J. Barnie Beasley, Jr., P.E.
Vice President

Southern Nuclear Operating Company, Inc.
40 Inverness Center Parkway
Post Office Box 1295
Birmingham, Alabama 35201

Tel 205.992.7110
Fax 205.992.0403

SOUTHERN COMPANY
Energy to Serve Your World℠

March 28, 2002

LCV-1566-A

Docket No.: 50-424

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

Ladies and Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT
LICENSEE EVENT REPORT 1-01-001, REV. 1
REACTOR TRIP DUE TO LOSS OF GENERATOR EXCITATION

In accordance with the requirements of 10 CFR 50.73, Southern Nuclear Operating Company hereby submits a revision to Vogtle Electric Generating Plant licensee event report for a condition that occurred on Unit 1 on August 24, 2001.

Sincerely,

J. B. Beasley, Jr.

JBB/BHW

Enclosure: LER 1-2001-001, REV. 1

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser
Mr. M. Sheibani
SNC Document Management

U. S. Nuclear Regulatory Commission
Mr. L. A. Reyes, Regional Administrator
Mr. Frank Rinaldi, Vogtle Project Manager, NRR
Mr. J. Zeiler, Senior Resident Inspector, VEGP

IE22

NRC FORM 366 (6-1998)

U.S.NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Vogtle Electric Generating Plant - Unit 1	0 5 0 0 0 4 2 4	1 OF 4

TITLE (4)
REACTOR TRIP DUE TO LOSS OF GENERATOR EXCITATION

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
0 8	2 4	2 0 0 1	2 0 0 1	0 0 1	0 1					0 5 0 0 0
									FACILITY NAME	0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR •: (Check one or more) (11)			
POWER LEVEL (10)	1 0 0	20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)
		20.2203(a)(1)	20.2203(a)(3)(i)	50.73(a)(2)(ii)	50.73(a)(2)(x)
		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*
		20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)	*or in NRC Form 366A*

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (include area code)
Mehdi Sheibani, Nuclear Safety and Compliance	7 0 6 - 8 2 6 - 3 2 0 9

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
B	T L	S C R	G 0 8 0	Y					

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

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

On August 24, 2001, with the unit at 100% power, personnel were returning to service the Main Generator Rectifier Bridge 1 after performing corrective maintenance. Upon closure of the disconnect switch, a trip of the main generator occurred on loss of field excitation, causing an automatic turbine/reactor trip at 2307 EDT. All control rods were observed to fully insert, and control room operators acted properly to control steam generator water levels and stabilize the unit in mode 3 (hot standby).

An investigation found that, upon returning Rectifier Bridge 1 to service, silicon controlled rectifiers (SCRs) in Rectifier Bridge 4 failed due to a short circuit. This led directly to the loss of the generator excitation field and the generator/turbine/reactor trip. The malfunctioning rectifier bridges were repaired and the unit was returned to service. The failed SCRs that were removed from the rectifier bridges were sent to a laboratory for failure analysis. The analysis was unable to determine the root cause of the failure.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6) YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	PAGE (3)
Vogtle Electric Generating Plant - Unit 1	0 5 0 0 0 4 2 4	2 0 0 1	0 0 1	0 1	2 OF 4

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

A. REQUIREMENT FOR REPORT

This report is required per 10 CFR 50.73 (a)(2)(iv) because an unplanned actuation of the reactor protection system occurred.

B. UNIT STATUS AT TIME OF EVENT

At the time of this event, Unit 1 was operating in Mode 1 (power operation) at 100% of rated thermal power. The generator was operating with Rectifier Bridge 1 out of service and Rectifier Bridges 2, 3 and 4 in service.

C. DESCRIPTION OF EVENT

Following a lightning strike on the unit's 230 kV line on August 18, 2001, anomalies were found on phase A silicon controlled rectifiers (SCRs) of the main generator Rectifier Bridge 1 in the form of failed LEDs and resistors. Upon removing Rectifier Bridge 1 from service for repairs, an anomaly (flickering LEDs) began to occur on phase C of Rectifier Bridge 2 due to a voltage imbalance. Following consultation with the generator vendor, it was decided to repair Bridge 1, return it to service, then remove Bridge 2 from service for repair.

On August 24, 2001, after repairing Rectifier Bridge 1, personnel were placing the bridge back in service in accordance with procedure 13830-1, "Main Generator Operation." Upon closure of the disconnect switch for Rectifier Bridge 1, a trip of the main generator occurred on loss of field excitation, causing an automatic turbine/reactor trip at 2307 EDT. The first-out annuciator seen by operators in the control room was "Turbine Trip/P-9 Reactor Trip." All control rods were observed to fully insert, and a main feedwater system isolation (FWI) and an auxiliary feedwater system (AFW) actuation occurred as expected. Control room operators acted properly to control steam generator water levels and stabilize the unit in mode 3 (hot standby).

D. CAUSE OF EVENT

An investigation found that, upon returning Rectifier Bridge 1 to service, both phase A SCRs failed in Bridge 4 due to a short circuit. This led directly to the loss of generator excitation field and the generator/turbine/reactor trip. Several possible reasons for the short circuit were proposed, and the failed SCRs were sent to a laboratory for failure analysis. The analysis determined that overheating

of the SCRs was the cause of the failures. Although possible causes for the overheating have been identified, the root cause of the overheating, and of this event, cannot be determined with certainty.

E. ANALYSIS OF EVENT

The reactor protection system, the main feedwater isolation function, and the auxiliary feedwater actuation function performed as designed. Control room operators acted properly to control steam generator water levels and stabilize the unit in mode 3 (hot standby). 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 this event.

This event does not represent a safety system functional failure.

F. CORRECTIVE ACTIONS

1) Rectifier bridges were repaired and the unit was returned to service.

2) Based on new information received from the generator vendor, operating and maintenance procedures have been revised and generator training for appropriate engineering and maintenance personnel is scheduled for later this year.

3) The failed SCRs were sent to a testing laboratory for failure analysis. The analysis determined that overheating of the SCRs was the cause of the the failures. Although possible causes for the overheating have been identified, the root cause of the overheating, and of this event, cannot be determined with certainty.

G. ADDITIONAL INFORMATION

1) Failed Components:
Silicon Controlled Rectifiers manufactured by General Electric Corporation
Part # 44C338754G01

2) Previous Similar Events:

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Vogtle Electric Generating Plant - Unit 1	0 5 0 0 0 4 2 4	2 0 0 1	0 0 1	0 1	4 OF 4

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

LER 5000425/1991-007-00, dated June 4, 1991. This LER described a generator/turbine/reactor trip caused by problems with the generator control circuits.

3) Energy Industry Identification System Code:
Main Generator System - TB
Main Generator Excitation System – TL
Reactor Control System - JD
Main Feedwater System – SJ
Auxiliary Feedwater System - BA