

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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)

Duane Arnold Energy Center

DOCKET NUMBER (2)

05000-331

PAGE (3)

1 OF 3

TITLE (4)

PCIS and RCIC Isolation due to Personnel Error While Installing Relay Block

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
07	25	95	95	-- 007 --	00	08	21	95	FACILITY NAME	DOCKET NUMBER 05000
OPERATING MODE		1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL		100	20.402(b)		20.405(c)		<input checked="" type="checkbox"/> 50.73(a)(2)(iv)		73.71(b)	
			20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)	
			20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER	
			20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366a)	
			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

John Kerr, Principal Licensing Specialist

TELEPHONE NUMBER (Include Area Code)

(319) 851-7492

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)

EXPECTED

MONTH

DAY

YEAR

YES

(If yes, complete EXPECTED SUBMISSION DATE).

X

NO

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

On July 25, 1995, with the plant operating at 100% power, a technician inadvertently caused a Primary Containment Isolation System (PCIS) isolation and a Reactor Core Isolation Cooling (RCIC) turbine trip while installing a relay block during the performance of a Surveillance Test Procedure (STP). The isolation and trip were reset three minutes after this Engineered Safety Feature (ESF) actuation.

The root cause of the event was personnel error due to the increased risk associated with the technique being used to install the relay block. There was no effect on safe operation because RCIC was not in operation and the redundant High Pressure Coolant Injection (HPCI) system was operable.

The techniques being used by plant technicians to install relay blocks, additional internally suggested methods, and available industry guidelines are being reviewed by Maintenance supervision. Upon completion of this review, a relay block policy/guideline intended to reduce inadvertent actuations will be issued.

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TEXT CONTINUATION

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Duane Arnold Energy Center	05000-331	95	-- 007 --	00	2 OF 3

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

Description of Event:

On July 25, 1995 the plant was operating at 100% power. There were no Limiting Conditions for Operation (LCO) that contributed to the event. Surveillance Test Procedure (STP) 42A020-Q, "RCIC Steam Line High Flow Functional/Calibration", was in progress which required blocking open contacts 1-7 of relay E51A-K32 on back panel 1C33 in the control room. The blocked relay allows Reactor Core Isolation Cooling (RCIC) steam line high flow auto isolation pressure switch PDIS-2442 to be tested and calibrated without causing a relay actuation.

At 1229 hours, while attempting to install the relay block, the technician inadvertently closed contacts 1-7, actuating the relay, resulting in a Group 6A (B inboard logic) Primary Containment Isolation System (PCIS) isolation and a RCIC turbine trip, as designed. This was accomplished by the automatic closures of RCIC steam supply inboard isolation valve MO-2400 and RCIC turbine steam supply stop valve MO-2405, respectively. A 14 day RCIC-LCO was entered due to the RCIC isolation.

At 1232 hours, after verifying the cause and proper signal response, the isolation and trip were reset, MO-2400 and MO-2405 were re-opened, and the RCIC-LCO was exited. The closure of PCIS valve MO-2400 is an Engineered Safety Feature (ESF) actuation.

Cause of Event:

The blocking of relay contacts is a frequently performed activity but the limited manipulability of the relay block and the limited accessibility of the relay arm over which the block is installed, can make this a difficult task. In this instance, the technician was pushing against the relay arm to separate the arm from the front contact so the block could be installed. However, the end of the flexible plastic, sleeve type relay block would not slide over the relay arm, so the technician made a conscious decision to remove it and start over. The technician maintained pressure on the relay arm while removing the block and this pressure pushed the arm to the rear contact when the block was removed, causing the actuation.

The technique used by the technician to install the relay block involved an increased risk due to the pressure on the relay arm. Relay blocks are often installed without pushing on the arm. For this event, removing the pressure on the arm before removing the block, may have avoided the relay actuation. The technician was aware of the possible consequences of an error while installing the relay block and his actions were monitored by an independent verifier. The root cause of this event was personnel error.

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

Analysis of Event:

This event had no adverse effect on safe operation of the plant. The PCIS isolation and RCIC turbine trip occurred as designed and were promptly reset within three minutes. The closure of RCIC steam supply inboard PCIS valve MO-2400 is intended to prevent steam from escaping from primary containment in the event of a steam supply line break downstream from MO-2400. The closure of RCIC turbine steam supply stop valve MO-2405 cuts off steam flow to the RCIC turbine. RCIC was not in operation or needed at the time and could have been made available by operator action during the three minute isolation. The redundant High Pressure Coolant Injection (HPCI) system was operable throughout this event.

Corrective Actions:

This event and its causes were reviewed with the involved technicians immediately following the event. Although the number of problems installing relay blocks is low for this frequently performed activity, interviews conducted following this event revealed that several techniques are used to install relay blocks and additional methods were suggested that could possibly be used to further reduce the risk of inadvertent actuations. These techniques and suggested methods have been documented and communicated to Maintenance supervision who will review them along with available industry guidance. Based upon this review, a relay block policy/guideline will be issued by October 31, 1995.

Additional Information:

A. Previous Similar Events:

LERs 91-07 and 92-14 report events caused by problems with relay blocks. Additionally, Deviation Reports 92-144 and 93-279 also report this type of problem.

B. EIIIS System and Component Codes:

RCIC-----BN
PCIS-----JM
HPCI-----BJ
Relay-----RLY
Pressure Switch-----PDIS
Isolation Valve-----ISV
Stop Valve-----SHV

C. Equipment Information:

The relay is a General Electric model 12HGA11A52F.

This report is being submitted pursuant to 10CFR50.73(a)(2)(iv).