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Georgia Power
the southern electric system

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Docket No. 50-366

HL-5074

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Edwin I. Hatch Nuclear Plant - Unit 2
Licensee Event Report
Personnel Error Results in
Automatic Start of Emergency Diesel Generator 1B

Gentlemen:

In accordance with the requirements of 10 CFR 50.73 (a)(2)(iv), Georgia Power Company is submitting the enclosed Licensee Event Report (LER) concerning an automatic start of emergency diesel generator 1B which resulted from personnel error.

Sincerely,

J. T. Beckham, Jr.

JKB/ld

Enclosure: LER 50-366/1995-006

cc: *Georgia Power Company*
Mr. H. L. Sumner, Nuclear Plant General Manager
NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. K. Jabbour, Licensing Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. S. D. Ebneter, Regional Administrator
Mr. B. L. Holbrook, Senior Resident Inspector - Hatch

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NRC FORM 366 (5-92) U.S.NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 5/31/95
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 (MNBB7714), 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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Edwin I. Hatch Nuclear Plant - Unit 2	0 5 0 0 0 3 6 6	1 OF 5

TITLE (4)
Personnel Error Results in Automatic Start of Emergency Diesel Generator 1B

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(S)
1 0	3 0	9 5	9 5	0 0 6	0 0	1 1	2 8	9 5	Plant E. I. Hatch - Unit 1	0 5 0 0 0 3 2 1
									FACILITY NAME	0 5 0 0 0

OPERATING MODE (9)	5	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 (include area code)
Steven B. Tipps , Nuclear Safety & Compliance Manager	AREA CODE 9 1 2 3 6 7 - 7 8 5 1

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

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

On 10/30/95, at 1005 EST, Unit 2 was in the Refuel mode with tensioning of the reactor pressure vessel head studs in progress. At that time, Emergency Diesel Generator (EDG) 1B, which provides emergency onsite power for the 1F and 2F 4160V emergency buses, automatically started. The EDG output breaker did not close, the normal and alternate supply breakers for the emergency buses did not open, nor were any nonessential components load-shed from the buses as an actual loss of power condition did not occur. Emergency bus voltages were normal during the event. After determining the cause of the automatic start, EDG 1B was secured at 1013 EST. After reviewing the event further and determining that the involved systems responded as designed, the 1B EDG was restored to standby condition at 1120 EST. The cause of the event was personnel error on the part of nonlicensed personnel. At the time of the event, a test engineer was verifying the restoration of systems following performance of logic system functional test (LSFT) 42SV-E11-001-2S, "Residual Heat Removal System - LPCI LSFT and Auto Actuation." The verification was being performed in accordance with the restoration section of the test procedure. While performing the verification, the engineer mistakenly opened potential transformer (PT) compartment 135567 which deenergized two 4160V emergency bus 2F voltage monitoring relays, and generated a partial loss of offsite power signal for the associated emergency bus. The systems responded as designed to the partial loss of power signal. Corrective actions included labeling the PT compartment doors and training test engineers on this event.

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor
Energy Industry Identification System codes are identified in the text as (EIIS Code XX).

DESCRIPTION OF EVENT

On 10/30/95, at 1005 EST, Unit 2 was in the Refuel mode with tensioning of the reactor pressure vessel head studs in progress. At that time, Emergency Diesel Generator (EDG, EIIS Code EK) 1B, which supplies emergency onsite power for the 1F and 2F 4160V emergency buses (EIIS Code EB), automatically started. The EDG output breaker did not close; the normal and alternate supply breakers for the emergency buses did not open; nor were nonessential components load-shed from the buses, as an actual loss of power condition did not occur. Emergency bus voltages were normal during the event. At the time of the event, a nonlicensed engineer was verifying restoration of systems following performance of logic system functional test (LSFT) 42SV-E11-001-2S, "Residual Heat Removal System - LPCI LSFT and Auto Actuation." The verification was being performed in accordance with a restoration section of the test procedure. While performing the verification, the engineer mistakenly opened the door of potential transformer (PT) compartment 135567 momentarily. The engineer saw the reflection of an arc in the compartment as he opened the compartment door, immediately closed the compartment door, and contacted the Main Control Room to report the incident.

Voltage monitoring relays monitor the 4160V emergency bus voltage via potential transformers. Each of two PTs for an emergency bus serves one "loss of voltage" relay and one "degraded voltage" relay. PTs are designed such that when the PT compartment door is opened, the PT supply breaker assembly rotates thereby breaking the primary and secondary contacts and opening the supply breaker. When a PT supply breaker is opened, the two relays served by the PT sense a loss of voltage condition and generate a signal to the associated initiation logic. Sufficient logic is then actuated from the signal to start an EDG. However, by design, only half of the logic required for tieing the EDG to the emergency bus and for load-shedding nonessential components is actuated. In order for the remaining logic to actuate and for these actions to occur, one of two voltage monitoring relays served by the second PT for the associated bus must sense an undervoltage condition and actuate.

PT 135567 serves voltage monitoring relays for 4160V emergency bus 2F. Consequently, when the PT compartment door was momentarily opened in this event, one "loss of voltage" relay and one "degraded voltage" relay momentarily deenergized resulting in 1B EDG automatically starting.

Since the bus voltage was normal and, thus, no other instrument relays were actuated, as designed, the EDG did not tie to the bus and nonessential loads were not shed from the bus.

After determining the cause of the EDG automatic start, EDG 1B was secured at 1013 EST. After reviewing the event further and determining that the involved systems responded as designed to the invalid loss of power signal, at 1120 EST, the 1B EDG was restored to standby condition.

CAUSE OF EVENT

The cause of the event was personnel error on the part of a nonlicensed engineer. Specifically, in attempting to locate knife switches to confirm that they had been closed following the test, the engineer inadvertently opened a breaker serving two 4160V emergency bus voltage monitoring relays. The engineer was looking for knife switches at cubicle 6 of switchgear 2R22-S006. Although the switches were located in relay enclosures mounted on the outside of the cubicle door, the engineer had opened the door to search for the switches inside the switchgear cubicle. In searching for the switches, the engineer opened a PT compartment door located inside the switchgear cubicle. The PT door is linked to the PT supply breaker such that when the door is opened the breaker also opens. Consequently, when the door was opened momentarily, the breaker was opened resulting in momentary deenergization of two voltage monitoring relays. Deenergization of the relays generated a partial loss of power/degraded voltage signal for the 2F 4160V emergency bus. Consequently, a partial actuation of the associated initiation logic occurred resulting in an automatic initiation of the 1B EDG.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This event is reportable pursuant to 10 CFR 50.73(a)(2)(iv) because an unplanned actuation of an engineered safety feature occurred. Specifically, EDG 1B automatically started when an individual inadvertently opened a PT supply breaker.

The Unit 2 emergency onsite power supply system is in part comprised of three EDGs, emergency bus voltage monitoring instrumentation, and a non-emergency load-shed logic system. Each EDG and its associated instrumentation and logic are dedicated to one of three 4160V emergency buses. EDG 1B is a unit-common diesel-generator and as such can provide power to Unit 1 4160V emergency bus 1F or Unit 2 4160V emergency bus 2F. The system is designed to sense a degraded voltage or a complete loss of voltage on an emergency 4160V bus, disconnect the emergency bus experiencing the undervoltage condition from the offsite power supply system, load-shed nonessential components, start the respective EDG and tie it to the bus. The EDGs will then provide power for engineered safety features designed to mitigate the consequences of an accident, limit any

offsite releases to within 10 CFR 100 limits, and bring the reactor to and maintain it in a safe shutdown condition.

In this event, the two voltage monitoring relays (one "loss of voltage" relay and one "degraded voltage" relay) served by PT 135567 sensed a false loss of voltage condition on the 2F 4160V emergency bus when the PT supply breaker was inadvertently opened. As a result, a partial loss of voltage signal was generated in the associated system logic and sealed in. The 1B EDG was initiated; however, as designed, enough logic was not actuated to effect a load-shed of nonessential components, isolate the emergency bus from the offsite power supply, and tie the EDG to the bus. Instead, the EDG reached rated speed and ran in standby. Had a valid loss of offsite power or undervoltage voltage condition occurred on the bus during the event, the remaining voltage monitoring instrumentation would have been able to function as designed and actuate the logic required to effect a load-shed, isolate the bus from the offsite power supply, and tie the EDG to the bus. The other two Unit 2 EDGs and associated emergency buses, instrumentation, and logic were not affected by this event and would have functioned as designed in the unlikely event of a design basis accident.

Based on the above information, it is concluded that this event had no adverse impact on nuclear safety. This safety assessment applies to all operating conditions.

CORRECTIVE ACTIONS

Engineers involved in performing LSFTs were trained on this event and on the various components encountered in the performance of an LSFT including the knife switches involved in this event.

The critical PT compartment doors for the 4160V emergency buses for both Unit 1 and Unit 2 have been labeled to indicate the consequences of opening the doors to the compartments.

ADDITIONAL INFORMATION

No systems other than those previously described in this report were affected by this event.

Four similar events have occurred in the past two years in which unplanned automatic actuations of engineered safety features were caused by cognitive personnel error. These events were addressed in the following LERs:

50-321/94-02, dated 4/19/94
50-321/94-12, dated 11/14/94
50-366/95-01, dated 5/4/95, and
50-366/95-05, dated 11/14/95.

The corrective actions associated with these events included disciplinary actions, retraining, and instituting the use of double verification in the installation of jumpers. These corrective actions could not have prevented this event because they did not involve the individual involved in this event and the cause of this event did not involve the placement of jumpers.

No failed components resulted from or contributed to this event.