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 FACIL: 50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
 AUTH. NAME AUTHOR AFFILIATION
 KINGSEED, J.B. 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 93-002-00: on 930609, Assumptions for high energy line
 break not met due to use of low temperature thermal links to
 maintain required vent area. Blocked open to subject doors.
 W/930709 ltr.

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Indiana Michigan
Power Company
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106
616 465 5901



INDIANA
MICHIGAN
POWER

July 9, 1993

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:

93-002-00

Sincerely,

A. A. Blind
Plant Manager

/sb

Attachment

c: J. B. Martin, Region III
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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH 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.

FACILITY NAME (1) Donald C. Cook Nuclear Plant - Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 3 1 5					PAGE (3) 1 OF 0 4	
TITLE (4) Assumptions for High Energy Line Break Not Met Due to Use of Low Temperature Thermal Links to Maintain Required Vent Area																
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)			
									Cook - Unit 2				0 5 0 0 0 3 1 6			
0 6	0 9	9 3	9 3	0 0 2	0 0	0 7	0 9	9 3					0 5 0 0 0			
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)														
1		20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(h)		
POWER LEVEL (10)		20.406(a)(1)(i)				50.36(c)(1)				50.73(a)(2)(v)				73.71(i)		
1 0 0		20.406(a)(1)(ii)				50.36(c)(2)				50.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
		20.406(a)(1)(iii)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(A)						
		20.406(a)(1)(iv)				50.73(a)(2)(iii)				50.73(a)(2)(viii)(B)						
		20.406(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(ix)						
LICENSEE CONTACT FOR THIS LER (12)																
NAME J. B. Kingseed - Nuclear Safety Section Manager										TELEPHONE NUMBER						
										AREA CODE 6 1 4 2 2 3 - 2 0 3 0						
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						
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)												<input checked="" type="checkbox"/> NO				

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

On June 9, 1993, during a review of assumptions used in environmental qualification related analyses, it was discovered that the doors to the turbine-driven auxiliary feedwater pump (TDAFP) room and the adjacent hallway, which are purposely maintained open to prevent a pressurization of the room following a postulated break of the four-inch steam supply line to the TDAFP, a High Energy Line Break (HELB), might close. The subject doors have thermal links, which could melt as the accident progressed, allowing pressurization of the TDAFP room. This situation is contrary to the assumptions used in the HELB analysis as stated in the FSAR.

Immediate corrective action was to block open the subject doors to ensure the design criteria venting area for a HELB was met. Long-term corrective action involves the installation of fusible links of higher temperature ratings on a selected group of fire doors. The fusible links will allow these fire doors to remain open during a potential HELB and will allow the doors to close during a fire.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH 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

FACILITY NAME (1)

Donald C. Cook
Nuclear Plant - Unit 1

DOCKET NUMBER (2)

0 | 5 | 0 | 0 | 0 | 3 | 1 | 5

LER NUMBER (6)

YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
9 3	— 0 0 2	— 0 0

PAGE (3)

0 | 2 | OF | 0 | 4

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

Plant Conditions at Time of Discovery

Unit 1 Mode 1 at 100 percent Rated Thermal Power.

Unit 2 Mode 1 at 99 percent Rated Thermal Power.

Description of Event

On June 9, 1993, during a review of assumptions used in environmental qualification related analyses, it was discovered that the doors to the turbine-driven auxiliary feedwater pump (TDAFP) (EIIS/BA-P) room and the adjacent hallway, which are purposely maintained open to prevent a pressurization of the room following a postulated break of the four-inch steam supply line to the TDAFP, a High Energy Line Break (HELB), might close. The subject doors have thermal links, which could melt as the accident progressed, allowing pressurization of the TDAFP room.

The original HELB analysis for the TDAFP room only considered a four-second blowdown interval, whereas a recent Westinghouse analysis for the rerating project showed that break of a small line will not cause any automatic safety system actuation. Thus, the accident may progress for several minutes versus the four seconds originally assumed, resulting in the melting of the thermal link and the closing of the door. This situation is contrary to the assumptions used in the HELB analysis as stated in the FSAR (Fig 14.4.6-7). This condition was reported to the NRC under the provisions of 10CFR50.72 as a condition that was outside the design basis of the plant on June 9, 1993 at 1243 hours after confirmation of stated conditions.

Cause of Event

It appears that at the time the original analysis was performed, the analyst was only concerned with the peak pressure spike which occurs shortly after the postulated line break, if the areas affected are vented. Thus, the analysis was terminated after the peak pressure occurred.

Analysis of Event

This issue is being reported pursuant to 10CFR50.73(a)(2)(ii)(B) as a condition outside the design basis of the plant.

Based on the following, there was no safety significance nor adverse impact to the health and safety of the public.

For a break of the four-inch line supplying steam to the turbine-driven auxiliary feedwater pump (TDAFP), there is no automatic protective action. Thus, the auxiliary feedwater system performs no safety function for this accident. It is needed, however, to bring the reactor from hot to cold shutdown.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 3	— 0 0 2	— 0 0	0 3	OF	0 4

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

Analysis of Event (Cont'd)

Even if the thermal links were to melt, it is unlikely that the doors would fully close. Except for a very small break, the pressure differential across the doors created by the steam flowing through the openings would prevent the doors from closing, thus maintaining the necessary path to preclude room pressurization until steam flow stopped. Once the operators had identified the source of the problem, isolation valves which are located in the west steam enclosure could be closed from the control room. Once the flow of steam had ceased, there would be no mechanism for pressurizing the compartments.

If the doors were to close, however, the pressure buildup would most likely cause failure of the doors and possible failure of the seal separating the TDAFP room from the east motor-driven auxiliary feedwater pump (MDAFP) room. As indicated above, failure of the doors would allow the necessary vent area to stop compartment pressurization. If the seal between the rooms were to fail, then steam would be expected to intrude into the east MDAFP room. Since the equipment in this room is not environmentally qualified, its operation under these conditions would be questionable. However, as noted earlier, automatic actuation of safety systems does not occur during a rupture of the TDAFP steam supply line. Therefore, the potential loss of the east MDAFP does not degrade plant safety.

Once manual actions have been taken, cold shutdown can be achieved by using either the west MDAFP or the opposite unit's auxiliary feedpumps.

Corrective Actions

Immediate corrective action was to block open the subject doors to ensure the design criteria venting area for a HELB was met. Because the subject doors are fire doors and the blocking open of the doors prevent them from performing their fire protection function, the doors were declared inoperable and a fire watch was established for compliance with the plant's technical specification for fire-rated assemblies.

Long-term corrective action involves the installation of fusible links of higher temperature ratings on a selected group of fire doors. The fusible links will allow these fire doors to remain open during a potential HELB and will allow the doors to close during a fire. Long-term corrective action is scheduled for completion by 9-6-93.

As previously stated, the cause of the condition could not be determined with any degree of certainty. Current configuration control, design control and design change control practices are proceduralized in the AEPSC General Procedures. The lessons from this event have already been learned and formalized; therefore, no new preventive action is planned at this time.

LICENSEE EVENT REPORT (LER)
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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 3	— 0 0 2	— 0 0 0	4	OF	0 4

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

Failed Component Identification

None

Previous Similar Events

- LER 50-315/91-005 - Design documents could not be located that would demonstrate the capability of the diesel generators' ventilation and exhaust structures to withstand the effects of a tornado.
- LER 50-315/92-001 - Slabs at El. 621'6" in the west main steam enclosures for Unit 1 (Unit 2) did not meet design basis requirements due to inadequate configuration controls in 1973.