

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9710290113 DOC. DATE: 97/10/23 NOTARIZED: NO DOCKET #
 FACIL: 50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
 AUTH. NAME AUTHOR AFFILIATION
 GILLESPIE, R. Indiana Michigan Power Co.
 BLIND, A. A. Indiana Michigan Power Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 97-025-00: on 970923, unplanned ESF actuation occurred.
 Caused by small expected oscillation in SG levels during
 filling operation. Deadband on SG low low level bistables
 will be changed. W/971023 ltr.

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 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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Indiana Michigan
Power Company
Cock Nuclear Plant
One Cook Place
Bridgman, MI 49106



October 23, 1997

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

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:

97-025-00

Sincerely,

A. A. Blind
Site Vice President

/mbd

Attachment

c: A. B. Beach, Region III
E. E. Fitzpatrick
P. A. Barrett
S. J. Brewer
J. R. Padgett
D. Hahn
Records Center, INPO
NRC Resident Inspector

111 IE 22

9710290113 971023
PDR ADOCK 05000315
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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)
50-315

Page 1 of 3

TITLE (4)

Unexpected ESF Actuation During Filling of Steam Generators for Wet Lay-Up

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	23	97	97	-- 025 --	00	10	23	97	FACILITY NAME	DOCKET NUMBER
OPERATING MODE (9)		5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR II: (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(i)
			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)			50.73(a)(2)(ii)			50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME
Mr. Robert Gillespie, Operations SuperintendentTELEPHONE NUMBER (Include Area Code)
616/465-5901, x2535

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

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

On September 23, 1997, at 1510 hours with Unit 1 in Mode 5 at approximately 140 degrees Fahrenheit and 290 psig, an unplanned ESF actuation occurred. An ENS notification was made per paragraph 10CFR50.72(b)(2)(ii) at 1739 hours on September 23, 1997. This event is reportable in accordance with 10CFR50.73(a)(2)(iv) as an event that resulted in the automatic actuation of Engineered Safety Features (ESF).

While filling the Unit 1 Steam Generators (SG) to place them in wet lay-up, a low low level alarm was received on two out of four SGs. This low level made up the logic to start the Turbine Driven Auxiliary Feedwater Pump (TDAFP) and open the associated feedwater valves.

The cause of the actuation was a small expected oscillation in the SG levels during the filling operation, which, combined with the 1% deadband of the associated bistables, resulted in the ESF actuation. This situation will be corrected by increasing the deadband on the low low level bistable from 1% to 3%.

The event has been evaluated and determined to have no safety significance, nor did it pose a threat to the health or safety of the public.

LICENSEE EVENT CONTINUATION

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)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)
Cook Nuclear Plant - Unit 1	50-315	YEAR	SEQUENTIAL	REVISION	2 OF 3	
		97	-- 025 --	00		

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

Condition Prior to Event

Unit 1 was in Mode 5, cold shutdown

Description of Event

On September 23, 1997, at 1510 hours with Unit 1 in Mode 5 at approximately 140 degrees Fahrenheit and 290 psig, an unplanned ESF actuation occurred. The ESF actuation resulted in the Turbine Driven Auxiliary Feedwater Pump (TDAFP) receiving an auto start signal and the auto positioning of the TDAFP's four flow control valves.

This event occurred while filling the four Steam Generators (SG) to place them in wet lay-up. The SGs were filled using both Motor Driven Auxiliary Feedwater Pumps. In preparation for SG fill, the Unit Supervisor conducted a job brief on the evolution. Included in the brief were the need to limit the SG fill rate to prevent excessive cool down of the Reactor Coolant System and the possibility of an Engineered Safety Features (ESF) actuation at the SG low low level setpoint (17%). The rate of fill was maintained approximately the same to each of the individual SGs. Prior to filling, the level in all four SGs was 70% wide range.

At 1320 the control room crew commenced slowly filling all four SGs. When sufficient feedwater had been supplied, the low low level alarms cleared on SG #11, SG #12 and then SG #14 as each reached 17% narrow range level. The TDAFP auto start circuit is reset when three SG levels are above the 17% narrow range setpoint. As SG levels increased, small level oscillations occurred on all SGs, which is a normal system response. One of these oscillations occurred soon after the low low level alarm cleared on SG #14 which resulted in the low low level alarm re-alarmed.

This, in combination with the standing low low level alarm on SG #13, made up the ESF actuation logic. The TDAFP received an auto-start signal and the Auxiliary Feed valves for the TDAFP traveled full open. With the unit in Mode 5 no steam was available to provide motive force for the TDAFP, therefore, it did not start.

The SG level trends were examined and it was determined that channel 2 on SG #14 level indication was fluctuating enough to cause the signal to clear and reactivate. Filling continued and when the signal cleared the TDAFP valves were closed. The filling was completed without further incident.

Cause of Event

The deadband on the SG low low level alarm bistables is not sufficient to prevent normal expected oscillation experienced during routine evolution from resulting in ESF actuations.

LICENSEE EVENT CONTINUATION

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Cook Nuclear Plant - Unit 1	50-315	YEAR	SEQUENTIAL	REVISION	3 OF 3
		97	-- 025 --	00	

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

Analysis of Event

This event is being reported in accordance with 10CFR50.73(a)(2)(iv) as an event that resulted in the automatic actuation of an Engineered Safety Feature (ESF). The ESF was initiated when a low low level alarm was received in two out of the four SGs which made up the logic to start the TDAFP and open the associated feedwater valves. The ESF actuation is intended to maintain sufficient water level in the SGs to provide a heat sink to maintain core temperatures within acceptable ranges. The actuation was a result of filling the SGs to place them in wet lay-up with the unit cooled to below the point that the SGs would function as an effective heat sink. The TDAFP did not start as the unit was in Mode 5 and steam was not available. The associated feedwater valves responded as expected by opening.

As the ESF actuation resulted from level oscillations during fill of the SGs, the signal was not generated to mitigate an adverse condition. Therefore, it has been concluded that the event has no safety significance and posed no threat to the health and safety of the public.

Corrective Actions

The deadband on the SG low low level bistables will be changed from 1% to 3%. This corrective action was identified after an unexpected TDAFP restart occurred after a trip on Unit 2 in March, 1997, see LER 316/97-001-00. An engineering review determined that the deadband for the low low level alarm bistables was too narrow, and should be adjusted on both units. That work is currently underway on Unit 2, and will be completed for Unit 1 during the current outage.

Failed Component Identification

None

Previous Similar Events

316/97-001-00
315/96-005-00
316/96-002-01
315/95-005-00
315/95-010-00
316/95-008-00
316/94-010-00
315/92-005-01

