

The Light company

Houston Lighting & Power

South Texas Project Electric Generating Station P. O. Box 289 Wadsworth, Texas 77483

August 20, 1997

ST-HL-AE-5721

File No.: G26

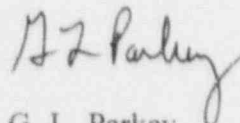
10CFR73.71

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project
Units 1 and 2
Docket No. STN 50-498, STN 50-499
Safeguards Event Report 97-S02
Loss of Power to the Security System

Pursuant to 10CFR73.71, South Texas Project submits the attached Unit 1 and 2 Safeguards Event Report 97-S02 regarding a loss of power to the security system. This failure did not have an adverse effect on the health and safety of the public.

If you should have any questions on this matter, please contact Mr. S. M. Head at (512) 972-7136 or me at (512) 972-7800.



G. L. Parkey
Plant Manager,
Unit 1

PLA/

Attachment: SER 97-S02 (South Texas Units 1 and 2)

9708270087 970820
PDR ADOCK 05000498
S PDR



STI 30376265
wp/nl/nrc_ap/ser-97/ser97s02.wpw

Project Manager on Behalf of the Participants in the South Texas Project

Houston Lighting & Power Company
South Texas Project Electric Generating Station

ST-HL-AE-5721
File No.: G26
Page 2

Ellis W. Merschoff
Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Thomas W. Alexion
Project Manager, Mail Code 13H3
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

David P. Loveless
Sr. Resident Inspector
c/o U. S. Nuclear Regulatory Comm.
P. O. Box 910
Bay City, TX 77404-0910

J. R. Newman, Esquire
Morgan, Lewis & Bockius
1800 M Street, N.W.
Washington, DC 20036-5869

M. T. Hardt/W. C. Gunst
City Public Service
P. O. Box 1771
San Antonio, TX 78296

J. C. Lanier/M. B. Lee
City of Austin
Electric Utility Department
721 Barton Springs Road
Austin, TX 78704

Central Power and Light Company
ATTN: G. E. Vaughn/C. A. Johnson
P. O. Box 289, Mail Code: N5012
Wadsworth, TX 77483

Rufus S. Scott
Associate General Counsel
Houston Lighting & Power Company
P. O. Box 61067
Houston, TX 77208

Institute of Nuclear Power
Operations - Records Center
700 Galleria Parkway
Atlanta, GA 30339-5957

Dr. Bertram Wolfe
15453 Via Vaquero
Monte Sereno, CA 95030

Richard A. Ratliff
Bureau of Radiation Control
Texas Department of Health
1100 West 49th Street
Austin, TX 78756-3189

J. R. Egan, Esquire
Egan & Associates, P.C.
2300 N Street, N.W.
Washington, D.C. 20037

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

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: 50.6 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.

FACILITY NAME (1)

South Texas Unit 1

DOCKET NUMBER (2)

05000 498

PAGE (3)

1 of 4

TITLE (4)

Loss of Power Supply to the Security 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
07	21	97	97	-- S02	-- 00	08	20	97	South Texas Unit 1	05000 499
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
POWER LEVEL (10)	100	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)	X 73.71
		20.2203(a)(2)(ii)	20.2203(a)(4)	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

Scott M. Head -Sr. Consulting Engineer

TELEPHONE NUMBER (Include Area Code)

(512) 972-7136

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)

YES

(If yes, complete EXPECTED SUBMISSION DATE).

X

NO

EXPECTED
SUBMISSION
DATE (15)

MONTH

DAY

YEAR

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

On July 21, 1997, Units 1 and 2 were in Mode 1 at 100% power. At approximately 16:53, all power was lost to the security system at the completion of a lighting diesel generator performance test. Compensatory measures for a total security system failure were initiated and all required security positions were posted. Power was restored to the security system. Security personnel did not recognize the nature or significance of the "bypass trouble" alarm. Less than adequate communications between the involved parties was a contributing factor as was insufficient training, regarding alarms infrequently received. Corrective actions include training, procedure enhancement, and review of lessons learned with the security teams.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
South Texas Unit 1	05000 498	97	-- S02	-- 00	2 of 4

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

DESCRIPTION OF EVENT:

On July 21, 1997, Units 1 and 2 were in Mode 1 at 100% power. At approximately 16:53, all power was lost to the security system during the performance of a lighting diesel generator performance test.

As required by the performance test procedure, prior to the start of the lighting diesel generator performance test, the status indication of the security uninterruptible power supply systems were verified to be operating in the normal configuration to ensure power to the security system would not be interrupted when motor control center 12K3 transferred to load the lighting diesel generator. At 15:06, the lighting diesel generator was started and the normal feeder breaker to motor control center 12K3 was tripped as expected by the performance test procedure. At the same time, an expected trouble alarm on the 20 kVA uninterruptible power supply battery charger was received in the security Central and Secondary Alarm Stations. This alarm indicated power to the battery charger was lost and the battery was supplying the inverter loads. Power was available to the charger as soon as the lighting diesel generator was loaded to motor control center 12K3 at 15:06:33 and the battery charger returned to its normal operating configuration and the trouble alarm cleared.

Because the normal load on motor control center 12K3 is not sufficient for the lighting diesel generator full load test, two additional load banks were connected to increase the load. The load increase on the lighting diesel generator started at approximately 15:34. At 15:43, the Alarm Stations received a "bypass trouble" alarm on the 20 kVA security uninterruptible power supply inverter indicating the security loads had transferred to the bypass source (no battery backup, powered only by the lighting diesel generator). Security personnel acknowledged the alarm, dispatched a security officer to the inverter room, and notified the security force supervisor. The lighting diesel generator test coordinator and performer were not made aware of the trouble alarm on the inverter and continued with the load test. At approximately 15:53, the lighting diesel generator was at full load. The lighting diesel generator was successfully run at full load for approximately one hour and the load test was terminated at 16:53.

The test coordinator notified security personnel about ten minutes before securing the lighting diesel generator, but security personnel did not inform him of the change in the inverter configuration. Motor control center 12K3 was deenergized for approximately two minutes when the lighting diesel generator was secured. When motor control center 12K3 was deenergized, all the security computers and devices normally fed by the 20 kVA security inverter lost power because all the security loads on this inverter were aligned to the bypass source. Security personnel initiated compensatory measures for a total system failure and all required positions were posted by 17:00. Power was restored to the security system at 16:55. The security computers rebooted themselves and reestablished communications with system devices at 17:02. After an initial review of the circumstances causing the loss of power, operability tests of the security system were conducted and devices returned to service.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
South Texas Unit 1	05000 498	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 of 4
		97	-- S02	-- 00	

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

CAUSE OF THE EVENT:

Security personnel did not recognize the nature or significance of the "bypass trouble" alarm. Less than adequate communications between the involved parties was a contributing factor as was insufficient training, regarding alarms infrequently received.

ANALYSIS OF EVENT:

This event is reportable per 10CFR73.71(b)(1) as described in Regulatory Guide 5.62 paragraph 2.2.20. The event is significant because the compensatory measures required by the Physical Security Plan during the loss of all AC power supply to security systems had to be taken. This event did not result in any personnel injury, equipment damage, acts of sabotage, radiological problems or environmental impacts.

The 20 kVA security uninterruptible power supply is a 120 vac single phase uninterruptible power supply manufactured by Solidstate Controls, Inc. The system consists of a rectifier/charger, a DC-AC power inverter, an external battery bank, a static switch and a manual bypass switch. The normal and bypass power sources are fed from non-Class 1E 480 vac motor control center 12K3 which is backed up by the lighting diesel generator. The security loads are normally being fed from the inverter via the static switch and a manual bypass switch. In the event of a loss of the normal AC power source, the uninterruptible power supply batteries will run the inverter to maintain continuity of power to security loads for at least three hours or until the lighting diesel generator starts and powers motor control center 12K3. In the event of an inverter failure, a low inverter output voltage, an overload, or load faults, the load will be transferred from the inverter to the bypass source.

The ensuing investigation determined:

- 1) The inverter was operating normally with no abnormal indications after the load transfer and the testing of the uninterruptible power supply. In addition, a recent load test of the batteries supports the conclusion that an inverter failure condition did not exist.
- 2) The inverter input and output voltages were operating within normal design specifications.
- 3) There was no load switching or manipulation during the performance of the Lighting Diesel Generator performance test that would cause a transfer of load. There was no indication or alarm of any fault on the load side of the inverter.
- 4) The response to the 20 KVA UPS TS BYPASS TROUBLE alarm was inadequate in that the nature of the alarm was not questioned and its significance was not recognized.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
South Texas Unit 1	05000 498	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 of 4
		97	-- S02 --	00	

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

CORRECTIVE ACTIONS:

The following corrective actions have been or will be taken as a result of this event:

1. Each of the security teams has been briefed on the immediate lessons learned from this event. Additional training on our expectations for communications and a questioning attitude will be conducted by September 30, 1997.
2. The lighting diesel generator performance test procedure will be revised by September 30, 1997 to require verifying the normal lineup of the security inverter prior to securing the lighting diesel generator.
3. Training will be conducted for the security force on the functionality of the security uninterruptible power supply system and associated alarms with a completion date of August 30, 1997.
4. The security computer will have special instructions (Post Orders) added that will be available for infrequent alarms by October 30, 1997.

ADDITIONAL INFORMATION:

There has been one Security Event Report submitted in the last three years by South Texas Project to the Nuclear Regulatory Commission for loss of power to the security system: SER 94-S01 "Uncompensated Loss of Power to the Security System While Removing the Alternate AC Power Source From Service".

No specific evidence could be found which identified the exact cause of the load transfer; the apparent cause is believed to be to a transient or load spike experienced by the inverter. Temporary monitoring devices will be installed to record inverter input voltage, output voltage, and inverter frequency during the next lighting diesel generator performance test.