

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9405190369 DOC. DATE: 94/05/10 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 94-004-00: on 940406, three pressurizer safety valves, sent to to off site test lab for testing failed to meet TS acceptance criteria. Cause not determined. Nozzle & disc seating surfaces lapped & polished. W/940510 ltr.

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

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	NRR/DRCH/HHFB	1 1	NRR/DRCH/HICB	1 1
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	NRR/DRSS/PRPB	2 2	NRR/DSSA/SPLB	1 1
	NRR/DSSA/SRXB	1 1	<del>GREG FILE</del> 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
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Indiana Michigan  
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Cook Nuclear Plant  
One Cook Place  
Bridgman, MI 49106  
616 465 5901



May 10, 1994

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:

94-004-00

Sincerely,

A. A. Blind  
Plant Manager

/sb

Attachment

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

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9405190369 940510  
PDR ADDCK 05000315  
S PDR

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## 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 315

PAGE (3)

1 OF 3

TITLE (4) FAILURE OF THREE PRESSURIZER SAFETY VALVES TO MEET TECHNICAL SPECIFICATION  
REQUIRED SURVEILLANCE TEST CRITERIA

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
04	06	94	94	-- 004 --	0	05	10	94	FACILITY NAME	DOCKET NUMBER
										05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)						
POWER LEVEL (10)	0	20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
		20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)
		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) 465-5902

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRCDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRCDS
X	AB	RV	C710	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 April 6, 1994 with Unit 1 in Mode 5 (Cold Shutdown) it was determined that all three of the pressurizer safety valves, which were sent to an off site test laboratory for testing, were found with lift settings outside of the Technical Specification acceptance criteria. Acceptable settings are between 2461 psig and 2509 psig. Valve 1-SV-45A was found to have a lift setpoint of 2536 psig, valve 1-SV-45B had a lift setpoint of 2535 psig and 1-SV-45C had a lift setpoint of 2538 psig.

There was no safety-significance since the worst case (1-SV-45C lift setpoint of 2538 psig) would result in a maximum transient pressure of 2615 psig (2538 psig plus 3 percent accumulation to attain its full rated lift). This is below the Technical Specification safety limit of 2735 psig.

All three valves were partially disassembled (retaining spring compression) and inspected. No problems were noted. The nozzle and disc seating surfaces were lapped and polished. The valves were reassembled and tested satisfactorily. The safety valve conditions experienced at the D.C. Cook Plant are similar to current industry trends/concerns. Since a specific Root Cause could not be determined, no preventive action is planned at this time. However, we will be evaluating the test methods and industry activities pertaining to the pressurizer safety valves.

**REQUIRED NUMBER OF DIGITS/CHARACTERS  
FOR EACH BLOCK**

<b>BLOCK NUMBER</b>	<b>NUMBER OF DIGITS/CHARACTERS</b>	<b>TITLE</b>
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 -- FACILITY NAME  8 TOTAL -- DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

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   4	—   0   0   4	—   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 5 (Cold Shutdown - following refueling).

Description of Event:

On April 6, 1994, it was determined that all three safety pressurizer safety valves, Crosby Valve Model HB-86-PB, (EIIS/AB-RV) had lift settings outside Technical Specification 3.4.3 acceptance criteria. The safety valves are tested at a test laboratory using steam at nominal temperature and pressure, as required by Technical Specification. The valves are required to lift at 2485 psig plus or minus 1 percent, (i.e. between 2461 and 2509 psig). Valve 1-SV-45A was found to have a lift setpoint of 2536 psig, valve 1-SV-45B had a lift setpoint of 2535 psig and 1-SV-45C had a lift setpoint of 2538 psig. Technical Specification 4.4.3 requires that each Pressurizer Code Safety Valve be demonstrated operable per Section XI of the ASME Boiler and Pressure Vessel Code, 1974 Edition.

Cause of Event:

The safety valve conditions experienced at the D.C. Cook Plant are similar to current industry trends/concerns. The phenomenon of safety valve setpoint drift outside of design tolerances is common in the Nuclear industry. However, as yet, no cause for the drift has been determined.

1-SV-45A, 1-SV-45B and 1-SV-45C were partially disassembled (retaining spring compression) and inspected. No problems were noted. The nozzle and disc seating surfaces were lapped and polished. The valves were reassembled and tested satisfactorily. The test program (test facility and procedure) for the Pressurizer Safety Valves has not changed from previous testing.

Analysis of Event:

This event has been determined to be reportable under the provisions of 10CFR5073(a)(2)(i)(B) as an operation prohibited by Plant Technical Specification 3.4.3, which requires all of the pressurizer safety valves to be operable with a lift setting of 2485 psig +/- 1 percent.

The as-found lift setpoints of safety valves 1-SV-45A, 1-SV-45B and 1-SV-45C did not have any actual impact on the Reactor Coolant System (RCS) since the safety valves were not challenged during the last fuel cycle. There was no potential impact since the RCS would not have exceeded the maximum transient limit of 2735 psig, which is 110 percent of design pressure (2485 psig). There was no impact on the health or safety of the public.

Safety Valve 1-SV-45C (worst case) had a lift setpoint of 2538 psig. The RCS pressure would have to reach a pressure of 2615 psig (2538 psig plus 3 percent accumulation) for this valve to attain its full rated lift. Valve 1-SV-45A would have attained its rated lift at 2612 psig (2536 psig plus 3 percent) and 1-SV-45B would have attained its rated lift at 2612 psig (2535 plus 3 percent).

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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

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

Analysis of Event continued:

The reactor vessel and pressurizer were designed to ASME B&PV Section III which permits a maximum transient pressure of 2735 psig, 110 percent of design pressure (2485 psig). The RCS piping, valves and fittings are designed to ANSI B31.1, 1967 Edition, which permits a maximum transient pressure of 2985 psig, 120 percent of design pressure (2485 psig).

In addition, the entire RCS was hydro tested to 3107 psig, 125 percent of design (2485 psig), to demonstrate system integrity prior to initial operation.

In conclusion, this event did not have any safety significance and did not represent a hazard to the public health and safety. The safety limit of 2735 psig would not have been exceeded since the maximum RCS pressure would not have exceed 2615 psig (1-SV-45C setpoint of 2538 psig plus 3 percent).

In addition to this Safety Analysis, an additional Safety Evaluation is being performed to review the combined effect of recent Main Steam Safety Valve lift setpoints (reported in LER 50-315/94-001 and 94-003) in conjunction with the as-found lift setpoints of the Pressurizer Safety Valves. This evaluation is scheduled to be completed by June 30, 1994. We do not anticipate any adverse conditions to be identified during this evaluation, however, an updated LER will be submitted if deemed necessary.

Corrective Action:

The nozzle and disc seating surfaces were lapped and polished for all three safety valves. Retests were satisfactorily completed for steam set pressure and seat leakage.

The spring pressure on 1-SV-45A was adjusted by 1/3 flat to bring the set pressure back into tolerance.

Since a specific Root Cause could not be determined, no preventive action is planned at this time. However, we will continue to follow industry activities pertaining to safety valve setpoint drift.

Failed Component Identification:

Pressurizer Safety Valve Plant Designation: 1-SV-45A, 1-SV-45B and 1-SV-45C  
Manufacturer: Crosby Valve Company  
Model: HB-86-BP  
EIIIS Code: AB-RV

Previous Similar Events:

LER: 50-315/90-16, 92-09  
LER: 50-316/89-04, 92-06