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ACCESSION NBR:9512260257      DOC.DATE: 95/11/20      NOTARIZED: NO      DOCKET #  
 FACIL:50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315  
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 BLIND,A.A.      Indiana Michigan Power Co. (formerly Indiana & Michigan Ele  
 RECIP.NAME      RECIPIENT AFFILIATION

SUBJECT: LER 95-011-00:on 950912,west centrifugal charging pump was  
 inoperable due to inability to meet design basis  
 requirements for six months as result of personnel error.  
 Recalibrated Relay 1-51-TA8.W/951220 ltr.

DISTRIBUTION CODE: IE22T      COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 5  
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Indiana Michigan  
Power Company  
Cook Nuclear Plant  
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Bridgman, MI 49106  
616 465 5901



December 20, 1995

United States Nuclear Regulatory Commission  
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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:

95-011-00

Sincerely,

A. A. Blind  
Plant Manager

/clc

Attachment

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## LICENSEE EVENT REPORT (LER)

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)  
Donald C. Cook Nuclear Plant - Unit 1DOCKET NUMBER (2)  
05000 315

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TITLE (4) West Centrifugal Charging Pump Inoperable Due to Inability to Meet Design Basis Requirements For Six Months as a Result of Personnel Error During Relay Calibration

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 NAME	DOCKET NUMBER
09	12	95	95	-- 011 --	00	11	20	95	None	
									FACILITY NAME	DOCKET NUMBER

  

OPERATING MODE (9)	6	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
POWER LEVEL (10)	0	20.2201(b)	20.2203(a)(3)(i)	50.73(a)(2)(iii)	73.71(b)
		20.2203(a)(1)	20.2203(a)(3)(ii)	50.73(a)(2)(iv)	73.71(c)
		20.2203(a)(2)(i)	20.2203(a)(4)	50.73(a)(2)(v)	OTHER
		20.2203(a)(2)(ii)	50.36(c)(1)	50.73(a)(2)(vii)	(Specify in Abstract below and in Text, NRC Form 366A)
		20.2203(a)(2)(iii)	50.36(c)(2)	50.73(a)(2)(viii)(A)	
		20.2203(a)(2)(iv)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(B)	
	20.2203(a)(2)(v)	X 50.73(a)(2)(ii)	50.73(a)(2)(x)		

## LICENSEE CONTACT FOR THIS LER (12)

NAME  
John Allard, Maintenance SuperintendentTELEPHONE NUMBER (Include Area Code)  
616/465-5901, x2522

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

## SUPPLEMENTAL REPORT EXPECTED (14)

YES	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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## ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On September 12, 1995, with Unit 1 in Mode 6 and defueled, the Unit 1 West Centrifugal Charging Pump was started for performance of a surveillance. The pump operated at full flow for seven minutes before tripping. Investigation revealed that the pump had tripped on motor overcurrent due to an incorrect setting for the 1-51-TA8 time overcurrent relay. The relay was recalibrated and returned to service.

On November 20, 1995 it was concluded that the pump had been inoperable since the relay was calibrated in March 1995, and that the event was reportable under 10CFR50.73 (a)(2)(i)(B) as a condition prohibited by Technical Specifications and 10CFR50.73(a)(2)(ii)(B) as a condition outside the design basis. On November 22, 1995 it was determined that the event was reportable under 10CFR50.72(b)(2)(i) as a degraded condition discovered while shutdown, and the appropriate 10CFR50.72 notification was made.

The root cause of the event was a lack of requalification training leading to personnel error. The training program for relay calibration was reviewed, as was the calibration procedure. Periodic training on relays has been added to the Continuing Training program for technicians, and the calibration procedure has been enhanced. All relays on safety related motors whose settings had not been tested by other surveillances were identified and their calibration checked.

The significance of this event was evaluated, taking into account availability of redundant systems and design basis criteria. It was determined that the event did not constitute a significantly increased risk to the health and safety of the public.



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

### Conditions Prior to the Event

Unit 1 was in Mode 6 and defueled.

### Description of Event

On September 12, 1995, with Unit 1 in Mode 6 and defueled, the Unit 1 West Centrifugal Charging Pump (1W CCP) was started for performance of the "ECCS Full Flow Test" surveillance. The pump operated at full flow for 7 minutes before circuit breaker 1-51-TA8 tripped on motor overload. Investigation revealed that the pump had tripped on motor overcurrent due to an incorrect setting for the 1-51-TA8 time overcurrent relay. The relay was recalibrated and returned to service and the surveillance completed.

### Cause of the Event

Possible causes for this event were considered. These included instrument drift, test equipment malfunction and personnel error.

The 1-51-TA8 relay, a General Electric IAC relay, was checked to determine if the relay was experiencing instrument drift. The check showed the relay to be reliable. It was concluded that the problem was not with the relay. The test equipment was similarly checked to determine if some malfunction could have resulted in improper calibration. The equipment was found to be functioning properly.

A search of the relay calibration history revealed that the relay had last been calibrated in March, 1995. The personnel responsible for the March calibration of 1-51-TA8 were asked to demonstrate their technique for calibrating the General Electric IAC relay. This demonstration revealed that an incorrect technique for determining pickup current had been employed in the calibration, resulting in miscalibration. The miscalibration of the relay on March 15, 1995 caused the 1W CCP circuit breaker to trip.

The two Instrumentation and Control (I&C) Technicians involved were both trained and qualified within the Cook Nuclear Plant relay training program. However, it was determined that a significant amount of time had elapsed between the qualification of the technicians and March 1995 calibration of 1-51-TA8.

The conclusion was reached that, although adequately trained initially, the long period of time which elapsed before the training was used and a lack of requalification training led to the personnel error on the part of the involved Technicians. The root cause of this event is a lack of requalification training which resulted in the calibration error made by the technicians.

## LICENSEE EVENT CONTINUATION

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### Analysis of Event

On November 20, 1995 it was concluded that the pump had been inoperable since the relay was calibrated in March 1995, and that the event was reportable under 10CFR50.73 (a)(2)(i)(B) as a condition prohibited by Technical Specifications and 10CFR50.73(a)(2)(ii)(B) as a condition outside the design basis. On November 22, 1995 it was determined that the event was reportable under 10CFR50.72(b)(2)(i) as a degraded condition discovered while shutdown, and the appropriate 10CFR50.72 notification was made.

The Emergency Core Cooling System (ECCS) is one of four systems designed to mitigate the consequences of reactor coolant or main steam system breaks. The ECCS is comprised of two high head centrifugal charging pumps (CCPs) which operate, upon receipt of a Safety Injection (SI) signal, to inject borated water into the Reactor Coolant System (RCS) cold legs. During power operations, the charging pumps are normally aligned for their charging function. The ECCS is designed to tolerate a single failure without endangering the core and containment protective functions. Design basis analyses include an active failure during the injection phase or an active or passive failure during the recirculation phase.

In accordance with the single failure criterion each active component in the ECCS is duplicated. Thus, only one charging pump needs to be operated to provide a sufficient volume of water to cool the core, provide reactivity control and/or decay heat removal. The unavailability of the Unit 1 East Charging Pump (1E CCP) and the Unit 1 CD Emergency Diesel Generator, between March 1995 and September 1995, was slightly less than 18 hours and 50 hours, respectively. Therefore, it is reasonable to expect the 1E CCP would have been available in the event of a design basis accident.

In conclusion, the Unit 1 West Charging Pump was not capable of fulfilling its safety function during a design basis accident because its electrical supply breaker would have opened prematurely as a result of the low setpoint on its associated protective overload relay. Therefore, Unit 1 was operating outside its design basis for an extended period of time because the ECCS did not have redundancy in accordance with 10CFR50, Appendix A and Appendix K.

Although the event is reportable as a condition that was outside the design basis of the plant, 10CFR50.73(a)(2)(ii)(B), and as a condition prohibited by Technical Specifications, 10CFR50.73(a)(2)(i)(B), the event did not present significant increased risk to the health and safety of the public.

### Corrective Actions

Relay 1-51-TA8 was recalibrated and returned to service following the pump trip on September 12, 1995. The relay has proven reliable since the recalibration.

The technicians involved have had their relay qualifications voided, and will be requalified on the calibration of IAC relays.

The relay training program was reviewed to determine its adequacy. The qualification program currently in place was found to be satisfactory for content and technique. This program, however, did not provide for periodic requalification training. This type of requalification, or proficiency, training will now be conducted under the Continuing Training program for I&C technicians on a periodic basis. The Continuing Training program will continue to assess the need for additional training.

## LICENSEE EVENT CONTINUATION

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

Corrective Actions (cont'd)

The level of detail in the relay calibration procedure has been increased to enhance the procedure.

All relays monitoring safety related motors that had not been tested by other surveillances have been checked to verify their calibration. Only relay 1-51-TA3, Unit 1 West Containment Spray Pump, was found to have a low pickup setting. This relay was calibrated by the one of the technicians involved in the Unit 1W CCP calibration. The as found data for 1-51-TA3 was evaluated by Engineering and it was determined that the pump was operable despite the low setting.

All calibration verifications were performed by technicians whose proficiency had been verified on relays on the bench, or by technicians working under the direct supervision of a qualified, proficient supervisor. Until all technicians have been retrained within the augmented Continuing Training program, all relay calibrations will be performed in this manner.

Failed Component Identification

None

Similar events

None