

The Light company

Houston Lighting & Power

P.O. Box 1700 Houston, Texas 77001 (713) 228-9211

February 1, 1991
ST-HL-AE-3668
File No.: G26
10CFR50.73

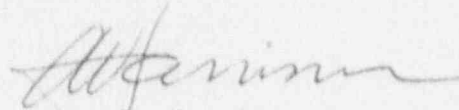
U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project Electric Generating Station
Unit 1
Docket No. STN 50-498
Licensee Event Report 90-026
Regarding a Train B Loss of Offsite Power
(LOOP) Actuation Due to Breaker Malfunction

Pursuant to 10CFR50.73, Houston Lighting & Power Company (HL&P) submits the attached Licensee Event Report (LER 90-026) regarding a train B loss of offsite power (LOOP) actuation due to breaker malfunction. This event did not have any adverse impact on the health and safety of the public.

On January 18, 1991, an extension of the due date of this letter to February 1, 1991 was requested of, and granted by, Mr. W. B. Jones of NRC Region IV

If you should have any questions on this matter, please contact Mr. C. A. Ayala at (512) 972-8628 or myself at (512) 972-7298.



A. W. Harrison
Manager
Nuclear Licensing

RAD/sgs

Attachment: LER 90-026 (South Texas, Unit 1)

A1/LER02601.L01

A Subsidiary of Houston Industries Incorporated

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cc:

Regional Administrator, Region IV
Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

George Dick, Project Manager
U.S. Nuclear Regulatory Commission
Washington, DC 20555

J. I. Tapia
Senior Resident Inspector
c/o U. S. Nuclear Regulatory
Commission
P. O. Box 910
Bay City, TX 77414

J. R. Newman, Esquire
Newman & Holtzinger, P.C.
1615 L Street, N.W.
Washington, DC 20036

D. E. Ward/T. M. Puckett
Central Power and Light Company
P. O. Box 2121
Corpus Christi, TX 78403

J. C. Lanier/M. B. Lee
City of Austin
Electric Utility Department
P.O. Box 1089
Austin, TX 78767

R. J. Costello/M. T. Hardt
City Public Service Board
P. O. Box 1771
San Antonio, TX 78296

Rufus S. Scott
Associate General Counsel
Houston Lighting & Power Company
P. O. Box 61867
Houston, TX 77208

INPO
Records Center
1100 Circle 75 Parkway
Atlanta, GA 30339-3064

Dr. Joseph M. Hendrie
50 Bellport Lane
Bellport, NY 11713

D. K. Lacker
Bureau of Radiation Control
Texas Department of Health
1100 West 49th Street
Austin, TX 78756-3189

Revised 01/29/91

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) South Texas, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 9 8 1	PAGE (3) 1 OF 0 4
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TITLE (4) **Train B Loss of Offsite Power (LOOP)
Actuation Due to Breaker Malfunction**

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 NAMES					
1	2	1	9	0	2	6	0	0	2	0	1	9	1	

OPERATING MODE (9) 5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 50. (Check one or more of the following) (11)				
POWER LEVEL (10) 0 0 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.406(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)	
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(a)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(e)	
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(a)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)	
	<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)		
	<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)		
	<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(ix)		

LICENSEE CONTACT FOR THIS LER (12)

NAME Charles Ayala - Supervising Licensing Engineer	TELEPHONE NUMBER 5 1 2 9 7 2 - 8 6 2 8
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
B	E A	B K R	G O 3 0	YES					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (11) (a) complete EXPECTED SUBMISSION DATE NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On December 19, 1990, Unit 1 was in Mode 5. At 0821 hours, a Train B Loss of Offsite Power actuation occurred while attempting to transfer power to the Standby bus 1G from the Unit 2 Standby Transformer to the Unit 1 Standby Transformer. The Unit 1 Standby Transformer to Standby bus supply breaker (ST-160) was closed. When attempting to trip open the Unit 2 Standby Transformer to Standby bus supply breaker (ST-180), the breaker failed to open. The Standby bus was in parallel for more than eight seconds which automatically tripped open the ST-160 breaker and the Standby bus 1G to Auxiliary ESF Transformer ElB feeder breaker. The cause of this event was failure of the breaker to open due to the combination of the existence of hardened grease and friction between the trip arm linkage and a metal cover which prevented the breaker from opening by impeding the free travel of the trip arm linkage. A step has been added to the appropriate breaker periodic maintenance procedure to check for binding of the tripping mechanism. Preventive maintenance has been scheduled to be performed on the appropriate 13.8 kV breakers including the ST-180 breaker.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) South Texas, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 9 8 9 0	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
			0 2 6	0 0	0 2	OF	0 4

TEXT (if more space is required, use additional NRC Form 366A's) (17)

DESCRIPTION OF EVENT:

On December 19, 1990, Unit 1 was in Mode 5 during an outage. At 0821 hours, a Train B Loss of Offsite Power (LOOP) actuation occurred while attempting to transfer power to Standby bus 1G from the Unit 2 Standby Transformer to its normal power source, the Unit 1 Standby Transformer. This resulted in a loss of offsite power to the 4.16 kV Engineered Safety Features (ESF) bus E1B. The ESF sequencer actuated which resulted in a strip of the Train B bus and start of Standby Diesel Generator 12. All loads sequenced properly.

In preparation for transferring power to Standby bus 1G from the Unit 2 Standby Transformer to the Unit 1 Standby Transformer, a Reactor Operator (RO) verified that the Unit 1 Standby Transformer was in phase with the Standby bus. The RO then closed the Unit 1 Standby Transformer to Standby bus 1G supply breaker (ST-160) via the breaker control switch at the Main Control Board. Breaker indicating lights and current readings verified that breaker ST-160 had closed and was supplying power to the standby bus 1G from the Unit 1 Standby Transformer. The RO then attempted to open the Unit 2 Standby Transformer to Standby bus 1G supply breaker (ST-180) via the handswitch at the Main Control Board to complete the power source transfer. The RO placed the handswitch in the TRIP position. Since there were no lights indicating that breaker ST-180 had opened, the RO held the handswitch in the TRIP position. Soon afterward, an alarm was received indicating that the Standby bus 1G had been paralleled for more than four seconds. Since the ST-180 breaker failed to trip, four seconds later the ST-160 breaker and the Standby bus 1G to Auxiliary ESF Transformer E1B feeder breaker were both automatically tripped open as designed and the "Bus Paralleled" alarm was cleared. This resulted in a loss of offsite power to the Class 1E 4.16 kV bus E1B. The Standby Diesel Generator 12 automatically started and loaded the E1B bus as required.

At approximately 0836 hours, power to the Standby bus was transferred from the Unit 2 Standby Transformer to Unit 1 Standby Transformer successfully. When the handswitch was placed in the TRIP position, the ST-180 breaker opened without incident and normal offsite power to Standby bus 1G was restored. Standby Diesel Generator 12 was returned to standby mode.

On December 7, 1990, the ST-180 breaker failed to open when the handswitch was taken to the TRIP position. However, upon cycling the switch again, the breaker opened. A maintenance request was initiated to troubleshoot the ST-180 breaker at that time. Maintenance was not completed on the breaker for this problem prior to the December 19, 1990 event.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) South Texas, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 9 8 9 0	LER NUMBER (6)			PAGE (3)	
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TEXT (if more space is required, use additional NRC Form 366A's) (17)

DESCRIPTION OF EVENT: (cont'd)

On December 20, 1990, initial troubleshooting of the breaker was conducted and no problems were found. Additional inspection of the breaker revealed that hardened grease was slowing down the tripping of the breaker. In conjunction, the top edge of the metal cover directly in front of the trip latch assembly and trip arm linkage was positioned too close to the trip arm linkages and was rubbing the linkages and occasionally preventing the breaker from freely tripping. Testing indicated that the breaker cover alone did not prevent the breaker from tripping.

ANALYSIS OF EVENT:

Unplanned actuation of an Engineered Safety Feature (ESF) is reportable under 10CFR50 73(a)(2)(iv). This event did not result in any adverse safety or radiological concerns nor did it threaten the health and safety of the public.

CAUSE OF EVENT:

The cause of this event was the failure of the breaker to open due to the combination of the existence of hardened grease and friction between the trip arm linkage and a metal cover. This prevented the breaker from opening by impeding the free travel of the trip arm linkage.

A review of maintenance history on this breaker determined that no preventive maintenance had been performed on the breaker since startup of the unit. A preventive maintenance item had been developed but had not yet been scheduled. Further review of other 13.8 kV breakers determined that few of these breakers had preventive maintenance performed. The combination of lack of cleaning of the switchgear since startup installation and age led to hardened grease. Other breakers have had problems attributable to hardened grease, but none resulted in significant operational impact to focus attention on the grease.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) South Texas, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 9 8 9 0	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT IF MORE SPACE IS REQUIRED. USE ADDITIONAL NRC FORM 3654'S (17)

CORRECTIVE ACTIONS:

1. The cover in front of the breaker ST-180 trip mechanisms was adjusted to clear the trip arm linkage. Additional maintenance and a post maintenance test is scheduled to be completed during the current refueling outage.
2. A step has been added to the 13.8 kV Breaker Test procedure to ensure that the metal cover in front of the trip latch assembly and trip arm linkages is securely fastened and that the trip latch assembly and trip arm linkages are not rubbing or binding against the metal cover which could prevent the breaker from tripping. This test is performed as the preventive maintenance on these breakers which also includes cleaning and regreasing.
3. HL&P will ensure that any 13.8 kV breaker which has not had preventive maintenance performed on it will be inspected and greased by completion of the Unit 2 second refueling outage. Subsequently, breaker testing frequency will be in accordance with staggered test intervals and test results will be evaluated in accordance with the existing preventive maintenance program to validate the adequacy of the preventive maintenance interval.

ADDITIONAL INFORMATION:

The ST-180 breaker is a General Electric, Type AM-13.8-750-5 breaker.

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