilot seat, (NUREG 1022, Appendix 9, Cause Code B - Design, Manufacturing, Construction/Installation).

The SRVs installed at CNS are Target Rock pilot actuated valves which are typical for BWRs. Set point drift of Target Rock SRVs above their required set point tolerance of one percent has been an industry wide problem for which the BWR Owners Group (BWROG) has been actively pursuing resolution for several years.

Industry information has identified that radiolytically produced hydrogen and oxygen can concentrate in the immediate vicinity of the pilot disc and seat interface as a result of condensation of reactor steam. The BWROG concluded that the major contributor to corrosion induced upward set point drift is concentrated oxygen, which increases the electro-chemical potential of the pilot disc material. The BWROG has determined that a catalyst should be installed which would recombine the oxygen and hydrogen in the vicinity of the disc and seat interface so as to maintain the oxygen concentration below that required to facilitate corrosion. After evaluating the catalysts, the BWROG recommended replacing the Stellite 6 pilot discs in half of the SRVs with new pilot discs of Stellite 6 alloyed with 0.3% platinum.

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

CNS has been operated continuously from February 1995 until October 1995 after a shutdown from May 1994 to February 1995 interrupted Cycle 16. The length of that unscheduled outage made it prudent to test the SRVs in December 1994 and CNS installed the 0.3% platinum discs in four of the eight SRVs installed at that time. All eight of the SRVs installed at that time were tested during the current refueling outage.

Failure of as found set point testing has been an industry wide problem for several years. CNS has had a failure rate above the industry average. Eight SRVs were tested in December 1994. Four of the eight were higher than their required tolerance of +/- 11 psi and one was below the tolerance. Eight SRVs were tested in 1993 with seven of the eight higher than the required tolerance. A review of previous failures has revealed no correlation between the magnitude of setpoint drift and either location or serial number.

SAFETY SIGNIFICANCE

General Electric (GE) reviewed the current as-found setpoints of the SRVs for possible impact on previous safety analyses. GE concluded in their evaluation that previous analyses remain applicable in that there is ample margin available to avoid any potential plant safety concerns and there is no significant safety impact in vessel over pressure margin, thermal limits, ECCS/LOCA performance, HPCI/RCIC performance, containment response, containment integrity, or steam line integrity. GE determined in the current analysis that with SRV A (serial number 379) and H (serial number 378) drifting to 1297 and 1186 psig respectively and the remaining valves assumed to be at +3% above the nominal setpoint, the calculated vessel bottom head pressure would be 1263 psig. This is higher than the peak vessel pressure reported for the Cycle 16 reload analysis (1241 psig), but well below the vessel overpressure limit of 1375 psig.

Furthermore, the calculated vessel dome pressure for the overpressurization event with drifted SRV setpoints is 1244 psig. Therefore, the complement of the SRVs with setpoints at or below approximately 1244 psig have sufficient capacity to ensure vessel pressure remains well within the 1375 psig overpressure limit.

CORRECTIVE ACTIONS

A CNS Special Test Procedure is controlling the evaluation and implementation of the BWROG recommendation to correct corrosion bonding setpoint drift phenomena. Three of the four SRVs with BWROG recommended stellite platinum alloy discs were within +/- 11 psi of their set pressure. This success rate appears to be an improvement over past performance. Also, CNS is in the process of converting to standard Tech Specs (NUREG 1433) which will allow an SRV setpoint tolerance of +/- 33 psi. All four SRVs with stellite platinum discs were within this tolerance.

1. CNS will continue to monitor industry efforts to resolve the corrosion bonding setpoint drift phenomena. (As committed to in CNS LER 93-013)
2. If operation demonstrates 0.3% platinum discs in SRVs is effective, the remaining seats will be replaced in a future outage. (As committed to in CNS LER 94-033)



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

PREVIOUS EVENTS

- LER 94-033 Safety Relief Valve Setpoint Variance Not Within Technical Specification Limits
- LER 93-013 Safety/Relief and Safety Valve Setpoint Variance Not Within Technical Specification Limits
- LER 91-015 Safety/Relief and Safety Valve Setpoint Variance Not Within Technical Specification Limits
- LER 90-003 Safety/Relief and Safety Valve Setpoint Variance Not Within Technical Specification Limits
- LER 89-015 Safety/Relief and Safety Valve Setpoint Variance Not Within Technical Specification Limits
- LER 88-009 Setpoint Variance and Operability Concerns Associated With Safety Relief Valves Discovered During Surveillance Testing
- LER 86-032 Main Steam Safety Relief Valve Setpoint Drift and Stuck Pilot Valve Inoperability Discovered During Scheduled Valve Testing and Refurbishment
- LER 85-003 Setpoint Drift of Safety and Safety Relief Valves

Correspondence No: NLS950230

The following table identifies those actions committed to by the District in this document. Any other actions discussed in the submittal represent intended or planned actions by the District. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITTED DATE OR OUTAGE
CNS will continue to monitor industry efforts to resolve the corrosion bonding setpoint drift phenomena.	Ongoing until appropriate resolution determined and successfully implemented.
If operation demonstrates 0.3% platinum discs in SRVs is effective, the remaining seats will be replaced in a future outage.	Refueling Outage RE17