

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9502020108 DOC.DATE: 95/01/10 NOTARIZED: NO DOCKET # FACIL: 50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana M 05000316 AUTHOR AFFILIATION AUTH.NAME Indiana Michigan Power Co. (formerly Indiana & Michigan Ele Indiana Michigan Power Co. (formerly Indiana & Michigan Ele WEBER, G.A. Ρ BLIND, A.A. RECIPIENT AFFILIATION RECIP.NAME R SUBJECT: LER 94-008-00:on 941211,4B feedwater heater extreme high level alarm received & turbine trip resulted.Cause related to configuration of alternate drain line.High-high level alarm switches repaired & tested.W/950110 ltr. Ο DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR / ENCL / SIZE: R TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc. NOTES: RECIPIENT COPIES RECIPIENT COPIES LTTR ENCL LTTR ENCL Т ID CODE/NAME ID CODE/NAME PD3-1 PD 1 HICKMAN, J 1 1 1 Y INTERNAL: AEOD/SPD/RAB 1 1 AEOD/SPD/RRAB 1 1 1 1 1 **VALUE CENTER** 02 1 NRR/DE/ECGB NRR/DE/EELB 1 1 1 1 NRR/DE/EMEB NRR/DISP/PIPB 1 1 NRR/DOPS/OECB 1 1 1 NRR/DRCH/HHFB 1 NRR/DRCH/HICB 1 1 1 NRR/DRCH/HOLB 1 1 NRR/DRSS/PRPB 2 2 NRR/DSSA/SPLB NRR/DSSA/SRXB 1 1 1 1 RES/DSIR/EIB 1 1 1 RGN3 FILE 01 1 D EXTERNAL: L ST LOBBY WARD 1 1 2 2 LITCO BRYCE, J H NOAC MURPHY, G.A NOAC POORE, W. 0 1 1 1 1 NRC PDR 1 NUDOCS FULL TXT 1 1 1 С

U

Μ

E

Ν

Т

## NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM PI-37 (EXT. 504-2083 ) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED' Indiana Michigan Power Company Cook Nuclear Plant One Cook Place Bridgman, MI 49106 5616 465 5901



January 10, 19945

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

> Operating Licenses DPR-74 Docket No. 50-316

Document Control Manager:

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

94-008-00

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

1121

010000

9502020108 950110 PDR ADDCK 05000316 S PDR

LICENSEE EVENT REPORT (LER)     ISSUE OF A CONSTRUCTION REPORT SOLUTION REPORT TO A CONSTRUCT ON REPORT TO A REPO	NEC FORM 366 J.S. NUCLEAR REGULATORY COMMISSION APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95																	
FACULY NUME (I) D. C. Cook Nuclear Plant - Unit 2 DOMET HUMBER (I) POOLE (I)   TITLE (I) Rx Trip Caused by a Turbine Trip on High Moisture Separator Reheater Level If (I) If (I)   EVENT DATE (G) LER NUMBER (G) IF (I) OTHER FACULTIES INVOLVED (G)   MORTH Dava YEAR YEAR SOUCHTMAL REPORT (S) OTHER FACULTIES INVOLVED (G)   MORTH Dava YEAR YEAR SOUCHTMAL REPORT (S) OTHER FACULTIES INVOLVED (G)   MORTH Dava YEAR YEAR SOUCHTMAL REPORT (S) OTHER FACULTIES INVOLVED (G)   12 11 94 94 OS OO OI 10 95   POWER Dava THIS REPORT (S) SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR & (Chack one or more) (11 OCTAGE(Y) 7.371(b)   POWER Dava/Dava(S) (I) Dava(S) (I) Dava(S) (I) TATIC TTHE (A)   POWER Dava(S) (I) Dava(S) (I) Dava(S) (I) TATIC TTHE (A)   MORE Dava(S) (I) Dava(S) (I) Dava(S) (I) TATIC TTHE (A)   MORE Dava(S) (I) Dava(S) (I) Dava(S) (I) TATIC TTHE (A)   MORE Dava(S) (I) Dava(S) (I) Dava(S) (I) TATIC   MORE	LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block) LICENSEE for required number of digits/characters for each block)																	
THE 0   R Trip Caused by a Turbine Trip on High Moisture Separator Reheater Level     EVENT DATE (5)   LEER NUMBER (6)   REPORT NUMBER (7)   OTHER FACILITES INVOLVED (6)     MOMINE DAY VEAR   VEAR   VEAR   VEAR   OTHER FACILITES INVOLVED (6)     NOOR (7)   VEAR   VEAR <th< td=""><td colspan="10">FACILITY NAME (1) D. C. Cook Nuclear Plant - Unit 2 DOCKET NUMBER (2) 1 OF 4</td><td>3) 4</td></th<>	FACILITY NAME (1) D. C. Cook Nuclear Plant - Unit 2 DOCKET NUMBER (2) 1 OF 4										3) 4							
EVENT DATE (6)     LER NUMBER (6)     REPORT NUMBER (7)     OTHER FACILITIES INVOLVED (8)       MOMTH     DAV     VEAR     VEAR     REVEOR     NOWITH     DAV     VEAR     (0000)       12     11     94     94     -008     00     01     10     95     (0000)     (00000)     (00000)	TITLE (4) Rx Trip Caused by a Turbine Trip on High Moisture Separator Reheater Level																	
MONTH     DAY     VERA     SEQUENTIAL     PRIME     MONTH     DAY     VERA     CONCRET NUMBER       12     11     94     94     0.08     0.0     01     10     95     GOOD       12     11     94     94     0.08     0.0     01     10     95     GOOD       12     11     94     94     0.08     0.0     01     10     95     GOOD       12     11     94     94     0.08     0.0     01     10     95     GOOD	EVENT DATE (5)	<u></u>	LER NUMBER	R (6)	÷		REPORT		ABER (7)	<u></u>	~~~	OTHE	R FAC	LITIES INV		ED (8)	-	
12   11   94   94   008   00   01   10   95   PAOLITY NAME   DOCORT NAMEER     0PERATING   THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 4: (Check one or more) (11)   120.4026)   120.4026)   120.4026()   150.736()2()(*)   173.71(b)     POWER   120.4026()(1)(0)   150.366()(1)   150.736()2()(*)   173.71(b)   173.71(c)     POWER   120.4026()(1)(0)   150.376()2(0)   150.736()2()(*)   173.71(c)   173.71(c)     POWER   120.4056()(1)(0)   150.376()2(0)   150.736()2()(*)   173.71(c)   173.71(c)     POWER   120.4056()(1)(0)   150.376()2(0)   150.736()2(0)   173.71(c)   173.71(c)     POWER   120.4056()(1)(0)   150.376()2(0)   150.736()2(0)   150.736()2(0)   173.71(c)   173.71(c)     POWER   120.4056()(1)(0)   150.3736()2(0)   150.736()2(0)   150.736()2(0)   174.71(c)   174.71(c)     POWER   120.4056()(1)(0)   150.3736()2(0)   150.736()2(0)   150.736()2(0)   150.736()2(0)   150.736()2(0)   150.736()2(0)   150.736()2(0)   150.736()2(0)   150.736()2(0)   150.736()2(0)   150.7	EVENT DATE (5)     LER NUMBER (6)     REPORT NUMBER (7)     OTHER FACILITIES INVOLVED (8)       MONTH     DAY     YEAR     SEQUENTIAL NUMBER     REVISION NUMBER     MONTH     DAY     YEAR     DOCKET NUMBER     DOCKET NUMBER     DOCKET NUMBER     05000									IBER								
OPERATING     THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF DCFR ±. Check one or more) (11)     MODE (9)   20.402(b)   20.405(c)   X \$0.73(a)(2(b)   73.7(c)     POWER   20.405(a)(1)(i)   50.23(a)(2(b)   50.73(a)(2(b)   73.7(c)     LEVEL (10)   20.405(a)(1)(i)   50.73(a)(2(b)   50.73(a)(2(b)   73.7(c)     Constant of the state of the s	12 11 94	94	008		00	),	01	10	• 95	FACIL	лтү N				00	CKET NUK 05000	BER	
MOUE (9)   120.402(0)   120.405(0)   120.402(0)   120.73(1(2)(0)     POWER   120.405(0)(10)   150.36(0)(1)   150.73(0)(2)(0)   120.77(0)     LEVEL (10)   120.405(0)(10)   150.36(0)(2)   150.73(0)(2)(0)   120.77(0)     120.405(0)(10)   150.73(0)(2)(0)   150.73(0)(2)(0)   120.77(0)   120.405(0)(10)   120.77(0)     120.405(0)(10)   150.73(0)(2)(0)   150.73(0)(2)(0)   150.73(0)(2)(0)   150.73(0)(2)(0)   150.73(0)(2)(0)     120.405(0)(10)   150.73(0)(2)(0)   150.73(0)(2)(0)   150.73(0)(2)(0)   150.73(0)(2)(0)     NAME   LICENSEE CONTACT FOR THIS LER (12)   Fem.9644   Fem.9644   Fem.9644     CAUSE SYSTEM   COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)   Fem.9644   Fem.9744     CAUSE SYSTEM   COMPONENT   MANUFACTURER   REPORTABLE   CAUSE SYSTEM   COMPONENT   MANUFACTURER   REPORTABLE     CUUSE SYSTEM   COMPONENT   MANUFACTURER   REPORTABLE   CAUSE SYSTEM   COMPONENT   MANUFACTURER   REPORTABLE     CUUSE SYSTEM   COMPONENT   MANUFACTURER   REPORTABLE   CAUSE SYSTEM   COMPONENT   NO	OPERATING	THIS R	EPORT IS SUBM	ITTED P	UR	SU/	ANT TO TH	IE RE	QUIREM	ENTS	OF	10 CFR	5: (Ch	eck one or i	more	e) (11)		
POWER   20.4056(1)(10)   50.58(2)(2)   50.73(2)(2)(10)   [OTHER     LEVEL (10)   20.4056(1)(10)   50.73(2)(2)(10)   [OTHER   [Operation 1 Fet, NP     20.4056(1)(10)   20.405(2)(10)   50.73(2)(2)(10)   50.73(2)(2)(10)   [Operation 1 Fet, NP     20.405(2)(10)   50.73(2)(2)(10)   50.73(2)(2)(10)   50.73(2)(2)(10)   Form 3864     20.405(2)(10)   50.73(2)(2)(10)   50.73(2)(2)(10)   50.73(2)(2)(10)   Form 3864     IMWE   LICENSEE CONTACT FOR THIS LER (12)   Interview int	MODE (9)	20.4	U2(D)		_	┣	20.405(c)	<u></u>			<u>  X</u>	50.73(2	a)(2)(iv)			73:71(t	<u>)</u>	
Image: Second State (1)   Image: Second State (1) <td>POWER</td> <td>20.4</td> <td>05(a)(1)(ii)</td> <td></td> <td>-</td> <td></td> <td>50.36(c)(</td> <td><u>''</u></td> <td></td> <td></td> <td><u> </u></td> <td>50.73(</td> <td>=)(≤)(V) 3)(2)(vii)</td> <td></td> <td>+</td> <td></td> <td><u>//</u></td> <td> </td>	POWER	20.4	05(a)(1)(ii)		-		50.36(c)(	<u>''</u>			<u> </u>	50.73(	=)(≤)(V) 3)(2)(vii)		+		<u>//</u>	
Delow and in Tex, NB		20.4	05(a)(1)(iii)			-	50.73(a)(	2)(i)				50.73(2	a)(2)(viii	)(A)	1(5;	becity in Ab	stract	
Supplementation   Supplementation   Supplementation     Ves   Supplementation   Note: Supplementation   Supplementation     Supplementation   Supplementation   Supplementation   Supplementation     Supplementation   Supplementation   Supplementation   Supplementation     Supplementation   Supplementation   Supplementation   Supplementation     Supplementation   Note: Supplementation   Supplementation   Supplementation     Ves   Supplementation   No   Supplementation   No   Supplementation     Make   Supplementation   No   Supplementation   No   Supplementation   No   No     Ves   (fyst.complete EDFECTED SUBMISSION DATE)   X   No   No <td></td> <td>20.4</td> <td>05(a)(1)(iv)</td> <td></td> <td></td> <td>┢──</td> <td colspan="4">50.73(a)(2)(ii)</td> <td>[</td> <td colspan="3">50.73(a)(2)(viii)(B)</td> <td>- bel Fo</td> <td colspan="3">below and in Text, NRC Form 366A)</td>		20.4	05(a)(1)(iv)			┢──	50.73(a)(2)(ii)				[	50.73(a)(2)(viii)(B)			- bel Fo	below and in Text, NRC Form 366A)		
LICENSEE CONTACT FOR THIS LER (12)     TELEPHONE NUMBER (notade Area Code)     OMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)     COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)     COMPONENT MANUFACTURER     REPORTABLE TO NPROS     CAUSE SYSTEM COMPONENT MANUFACTURER     SUPPLEMENTAL REPORT EXPECTED (14)     EXPECTED SUBMISSION DATE)     VES (1yes, complete EXPECTED SUBMISSION DATE)     X   NO     SUPPLEMENTAL REPORT EXPECTED (14)   EXPECTED SUBMISSION DATE)     VES (1yes, complete EXPECTED SUBMISSION DATE)   X   NO     SUPPLEMENTAL REPORT EXPECTED (14)   EXPECTED SUBMISSION DATE)     VES (1yes, complete EXPECTED SUBMISSION DATE)   X   NO     SUPPLEMENTAL REPORT EXPECTED (14)   EXPECTED SUBMISSION DATE)     YES (1yes, complete EXPECTED SUBMISSION DATE)   X   NO     SUPPLEMENTAL REPORT EXPECTED (14)   EXPECTED SUBMISSION DATE)     YES (1yes, complete EXPECTED SUBMISSION DATE)   X<		20.4	05(a)(1)(v)				50.73(a)(2	0.73(a)(2)(iii) 50.73(a)(2)(x)						1				
TREPORT ON ENDINGE A WARE Composed for the set of the se				LICEN	SE	EC	ONTACT F	OR T	HIS LER	(12)								
G. A. WEBER, FLANE ENGLINEERING SUPERINCENDENT     COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)     COMPONENT     CAUSE     SYSTEM     COMPONENT     CAUSE     SYSTEM     COMPONENT     MANUFACTURER     REPORTAGE     SYSTEM     CAUSE     SYSTEM     COMPONENT     SUPPLEMENTAL REPORT EXPECTED (14)     SUPPLIEMENTAL REPORT EXPECTED (14)     SUPPLIEMENTAL REPORT EXPECTED (14)     SUPPLIEMENTAL RE	NAME		lant Easter	order -	~							TELEPHO		BER (Include Ar	ea C	ode)		
COMPONENT ONE CONFORMENT FAILURE DESCRIBED IN THIS REPORT (13)     COMPONENT   MANUFACTURER   REFORMAGE TO NUMBE     BG   IB   LS   Magnetrol   N   CAUSE   SYSTEM   COMPONENT   MANUFACTURER   REPORTABLE TO NUMBE     BG   IB   LS   Magnetrol   N   Image: Component of the processing o	G. A. We	ber, P.	Lant Engine	ering	د ===	up		nden	.C.			610	b/465	-5901,	X2.			
CAUSE   SYSTEM   COMPONENT   MANUFACTURER   REPORTABLE TO NEROS     BG   IB   LS   Magnetrol   N   CAUSE   SYSTEM   COMPONENT   MANUFACTURER   REPORTABLE TO NEROS     BG   IB   LS   Magnetrol   N   Image: Component of the state of the stat		COMPL	ETE ONE LINE F	OR EAC	H	CON	APONENT	FAILI	JRE DES		DI	N THIS	REPOR	T (13)				
BG   IB   LS   Magnetrol   N     SUPPLEMENTAL REPORT EXPECTED (14)   EXPECTED SUBMISSION DAY     YES   MO   SUBMISSION DAYE     ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)   Con December 11, 1994, at 1705 hours with Unit 2 in Mode 1 at 19 percent Rated Thermal Power, Unit 2 received a turbine trip/reactor trip signal from a Main Turbine Moisture Separator High Level. At the time, of the trip, the Control Room crew was attempting to transfer the Right Moisture Separator Reheater (MSR) drain from the Main Condenser to the 4B Feedwater Heater via the Right Moisture Separator Drain Tank (MSDT). Level alarms which normally precede the MSR high level trip signal did not actuate. The turbine trip signal caused the reactor trip.     Despite the efforts of a troubleshooting team assigned to determine the root cause of this event, the cause of the MSR high level trip signal could not be conclusively determined. Other than the failure of the Right MSDT level alarms to actuate, no system, control or procedural abnormalities were noted. An extreme high level was observed prior to the trip in the 4B heater, but is not unusual during startup and could not be established as the cause of the event.     After the reactor trip, all safety systems operated normally and the reactor stabilized in Mode 3. The Right MSDT high water level alarms were inspected,	CAUSE SYSTEM CON	AUSE SYSTEM COMPONENT · MANUFACTURER REPORTABLE TO NPROS CAUSE SYSTEM COMPONENT MANUFACTURER REPORTABLE TO NPROS									s S							
SUPPLEMENTAL REPORT EXPECTED (14)     EXPECTED     MONTH     DATE       YE3 (flyst, complete EXPECTED SUBMISSION DATE)     X     NO     SUBMISSION DATE (15)     DATE (15)       ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)     On December 11, 1994, at 1705 hours with Unit 2 in Mode 1 at 19 percent Rated Thermal Power, Unit 2 received a turbine trip/reactor trip signal from a Main Turbine Moisture Separator High Level. At the time of the trip, the Control Room crew.was attempting to transfer the Right Moisture Separator Reheater (MSR) drain from the Main Condenser to the 4B Feedwater Heater via the Right Moisture Separator Drain Tank (MSDT). Level alarms which normally precede the MSR high level trip signal did not actuate. The turbine trip signal caused the reactor trip.       Despite the efforts of a troubleshooting team assigned to determine the root cause of this event, the cause of the MSR high level trip signal could not be conclusively determined. Other than the failure of the Right MSDT level alarms to actuate, no system, control or procedural abnormalities were noted. An extreme high level was observed prior to the trip in the 4B heater, but is not unusual during startup and could not be established as the cause of the event.       After the reactor trip, all safety systems operated normally and the reactor stabilized in Mode 3. The Right MSDT high water level alarms were inspected, montor in the terms of the MSDT high water level alarms were inspected, we control and the terms of the MSDT high water level alarms were inspected,	BG IB	LS	Magnetrol	N					۲				, 			\`		
SUPPLEMENTAL REPORT EXPECTED (14)     EXPECTED     MONTH DAY YES       YES     MONTH to AV     YES     SUBMISSION     DATE (15)     MONTH DAY YES       ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)     On December 11, 1994, at 1705 hours with Unit 2 in Mode 1 at 19 percent Rated Thermal Power, Unit 2 received a turbine trip/reactor trip signal from a Main Turbine Moisture Separator High Level. At the time of the trip, the Control Room crew was attempting to transfer the Right Moisture Separator Reheater (MSR) drain from the Main Condenser to the 4B Feedwater Heater via the Right Moisture Separator Drain Tank (MSDT). Level alarms which normally precede the MSR high level trip signal did not actuate. The turbine trip signal caused the reactor trip.       Despite the efforts of a troubleshooting team assigned to determine the root cause of this event, the cause of the MSR high level trip signal could not be conclusively determined. Other than the failure of the Right MSDT level alarms to actuate, no system, control or procedural abnormalities were noted. An extreme high level was observed prior to the trip in the 4B heater, but is not unusual during startup and could not be established as the cause of the event.       After the reactor trip, all safety systems operated normally and the reactor stabilized in Mode 3. The Right MSDT high water level alarms were inspected, the protor was refurned to critical on December 12.						_					*					]		
YEB (M yet, complete EXPECTED SUBMISSION DATE)   X   NO   SUBMISSION DATE (15)     ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)     ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)     On December 11, 1994, at 1705 hours with Unit 2 in Mode 1 at 19 percent Rated Thermal Power, Unit 2 received a turbine trip/reactor trip signal from a Main Turbine Moisture Separator High Level. At the time of the trip, the Control Room crew was attempting to transfer the Right Moisture Separator Reheater (MSR) drain from the Main Condenser to the 4B Feedwater Heater via the Right Moisture Separator Drain Tank (MSDT). Level alarms which normally precede the MSR high level trip signal did not actuate. The turbine trip signal caused the reactor trip.     Despite the efforts of a troubleshooting team assigned to determine the root cause of this event, the cause of the MSR high level trip signal could not be conclusively determined. Other than the failure of the Right MSDT level alarms to actuate, no system, control or procedural abnormalities were noted. An extreme high level was observed prior to the trip in the 4B heater, but is not unusual during startup and could not be established as the cause of the event.     After the reactor trip, all safety systems operated normally and the reactor stabilized in Mode 3. The Right MSDT high water level alarms were inspected,		S	UPPLEMENTAL	REPORT	ΕX	PE	CTED (14)						EX	PECTED	M	AD HTMC	ΨŢ.	YEAR
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16) On December 11, 1994, at 1705 hours with Unit 2 in Mode 1 at 19 percent Rated Thermal Power, Unit 2 received a turbine trip/reactor trip signal from a Main Turbine Moisture Separator High Level. At the time of the trip, the Control Room crew. was attempting to transfer the Right Moisture Separator Reheater (MSR) drain from the Main Condenser to the 4B Feedwater Heater via the Right Moisture Separator Drain Tank (MSDT). Level alarms which normally precede the MSR high level trip signal did not actuate. The turbine trip signal caused the reactor trip. Despite the efforts of a troubleshooting team assigned to determine the root cause of this event, the cause of the MSR high level trip signal could not be conclusively determined. Other than the failure of the Right MSDT level alarms to actuate, no system, control or procedural abnormalities were noted. An extreme high level was observed prior to the trip in the 4B heater, but is not unusual during startup and could not be established as the cause of the event. After the reactor trip, all safety systems operated normally and the reactor stabilized in Mode 3. The Right MSDT high water level alarms were inspected, proceed to conclusively determined. The Right MSDT high water level alarms were inspected, and the reactor trip, all safety systems operated normally and the reactor stabilized in Mode 3. The Right MSDT high water level alarms were inspected, and the reactor trip.	YES	D SHALVEEN	ON DATED			x	NO							MISSION				
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewintten lines) (16) On December 11, 1994, at 1705 hours with Unit 2 in Mode 1 at 19 percent Rated Thermal Power, Unit 2 received a turbine trip/reactor trip signal from a Main Turbine Moisture Separator High Level. At the time of the trip, the Control Room crew was attempting to transfer the Right Moisture Separator Reheater (MSR) drain from the Main Condenser to the 4B Feedwater Heater via the Right Moisture Separator Drain Tank (MSDT). Level alarms which normally precede the MSR high level trip signal did not actuate. The turbine trip signal caused the reactor trip. Despite the efforts of a troubleshooting team assigned to determine the root cause of this event, the cause of the MSR high level trip signal could not be conclusively determined. Other than the failure of the Right MSDT level alarms to actuate, no system, control or procedural abnormalities were noted. An extreme high level was observed prior to the trip in the 4B heater, but is not unusual during startup and could not be established as the cause of the event. After the reactor trip, all safety systems operated normally and the reactor stabilized in Mode 3. The Right MSDT high water level alarms were inspected, is a not in the day of the reactor trip a trans to actuate the day of the reactor trip here to the trip here the sector stabilized in Mode 3. The Right MSDT high water level alarms were inspected,	(it yes, complete EXPECT				<u> </u>		<u> </u>				_			ATE (15)	<u> </u>			
repaired, and tested. The reactor was returned to critical on pecchaber 127 1994 at 2033 hours.																		

.

.

**ب** ،

ą

÷	NRC FORM 366A U.S.	NUCLEAR REGULATORY COMMISSION	APPROVED OMB NO. 3150-0104				
ମ୍	LICENSEE EVENT REPORT • TEXT CONTINUATION	(LER)	EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH 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 20655, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20603.				
1	FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3)				
	-		YEAR SEQUENTIAL REVISION NUMBER				
	D. C. Cook Nuclear Plant - Unit ?	0 15 10 10 10 13 1 116					
	TEXT (If more space is required, use additional NRC Form 3664's) (17)						
	Conditions Prior to Occurrent	<b>~~</b> •					
			•				
	Unit 2 in Mode 1 (Power Opera beginning of a Fuel Cycle.	ations) at 19 percen	t Rated Thermal Power at the				
	Description of Event:						
	On December 11, 1994 Operation reactor power level to 30 per startup after a refueling out attempting to transfer the Ri Condenser (EIIS/SG-COND) to t	ons personnel were i rcent Rated Thermal tage. With reactor ight Moisture Separa the 4B Feedwater Hea	n the process of increasing Power following the plant power at 19 percent, they were tor drain from the Main ter (EIIS/SN-HX).				
With the Right MSDT (EIIS/SN-TD) alternate drain valve to the Main Conder open, the normal drain valve to the 4B Feedwater Heater valve was thrott opened to begin the transition to the "at power" drain lineup. The 4B Feedwater Heater drain was also aligned to the condenser via its alterna drain path at the time. At 1703 hours, the 4B Feedwater Heater extreme level alarm (EIIS/SN-LA) was received. The extreme high level condition automatically closed the drain valve from the Right MSDT to the 4B Feedw Heater. The MSDT alternate drain remained open and would normally have expected to continue to carry the drain flow from the MSDT.							
	er Heater extreme high level sture Separator (MSR) High in line from the MSR to the er than 10 percent of rated tor trip. All control rods water Pumps started, and a						
	The level switch which senses Right MSDT high-high level se high level trip setpoint, the been received. Neither of th	s MSR high level is stpoint. Before the MSDT high and high hese two alarms actu	located several feet above the water level reached the MSR -high level alarms should have ated.				
	A troubleshooting team was or the apparent failure of the A level control system was chec MSDT alternate drain was test trip switches and time delay properly. The MSR high level found clear. The MSDT level properly, however, the level to the trip.	rganized to investig MSDT high and high-h cked and found to be ted and found unobst logic were tested a l trip level sensing indication was conf indication was not	ate the cause of the event and igh level alarms. The MSDT functioning normally. The ructed. The MSR high level and found to be functioning lines were blown down and irmed to be functioning observed in the minutes prior				
	The MSDT high and high-high a failed due to corrosion of th repaired and retested satisfa	alarm switches were he switch linkage. actorily.	checked and found to have The switches were subsequently				
	The heater 4B level controls normally.	were checked and fo	und to be functioning				

÷

,

•

1

.

NRC FORM 386A (6-89) -	C FORM 366A U.S. NUCLEAR REGULATORY COMMISSION				
LICENSEE EVE TEXT CON	ESTIMATED BURDEN PER RESPONSE INFORMATION COLLECTION REQUEST COMMENTS REGARDING BURDEN ESTIM AND REPORTS MANAGEMENT BRANCH REGULATORY COMMISSION, WASHING THE PAPERWORK REDUCTION PROJEC OF MANAGEMENT AND BUDGET, WASHI	TO COMPLY WTH THIS : 50.0 HRS. FORWARD AATE TO THE RECORDS (P530), U.S. NUCLEAR TON, DC 2055, AND TO TT (3150-0104), OFFICE INGTON, DC 20503.			
FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)	PAGE (3)		
		YEAR SEQUENTIAL REVISION NUMBER			
D. C. Cook Nuclear Plant -	Unit 2 0  5  0  0  3   1   6	9   4 - 0  0   80  0	0 3 OF 0 4		
TEXT (If more space is required, use additional NRC Form 366A's	7 (17)				
			-		
Description of Event	<u>t:</u> (cont'd)	•			
On December 12, 199 repairs to the MSDT MSR drain control sy	4 at 2033 hours, upon conclud level switches, the reactor v ystem was monitored carefully	ing the investigation vas returned to critic during restart. The	and al. The ensuing		

## Cause of the Event:

power ascension sequence was uneventful.

The root cause of the MSR high level trip could not be conclusively determined. Despite having determined that the MSR level trip switches were functioning properly and the sensing lines were clear, a spurious actuation of the trip switch could not be completely ruled out. Similarly, despite testing the alternate drain line from the MSDT to the condenser and verifying that the line was capable of passing flow, it could not be completely ruled out that the line or one of the 3 valves in the line was not somehow obstructed during the minutes prior to the trip.

It was also theorized that the opening of the normal drain to the 4B heater may have caused a momentary interruption of flow to the alternate drain. This is supported in part by the subsequent receipt of the 4B heater extreme high level alarm, which is an indication that the 4B heater was receiving increased flow after the MSDT normal drain was opened. Upon receipt of the 4B heater extreme high level alarm, the MSDT normal drain valve reclosed. In order for this sequence to have led to the trip, the check valve in the MSDT alternate drain would have to have become somehow stuck in the closed position long enough to let the drain flow from the MSR to flood the MSDT and the associated drain line. Again, troubleshooting after the trip did not indicate a stuck valve or the presence of any obstruction in the MSDT alternate drain line.

The cause of the 4B heater extreme high was determined to be related to the configuration of its alternate drain line. The 4B heater alternate drain enters the condenser above the elevation of the heater itself. That, combined with the relatively low turbine stage pressures developed at low power, limits the capacity of the alternate drain during startup. As a result, receipt of the high and extreme high alarms is not considered an unusual response to conditions at the time of the trip.

The level transient, if in fact such a transient did occur, went undetected in the control room due to the failure of the MSDT high and high-high alarm switches. As previously noted, the cause of their failure was attributed to corrosion. This, in turn, was attributed to their exposure to high humidity during operation.

## Analysis of Event:

This event is being reported per 10 CFR 50.73(a)(2)(iv) as an event that resulted in automatic actuation of Engineered Safety Features (ESF), including the Reactor Protection System (RPS).

NRC FORM 366 (6-89)	A - U.	8. NUCLEAR REGULATORY COMMISSION	APPROVED OMB NO. 3150 EXPIRES: 4/30/92	0-0104 ,					
	LICENSEE EVENT REPORT TEXT CONTINUATION	EXPINES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH 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 20553, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.							
FACILITY NAM	E (1)	DOCKET NUMBER (2)	LER NUMBER (6)	PAGE (3)					
			YEAR SEQUENTIAL REVISION						
	look Nuclear Dient - Unit ?	0 15 10 10 10 13 1 116							
TEXT (If more sp	COR NUCLEAL FLANC - UNIL 2								
•	Analysis of Event: (cont'd)								
	A reactor trip occurred when Thermal Power on a Main Turbi rods fully inserted, both Mot a feedwater isolation occurre	the turbine tripped ne Moisture Separato or Driven Auxiliary d; all as designed.	above 10 percent Rate r High Level. All co Feedwater Pumps start	d ntrol ed, and					
	Normal offsite power was avain standby, and no safety equipm event did not have any actual safety of the public.	lable, the emergency ent was out of servi or potential advers	diesel generators we ce prior to the trip. e impact on the healt	re in This h and					
	Corrective Action:								
	The Right MSDT high and high-high level alarm switches were repaired and tested. The corresponding alarm switches for the Left MSDT were also inspected and verified to be functioning properly.								
	During normal power operation exercised. Corrosion buildup their location in a humid env Preventive Maintenance progra switches are maintained funct	the level alarm swi at the magnetic pic ironment, led to the m has be established ional.	tches are not periodi kup mechanism, a resu failure of the switc to ensure that these	cally lt of h. A alarm					
	The proper operation of the c in the alternate drain path t	heck valve upstream o the Main Condenser	of the Right MSDT dra was verified.	in valve					
	A procedure change has been i to effect a more stable trans Condenser to the 4A and 4B Fe	nitiated to provide fer of the MSDT drai edwater Heaters.	the operators with th n path from the Main	e means					
	Failed Component Identificati	<u>on:</u>							
	Level Switches Manufacturer, Magnetrol Inter Model, 602-SP-X.	national							
	Previous Similar Events:								
	None								
				1					
]									
ľ									

٩

j G

ų.