

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9712020137 DOC. DATE: 97/11/24 NOTARIZED: NO DOCKET #
 FACIL: 50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana M 05000316
 AUTH. NAME AUTHOR AFFILIATION
 FARLOW, S. Indiana Michigan Power Co.
 BLIND, A. Indiana Michigan Power Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 97-008-00: on 971024 unplanned ESF actuation occurred.
 Caused by equipment failure. Replaced detector, interface box
 & computer components. W/971124 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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



November 24, 1997

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

Operating Licenses DPR-74
Docket No. 50-316

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:

97-008-00

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

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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 (MHB 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 2DOCKET NUMBER (2)
50-316

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TITLE (4)

ESF Actuation Due to Failure of Train A Upper Containment Area Radiation Monitor

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
10	24	97	97	-- 008 --	00	11	24	97	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)	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

Mr. Stan Farlow, Instrumentation and Control Production Engineering Manager

TELEPHONE NUMBER (Include Area Code)

616/465-5901, x2858

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 October 24, 1997 at 0008 hours with Unit 2 in Mode 6, Refueling, an unplanned ESF actuation occurred. A high radiation alarm and high fail signal were generated by the Train A Upper Containment Area Radiation Monitor due to equipment failure. The high radiation alarm resulted in a Containment Ventilation Isolation. The associated isolation valves closed as designed. This event is reportable in accordance with 10 CFR 50.73 (a) (2) (iv) as an event that resulted in the automatic actuation of Engineered Safety Features (ESF). An ENS notification was made per paragraph 10 CFR 50.72 (b) (2) (ii) at 0256 hours on October 24, 1997.

The Train A Upper Containment Area Radiation Monitor generated a high radiation alarm and high fail signal. The reason for the malfunction was caused by the failure of the monitor's detector. The components that could have caused or contributed to the failure have been replaced. The channel was tested and returned to service the same day.

The high radiation alarm was due to component failure. A high radiation condition, implied by this alarm, did not exist. This event posed no threat to the health and 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)
				YEAR	SEQUENTIAL	REVISION	
Cook Nuclear Plant - Unit 2		50-316		97	-- 008 --	00	2 OF 3

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

Conditions Prior to Event

Unit 2 in Mode 6, Refueling.

Description of Event

On October 24, 1997 at 0008 hours with Unit 2 in Mode 6, Refueling, an unplanned ESF actuation occurred. While the reactor head was being lifted and the reactor cavity flood up was in progress a Containment Ventilation Isolation occurred due to a high radiation alarm and high fail signal generated by Train A Upper Containment Area Radiation Monitor (2-VRS-2101). The corresponding Train B monitor did not indicate increasing radiation nor did the near term historical data indicate any increasing trends. The ESF actuation resulted in the Train A purge supply and exhaust valves tripping closed in accordance with plant design.

Cause of Event

The cause of the high radiation alarm and high fail signal generated by the Upper Containment Area Radiation Monitor was the failure of the gas filled detector.

The failure mode of the detector was continuous electrical discharge, due to a partial loss of the gas fill in association with the elevated radiation levels due to the reactor head lift. The recorded count rate represented too many pulses for the input to count, causing the high fail signal. The high fail signal would result in an ESF actuation the same as the high radiation alarm. In this event the high radiation alarm was received moments before the high fail, therefore, this event was caused by the high radiation alarm.

Initial troubleshooting did not reveal a definitive cause. Field troubleshooting included the manipulation of cables, sourcing the detector (which responded as expected) and manipulating cards in the computer. The problem could not be duplicated.

Follow-up checks revealed the detector would go into continuous discharge once exposed to radiation at the levels experienced during reactor head removal which was taking place at the time of the failure. Additionally, the rapid increase to high fail, with a corresponding indication on the monitor of 10E18 mRem/hour at the time of the event, substantiates the conclusion that the reason for the high radiation alarm and high fail signal was failure of the gas filled detector.

Analysis of Event

This event is being reported in accordance with 10 CFR 50.73 (a) (2) (iv) as an event that resulted in the automatic actuation of Engineered Safety Feature (ESF). The ESF was initiated when the Upper Containment Area Radiation Monitor generated a high radiation and high fail alarms. The ESF actuation resulted in the Train A purge supply and exhaust valves tripping closed in accordance with the plant design.

The ESF actuation occurred as a result of a malfunction of the radiation monitor's gas filled detector. The ESF actuation was not associated with any radiation release or radiation level above expected, therefore, this situation posed no threat to the health and safety of the public.

LICENSEE EVENT CONTINUATION

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

Corrective Actions

The detector, its interface box, and computer components that may have contributed to the failure were replaced. The Train A Upper Containment Area Radiation Monitor was tested and returned to service. The overall reliability of the Upper Containment Area radiation monitor is good, with only one other spurious failure of this type in 24 channel-years of operation.

Failed Component Identification

Component Name: 2-VRS-2101 Containment Upper Compartment Normal Range Train A Radiation Detector
Manufacturer: Eberline Instrument Corporation (E070)
Model: DA1-6-HT-CC
EIS Code: DET

Previous Similar Events

LER 316/96-002-00