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ACCESSION NBR: 9011150059 DOC. DATE: 90/11/05 NOTARIZED: NO DOCKET #
 FACIL: 50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana & 05000316
 AUTH. NAME AUTHOR AFFILIATION
 SAMPSON, J.R. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-011-00: on 901010, ESF actuation signal on hi-hi SG level, due to personnel error, w/unit shut down.

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In accordance with the criteria established by 10 CFR 50.73 entitled Licensee Event Reporting System, the following report is being submitted:

for [Signature]
A.A. Blind
Plant Manager

Attachment

9011150059 901105
RDR ADCK 05000314

IE 22

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) D. C. Cook Nuclear Plant - Unit 2															DOCKET NUMBER (2) 0 5 0 0 0 3 1 1 6										PAGE (3) 1 OF 0 5				
TITLE (4) Engineered Safety Features Actuation Signal on Hi-Hi S/G Level, Due to Personnel Error, with the Unit Shut Down																													
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 NAMES						DOCKET NUMBER(S)														
1	0	1	0	9	0	0	1	1	0	0	1	1	0 5 0 0 0						0 5 0 0 0										
OPERATING MODE (9) 3				THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																									
POWER LEVEL (10) 0 0 0				20.402(b)					20.405(c)					<input checked="" type="checkbox"/> 50.73(a)(2)(iv)					73.71(b)										
				20.405(a)(1)(i)					50.38(c)(1)					50.73(a)(2)(v)					73.71(c)										
				20.405(a)(1)(ii)					50.38(c)(2)					50.73(a)(2)(vii)					OTHER (Specify in Abstract below and in Text, NRC Form 366A)										
				20.405(a)(1)(iii)					50.73(a)(2)(i)					50.73(a)(2)(viii)(A)															
				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 J. R. Sampson, Operations Department Superintendent															TELEPHONE NUMBER AREA CODE: 6 1 1 6 NUMBER: 4 1 6 1 5 1 - 1 5 9 1 0 1 1														
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																													
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC					
SUPPLEMENTAL REPORT EXPECTED (14)																													
YES (If yes, complete EXPECTED SUBMISSION DATE)															NO														
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															MONTH DAY YEAR														

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

On October 10, 1990, at 0627, with unit 2 in Mode 3 (hot standby), an engineered safety feature (ESF) actuation signal was received due to a hi-hi steam generator (S/G) level. Since shutdown conditions existed at the time of this event, there were no equipment position changes or actuations as a result of the ESF signal. Prior to the event, the S/G Number 21 level was being increased in support of testing. Shift turnover occurred at about 0615. At about 0625, it was identified that Number 21 S/G level was near the hi-hi setpoint. The Operator secured auxiliary feedwater flow (AFW) to the S/G, but the level swelled to the hi-hi setpoint.

This event was caused by the Operator failing to monitor the S/G levels at a sufficient frequency. Contributing to this event was the test procedure which required operation above the S/G high level alert alarm and procedural guidance which required intermittent high AFW flow rates for AFW pump cooling. Expectations related to control room panel monitoring were re-emphasized with the operators. The procedural guidance for AFW pump cooling will be revised to delete the need for high flow rates. The test procedure will be revised to allow operation below the S/G high level alert alarm or allowance will be given for operation above the hi-hi level setpoint.

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 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

Since the AFW demand at the time of the event was high enough to preclude start/stop operation of the MDAFPs due to motor start limitations (but not high enough to maintain the ELO valves closed while maintaining a constant S/G level), it was necessary to take deliberate actions to maintain one ELO valve closed. Due to the turbine-driven auxiliary feedwater pump (EIIS/BA-P) being inoperable at the time of the event, it was not allowable to open a MDAFP test valve and declare the pump inoperable. Therefore, the BOP was allowing S/G levels associated with one MDAFP to decrease while increasing levels on the S/Gs associated with the other MDAFP to maintain its ELO closed. The night

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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shift BOP increased the AFW flow for Number 21 S/G to about 50×10^3 lbm/hr at about 0607.

The night shift BOP told the day shift BOP during shift turnover that the AFW flow rate was high on Number 21 S/G. The shift turnover was completed at about 0615 with Number 21 S/G level at about 50 percent. After completion of the shift turnover, the day shift BOP began to record turnover notes.

At about 0625, the Reactor Operator identified that the Number 21 S/G level was approaching 65 percent and he notified the BOP. The BOP immediately secured AFW flow to the Number 21 S/G. The S/G level, however, swelled to the hi-hi trip setpoint of 67 percent at 0627 - which made the ESF logic for main turbine trip and main feedwater isolation.

Cause of Event

The BOP failing to monitor the Number 21 S/G level at the frequency required for the existing Plant conditions was the root cause of this event. Contributing to this event was a combination of the BOP not realizing the rate at which the S/G level was increasing, not perceiving a need for constant attention to the S/G level due to the Plant being in a shutdown condition, and not realizing the amount of time which was taken for recording his turnover notes.

The RCS temperature indication cross calibration test procedure and the MDAFP ELO design are also considered contributing factors. The procedure directed the S/G levels to be maintained at a point where there would be no alarms to warn of approaching the ESF setpoint. The MDAFP ELO design required periodic feeding at flow rates higher than required for existing Plant conditions. These two factors combined to create a situation where the required level of attention to S/G levels was higher than normal for shutdown conditions.

Analysis of Event

This event is considered reportable pursuant to the requirements of 10CFR50.73(a)(2)(iv) in that the logic for the hi-hi level ESF signal was satisfied.

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The unit was shutdown with reactor trip breakers open, the main turbine tripped, the main feedwater pumps tripped, and the main feedwater isolation valves closed prior to this event. There were no equipment position changes or actuations as a result of this event. Therefore, it is concluded that this event did not constitute a significant hazard to the health and safety of the public.

Corrective Action

The AFW was isolated from the Number 21 S/G until the level decreased to the desired level. The level decreased below the hi-hi level setpoint within five minutes after reaching the hi-hi setpoint. The following actions have been, or will be, implemented to prevent recurrence:

1. Management's expectations concerning attention to the control room panels were re-emphasized in a letter to shift personnel on October 10, 1990.
2. A review of the MDAFP ELO concerns was performed and it was concluded that a MDAFP could be considered operable with the test valve open. Procedure changes will be made to allow operation of a MDAFP with the test valve open and consider it operable. This change will remove the need for AFW flow rates higher than required by Plant conditions. These procedure changes will be implemented by February 18, 1991.
3. The RCS temperature indication cross calibration test procedures will be revised to direct maintaining S/G levels below the S/G high level deviation setpoint or establish conditions which would allow S/G levels to be above the hi-hi setpoint. These procedure changes will be implemented by May 30, 1992.

Failed Component Identification

None

Previous Similar Events

LER 316/89-007: Steam generator low-low level reactor trip signal during cooldown with reactor trip breakers open due to personnel error.

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U-2 MDAFP ARRANGEMENT



