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SOUTHERN COMPANY
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Docket No. 50-366

HL-5931

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

Edwin I. Hatch Nuclear Plant - Unit 2
Licensee Event Report
Blown Fuse Results in Unplanned Actuation of
Engineered Safety Feature System

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(iv), Southern Nuclear Operating Company is submitting the enclosed Licensee Event Report (LER) concerning a blown fuse that resulted in the unplanned actuation of an engineered safety feature system.

Respectfully submitted,

H. L. Sumner, Jr.

JL/eb

Enclosure: LER 50-366/2000-007

cc: Southern Nuclear Operating Company
Mr. P. H. Wells, Nuclear Plant General Manager
SNC Document Management (R-Type A02.001)

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. L. N. Olshan, Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. L. A. Reyes, Regional Administrator
Mr. J. T. Munday, Senior Resident Inspector - Hatch

IE22

NRC FORM 366 (06-1998) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Information and Records Management Branch (T-6 F33), 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. If a document used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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TITLE (4)
Blown Fuse Results in Unplanned Actuation of Engineered Safety Feature System

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) 05000
04	07	2000	2000	007	00	04	27	2000		DOCKET NUMBER(S) 05000

OPERATING MODE (9)	4
POWER LEVEL (10)	0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(vii)
20.2203(a)(1)	20.2203(a)(3)(i)	50.73(a)(2)(ii)	50.73(a)(2)(ix)
20.2203(a)(2)(i)	20.2203(a)(3)(ii)	50.73(a)(2)(iii)	73.71
20.2203(a)(2)(ii)	20.2203(a)(4)	X 50.73(a)(2)(iv)	OTHER
20.2203(a)(2)(iii)	50.36(c)(1)	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Steven B. Tipps, Nuclear Safety and Compliance Manager, Hatch	(912) 367-7851

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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 04/07/2000 at 1615 EDT, Unit 2 was in the Cold Shutdown mode. At that time, a nonlicensed electrician replacing a divisional separator cover damaged wire insulation with a cover screw, grounding a logic power circuit and causing fuse 2A71B-F22 in main control room panel 2H11-P623 to blow. The resulting loss of power caused certain Group 1 and Group 2 primary containment isolation system valves to close per design. The fuse and wire were replaced per Maintenance Work Order 2-00-1352. Personnel returned affected valves and systems to service by 2154 EDT on 04/07/2000.

The cause of this event was poor human factors. The covers on divisional separation wiring trays typically are attached with screws; however, once the cover is in place, it can not be determined if the screw will contact wires within the tray, nor can actions be taken to prevent a screw from damaging wire insulation. In this event, a screw damaged wire insulation. The exposed wire contacted the metal tray, creating a ground path and blowing fuse 2A71B-F22. When the fuse blew, the various Group 1 and Group 2 primary containment isolation system valves closed as designed.

Corrective actions for this event include replacing the blown fuse and damaged wire, returning affected valves and systems to service, and reviewing the method for attaching separator covers in panels containing engineered safety feature system logic and/or power circuit wiring.

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

PLANT AND SYSTEM IDENTIFICATION

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

DESCRIPTION OF EVENT

On 04/07/2000 at 1615 EDT, Unit 2 was in the Cold Shutdown mode. At that time, a nonlicensed electrician replacing a divisional separator cover in main control room panel (EIIS Code JL) 2H11-P623 damaged wire's insulation with one of the separator cover screws. The covers separate the wiring of different safety-related logic divisions routed within the same main control room panel, preventing a single fire from damaging both divisions. The covers are secured to the separation wiring trays by sheet metal screws directed toward the wiring routed within the tray.

The cover screw damaged some of the wiring insulation within the separation tray, exposing the wire. The screw forced the exposed wire against the metal tray, grounding the associated circuit and causing fuse 2A71B-F22 in the outboard primary containment isolation logic system (EIIS Code JM) to blow. The resulting loss of logic power caused certain outboard Group 1 and Group 2 primary containment isolation system valves to close per design.

Personnel replaced the blown fuse and damaged wire per Maintenance Work Order 2-00-1352. Operations personnel returned affected valves and systems to service by 2154 EDT on 04/07/2000.

CAUSE OF EVENT

The cause of this event was poor human factors. The covers on divisional separation wiring trays typically are attached with sheet metal screws; however, once the cover is in place, personnel can not determine if the screw is contacting, or will contact, wires within the tray, nor can they take actions to prevent a screw from damaging wire insulation. More specifically, personnel can see neither the screw nor the wire within the tray. Because of this problem, personnel unknowingly damaged wire insulation while replacing a separation wiring tray cover: a cover screw breached the insulation and forced the exposed wire against the metal tray, creating a ground path and blowing fuse 2A71B-F22. When the fuse blew, several primary containment isolation logic system relays de-energized and various outboard Group 1 and Group 2 primary containment isolation system valves closed as designed.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This event is reportable per 10 CFR 50.73 (a)(2)(iv) because unplanned actuations of engineered safety features occurred. Specifically, certain outboard Group 1 and Group 2 primary containment isolation valves closed in response to a signal generated by a blown fuse.

The primary containment isolation system is designed to close valves in pipes penetrating the containment boundary when the possibility of a leak is indicated. The primary containment isolation valves are divided into several groups, each group sharing similar functions. Group 1 primary containment isolation valves are those that communicate directly with the reactor coolant system, including the main steamline isolation valves, the main steamline drain valves, and the reactor water sample valves. Group 2 primary containment isolation valves are those which communicate with the primary containment atmosphere but typically not with the reactor coolant system. In general, primary containment isolation valves are controlled by logic whose design is "fail-safe"; that is, the valves are maintained in the open position by a continuously energized control circuit and automatically shift to their safe or emergency configuration upon loss of power or control signal.

In this event, a blown fuse de-energized relays in the control logic for certain outboard Group 1 and Group 2 primary containment isolation valves as described previously. The valves responded per design by closing. The primary containment isolation valves that received a closure signal either were already in the closed position prior to the event or else moved to the closed position as required. Had an event occurred in which primary containment isolation was needed, the valves would have been in their required position.

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

CORRECTIVE ACTIONS

Personnel replaced fuse 2A71B-F22 and the damaged wire per Maintenance Work Order 2-00-1352. Licensed personnel then returned the affected primary containment isolation valves and systems to service by 2154 EDT on 04/07/2000.

The method for attaching separator covers in panels containing engineered safety feature system logic and/or power circuit wiring will be reviewed to determine if a practical and cost-effective method less likely to damage wiring can and should be utilized. This review will be completed by 09/01/2000. Any management-approved changes will be made on a schedule determined by their importance as compared to other approved changes.

ADDITIONAL INFORMATION

1. Other Systems Affected: No systems other than those mentioned in this report were affected by this event.

2. Failed Components Information: No failed components either contributed to or resulted from this event.

3. Commitments: No permanent commitments are created as a result of this report.

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

4. Previous Similar Events: Three Licensee Event Reports have been submitted in the past two years in which a blown fuse resulted in unexpected engineered safety feature system actuations. These events were described in LERs 50-321/1998-002, dated 4/28/1998; 50-321/2000-003, dated 2/22/2000; and 50-366/2000-005, dated 04/11/2000. Corrective actions for these previous similar events included replacing the blown fuses, replacing a failed relay coil, and reviewing the predictive failure program for relay coils. These actions could not have prevented this event because the involved fuses were located in different circuits and blew for unrelated reasons. Specifically, the fuse in this event blew as intended to clear a ground fault caused by an exposed wire, a problem not attendant in any of the previous similar events.