NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Callaway Plant Unit 1	0 5 0 0 0 4 8 3	1 OF 0 3

TITLE (4) Engineered Safety Features Actuation as a Result of a Relay Driver Card Failure

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)
										0 5 0 0 0
0 9	2 2	8 8	8 8	0 1 1	0 0	1 0	1 7	8 8		0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	1 0 0	20.402(b)	20.405(c)	[X] 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 (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	TELEPHONE NUMBER
J. F. Hogg - Superintendent, I&C	AREA CODE 3 1 4 6 7 6 - 8 1 9 3

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
B	J E		C 5 6 0	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

[ ] YES (If yes, complete EXPECTED SUBMISSION DATE)	[X] NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On 9/22/88 at 0726 CDT, the Engineered Safety Features (ESF) actuated when a spurious Turbine Driven Auxiliary Feedwater Actuation (TDAFAS) occurred as the result of a card failure. The plant was in Mode 1 - Power Operations, at 100% reactor power.

Licensed operators verified that auxiliary feedwater was not required by observing the normal status of the Main Feedwater System and the Steam Generator levels. The Turbine Driven Auxiliary Feedwater Pump (TDAFP) was then manually secured.

The root cause of the event was a faulty integrated circuit chip which failed in a relay driver card leading to the initiation of the TDAFAS. The relay driver card was replaced and its proper operation was verified. The TDAFAS was reset and the TDAFP was restored to its normal lineup by 1427.

The ESF system functioned as required by plant design following the spurious actuation. The event posed no threat to the health or safety of the public.

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(9-83)

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Callaway Plant Unit 1	0 5 0 0 0 4 8 3	8 8	— 0 1 1	— 0 0	0 2 OF 0 3

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

Basis for Reportability

On 9/22/88 at 0726 CDT, a spurious Turbine Driven Auxiliary Feedwater Actuation(1) (TDAFAS) occurred as a result of a card failure. The details of this event are submitted pursuant to 10CFR50.73(a)(2)(iv) to report the automatic actuation of the Engineered Safety Features(2) (ESF). At the time of the event the plant was in Mode 1 - Power Operations at 100% reactor power.

Description of Event

At 0726, a relay driver card,(3) 6N232, in the Load Shedder and Emergency Load Sequencer (LSELS) cabinet(4), NF039A, failed resulting in a TDAFAS. The licensed operators immediately verified that auxiliary feedwater(5) was not required by observing normal status of the Main Feedwater System(6) and Steam Generator(7) levels. The Turbine Driven Auxiliary Feedwater Pump(8) (TDAFP) was then manually secured and utility Instrument and Control personnel were notified and requested to investigate the cause of the actuation. At 0737 the TDAFP and the 'A' train of the ESF system were declared inoperable by the operators. The defective relay driver card was replaced and proper operation was verified. The TDAFAS was reset and the TDAFP and 'A' train of the ESF system were restored to their normal lineup by 1427.

Root Cause

A utility investigation identified the root cause of the event to be a faulty integrated circuit chip in relay driver card, 6N232. The faulty chip is a 302AL quad nand gate. The failure of the integrated circuit chip resulted in energization of the LSELS relay coil,(9) a condition which sent a signal to the balance of plant ESF Actuation Signal cabinet, SA036D, actuating the TDAFP.

Corrective Actions and Actions Taken to Prevent Recurrence

The defective relay driver card was replaced and proper operation was verified. The event is considered an isolated failure.

Safety Significance

The ESF system functioned as required by plant design following the actuation. The event posed no threat to the health or safety of the public.

Previous Occurrences

None.

Footnotes

The system and component codes below are from the IEEE Standards 805-1983 and 803A-1983, respectively.

(1) System - JE
(2) System - JE
(3) System - JE, Manufacturer - Consolidated Controls, P/N 6N232
(4) System - JE, Component - CAB
(5) System - BA
(6) System - SJ
(7) System - SB, Component - SG
(8) System - BA, Comopnent - P
(9) System - JE, Component - CL

UNION ELECTRIC

Callaway Plant

October 17, 1988

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

ULNRC-1845

Gentlemen:

DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 88-011-00
ENGINEERED SAFETY FEATURES ACTUATION
AS A RESULT OF A RELAY DRIVER CARD FAILURE

The enclosed Licensee Event Report is submitted pursuant to 10 CFR 50.73(a)(2)(iv) concerning a spurious Turbine Driven Auxiliary Feedwater Actuation caused by a relay driver card failure in an Engineered Safety Features logic cabiret.

J. D. Blosser
Manager, Callaway Plant

TPS/FSP:jlh

Enclosure

cc: Distribution attached

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cc distribution for ULNRC-1845

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