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SOUTHERN COMPANY
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Docket No. 50-366

HL-5935

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

Edwin I. Hatch Nuclear Plant - Unit 2
Licensee Event Report
Improper Coordination of Outage Activities
Results in Unplanned Actuation of ESF 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 an unplanned actuation of an ESF system.

Respectfully submitted,

Lewis Sumner

H. L. Sumner, Jr.

OCV/eb

Enclosure: LER 50-366/2000-006

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

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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.

LICENSEE EVENT REPORT (LER)

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

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TITLE (4)
Improper Coordination of Outage Activities Results in Unplanned Actuation of ESF 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	06	2000	2000	006	00	05	02	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 04/06/2000 at 1000 EDT, Unit 2 was in the Cold Shutdown mode with the main condenser at atmospheric pressure and the main turbine in the tripped condition. At that time, a Group 1 primary containment isolation system signal on low condenser vacuum was received when the turbine was reset. Reactor water sample line isolation valves 2B31-F019 and 2B31-F020 closed as designed. Investigation revealed that the turbine "1800 rpm" speed select pushbutton was illuminated instead of the expected "all valves closed" pushbutton. When the turbine was reset with the "1800 rpm" speed select pushbutton illuminated, the stop valves opened per design, removing the low vacuum isolation signal bypass and generating a Group 1 isolation signal.

The cause of this event was a lack of proper coordination between two outage activities. Contributing to this event was a failure of personnel to note that the "1800 rpm" speed select pushbutton was illuminated. As a result, the turbine was reset when logic systems were configured to open the stop valves, generate a low condenser vacuum isolation signal, and close the open Group 1 primary containment isolation valves. Corrective actions for this event include identifying this event as an outage lesson learned; adding administrative controls on the turbine reset button; and including this event in requalification training.

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 04/06/2000 at 1000 EDT, Unit 2 was in the Cold Shutdown mode with refueling outage activities in progress. The main condenser (EIIS Code SQ) was at atmospheric pressure and the main turbine (EIIS Code TA) was in the tripped condition. At that time, a full Group 1 primary containment isolation system signal on low condenser vacuum was received when the main turbine was reset. Operations personnel had reset the main turbine at the request of Maintenance personnel performing scheduled preventive maintenance activities on the extraction steam check valves (EIIS Code SE). Resetting the turbine allowed air to be supplied to the valves so they could be stroked.

Other Maintenance personnel had been directed to restore turbine trip logic disabled at the beginning of the refueling outage to support normal turbine testing and calibration activities. The main turbine had been tripped to facilitate the restoration of this logic. Among the logic disabled at the beginning of the outage were signals indicating generator field breaker (EIIS Code TL) position and emergency trip hydraulic fluid (EIIS Code TG) pressure. A jumper had been installed and a wire had been lifted per procedure 57SV-CAL-017-0S, "Main Turbine FT&C," to simulate that the field breaker was open. A wire had been lifted per procedure 57GM-MIC-005-2S, "Turbine Testing," to disable the low emergency trip fluid pressure trip. An effect of these actions, among others, was to allow any turbine speed demand to be selected regardless of actual field breaker position or emergency trip fluid pressure. Personnel had removed the jumper and re-landed the wire in the generator field breaker position logic when personnel working on the check valves requested that the main turbine be reset.

When the jumper in the generator field breaker position logic was removed, a signal indicating that the breaker was closed was generated. This caused the turbine speed control system (EIIS Code JJ) to receive a signal calling for the turbine to be at its normal speed of 1800 rpm. The "1800 rpm" speed select pushbutton illuminated as expected for this signal. Although the 1800-rpm speed select signal was removed when the field breaker position signal wire was re-landed following removal of the jumper, the "1800 rpm" pushbutton remained illuminated. This is because personnel had not yet re-landed the emergency trip fluid pressure signal wires. Therefore, the "all valves closed" speed select pushbutton was not re-selected automatically by the speed control logic on low emergency trip fluid pressure thus requiring the "all valves closed" pushbutton to be depressed manually. Had the restoration of the turbine logic been completed, the "all valves closed" speed would have been selected automatically, leaving the main turbine valves and logic in the expected condition.

When personnel working on the extraction steam check valves requested that the turbine be reset, logic restoration activities were halted with only a jumper having been removed and a wire having been re-landed in the generator field breaker position logic. This left the turbine speed select setting at "1800 rpm." However, personnel failed to note the change in the speed setting from "all valves closed" to "1800 rpm" and reset the main turbine. When the turbine was reset with the "1800 rpm" speed select pushbutton illuminated, the main turbine stop valves opened per design to provide a steam supply path to the turbine. With the stop valves fully open, the bypass of the low condenser vacuum isolation signal, active when the low condenser vacuum keylock switches are in the bypass position and the stop valves are closed, was removed. Because the main condenser was at atmospheric pressure, an actual low condenser vacuum condition existed and, with this trip signal no longer bypassed, a full Group 1 primary containment isolation signal was generated as required. Reactor water sample line isolation valves 2B31-F019 and 2B31-F020, the only Group 1 primary containment isolation valves (EIIS Code JM) open at the time of the event, closed as designed.

CAUSE OF EVENT

The cause of this event was a lack of proper coordination between two outage activities, one requiring the turbine to be tripped and the other requiring it to be reset. Contributing to this event was a failure of personnel to note prior to resetting the turbine that the "1800 rpm" speed select pushbutton was illuminated. As a result, the turbine was reset when logic systems were configured to open the turbine stop valves, generate a low condenser vacuum isolation signal, and close the open Group 1 primary containment isolation valves.

Personnel had been directed to restore turbine logic disabled at the beginning of the refueling outage. This activity required the main turbine to be tripped to ensure unwanted actuations did not occur. Other workers were performing set-up of the extraction steam check valves. This work required the main turbine to be reset so that air necessary to stroke the check valves would be available. These two activities conflicted and therefore could not be performed in parallel; however, a lack of proper coordination resulted in both activities being performed at the same time. Restoration activities were not allowed to finish before the turbine was reset to support continued set-up of the extraction steam check valves. As a result, the turbine logic was configured such that the stop valves opened, removing the low condenser vacuum bypass signal and generating a Group 1 isolation signal, when the turbine was reset.

Although the change in the speed select signal created by the partial restoration of the turbine logic was evident, personnel failed to note it prior to resetting the turbine. This change in speed setting was overlooked because it was unexpected: the main turbine had been reset earlier with no unanticipated actuations and the "all valves closed" speed setting was expected given that actual plant conditions at the time dictated that it be selected automatically. Indeed, only because the logic system was in an intermediate state of restoration was the "all valves closed" speed setting not selected.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This event is reportable per 10 CFR 50.73 (a)(2)(iv) because an unplanned actuation of an engineered safety feature system occurred. Specifically, Group 1 primary containment isolation valves 2B31-F019 and 2B31-F020 closed in response to an isolation signal generated by an actual low condenser vacuum condition. These valves are part of the primary containment isolation system, an engineered safety feature system.

The low condenser vacuum isolation signal is provided to prevent overpressurization of the main condenser in the event of a loss of vacuum. The integrity of the condenser is an assumption in offsite dose calculations; therefore, the low condenser vacuum isolation is provided to initiate closure of the Group 1 primary containment isolation valves, including the main steamline isolation valves, the main steamline drain line isolation valves, and the reactor water sample line isolation valves. The closure of these valves is initiated to prevent the addition of steam that could lead to additional condenser pressurization and possible rupture of the diaphragm installed to protect the turbine exhaust hood thereby preventing a potential radiation leakage path following an accident.

Condenser vacuum pressure signals are derived from four pressure transmitters that sense the pressure in the condenser. Four channels of condenser vacuum instruments are available to ensure that no single instrument failure can preclude the isolation function. However, this isolation signal is not required when all turbine stop valves are closed and the potential for overpressurization of the main condenser is minimal. Therefore, switches are provided to bypass the low condenser vacuum isolation when the main turbine stop valves are closed.

In this event, the bypass of the low condenser vacuum isolation signal was removed when the main turbine stop valves opened following reset of the turbine. When the turbine logic system was restored partially following completion of outage testing and calibration activities, the speed select setting necessary to open the stop valves upon turbine reset had been selected inadvertently. When the bypass was removed, a Group 1 isolation signal was generated per design and the open Group 1 primary containment isolation valves closed as required. Although an actual low condenser vacuum condition existed as the condenser was at atmospheric pressure as a result of refueling outage activities, the Group 1 isolation was not necessary to protect the condenser integrity. With the unit in Cold Shutdown, no steam was present to create the potential for overpressurization and thus condenser integrity could not have been challenged. However, the Group 1 isolation logic functioned as designed and would have prevented overpressurization of the condenser had it been required to do so.

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

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

CORRECTIVE ACTIONS

Operations personnel selected the "all valves closed" pushbutton, reset the Group 1 isolation signal, and re-opened valves 2B31-F019 and 2B31-F020.

This event was identified as an outage lesson learned.

Procedures 57SV-CAL-017-0S and 57GM-MIC-005-2S will be revised by 7/31/2000 to require that a clearance or hold tag be placed on the turbine reset button, preventing its use, while procedure subsections that defeat and restore logic signals are in progress.

This event will be included as operating experience in quarterly requalification training of licensed personnel.

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.

4. Previous Similar Events: There have been no previous similar events reported in the last two years in which an unexpected engineered safety feature system actuation occurred because conflicting work activities left a logic system in an unintended configuration.