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SOUTHERN COMPANY
Energy to Serve Your World℠

January 18, 2005

Docket No.: 50-425

NL-05-0040

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

Vogtle Electric Generating Plant
Licensee Event Report 2-2004-004
Automatic Reactor Trip Followed by Safety Injection

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73, Southern Nuclear Operating Company hereby submits a Vogtle Electric Generating Plant Licensee Event Report for a condition that was determined to be reportable on November 20, 2004.

If you have any questions, please advise.

Sincerely,

Don E. Grissette

DEG/RJF/daj

Enclosure: LER 2-2004-004

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser, Executive Vice President
Mr. W. F. Kitchens, General Manager – Plant Vogtle
RType: CVC7000

U. S. Nuclear Regulatory Commission
Dr. W. D. Travers, Regional Administrator
Mr. C. Gratton, NRR Project Manager – Vogtle
Mr. G. J. McCoy, Senior Resident Inspector – Vogtle

IE22

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 7/31/2004
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)	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. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1(@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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,

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
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4. TITLE
AUTOMATIC REACTOR TRIP FOLLOWED BY SAFETY INJECTION

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER(S) 05000
11	20	2004	2004	004	00	1	18	2005	FACILITY NAME	DOCKET NUMBER(S) 05000

9. OPERATING MODE	1
10. POWER LEVEL	100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

	20.2201(b)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)
	20.2201(d)		20.2203(a)(4)		50.73(a)(2)(iii)		50.73(a)(2)(x)
	20.2203(a)(1)		50.36(c)(1)(i)(A)	X	50.73(a)(2)(iv)(A)		73.71(a)(4)
	20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)		73.71(a)(5)
	20-2203(a)(2)(ii)		50.36(c)(2)		50.73(a)(2)(v)(B)		OTHER
	20-2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)		Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)		50.73(a)(2)(v)(D)		
	20.2203(a)(2)(v)		50.73(a)(2)(i)(B)		50.73(a)(2)(vii)		
	20.2203(a)(2)(vi)		50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)		
	20.2203(a)(3)(i)		50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)		

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Tom Webb, Performance Analysis	(706) 826-3105

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
B	AB	TIS	W120	N						

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
X	YES (If yes, complete EXPECTED SUBMISSION DATE)		NO		08	15	2005

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

On November 20, 2004, 'B' Train Solid State Protection System Testing was in progress with the 'B' Train in the "inhibit mode" for testing. Operators performing the test erroneously operated the 'A' Train Solid State Protection multiplexer test switch which disabled 'A' Train SSPS completing the logic for an automatic reactor trip at 1140 EST. Subsequent to the trip, the Loop 2 Tavg instrument channel failed at its full power value causing a full-open steam dump demand. Control room personnel responded to the decreasing reactor coolant system (RCS) temperature by initiating a Main Steamline Isolation, but the pressure drop was sufficient to result in an automatic Safety Injection (SI) actuation. As designed, the SI signal initiated a Control Room Isolation, a Containment Ventilation Isolation, and a Phase A Containment Isolation. After RCS pressure recovered, control room personnel secured Safety Injection and transitioned the unit to normal operation in Mode 3 (Hot Standby).

The cause of the reactor trip was human error in that the operator erroneously manipulated a test switch on the 'A' Train SSPS. The cause of the SI was the failure of a lead-lag circuit card that lead to the failure of the Loop 2 Tavg circuitry and subsequent full opening of the steam dump valves and RCS pressure drop. A number of actions were implemented to address the human performance errors and the failed lead-lag card was replaced and test satisfactorily.

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

A. REQUIREMENT FOR REPORT

This event is reportable per 10 CFR 50.73 (a)(2)(iv) because an unplanned reactor protection system actuation occurred and multiple unplanned engineered safety features (ESF) actuations occurred.

B. UNIT STATUS AT TIME OF EVENT

At the time of this event, Unit 2 was operating at 100 percent of rated thermal power. Other than that described herein, there was no inoperable equipment that contributed to the occurrence of this event.

C. DESCRIPTION OF EVENT

On November 20, 2004, personnel were performing testing per 14421-2, "Solid State Protection System and Reactor Trip Breaker Train 'B' Operability Test." Solid State Protection System (SSPS) Train 'B' was in the 'inhibit' mode for testing. Two operators were performing a step which directs the placement of the multiplexer test switch to the 'A+B' position. However, the operators were erroneously located at the 'A' Train SSPS, instead of the 'B' Train SSPS. They identified the switch, performed a peer check, and placed the 'A' Train SSPS multiplexer test switch in the 'A+B' position. This required the test switch to pass through the 'inhibit' position resulting in a 2 out of 2 General Warning signal for both SSPS trains being in the "inhibit" mode and completed the logic for an automatic reactor trip at 1140 EST. All rods inserted, main feedwater isolated, and the Auxiliary Feedwater System (AFW) actuated as designed to supply feedwater to the steam generators (SGs).

Following the reactor trip, it was discovered that the Loop 2 Tavg instrument, 2T421, was failed at its full power value, causing a full-open demand for the steam dump valves. The opening of the steam dump valves led to a rapid drop in reactor coolant system (RCS) temperature and pressure. Control room personnel responded to the decreasing RCS temperature by initiating a Main Steamline Isolation, and the steam dump valves automatically closed as RCS temperature decreased to 550 degrees F. However, the RCS pressure drop to 1833 psig was below the 1870 psig setpoint for initiating an automatic Safety Injection (SI) actuation, which occurred at 1140 EST. The SI signal initiated a Control Room Isolation, a Containment Ventilation Isolation, and a Phase A Containment Isolation, as designed. After RCS pressure had risen to 2235 psig (normal operating pressure), control room personnel stopped the Safety Injection at 1155 EST. The unit was transitioned to normal operation in Mode 3 (Hot Standby), and personnel reset the various ESF actuation components and signals. A review of charts and recordings verified that, other than 2T421, the various systems' components actuated as required. The NRC Operations Center was notified of these events at 1512 EST.

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D. CAUSE OF EVENT

The cause of this reactor trip was human performance errors by the operators performing the SSPS testing in not applying human performance tools and proper peer checking. A number of factors contributed to the occurrence of these errors, including:

1. A lack of physical barriers to reduce the potential for error,
2. The lack of train designators on some critical procedure steps.

The cause of the Safety Injection was the failure of a lead-lag circuit card that led to a failure of the Loop 2 Tavg circuitry, full opening of the steam dump valves, and the subsequent drop in RCS pressure. The circuit card will be evaluated to determine the failure mechanism. A revised LER will be submitted to address the findings of this failure analysis.

E. ANALYSIS OF EVENT

The reactor trip and subsequent ESF actuations occurred as designed. Control room personnel acted appropriately to maintain the proper steam generator water levels during the events and to isolate the main steamline, thereby mitigating further loss of RCS pressure.

Based on these considerations, there was no adverse effect on plant safety or on the health and safety of the public as a result of these events.

This event does not represent a safety system functional failure.

F. CORRECTIVE ACTIONS

1. The involved operators were removed from active duty status until a remediation program was completed. This program included briefing of all operating crews, generating a summary document of the event to be used for future briefings, a re-qualification in the use of human performance tools, and an interview with the Operations Dept. manager.

2. Procedures 14421-1/2 were changed to require the opposite train SSPS cabinets to be locked when performing this testing in the future.

3. Procedures 14421-1/2 were also revised to add train designators throughout the text of the procedure.

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4. Broadness reviews are being performed to address the placement of physical barriers and the use of train designators in procedures in order to prevent future human performance events.

5. The lead-lag circuit card will be evaluated to determine the failure mechanism. Results are expected to be available by June 15, 2005, and appropriate follow-up actions will be taken.

G. ADDITIONAL INFORMATION

1. Failed Components:
   7300 NLL1 lead-lag circuit card manufactured by Westinghouse Electric Corporation.
   Part # 2837A18G01.

2. Previous Similar Events:
   There have been no previous similar events in the last three years.

3. Energy Industry Identification System Code:
   Reactor Coolant System – AB
   Safety Injection System – BQ
   Solid State Protection System – JG
   Main Feedwater System – SJ
   Auxiliary Feedwater System – BA
   Main Steam System – SB
   Control Room Ventilation System – VI
   Containment Isolation System – JM
   Containment Ventilation Isolation System – JM
   Integrated Plant Computer System - ID