

The Light company

Houston Lighting & Power South Texas Project Electric Generating Station P. O. Box 289 Wadsworth, Texas 77483

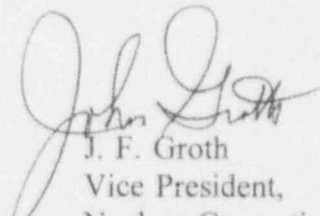
March 31, 1994
ST-HL-AE-4757
File No.: G26
10CFR50.73

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

South Texas Project
Unit 2
Docket No. STN 50-499
Licensee Event Report 94-001
Inadvertent Start of Standby Diesel
Generator 21

Pursuant to 10CFR50.73, Houston Lighting & Power (HL&P) submits the attached Unit 2 Licensee Event Report 94-001 regarding an inadvertent start of Standby Diesel Generator 21. This event did not have an adverse effect on the health and safety of the public but clearly does not meet the standards for expected operational performance.

If you should have any questions on this matter, please contact Mr. J. M. Pinzon at (512) 972-8027 or me at (512) 972-8664.


J. F. Groth
Vice President,
Nuclear Generation

LRW/eg

Attachment: LER 94-001 (South Texas, Unit 2)

9404050222 940331
PDR ADOCK 05000499
S PDR

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

LER-94\94001R0.U2

03/31/94 (8:52am)

*TEAS
11-IE02*

c:

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U. S. Nuclear Regulatory Comm.
Attn: Document Control Desk
Washington, D. C. 20555

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), 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 2	DOCKET NUMBER (2) 05000 499	PAGE (3) 1 OF 3
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TITLE (4) Inadvertent Start of Standby Diesel Generator No. 21

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
03	01	94	94	-- 001 --	00	03	31	94	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9) N/A	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)										
POWER LEVEL (10) 0	20.402(b)			20.405(c)			x 50.73(a)(2)(iv)			73.71(b)	
	20.405(a)(1)(i)			50.36(c)(1)			50.73(a)(2)(v)			73.71(c)	
	20.405(a)(1)(ii)			50.36(c)(2)			50.73(a)(2)(vii)			OTHER	
	20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A)			(Specify in Abstract below and in Text, NRC Form 366A)	
	20.405(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(viii)(B)				
20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER (12)

NAME Jairo Pinzon - Senior Engineer	TELEPHONE NUMBER (Include Area Code) (512) 972-8027
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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
X	EK	JX	C634	YES					
X	EK	ECBD	C634	YES					

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-spaced typewritten lines) (16)

On March 1, 1994, Unit 2 was defueled while in a refueling outage. At 0155 hours Standby Diesel Generator 21 experienced an inadvertent start. The Standby Diesel Generator was secured but experienced a second start signal during the cooldown cycle. The control room then performed an emergency stop by placing controls in "Pull-to-Lock". The inadvertent start was caused by electrical component failures in the test circuit which permitted a start signal to be transmitted. Defective parts were identified and replaced and the Preventive Maintenance programs will be modified to address periodic replacement of these components. Standby Diesel Generator 21 was successfully tested and returned to service.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)		PAGE (3)	
South Texas, Unit 2	05000 499	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
		94	-- 001 --	00	

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

Description of Event

On March 1, 1994, Unit 2 was defueled while in a refueling outage. At 0155 hours Standby Diesel Generator 21 experienced an inadvertent start. The Diesel Generator was secured but experienced a second start signal during the cooldown cycle. The NRC was notified at 0256 hours via the Emergency Notification System. This event is reportable in accordance with 10CFR50.73(a)(2)(iv).

At the time of the inadvertent start, Standby Diesel Generator 21 was in the Standby Mode (operational). The start signal was received from the circuitry associated with the test mode which is automatically bypassed during an emergency start. The start was concurrent with operators resetting control panel annunciator lamps which had inadvertently remained illuminated from an earlier annunciator test at 2230 hours the previous day. It was verified that no emergency start signals were present at the local panel. After allowing the engine to run for a short period, the engine control was taken to the stop position. During the cooldown cycle, another start signal was received, and the engine returned to operation with full generator output voltage and frequency indicated. During the second start, the undervoltage, and field ground relays flagged. An emergency stop on Standby Diesel Generator 21 was performed by taking the engine control to "Pull-to-Lock". Standby Diesel Generator 21 subsequently was declared inoperable, and a service request was issued to troubleshoot and correct the condition.

Cause of Event

The inadvertent start of Standby Diesel Generator 21 was caused by a combination of two component failures: a weakened transistor in the non-1E Fiber Optic start circuits (Fiber Optic Board "G") and a faulty power supply (PS-2) which induced spikes into the fiber optic start circuit. The erratic spikes of the PS-2 power supply exceeded the threshold of the degraded transistor and thus induced a start signal.

Analysis of Event

The Standby Diesel Generators are part of the Class 1E 4.16 KV AC Power System. The Class 1E 4.16 KV AC Power System is composed of three trains designed to provide a reliable source of power to safety-related equipment essential to all modes of plant operation including emergency shutdown following any design basis event. Upon a loss of offsite power, each of the three Standby Diesel Generators starts automatically to supply back-up power to its associated 4.16 KV bus to mitigate the consequences of postulated accidents.

The inadvertent start resulted in Standby Diesel Generator 21 being placed in an inoperable status pending resolution of root cause analysis. Standby Diesel Generator 22 was also inoperable during this timeframe. Standby Diesel Generator 23 was operable. There were no adverse radiological or safety consequences resulting from this event. Inadvertent start of the Standby Diesel Generator is reportable pursuant to 10CFR50.73(a)(2)(iv).

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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South Texas, Unit 2	05000 499	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 3
		94	-- 001 --	00	

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

Corrective Actions

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

1. Fiber Optic Boards "G", "C", and "J" were replaced.
2. A defective Fiber Optic cable and the PS-2 power supply were replaced.
3. The Fiber Optic Board PM Program will be enhanced to specify periodic replacement. These enhancements will be completed by May 15, 1994.
4. An evaluation will be performed to analyze modifying the Standby Diesel Generator Start Circuit to remove Fiber Optic Boards. This evaluation will be completed by June 15, 1994.

Additional Information

During the past three years two events were reported regarding inadvertent starts of Standby Diesel Generators. Unit 2 Licensee Event Report 93-015 documented an inadvertent start attributed to the spurious failure of a transistor. Unit 1 Licensee Event Report 93-023 documented an inadvertent start most likely resulting from an electrical arcing between the Standby Diesel Generator panel and test equipment.