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ACCESSION NBR: 8805120059 DOC. DATE: 88/05/04 NOTARIZED: NO DOCKET #
 FACIL: 50-331 Duane Arnold Energy Center, Iowa Electric Light & Pow 05000331
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 RECIPIENT NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-003-00: on 880423, Half Group III isolation & standby gas initiation due to downscale trip of rad monitor. R
W/8 ltr. I

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

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	RES/DRPS DEPY	1				1	RGN3 FILE 01	1				1	
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Duane Arnold Energy Center (DAEC) DOCKET NUMBER (2) 050003311 PAGE (3) 1 OF 03

TITLE (4) Half Group III Isolation and Standby Gas Initiation Due to Downscale Trip of Rad Monitor

Table with columns for EVENT DATE (5), LER NUMBER (6), REPORT DATE (7), and OTHER FACILITIES INVOLVED (8). Includes fields for MONTH, DAY, YEAR, SEQUENTIAL NUMBER, REVISION NUMBER, FACILITY NAMES, and DOCKET NUMBER(S).

Table for OPERATING MODE (9) and regulatory requirements. Includes fields for POWER LEVEL (10) and checkboxes for 20.405(b), 20.405(c), 50.73(a)(2)(iv-x), and 73.71(b-c).

LICENSEE CONTACT FOR THIS LER (12) NAME: Jeff S. Axline, Technical Support Engineer. TELEPHONE NUMBER: 319 851-7600.

Table for COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13). Columns include CAUSE, SYSTEM, COMPONENT, MANUFACTURER, and REPORTABLE TO NPROS.

SUPPLEMENTAL REPORT EXPECTED (14) YES (if yes, complete EXPECTED SUBMISSION DATE) NO. EXPECTED SUBMISSION DATE (15) MONTH, DAY, YEAR.

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16). On April 23, 1988 at 1009 hours, the plant was operating at approximately 98% power when a Primary Containment Isolation System half Group III ('A' side) isolation was received along with the initiation of the 'A' Standby Gas Treatment System. Investigation of the trip revealed that it had occurred due to a downscale signal being received by the 'A' Reactor Building Exhaust Vent Shaft Radiation Monitor. The 'B' monitor indicated normally throughout the event. The cause of this event was a signal from the 'A' Reactor Building Exhaust Vent Shaft Radiation Element which corresponded to a low radiation level. This low level fell below the downscale trip point thus resulting in a half Group III isolation and initiation of the 'A' Standby Gas Treatment System. When maintenance was performed, it was determined that the artificial (electronic) background source had failed. Further investigation revealed that the root cause for the artificial background source to fail was failure of an inverter chip. Immediate corrective actions were to determine the source of the initiation signal and verify automatic functions. Maintenance was then performed on the radiation monitor and it was returned to service on 4-26-88 following satisfactory completion of the applicable test procedure. Due to the conservative nature of this event there was no effect on the safe operation of the plant.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Duane Arnold Energy Center (DAEC)	DOCKET NUMBER (2) 0 5 0 0 0 3 3 1	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 8	- 0 0 3	- 0 0	0 2	OF 0 3	

TEXT (If more space is required, use additional NRC Form 386A's) (17)

I. DESCRIPTION OF EVENT:

On April 23, 1988 at 1009 hours, the plant was operating at approximately 98% power when a Primary Containment Isolation System (PCIS) (EIIS System Code JM) half Group III ('A' side) isolation was received along with the initiation of the 'A' Standby Gas Treatment System (EIIS System Code BH). Investigation of the trip revealed that it had occurred due to a downscale signal being received by the 'A' Reactor Building Exhaust Vent Shaft Radiation Monitor (IL-RIS, DAEC RIM7606A). The 'B' monitor indicated normally throughout the event.

II. CAUSE OF EVENT:

The cause of this event was a signal from the 'A' Reactor Building Exhaust Vent Shaft Radiation Element which corresponded to a low radiation level. This low level fell below the downscale trip point of RIM7606A thus resulting in a half Group III isolation and initiation of the Standby Gas Treatment System. When maintenance was performed, it was determined that the artificial (electronic) background source had failed. The artificial background source consists of an LED, LED driver circuit, an oscillator circuit and a divider circuit which is used to vary the artificial radiation signal's count rate during testing. Further investigation revealed that the root cause for the artificial background source to fail was failure of the oscillator's inverter chip. The inverter chip is of CMOS design and is therefore susceptible to damage from a static charge. Although it is not possible to make this determination, it is possible that a static charge may have played a part in the components failure.

III. ANALYSIS OF EVENT:

The artificial background source is used in conjunction with existing background radiation to provide a high enough indicated radiation level to keep the downscale trip point from being reached during normal operation. Failure of the artificial background source has no effect on the ability of the radiation monitor to detect radiation, therefore the radiation monitor was operable until removed for corrective maintenance.

This event had no effect on the safe operation of the plant. The half Group III isolation and Standby Gas Treatment System functioned as designed throughout the event. Had this event occurred under different plant conditions, the effect on the safe operation of the plant would have been the same.

IV. CORRECTIVE ACTION:

Immediate corrective actions were to determine the source of the initiation signal and verify automatic functions. The trip signal was then bypassed as allowed per Technical Specifications and the half Group III isolation and Standby Gas Treatment System were reset. Maintenance

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FACILITY NAME (1) Duane Arnold Energy Center (DAEC)	DOCKET NUMBER (2) 0 5 0 0 0 3 3 1	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 8	- 0 0 3	- 0 0	0 3	OF	0 3

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

was then performed on the radiation monitor and it was returned to service on 4-26-88 following satisfactory completion of post maintenance testing. The inverter chip failure is considered a random, unpredictable failure. The failure of this chip results in the conservative actuation of a safety system. For these reasons, no further actions are considered necessary.

V. ADDITIONAL INFORMATION:

After searching plant records, it was determined that no similar event involving failure of the artificial background source on the Reactor Building Exhaust Vent Shaft Radiation Monitors have occurred. One similar event with the Control Building Air Intake Radiation Monitors did occur, however. LER 87-030 described the downscale trip of the 'A' Control Building Radiation Monitor. In this event the root cause could not be determined because the monitor began functioning properly before maintenance was performed. The suspected cause was temporary failure of the artificial background source. Both the monitor in the previous event and current event are Nuclear Measurements Corporation model GA-6M.

This event is being reported pursuant to 10CFR50.73(a)(2)(iv).

Iowa Electric Light and Power Company

May 4, 1988
DAEC-88-0360

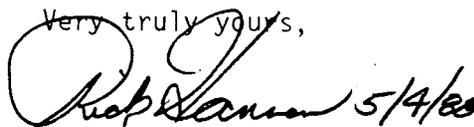
U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Subject: Duane Arnold Energy Center
Docket No: 50-331
Op. License DPR-49
Licensee Event Report #88-003

Gentlemen:

In accordance with 10 CFR 50.73 please find attached a copy of the subject Licensee Event Report.

Very truly yours,



Rick L. Hannen
Plant Superintendent - Nuclear

RLH/JSA/go

cc: Mr. A. Bert Davis
Regional Administrator
Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

NRC Resident Inspector - DAEC

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11