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ACCESSION NBR:9210280001 DOC.DATE: 92/10/23 NOTARIZED: NO DOCKET #
 FACIL:50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
 AUTH.NAME AUTHOR AFFILIATION
 WEBER,G.A. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
 BLIND,A.A. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-006-01:on 920618 & 19,10 of 20 main steam safety
 valve lift settings found outside plus or minus 1% limit
 established by TS.Caused by setpoint drift.TS change to be
 submitted to increase tolerance limits.W/921023 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 5
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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	NRR/DST/SICB8H3	1 1	NRR/DST/SPLB8D1	1 1
	NRR/DST/SRXB 8E	1 1	REG FILE 02	1 1
	RES/DSIR/EIB	1 1	RGN3 FILE 01	1 1
EXTERNAL:	EG&G BRYCE,J.H	2 2	L ST LOBBY WARD	1 1
	NRC PDR	1 1	NSIC MURPHY,G.A	1 1
	NSIC POORE,W.	1 1	NUDOCS FULL TXT	1 1

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Indiana Michigan
Power Company
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106
616 465 5901



October 23, 1992

United States Nuclear Regulatory Commission
Document Control Desk
Rockville, Maryland 20852

Operating Licenses DPR-58
Docket No. 50-315

Document Control Manager:

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

92-006-01

Sincerely,

A. A. Blind
A. A. Blind
Plant Manager

/sb

Attachment

c: D. H. Williams, Jr.
A. B. Davis, Region III
E. E. Fitzpatrick
P. A. Barrett
R. F. Kroeger
B. Walters - Ft. Wayne
NRC Resident Inspector
J. F. Stang - NRC
J. G. Keppler
M. R. Padgett
G. Charnoff, Esq.
D. Hahn
INPO
S. J. Brewer/B. P. Lauzau
B. A. Svensson

270054

9210280001 921023
PDR ADCK 05000315
S PDR

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EXPIRES: 4/30/92

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)
D. C. COOK NUCLEAR PLANT - UNIT 1

DOCKET NUMBER (2)
0 5 0 0 0 3 1 5 1

PAGE (3)
1 OF 0 4

TITLE (4)
FAILURE OF THE UNIT ONE MAIN STEAM VALVES TO MEET TECHNICAL SPECIFICATION LIFT SETPOINT REQUIREMENTS DUE TO SETPOINT DRIFT

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						
0	6	1	8	9	2	9	2	0	0	6	0	5	0	0	0
0	6	1	8	9	2	9	2	0	0	6	0	5	0	0	0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

OPERATING MODE (9)	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
1	20.405(a)(1)(i)	50.38(c)(1)	50.73(a)(2)(v)	73.71(c)
POWER LEVEL (10) 0 4 9	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)	X 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
G. A. WEBER - PLANT ENGINEERING SUPERINTENDENT

TELEPHONE NUMBER
AREA CODE 6 1 6 4 6 5 - 5 9 0 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
X	S	B	R	V	D	2	4	3	Y

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) ☒ NO ☐

EXPECTED SUBMISSION DATE (15)
MONTH DAY YEAR

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

This supplemental report is being submitted to provide additional cause and corrective action information.

On June 18 and 19, 1992, with the Unit 1 Reactor in Mode 1 (power operation) at 49 percent thermal power, ten of the twenty Main Steam Safety Valves' (MSSVs) lift settings were found, during Surveillance testing, to be outside of the +/- one percent limit established in Technical Specifications. The ten out of tolerance MSSVs were all found to lift at values which exceeded the upper tolerance (+1 percent) limit. Six of the MSSVs had lift values that were out of tolerance by 16 psig or less. Three of the MSSVs had lift values of greater than 3 percent (between 34 and 39 psig). The other MSSV's lift value was out of tolerance by 6.23 percent (67 psig).

The MSSVs at Cook are Dresser Model 3707RA Safety Valves. The cause of this event is attributed to setpoint drift which limits the ability of the MSSVs to consistently meet the established setpoint tolerance of +/- 1 percent. The Root Cause of this drift has been reviewed with the vendor but, no conclusive determination could be made. A Technical Specification change request is being submitted to increase the tolerance limits to +/- three percent. This change will minimize the number of MSSV failures and is consistent with revised testing standards developed by ANSI OM-1 Committee.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) D. C. COOK NUCLEAR PLANT - UNIT 1	DOCKET NUMBER (2) 0 5 0 0 0 3 1 5 9 2 -	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		0 0 6	- 0 1	0 2	OF	0 4

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

This supplemental report is being submitted to provide additional cause and corrective action information.

Conditions Prior to Occurrence:

Unit One - 49 Percent Reactor Thermal Power

Description of Event:

On June 18 and 19, 1992, ten of the twenty Main Steam Safety Valves (MSSVs) (EIIIS/SB-RV) lift settings were found outside of the +/- one percent tolerance limits established in Unit 1 Technical Specification 3.7.1.1. The ten out-of-tolerance MSSVs were all found to lift at values which exceeded the upper tolerance (+1 percent) limit. Six of the MSSVs had lift values that were out-of-tolerance by 16 psig or less. Three of the MSSVs had lift values of greater than 3 percent (between 34 and 39 psig). The other MSSV's lift value was out-of-tolerance by 6.23 percent (67 psig).

The MSSVs at Cook are Dresser Model 3707RA Safety Valves. Based on operating experience and vendor input, the valve lift setpoints cannot be consistently maintained within +/- one percent tolerance limits. A Technical Specification change request is being submitted to increase the tolerance limits to +/- three percent. This Technical Specification change will minimize the number of MSSV failures and is consistent with revised testing standards developed by ANSI OM-1 Committee.

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

Date	Valve I.D. No.	Stm. Gen.	T/S Setpoint	Allowable Range (PSIG)	As Found (PSIG)	Percent out of Tolerance
06-18-92	1-SV-1A-1	1	1065	1054-1076	1115	3.7
06-18-92	1-SV-2B-1	1	1075	1064-1086	1153	6.2
06-18-92	1-SV-3-1	1	1085	1074-1096	1098	0.2
06-18-92	1-SV-2A-4	4	1075	1064-1086	1091	0.5
06-18-92	1-SV-2B-4	4	1075	1064-1086	1121	3.1
06-19-92	1-SV-1A-2	2	1065	1054-1076	1112	3.4
06-19-92	1-SV-1B-2	2	1065	1054-1076	1078	0.2
06-19-92	1-SV-2A-2	2	1075	1064-1086	1091	0.5
06-19-92	1-SV-2B-2	2	1075	1064-1086	1102	1.5
06-19-92	1-SV-1B-3	3	1065	1054-1076	1096	1.9

There were no other inoperable structures, systems, or components that contributed to this event.

Cause of Event:

The cause of this event is attributed to setpoint drift which limits the ability of the MSSVs to consistently meet the established setpoint tolerance of +/- 1 percent. The setpoint drift problem was reviewed with the vendor, no root cause could be determined.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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 9 2	—	0 0 6	—	0 1	0 3 OF 0 4

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

Analysis of Event:

The safety valve lift setpoints reported here 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 as-found condition of the MSSVs did not have any impact on the health or safety of the public.

Out of the ten Main Steam Safety Valves, with high lift setpoints, six opened between 1 and 3 percent above the Technical Specification Limit. The remaining four had lift setpoints that were out-of-tolerance by more than 3 percent. While all ten of these valves violated the operability condition of Technical Specification 3.7.1.1, an analysis has been performed by Westinghouse to allow increasing the setpoint tolerance from +/- 1 percent to +/- 3 percent. This analysis will be submitted to the NRC in support of a Technical Specification change.

Based on the new Westinghouse analysis, the loss of load/turbine trip and small break LOCA events are the limiting transients with respect to the as-found MSSV lift setpoint values.

In the case of the loss of load/turbine trip event, the greatest demand on the MSSVs is created. Based on the Westinghouse analysis, the steam relief capacity of 8000 ft³/sec would be required to compensate for the transient. The MSSVs available (16 MSSVs within 3 percent of Technical Specification Setpoint) would have provided sufficient relief capacity (10,304 ft³/sec). The full flow capacity of each valve is 238 lbm/sec at 1186.5 psig or about 644 ft³/sec. Therefore, the 16 MSSVs, which opened within 3 percent of the Technical Specification limit, would have a discharge capacity of 10,304 ft³/sec of steam. An unacceptable pressure build-up in all the four steam generators would not have occurred, since two or more valves in each steam generator would have opened within 3 percent of their setpoints.

In the case of the small break LOCA analysis, the secondary system flow aids in the reduction of RCS pressure. The primary interest for the MSSVs is maintaining steam generator pressure over the long term. Any MSSV being within the 3 percent range of the lowest Technical Specification setpoint (1065 psig) will provide sufficient flow to allow the pressure to remain within the analyzed bounds. Again, two or more valves per steam generator would have operated within the 3 percent range; therefore, this condition will be met.

The as-found MSSV setpoints would not have an adverse impact on the Reactor Coolant System (RCS) overpressure protection or Departure from Nucleate Boiling (DNB) ratio. The RCS is protected from overpressure conditions by the Pressurizer Safety Valves and Power Operated Relief Valves. In addition, the Steam Generator Power Operated Relief Valves can be used for RCS heat removal.

The LOCA long term cooling, hot leg switchover, LOCA blowdown, and Containment integrity analyses do not model the Main Steam Safety Valves, and are therefore not impacted.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) D. C. COOK NUCLEAR PLANT - UNIT 1	DOCKET NUMBER (2) 0 5 0 0 0 3 1 5	LER NUMBER (6)			PAGE (3)	
		YEAR 9 2	SEQUENTIAL NUMBER 0 0 6	REVISION NUMBER 0 1	0 4 OF 0 4	

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

Corrective Action:

All Safety Valves found with lift setpoints outside the acceptable setpoint ranges were reset to acceptable values and retested satisfactorily.

The MSSVs that were out of tolerance by more than 3 percent were disassembled and refurbished during the Refueling Outage. No deficiencies were noted that would explain the excessive lift setpoints. The Dresser Valve Manufacturing Chief Engineer was brought on-site to perform an Engineering Review of the Plant activities associated with the MSSVs. The Dresser Engineering Representative reviewed the MSSV Test and Repair Procedures. The Plant activities meet all current Dresser practices. No recommendations were made for changes to the Plant MSSV Testing Program or repair activities.

A database has been established to allow trending of the individual MSSV repairs and test performance.

The MSSV repair procedures have been revised to document the dimensions of critical valve components, whenever repairs are necessary.

Based on ANSI OM-1 Committee Safety Valve Test Requirements, steps are currently being taken to request a change to Technical Specification 3.7.1.1 MSSV lift setpoint tolerance from one percent to three percent.

Failed Component Identification:

Main Steam Safety Valve
Manufacturer: Dresser Consolidated Valves
Model: 3707RA-RT22
EIIIS Code: SB-RV

Previous Similar Events:

50-315/90-13	50-316/92-03
50-315/89-02	50-316/90-06
50-315/87-11	50-316/88-04
50-315/86-20	