

# PRIORITY 1

(ACCELERATED RIDS PROCESSING)

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9507310172 DOC.DATE: 95/07/24 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 95-002-00:on 950620,21,22 & 23,nine Unit 1 MSSVs lift  
setpoints above TS allowed values occurred.Caused by high  
as-found lift setpoints attributed to mild galling between  
disc & nozzle.Eight of nine MSSVs lifted.W/950724 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 4  
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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July 24, 1995

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:

95-002-00

Sincerely,

A handwritten signature in cursive script that reads 'A. A. Blind'.

A. A. Blind  
Plant Manager

/clc

Attachment

c: H. J. Miller, Region III  
E. E. Fitzpatrick  
P. A. Barrett  
R. F. Kroeger  
M. A. Bailey - Ft. Wayne  
NRC Resident Inspector  
J. B. Hickman - NRC  
M. R. Padgett  
G. Charnoff, Esq.  
D. Hahn  
INPO  
S. J. Brewer

9507310172 950724  
PDR ADDCK 05000315  
S PDR

Handwritten initials 'FEZ' with the number '11' written below them.

## LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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)

D.C. Cook Nuclear Plant - Unit 1

DOCKET NUMBER (2)

05000

PAGE (3)

1 OF 3

TITLE (4) Nine Unit One Main Steam Safety Valves Had Lift Setpoints Above the Technical Specification Allowed Values.

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
06	23	95	95	-- 002 --	00	07	24	95	FACILITY NAME	DOCKET NUMBER	
										05000	
										05000	
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
1		20.402(b)			20.405(c)			50.73(a)(2)(iv)			73.71(b)
POWER LEVEL (10)		20.405(a)(1)(i)			50.36(c)(1)			50.73(a)(2)(v)			73.71(c)
57		20.405(a)(1)(ii)			50.36(c)(2)			50.73(a)(2)(vii)			OTHER
		20.405(a)(1)(iii)			X 50.73(a)(2)(i)			50.73(a)(2)(viii)(A)			(Specify in Abstract below and in Text, NRC Form 366A)
		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)(x)			

## LICENSEE CONTACT FOR THIS LER (12)

NAME G.A. Weber - Plant Engineering Superintendent TELEPHONE NUMBER (include Area Code) 616-465-5901

## COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS
X	SB	RV	D 243	Y					

## SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On June 20, 21, 22 and 23, 1995, with the Unit 1 Reactor in Mode 1 (Power Operation) at 57 percent Thermal Power, nine of the twenty Main Steam Safety Valves (MSSVs) lift settings were found to exceed the +/- three percent Technical Specification limit. These MSSV setpoint deficiencies were discovered while exercising the MSSVs. The MSSVs were being exercised to overcome the effects of the disc to nozzle bonding phenomena previously experienced. The MSSVs were last tested 16 months ago, prior to the 1994 Refueling Outage.

A Safety Evaluation for this event concluded that the as-found lift setpoints did not create a condition that could have resulted in exceeding the design rating of the steam generators. The high as-found lift setpoints are attributed to a mild galling between the disc and nozzle components along with the bonding effects created by a chemical reaction between the mixed oxides on the disc with the chromium oxide on the nozzle. These combined effects caused the elevated MSSV lift setpoints. Eight of the nine MSSVs with out-of-tolerance initial lifts had subsequent lifts that were within the Technical Specification limit (+/-3 percent).

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 (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 5	— 0 0 2	— 0 0	0 2	OF	0 3

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

Conditions Prior to Occurrence:

Unit One - Mode 1 (Power Operation) at 57 percent Reactor Thermal Power.

Description of Event:

On June 20, 21, 22 and 23, 1995, nine of the twenty Main Steam Safety Valves (MSSVs) (EIIS/SB-RV) had as-found lift setpoints outside of the +/- three percent tolerance established in Unit 1 Technical Specification 3.7.1.1. The MSSVs were being exercised during the operating cycle to overcome the MSSV elevated lift setpoints previously experienced during end of cycle testing. The MSSVs were last tested 16 months ago, prior to the 1994 Refueling Outage.

The MSSV found out of specification are listed below:

Date	Valve	Stm Gen	TS Setpoint	Allowable Range	As-Found (PISG)	Percent Deviation
06-22-95	1-SV-1A-1	1	1065	1033-1097	1107	3.9
06-22-95	1-SV-1B-1	1	1065	1033-1097	1117	4.9
06-22-95	1-SV-2B-1	1	1075	1043-1107	1141	6.1
06-20-95	1-SV-1A-2	2	1065	1033-1097	1123	5.4
06-20-95	1-SV-2A-2	2	1075	1043-1107	1154	7.3
06-20-95	1-SV-3-2	2	1085	1052-1118	1179	8.7
06-20-95	1-SV-1B-3	3	1065	1033-1097	1135	6.6
06-22-95	1-SV-1B-4	4	1065	1033-1097	1145	7.5
06-22-95	1-SV-2B-4	4	1075	1043-1107	1110	3.3

Two different procedures were used for the MSSV testing. The June 20 and 21, 1995 test data was obtained on loop 2 and loop 3 MSSVs utilizing a procedure developed for exercising the MSSVs. The Control Room Panel instruments were used for the determination of the Main Steam system pressure. The MSSV testing performed on June 22 and 23, 1995 used the MSSV Surveillance Test Procedure. This procedure provides more accurate Main Steam system pressure determination, utilizing a Heise Gauge, and allows for setpoint adjustments of the MSSVs. All MSSV setpoint adjustments were made using the MSSV Surveillance Test procedure.

Retests were performed on the loop 2 and loop 3 MSSVs to make necessary setpoint adjustments and ensure as-left lift setpoints were acceptable. The subsequent MSSV tests revealed that sticking was generally experienced on the initial lifts and was not indicative of the actual setpoint values. Eight of the nine out-of-tolerance MSSVs had subsequent lifts within the Technical Specification limit of +/-3 percent.

Analysis of Event:

This event is reportable in accordance with 10CFR50.73(a) (2) (i) (B) as operation prohibited by Plant Technical Specification 3.7.1.1. Technical Specification 3.7.1.1 requires that the Main Steam Safety Valves be operable in Modes 1 through 3. Operability requires that all twenty Main Steam Safety Valves lift within +/- 3 percent of the Technical Specification Setpoints.

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-430), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20546, 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)

D.C. Cook Nuclear Plant-Unit 1

0 5 0 0 0 3 1 5 9 5 - 0 0 2 - 0 0 0 3 OF 0 3

TEXT (If more space is required, use additional NRC Form 308A's) (17)

The Safety Evaluation revealed that the MSSV as-found lift setpoints would not have resulted in exceeding the design rating of the steam generators. After the initial lift pressure was obtained, eight of the nine out-of-tolerance MSSVs would have gone to a full open position had a secondary system pressure transient occurred. Full flow would have been obtained instantly. The MSSVs would not require an additional three percent pressure accumulation to reach a full flow condition. This event did not represent a hazard to public health and safety.

Cause of Event:

There are two suspected contributors to the disc/nozzle bonding phenomena. Both were found in 1994 during the electron microscopy of the discs and nozzles of valves whose as-found set pressure exceeded +/-3 percent. They are:

- 1) A chemical deposit was found to be present on the discs and nozzles. It is postulated that the chemical deposition could form a bond between the disc and the nozzle, thus elevating the pressure required for the valves to lift. The chemical deposition was found to be present on all discs and nozzles that were examined by independent laboratories.
- 2) The different thermal growth rates of the disc and nozzles materials are causing metal transfer between the disc and nozzle. It is postulated that the transfer could create a galling effect, bonding the disc to the nozzle.

Corrective Action:

Eight of the MSSVs with an initial high lift setpoint had subsequent lifts that were within the Technical Specification limit of +/-3 percent. One MSSV required adjustment to bring the lift setpoint in range. Current plans are to continue with the mid-cycle testing on the MSSVs.

Failed Component Identification:

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

Previous similar Events:

315/94-01    316/94-06  
315/92-06    316/92-03  
315/90-13    316/90-06  
315/89-02    316/88-04  
315/87-11  
315/86-20