Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

Joseph R. Bynum
Vice President, Nuclear Operations

APR 25 1991

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

Dear Sir:

TVA - BROWNS FERRY NUCLEAR PLANT (BFN) UNIT 2 - DOCKET NO. 50-260 - FACILITY OPERATING LICENSE DPR-52 - REPORTABLE OCCURRENCE REPORT BFRO-50-260/91005

The enclosed report provides details concerning an unplanned Engineered Safety Feature actuation due to clearing of a fuse caused by a failed relay coil. This report is submitted in accordance with 10 CFR 50.73(a)(2)(iv).

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. R. Bynum

Enclosure
cc: see page 2

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U.S. Nuclear Regulatory Commission

APR 25 1991

cc (Enclosure):
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NRC Resident Inspector, BFN

Regional Administration
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NRC Form 366 (6-89) | U.S. NUCLEAR REGULATORY COMMISSION | Approved OMB No. 3150-0104 Expires 4/30/92

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Browns Ferry Unit 2	0 5 0 0 0 2 6 0	1 OF 0 3

TITLE (4)

Unplanned Engineered Safety Features actuation due to clearing of a fuse caused by a failed relay coil.

EVENT DAY (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 3	2 7	9 1	9 1	0 0 5	0 0	0 4	2 5	9 1		0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following)(11)					
POWER LEVEL (10)	0 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 (AREA CODE)
Steve Austin, Compliance Licensing Engineer	2 0 5 7 2 9 - 2 0 4 9

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
X	J M	R L Y	G 0 8 0	Y					

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

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

On March 27, 1991, at 0322 hours, a fuse in the Primary Containment Isolation System (PCIS) cleared, resulting in Engineered Safety Feature actuations. These actuations included closure of the drywell floor drain isolation valve, drywell equipment drain sump isolation valve, and the suppression pool drain valve.

This event was caused by an unexpected failure of a PCIS relay resulting from a faulty relay coil. The coil in a General Electric (GE) type CR120 relay, used in the normally energized state, failed.

Corrective actions included replacing the relay coil and realigning the affected systems. Further corrective actions will include replacement of the relay coil in the GE type CR120 relays used in normally energized, safety-related applications in all three units.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Browns Ferry Unit 2	0 5 0 0 0 2 6 0	9 1	-- 0 0 5	-- 0 0	0 2 OF 0 3

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

DESCRIPTION OF EVENT

On March 27, 1991 at 0322 hours, a fuse in the Primary Containment Isolation System (PCIS) [JM] cleared, resulting in actuations of Engineered Safety Features (ESF) [JE]. The actuations, a group isolation, included closure of the Radwaste [WD] system drywell floor drain isolation valve, drywell equipment drain sump isolation valve, and the Core Spray [BM] System suppression pool drain valve. The cleared fuse also resulted in a Group 8 isolation signal being sent. The Main Steam [SB] system main steam line inboard drain valve and the traversing incore probe (TIP) [IG] system isolation valves would have normally responded but were not in-service at the time of the event.

Upon failure of the fuse, an alarm in the main control room annuciated indicating fuse failure. A utility-licensed Assistant Shift Operations Supervisor (ASOS) was dispatched to the auxiliary instrument room to investigate. Upon identifying and replacing the cleared fuse, the ASOS noticed a problem with the PCIS logic relay involved in the event. The ASOS removed the fuse to keep the relay de-energized until the problem with the relay could be resolved. Additional investigations revealed a relay coil had failed.

Following identification of the failed relay coil, the relay was replaced and post-maintenance testing completed. On March 28, 1991, at approximately 0345 hours, PCIS logic was re-set and the affected systems realigned to normal.

During the event, Units 1 and 3 were defueled, Unit 2 was in the cold shutdown condition. This event resulted in an unplanned actuation of an Engineered Safety Feature and is reportable in accordance with 10 CFR 50.73 (a)(2)(iv).

ANALYSIS OF EVENT

PCIS isolates various systems pertaining to the primary containment when accident conditions are sensed in order to limit inventory loss from the reactor vessel, and prevent the release of radioactive materials in excess of specified limits. The systems involved are designed to remove leakage from drywell equipment, the general drywell area and isolate the suppression pool. The main steam line inboard drain valve and traversing incore probe isolation valves were out of service during the event therefore, no action was required during the event.

Upon clearing of the fuse, plant systems involved operated as designed. If the plant had been at power the systems involved in the event would have performed in the same manner, therefore plant safety was not adversely affected by this event.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Browns Ferry Unit 2	0 5 0 0 0 2 6	9 1	--- 0 0 5	--- 0 0	0 3 OF 0 3

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

CAUSE OF THE EVENT

This event was caused by an unexpected failure of the relay resulting from a faulty relay coil. The coil in the GE type CR120 relay coil used in the normally energized state failed.

CORRECTIVE ACTIONS

An attempt was made to replace the cleared fuse and realign the affected equipment. When it was determined that further corrective actions would be needed, a work request was issued and the failed relay was replaced.

Further corrective actions will include replacing the relay coil in GE type CR120 relays used in normally energized, safety-related applications.

PREVIOUS SIMILAR EVENTS

Several previous LER events have occurred due to a failed relay which in turn cleared a fuse. Two of these events, LER 259/90013 and 296/90003, involved Westinghouse type MG-6 relays. The remaining events, LERs 296/87006, 260/86013, 259/85024, 259/85011 and 260/91001 were caused by failures of GE type CR120 relays due to faulted coils.

COMMITMENTS

There are no commitments identified in this LER. In LER 260/91001, TVA committed to replace relay coils in GE type CR120 relays used in normally energized safety-related applications in Unit 2 prior to startup following the Unit 2, Cycle 7 refueling outage. Since TVA has recently experienced two failures of a GE CR120 relay coil, TVA re-evaluated the time table for corrective action specified in LER 260/91001. TVA has determined that the relay coils will be replaced prior to startup following the Unit 2, Cycle 6 refueling outage.

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].