

The Light company

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

May 10, 1991
ST-HL-AE-3760
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 91-013
Regarding Train B ESF Actuation Caused By
Less Than Adequate Troubleshooting Instructions

Pursuant to 10CFR50.73, Houston Lighting & Power Company (HL&P) submits the attached Licensee Event Report (LER 91-013) regarding a Train B Engineered Safety Feature actuation caused by less-than-adequate troubleshooting instructions. This event did not result in an adverse impact on the health and safety of the public.

If you should have any questions on this matter, please contact Mr. C. A. Ayala at (512) 972-8628 or me at (512) 972-7205.

William J. Jump
William J. Jump
Manager,
Nuclear Licensing

PLW/amp

Attachment: LER 91-013 (South Texas, Unit 1)

LER 91-013 001.U1
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A Subsidiary of Houston Industries Incorporated

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Houston Lighting & Power Company
South Texas Project Electric Generating Station

ST-HL-AE-3760
File No.: G26
Page 2

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Revised 01/29/91

L4/NRC/

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) South Texas, Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 4 9 8 1 OF 0 3										PAGE 13																													
TITLE (3) Train B ESF Actuation Caused by Less Than Adequate Troubleshooting Instructions																																																	
EVENT DATE (5)										LER NUMBER (6)										REPORT DATE (7)										OTHER FACILITIES INVOLVED (8)																			
MONTH			DAY			YEAR				SEQUENTIAL NUMBER			REGION NUMBER							MONTH			DAY			YEAR				FACILITY NAMES										NUMBER 5									
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OPERATING MODE (9) 3										THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 55.55 (Check one or more of the following) (11)																																							
POWER LEVEL (10) 0 0 0										20.402(b)										20.405(c)										<input checked="" type="checkbox"/> 50.73(a)(2)(iv)										73.71(b)									
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										20.405(a)(1)(iv)										50.36(a)(2)										50.73(a)(2)(v)										OTHER (Specify on Attachment 1564)									
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LICENSEE CONTACT FOR THIS LER (12)																																																	
NAME Charles Ayala - Supervising Licensing Engineer																				TELEPHONE NUMBER 5 1 2 9 7 2 - 8 6 2 8																													
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																
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YES (If yes, complete EXPECTED SUBMISSION DATE)										<input checked="" type="checkbox"/> NO										EXPECTED SUBMISSION DATE (15)										MONTH DAY YEAR																			

ABSTRACT (Limit to 1400 spaces, i.e., approximately 1700 single space typewritten lines) (16)

On April 12, 1991, Unit 1 was in Mode 3 at normal operating pressure and temperature. At 1321 hours, during troubleshooting of an Engineered Safety Feature (ESF) Sequencer automatic testing failure, a mode III (safety injection coincident with loss of offsite power) sequencer actuation was initiated in Train B. The actuation resulted from less than adequate troubleshooting instructions. Plant equipment operated as designed and there were no significant transients as a result of the ESF sequencer actuation. Troubleshooting program procedures will be revised as a corrective action.

LER191115001.01

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 6/31/85

FACILITY NAME (1) South Texas, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 9 8 9 1 —	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT IF more space is required, use additional NRC Form 305A's (17)

DESCRIPTION OF EVENT:

During performance of an electrical surveillance test on April 10, 1991, ESF Sequencer 1B had been observed to "lock up" at one point in its auto-test mode which is indicative of failure of a plug-in optoisolator. Work instructions for an existing work request were revised on April 11 to troubleshoot the failure by locating and replacing failed optoisolator(s). This method had been used successfully in the past and was expected to correct the failure. However, on April 12 no failed optoisolators were found; thus, additional troubleshooting instructions were needed to locate the failure. The work supervisor (I&C Foreman) prepared and approved additional instructions to remove the four optoisolators affecting two input circuits from the associated optoisolator rack, replace the rack and optoisolators, and verify the problem was corrected. The plan was discussed with the Unit Supervisor prior to implementation, but not in sufficient detail that the deficient instructions could be detected.

On April 12, 1991, Unit 1 was in Mode 3 at normal operating pressure and temperature. At 1321 hours, while determinating leads from the optoisolator rack, interruption of 24-volt power supply to this and other optoisolator racks resulted in processor recognition of a mode III condition (safety injection coincident with loss of offsite power). The ESF Bus was stripped and standby diesel generator 12 started as designed. The sequencer then began energizing and re-energizing the required loads for a mode III actuation. Plant equipment operated as designed, and there were no significant transients as a result of this actuation.

The work supervisor had failed to recognize that lifting the 24-volt supply lead would simulate sequencer inputs. The fact that removal of the optoisolators appeared to block the inputs supported this erroneous conclusion.

Note that if the 24-volt supply power had not been sequentially wired to other optoisolator racks, the lifted lead would have initiated a mode II (loss of offsite power) sequence.

CAUSE OF EVENT:

This inadvertent Train B mode III ESF sequencer actuation was caused by inappropriate troubleshooting instructions. The inappropriate troubleshooting instructions resulted from failure to obtain adequate technical review prior to implementation. Failure to obtain adequate technical review was due to a programmatic weakness that allowed one individual to perform multiple roles in approving and implementing the instructions, effectively eliminating independent review.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 6/31/85

FACILITY NAME (1) South Texas, Unit 1	DOCKET NUMBER (2) 0500049891	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

ANALYSIS OF EVENT:

Inadvertent actuation of an Engineered Safety Feature is reportable pursuant to 10CFR50.73(a)(2)(iv). The plant was in Mode 3 when inadvertent actuation of the Train B mode III ESF Sequencer occurred. All ESF equipment involved operated as designed with no significant plant transients. This event did not result in any adverse safety or radiological concerns, nor did it threaten the safety of the public at any time.

CORRECTIVE ACTIONS:

The following corrective actions are being taken as a result of this event:

1. The troubleshooting instructions were subsequently rewritten, reviewed, approved, and performed successfully.
2. The troubleshooting program procedure is being changed to reinforce the requirements for independent technical review of troubleshooting plans. The procedure change is expected to be effective by May 15, 1991. Prior to the effective date of the procedure change, notification will be provided to appropriate personnel.

ADDITIONAL INFORMATION:

As reported in Unit 1 LER 88-009, an unanticipated Safety Injection signal occurred from Solid State Protection System Actuation Train A which was initiated when a surveillance procedure, as modified by a field change, was performed with a step missing from the procedure.

As reported in Unit 1 LER 88-057, the Train A ESF Load Sequencer actuated as a result of a maintenance electrician breaking a sequencer status indicating light. The cause of the event was failure to understand the proper method of sequencer indicator lamp replacement.

As reported in Unit 1 LER 91-002, automatic actuation of the Train C Safety Injection system occurred as a result of less-than-adequate preventive maintenance work instructions. The cause of the less-than-adequate work instructions was personnel error in that two supervisors failed to require further review of work instructions which they believed had potential for causing an unplanned ESF actuation.

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