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 FACIL:50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana & 05000315  
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 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-002-01:on 890303,failure of maint steam safety valves  
 to meet Tech Spec requirements.W/890403 ltr.

W/8 ltr.

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**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1) <b>D. C. Cook Nuclear Plant - Unit 1</b>															DOCKET NUMBER (2) <b>0   5   0   0   0   3   1   5   1</b>										PAGE (3) <b>OF 0   4</b>		
TITLE (4) <b>Failure of the Maint Steam Safety Valves to Meet Technical Specification Lift Setpoint Requirements.</b>																											
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)									
											<b>D.C. Cook - Unit 2</b>							<b>0   5   0   0   0   3   1   6</b>									
<b>0   3   0   3   8   9</b>			<b>8   9   -   0   0   2   -   0   0</b>					<b>0   4   0   3   8   9</b>										<b>0   5   0   0   0        </b>									
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																								
<b>1</b>			20.402(b)					20.405(c)					50.73(a)(2)(iv)					73.71(b)									
POWER LEVEL (10)			20.405(a)(1)(i)					50.38(c)(1)					50.73(a)(2)(v)					73.71(c)									
<b>0   5   4</b>			20.405(a)(1)(ii)					50.38(c)(2)					50.73(a)(2)(vii)					OTHER (Specify in Abstract below and in Text, NRC Form 366A)									
			20.405(a)(1)(iii)					<input checked="" type="checkbox"/> 50.73(a)(2)(i)					50.73(a)(2)(viii)(A)														
			20.405(a)(1)(iv)					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)(ix)														
LICENSEE CONTACT FOR THIS LER (12)																											
NAME															TELEPHONE NUMBER												
<b>J.B. Droste - Maintenance Superintendent</b>															AREA CODE												
															<b>6   1   6</b>		<b>4   6   5   -   5   9   0   1</b>										
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		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC					
<b>X</b>	<b>S</b>	<b>B</b>	<b>I</b>	<b>R</b>	<b>V</b>	<b>D</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>Y</b>																	
SUPPLEMENTAL REPORT EXPECTED (14)															EXPECTED SUBMISSION DATE (15)					MONTH	DAY	YEAR					
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)																				<input type="checkbox"/> NO					<b>0   4</b>	<b>0   1</b>	<b>9   0</b>
ABSTRACT (Limit to 1400 spaces. I.e., approximately fifteen single-space typewritten lines) (16)																											

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

Between March 3, 1989, and March 15, 1989, during testing of Main Steam Safety Valves (MSSVs) in both Units of the D. C. Cook Nuclear Plant, a total of sixteen of the MSSVs lifted at setpoints outside of criteria required by plant Technical Specifications. In Unit 1, thirteen of the twenty valves were found outside the criteria. Unit 2 had three valves outside of the setpoint criteria. (MSSVs are installed five per each of four Main Steam loops.) The as-found MSSV lift setpoints ranged from 10 psi below to 45 psi above the Technical Specification required range. This condition is the result of the incompatibility of the required Technical Specification setpoint tolerance and the setpoint repeatability inherent to the valve's design.

The immediate corrective action, as required by the Surveillance Test Procedure, was to reset the safety valves' setpoints to within their specified ranges. The feasibility of changing allowable setpoints is under review. A supplemental report outlining results of that review will be submitted by April 1, 1990. Low setpoint deviation would not have resulted in MSSV lift prior to actuation of the steam generator power relief valve which is set to actuate at 1025 PSIG. In the instance of high set point, it was determined that the maximum deviation would not result in the system being overpressurized beyond design criteria.

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PDR ADDCK 05000315  
S PNU

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  D. C. Cook - Unit 1	DOCKET NUMBER (2)  0 5 0 0 0 3 1 5 8 9 - 0 0 2 - 0 0 0 2 OF 0 4	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

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

Conditions Prior to Occurrence

Unit One - 54 Percent Reactor Thermal Power

Unit Two - 0 Percent Reactor Thermal Power (Startup)

Description of Event

Between March 3, 1989, and March 15, 1989, during testing of Main Steam Safety Valves (MSSVs) (EIIS/SB-RV), in both Units 1 & 2, a total of sixteen of the MSSVs lifted at setpoints outside of criteria required by plant Technical Specifications. Upon discovery of high or low setpoint values the MSSV setpoint was immediately adjusted to bring the value within the Technical Specification required range. The action statement for Technical Specification 3.7.1.1 was complied with during the performance of testing.

The main steam header of each of the four steam generators (EIIS/SB-SG), in both units, are equipped with 5 safety valves for a total of 20 valves per unit.

The required relief pressure setpoint ranges and the as-found setpoints for the MSSVs found out of specification are listed below:

Date	Valve I.D. No.	Steam Gen.	T/S Range(PSIG)	As Found(PSIG)
3-3-89	1-SV-1A-2	2	1054/1076	1048
3-3-89	1-SV-1B-2	2	1054/1076	1106
3-3-89	1-SV-3-2	2	1074/1096	1068
3-4-89	1-SV-1B-3	3	1054/1076	1097
3-4-89	1-SV-2A-3	3	1064/1086	1061
3-4-89	1-SV-2B-3	3	1064/1086	1060
3-6-89	1-SV-1A-1	1	1054/1076	1082
3-6-89	1-SV-1B-1	1	1054/1076	1044
3-6-89	1-SV-2B-1	1	1064/1086	1111
3-7-89	1-SV-1A-4	4	1054/1076	1121
3-7-89	1-SV-1B-4	4	1054/1076	1094
3-7-89	1-SV-2A-4	4	1064/1086	1106
3-7-90	1-SV-3-4	4	1074/1096	1071
3-10-89	2-SV-1B-2	2	1054/1076	1078
3-15-89	2-SV-2B-1	1	1064/1086	1093
3-15-89	2-SV-3-3	3	1074/1096	1112

With the exception of the MSSVs there were no inoperative structures, components, or systems that contributed to this event.

## LICENSE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
D.C. Cook Nuclear Plant - Unit 1	0 5 0 0 0 3 1 5	8 9	— 0 0 2	— 0 0	0 3	OF	0 4

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

Cause of Event

This condition is the result of the incompatibility of the required Technical Specification setpoint tolerance and the setpoint repeatability inherent to the valve's design.

Analysis of Event

The safety valve setpoints discovered in this event were found to be out of compliance with the Technical Specification (T/S) 3.7.1.1 requirements and therefore reportable per 10CFR50.73(a)(2)(i)(B).

The following FSAR Chapter 14 accident analyses consider secondary-side pressure relief:

1. Loss of External Electrical Load (Appendix 14C.3.6)
2. Loss of Normal Feedwater (Appendix 14C.3.7)
3. Loss of All A.C. Power to the Station Auxiliaries
4. Steam Generator Tube Rupture (14.2.3)
5. Loss of Reactor Coolant from Small Ruptured Pipes or from Cracks in Large Pipes which Actuates the ECCS (Appendix 14E.1)

The low as-found setpoints would not have affected the capacity to relieve the Steam Generator pressures during any analyzed event. Since the low as-found lift setpoints would have resulted in early opening of MSSVs; this situation would not have adversely affected plant safety. The only foreseeable ramification of low setpoint deviation would be a potential actuation of the safety valve prior to the actuation of the steam generator power relief valves which are set to actuate at 1025 psig. This should not have occurred in the present case since the lowest lift setpoint found was 1044 psig.

In the instance of the high setpoint deviation (worst case 1121 psig versus 1076 psig acceptable), the only potential consequence is that the pressure on the secondary side would reach a value of 1155 psig (the high point set pressure plus the 3 percent above set pressure code allowable for a valve to attain rated lift.) The consequence of the largest deviation noted would not have resulted in over pressurization of the system beyond its design criteria of 1356 psig.

Corrective Action

The immediate corrective action, as required by the Surveillance Test Procedure, was to reset the safety valves' setpoints to within their specified ranges. The lift setpoints were then tested satisfactorily.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
D.C. Cook Nuclear Plant - Unit 1	0   5   0   0   0   3   1   5	8   9	—   0   0   2	—   0   0	0   4	OF	0   4

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

Failed Component Identification

Main Steam Safety Valve

Manufacturer: Dresser Consolidated Valves

Model: (Unit 2) 3707RA-RT22; (Unit 1) 3707RA-RT21.

EIIIS Code: SB-RV

Previous Similar Events

LER 50-315/86-020-00

LER 50-315/87-011-00

LER 50-316/88-004-00

Indiana Michigan  
Power Company  
Cook Nuclear Plant  
P.O. Box 458  
Bridgman, MI 49106  
616 465 5901



April 3, 1989

United States Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

Operating License DPR-58  
Docket No. 50-315

Document Control Manager:

In accordance with the criteria established by 10 CRF 50.73  
entitled Licensee Event Reporting System, the following  
report is being submitted:

89-002-00

Sincerely,

  
W. G. Smith, Jr.  
Plant Manager

WGS:mca

Attachment

c: D.H. Williams, Jr.  
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IE22  
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