

The Light company

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

October 13, 1992

ST-HL-LE-4226

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 92-008 Regarding
Control Room Ventilation Actuation to
Recirculation Mode Due to Failure of A Toxic Gas Analyzer

Pursuant to 10CFR50.73, Houston Lighting & Power Company (HL&P) submits the attached Licensee Event Report 92-008 regarding a control room ventilation actuation to the recirculation mode due to a failure of a toxic gas analyzer. The safety systems performed as designed and the event did not have any 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 myself at (512) 972-7205.

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

MKJ/ag

Attachment: LER 92-008 (South Texas, Unit 2)

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JEZ

Houston Lighting & Power Company
South Texas Project Electric Generating Station

ST-HL-AE-42.6
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Revised 10/11/91

L4/NRC/

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, 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) 0 5 0 0 0 4 9 9			PAGE (3) 1 OF 4		
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TITLE (4)
Control Room Ventilation Actuation to Recirculation Mode Due to a Failure of a Toxic Gas Analyzer

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		DOCKET NUMBER(S)
09	15	92	92	008	001	10	13	92			0 5 0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

OPERATING MODE (9) 1	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
POWER LEVEL (10) 100	<input type="checkbox"/> 20.406(a)(1)(i)	<input type="checkbox"/> 50.36(a)(1)	<input type="checkbox"/> 50.72(a)(2)(v)	<input type="checkbox"/> 73.71(c)
	<input type="checkbox"/> 20.406(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(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)(i)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)	
	<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)	
	<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(viii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Charles Ayala - Supervising Licensing Engineer	5 1 2 9 7 2 - 1 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

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, 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 September 15, 1992, Unit 2 was in Mode 1 at 100% power. At 0834 hours a control room toxic gas non-ESF alarm was received. Control room personnel were in the process of verifying the validity of the alarm when the control room envelope Heating Ventilation and Air Conditioning system actuated to the recirculation mode on a high toxic gas ESF actuation signal. The redundant analyzer did not actuate. Testing of the analyzer indicated the cause to be a failed infrared source. The analyzer has been repaired and returned to service. The existing toxic gas analyzers are to be replaced with state-of-the-art models. These changes will be made during the current outage for Unit 1 and during the next scheduled refueling outage for Unit 2.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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

DESCRIPTION OF EVENT:

On September 15, 1992, Unit 2 was in Mode 1 at 100% power. At 0834 hours a control room toxic gas non-ESF alarm was received. Control room personnel were in the process of verifying the validity of the alarm when the control room envelope Heating Ventilation and Air Conditioning (HVAC) system actuated to the recirculation mode on a high toxic gas ESF actuation signal. The NRC was notified pursuant to 10CFR50.72 at 0922 hours.

Two redundant toxic gas analyzers monitor five chemical channels. High concentrations of chemicals, Hydrogen Chloride (HCl), Acetic Acid, and Naptha, will result in an alarm but no actuation. High concentrations of the remaining chemicals, Anhydrous Ammonia/Ammonia Hydroxide, and Vinyl Acetate, on one of the two analyzers will result in the actuation of the control room envelope HVAC to the recirculation mode.

A review of the Emergency Response Facilities Data Acquisition and Display System (ERFDADS) indicated that prior to receiving the non-ESF alarm HCl concentrations had been trending upward on one of the two toxic gas analyzers. The redundant analyzer did not indicate the presence of HCl. The HCl concentration later spiked upward, giving the non-ESF alarm. The concentrations for the remaining monitored chemicals spiked to above their setpoints resulting in the ESF actuation. Readings on the redundant analyzer, remained unchanged and did not indicate the presence of high concentrations of any of the monitored gases.

The toxic gas analyzer was repaired and successfully tested on September 16, 1992. The infrared source, part of the optical system used to perform infrared analysis of the gases, was replaced.

CAUSE OF EVENT:

The cause of this event was due to a spurious signal generated from a toxic gas analyzer. Due to a failed infrared source the toxic gas analyzer erroneously registered chemical concentrations above the alarm setpoint.

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LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST, 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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

ANALYSIS OF EVENT:

As of the date of this event, unplanned actuation of any Engineered Safety Feature was reportable pursuant to 10CFR50.73(a)(2)(iv). Effective October 13, 1992, 10CFR50.72 and 50.73 were revised to eliminate reporting of invalid actuations of Control Room Ventilation systems. As such, this event would no longer be reportable under the existing rules since this was a spurious actuation which is considered to be invalid per the revised rulemaking. All equipment actuated as required on receipt of the high toxic gas ESF actuation signal. Since there was no threat of actual toxic gas exposure, this event did not adversely impact the safe operation of the plant or safety of plant personnel.

While any unnecessary challenge to an Engineered Safety Feature is undesirable, actuation of the control room ventilation system to the recirculation mode represents a minimal hazard since it could not cause, worsen, or prevent mitigation of any accident.

CORRECTIVE ACTIONS:

1. The toxic gas analyzer was repaired by replacing the infrared source and returned to service.
2. The existing toxic gas analyzers will be replaced with new model analyzers. In addition, a third analyzer will be added. This will allow 2/3 logic, vice the current 1/2 logic, on high concentrations of the monitored gases. This will reduce the number of spurious actuations attributed to the toxic gas analyzers. These changes will be made during the current outage for Unit 1 and during the next refueling outage for Unit 2. While the third analyzer will be installed, it will remain inoperable pending approval by the NRC of the necessary Technical Specification changes that were submitted on June 2, 1992.

ADDITIONAL INFORMATION:

Prior to this event, the most recent ESF actuations that were caused by a failed toxic gas analyzer occurred on May 26, 1991 for Unit 1 (LER 91-017) and on May 19, 1991 for Unit 2 (LER 91-006).

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 386A's) (17)

ADDITIONAL INFORMATION: (con't)

Unit 2 LER 90-006 documents another instance of an ESF actuation due to a toxic gas analyzer failure which resulted in replacement of the analyzer including the infrared source.

Several other events involving the toxic gas analyzers have been reported and numerous corrective actions have been implemented to improve the reliability of the Foxboro Miran 981 Analyzers.

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