

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)
Browns Ferry Nuclear Plant (BFN) Unit 3

DOCKET NUMBER (2)
05000296

PAGE (3)
1 OF 5

TITLE (4) DIESEL GENERATORS AUTO START DUE TO PERSONNEL ERROR DURING PERFORMANCE OF COMMON ACCIDENT SIGNAL LOGIC SURVEILLANCE

EVENT DATE (5)			LED NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	01	95	95	003	00	09	26	95	NA	NA

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)				
POWER LEVEL (10) 000		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
		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 LED (12)

NAME
Clare S. Hsieh, Compliance Licensing Engineer

TELEPHONE NUMBER (Include Area Code)
(205) 729-2635

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYS TEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)
On September 1, 1995, at 1834 hours, all four Unit 3 diesel generators (DGs) inadvertently auto started during the performance of common accident signal logic testing. At 1835 hours, Emergency Equipment Cooling Water (EECW) pump A3 started as expected to provide cooling water to the DGs. During this testing, electricians placed a boot on a relay to inhibit a pre-accident signal to the Unit 3 DGs. While placing the boot, the electricians made up the relay contacts to start the DGs. This event was caused by personnel error. Contributing to the event was the difficulty in performing this task. Corrective actions involved securing the DGs and the EECW pump, and counseling the electricians to further emphasize the need to be more cautious when working on energized equipment. TVA is also reviewing the present methodology of placing a boot on energized relay contacts to determine if other methods can be used during testing. At the time of this event, Unit 3 was defueled and in a long-term outage. Unit 2 was operating at 100 percent power, and Unit 1 was shutdown and defueled. This report is submitted in accordance with 10 CFR 50.73 (a)(2)(iv) as a condition that resulted in automatic actuation of an engineered safety feature.



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

I. PLANT CONDITIONS

Unit 3 and Unit 1 were shutdown and defueled. Unit 2 was operating at 3291 megawatts thermal (approximately 100 percent power).

II. DESCRIPTION OF EVENT

A. Event

At 1834 hours on September 1, 1995, all four Unit 3 diesel generators (DGs) [EK] inadvertently auto started during the performance of Common Accident Signal (CAS) logic surveillance instruction (SI) 1/2-SI-4.9.A.3.a. At 1835 hours, Emergency Equipment Cooling Water (EECW) [BI] pump A3 started as expected to provide cooling water to the Unit 3 DGs.

At the time of the event, electricians [utility, nonlicensed] were conducting tests on the Division I CAS logic and were placing a boot on a Unit 3 pre-accident signal relay [RLY]. The boot was being placed on the contacts of relay 14A-K35A (General Electric [GE] type HGA located in Panel 3-9-32 in the Auxiliary Instrument Room) to inhibit a pre-accident signal to the Unit 3 DGs.

When the Unit 3 DGs auto started, the Shift Operations Supervisor (SOS) [utility, licensed] notified the personnel in the Auxiliary Instrument Room to stop activities associated with the surveillance on the CAS logic. At 1901 hours, the DGs were stopped and at 1907 hours EECW pump A3 was stopped. The DGs were returned to standby readiness at 1914 hours.

This event is reportable in accordance with 10 CFR 50.73 (a)(2)(iv) as an event or condition that resulted in an automatic actuation of an Engineered Safety Feature (ESF).

B. Inoperable Structures, Components, or Systems that Contributed to the Event:

None.

C. Dates and Approximate Times of Major Occurrences:

September 1, 1995

at 0813 hours

CAS SI began



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

at 1834 hours	Unit 3 DGs auto started
at 1835 hours	EECW pump A3 started
at 1901 hours	Unit 3 DGs stopped
at 1907 hours	EECW pump A3 stopped
at 1914 hours	Unit 3 DGs returned to standby readiness
at 2035 hours	TVA provided a 10 CFR 50.72(b)(2)(ii) notification to NRC Operations Center

D. Other Systems or Secondary Functions Affected:

None.

E. Method of Discovery:

This condition was discovered when the Unit Operator [utility, licensed] and the Assistant Shift Operations Supervisor [utility, licensed] in the control room received alarms [ALM] and indications that the Unit 3 DGs (3A, 3B, 3C, and 3D) had auto started.

F. Operator Actions:

The operators observed the alarms in the control room. The SOS immediately notified personnel in the Auxiliary Instrument Room to stop activities associated with the CAS logic surveillance.

G. Safety System Responses:

The safety systems responded as designed for this type of event.

III. CAUSE OF THE EVENT

A. Immediate Cause:

The immediate cause of this event was an inadvertent closure of relay 14A-K35A contacts which resulted in the auto start of the Unit 3 DGs.



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B. Root Cause:

The root cause of this event was personnel error. While performing the task of placing a boot on relay 14A-K35A contacts 2 and 8, the electricians inadvertently made up the contacts resulting in the auto start of the Unit 3 DGs.

C. Contributing Factors:

The process of placing boots on GE HGA relays is inherently difficult. The work requires two individuals: one to hold both fingers of the relay, and a second to push the finger to be booted toward the normally open contact and slip the boot over the finger. Compounding this difficulty was the location of the relay (in the bottom corner of the panel approximately 12 inches off the floor) which requires both individuals to be kneeling to perform the task.

IV. ANALYSIS OF THE EVENT

The DGs are designed to auto start when an accident signal is received. In this event, the auto start of the DGs was a successful completion of the designed function. Operations personnel immediately identified the cause of the ESF actuation and took appropriate corrective actions to restore the DGs to standby readiness. Therefore, this event did not affect the health and safety of plant personnel or the public.

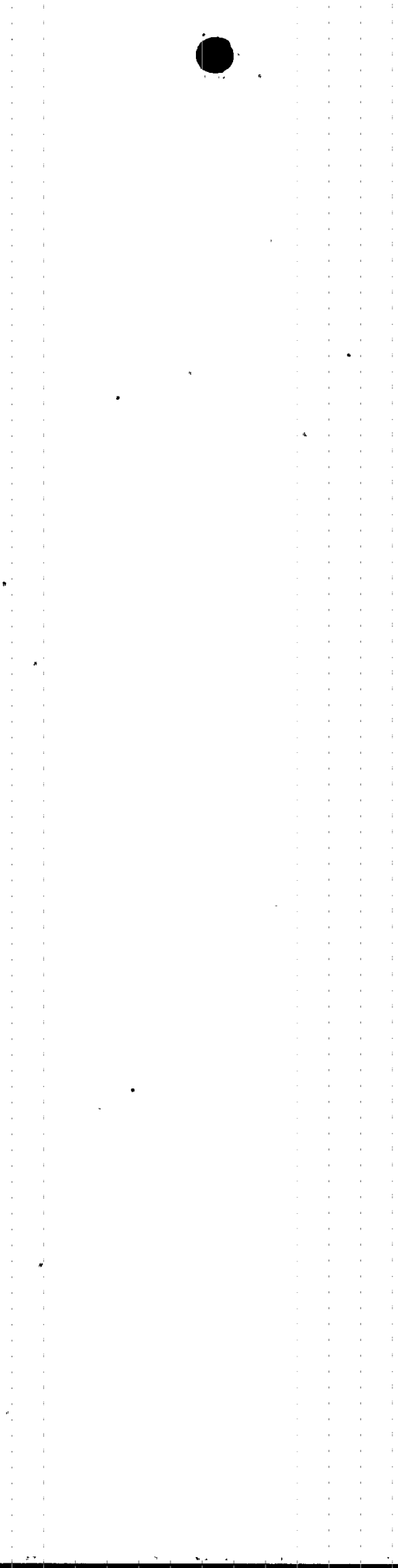
V. CORRECTIVE ACTIONS

A. Immediate Corrective Actions:

The surveillance was stopped and the DGs were stopped.

B. Corrective Actions to Prevent Recurrence:

The electricians were counselled to further emphasize the need to be more cautious when working on energized equipment, to apply the 'STAR' (i.e., Stop, Think, Act, and Review) procedure, and to question work that is difficult and has a high potential for causing an adverse system response.



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TVA has revised the SI to eliminate the need to boot the HGA relay contacts. TVA is also reviewing the present methodology of placing a boot on energized relay contacts for GE HGA relays to determine if other methods can be used during testing.¹

VI. ADDITIONAL INFORMATION

A. Failed Components:

None.

B. Previous LERs on Similar Events:

There have been several LERs written to document unplanned DG autostarts. Five of these LERs (i.e., 296/87004, 259/89014, 259/91004, 296/94001, and 296/95002) occurred as a result of miscellaneous personnel errors, but none of them involved booting relay contacts. Accordingly, the corrective actions for these LERs would not have precluded this event (LER 296/95003). In one LER (296/91003), the individual did not properly install an inhibiting boot during the performance of an SI. Corrective actions included training maintenance personnel on the proper installation of boots. LER 296/91003 is similar to this LER 296/95003; however, the corrective actions in LER 296/91003 would not have precluded LER 296/95003 since the boot was properly installed on the relay contacts in LER 296/95003.

VII. COMMITMENTS

None.

Energy Industry Identification System (EIIS) system and component codes are identified in the text with brackets (e.g., [XX]).

¹ This action is not a regulatory commitment.

