NRC FORM 366 (2-77)

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

CONTROL BLOCK: | | | | | | | (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0 1	LICENSEE CODE: N C B E P 2 (2)	LICENSE NUMBER: 0 0 - 0 0 0 0 0 - 0 0 (3)	LICENSE TYPE: 4 1 1 1 1 (4)	CAT: (5)	
CON'T 0 1	REPORT SOURCE: L (6)	DOCKET NUMBER: 0 5 0 - 0 3 2 4 (7)	EVENT DATE: 0 2 1 5 8 2 (8)	REPORT DATE: 0 3 0 8 8 2 (9)	

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 During plant operation, routine operator surveillance revealed the presence of an
0 3 oily film on the inside of the relay mechanism cover window to main steam line tunnel
0 4 temperature high channel "B" actuation relay, A71B-K2B. This relay receives input
0 5 from PCIS instruments, B21-TS-N010B, N011B, N012B, and N013B. The remaining main steam
0 6 line tunnel temperature high channels were operable and would have initiated a Group I
0 7 isolation signal upon receipt of an actual high temperature condition in the "A", "C",
0 8 and "D" main steamlines. Technical Specifications 3.3.2, 6.9.1.9b

	SYSTEM CODE	CAUSE CODE	CAUSE SUBCODE	COMPONENT CODE	COMP. SUBCODE	VALVE SUBCODE
0 9	I A (11)	E (12)	X (13)	R E L A Y X (14)	X (15)	Z (16)

(17) LER/RO REPORT NUMBER	EVENT YEAR		SEQUENTIAL REPORT NO.		OCCURRENCE CODE	REPORT TYPE		REVISION NO.
	8 2	—	0 2 5	/	0 3	L	—	0

ACTION TAKEN	FUTURE ACTION	EFFECT ON PLANT	SHUTDOWN METHOD	HOURS (22)	ATTACHMENT SUBMITTED	NPRD-4 FORM SUB.	PRIME COMP. SUPPLIER	COMPONENT MANUFACTURER
C (18)	X (19)	Z (20)	Z (21)	0 0 0 0	Y (23)	Y (24)	N (25)	G 0 8 0 (26)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 Melted insulation form the relay coil, which appeared as an oily film in the relay
1 1 window, dripped down onto the relay contact support armature, preventing deenergization
1 2 of the relay upon an actuation signal. The channel was tripped in accordance with
1 3 technical specifications and the relay, Model No. 12HFA51A49F, was replaced. The
1 4 affected "B" channel was then returned to service.

	FACILITY STATUS	% POWER	OTHER STATUS (30)	METHOD OF DISCOVERY	DISCOVERY DESCRIPTION (32)
1 5	E (28)	0 8 0 (29)	NA	A (31)	Operator Surveillance

	ACTIVITY RELEASED	CONTENT OF RELEASE	AMOUNT OF ACTIVITY (35)	LOCATION OF RELEASE (36)
1 6	Z (33)	Z (34)	NA	NA

PERSONNEL EXPOSURES

	NUMBER	TYPE	DESCRIPTION (39)
1 7	0 0 0 (37)	Z (38)	NA

PERSONNEL INJURIES

	NUMBER	DESCRIPTION (41)
1 8	0 0 0 (40)	NA

LOSS OF OR DAMAGE TO FACILITY (43)

	TYPE	DESCRIPTION
1 9	Z (42)	NA

PUBLICITY

	ISSUED	DESCRIPTION	NRC USE ONLY
2 0	N	NA	

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LER ATTACHMENT - RO #2-82-25

Facility: BSEP Unit No. 2 Event Date: February 15, 1982

While performing routine surveillance during plant operation, the control operator discovered the presence of an oily film on the inside of the relay mechanism window to main steam line tunnel temperature high channel "B" actuation relay. This continuously energized AC relay receives input from PCIS instruments, B21-TS-N010B, N011B, N012B, and N013B. An investigation into the oily film determined that the relay insulation had melted in a manner which would prevent the relay from performing its function. At the time of this discovery, the remaining main steam line tunnel temperature high input channels A, C, and D were operable.

Following the discovery of the channel B inoperability, it was tripped in accordance with the action statement outlined in technical specifications and an investigation to determine the cause of the problem was begun.

An inspection of the normally energized B channel actuation relay, A71B-K2B, General Electric Model No. 12HFA51A49F, revealed the relay's movable contacts were held immovable against the stationary contacts due to the relay contact support armature physically adhering to the relay coil core assembly. This occurred when several of the relay coil turns electrically shorted causing a temperature increase in the coils that eventually broke down and melted the coil insulation. The melted insulation then dripped down on the relay contact support armature causing the physical adhering of the armature to the coil assembly.

The exact cause of the shorted relay coil turns is now known. Consultations with the relay supplier indicate that thermal aging of the enamel insulation on the relay coil turns is a definite factor in similar failures experienced by other utilities with this type relay. This problem has been previously documented in General Electric Service Information Letter No. 44 and IE Notice 81-01.

Present intended final corrective action concerning this event is to replace the existing Model HFA51A49F relay coils utilized on continuously energized AC solenoids in the plant with a replacement coil, Kit No. 257A9680G18, during the upcoming Unit No. 2 refueling outage. However, this action is pending relay vendor testing to determine whether relay contactor arm bending observed in some of the failures experienced by other utilities is a factor in causing the excessive currents experienced in the relay coils which lead to breakdown of the coil insulation. If testing shows that relay contactor arm bending is not a factor in the relay coil failures, the replacement coil kit will be utilized. However, if testing shows relay contactor arm bending is a contributor to relay coil insulation breakdown, further study of the problem will be performed in order to determine what corrective actions are required.

Until final corrective actions concerning the use of this type relay coil have been made, the AC continuously energized HFA type relay coils utilized in the plant will be inspected on a monthly basis in order to detect and replace with duplicate coils any failing relay coils before complete coil failure is encountered.