

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) South Texas, Unit 1 DOCKET NUMBER (2) 0500041981 OF 04 PAGE (3)

TITLE (4) Control Room Ventilation Actuation Due to A High HCl Trip on a Toxic Gas Monitor

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)		
05	06	88	88	03	00	06	03	88		050000		
										050000		

OPERATING MODE (9) 5 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5 (Check one or more of the following) (11)

20.402(b)	20.406(e)	X	50.73(a)(2)(iv)	73.71(b)
20.406(a)(1)(i)	50.36(e)(1)		50.73(a)(2)(v)	73.71(c)
20.406(a)(1)(ii)	50.36(e)(2)		50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
20.406(a)(1)(iii)	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)	
20.406(a)(1)(iv)	50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)	
20.406(a)(1)(v)	50.73(a)(2)(iii)		50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Charles A. Ayala - Supervising Licensing Engineer	5112 917121-18161218

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
X									

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)

At approximately 1056 hours on May 6, 1988, with the plant in Mode 5 (cold shutdown), an automatic actuation of the control room ventilation to recirculation mode occurred as a result of a high hydrochloric acid (HCl) trip on one of two toxic gas analyzers. Automatic safety features functioned as designed. An investigation into the event concluded that this was most likely a valid actuation of the system caused by a puff of hydrocarbon gas or HCl. The precise origin of the gas could not be determined. A memorandum will be issued to plant personnel emphasizing the sensitivity of the toxic gas analyzers and the need to notify the control room of any activities producing gases or fumes in or near the power block. Control room personnel will be directed to make a site-wide announcement of toxic gas actuations and require anyone involved in activities that might produce toxic gases to immediately contact the control room.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
South Texas, Unit 1	05000498	88	030	00	2	OF	04

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

DESCRIPTION OF OCCURRENCE:

At approximately 1056 hours on May 6, 1988, with Unit 1 in Mode 5 (cold shutdown), an automatic actuation of the control room ventilation to recirculation mode occurred as a result of a high level trip of the hydrochloric acid (HCl) channel on one of two toxic gas analyzers (XE-9325). Control room ventilation actuation to recirculation mode is an Engineered Safety Feature (ESF). The control room personnel immediately verified the recirculation mode damper lineup and initiated an investigation of the event. The NRC was notified of the event at approximately 1418 hours on May 6, 1988.

There were no personnel working on or around the analyzers at the time of the occurrence. One analyzer (XE-9325) indicated a peak HCl concentration of 24.13 ppm at 1057 hours on an 8-hour summary printout. The peak HCl concentration shown on the other analyzer (XE-9326) 8-hour summary was 1.11 ppm at 0944 hours. The actuation setpoint for HCl is 15.0 ppm. Various hydrocarbons have spectrographic characteristics similar to HCl and will cause a trip of the HCl channel when high concentrations are detected. No abnormal readings were noted for the four other gases monitored by the analyzers. The next available data was obtained at approximately 1106 hours and indicated that the HCl concentration had returned to normal level (near zero). Both analyzers were tested with HCl samples, and both responded correctly.

The toxic gas analyzers sample the control room inlet air approximately once every ninety seconds and analyze the samples for various toxic gases. The two analyzers operate independently of each other and do not normally take their samples simultaneously. Therefore, detection by a single analyzer of gases or fumes passing through the plenum is possible due to the sampling frequency and independence of the analyzers. Thus, a puff of gas of short duration could be sensed by one analyzer and no longer be present when the second analyzer takes its sample.

Potential sources of gases or fumes (e.g. painting, tank venting, etc.) were investigated, but insufficient evidence exists to substantiate a definite link between the activities in progress and the indicated high concentration of HCl.

Potential intermittent failure of the analyzer was also investigated. No evidence was found to confirm an analyzer failure. This event does not correspond to any previously identified failure mode.

CAUSE OF OCCURRENCE:

The exact cause of the occurrence could not be determined. However, available evidence suggests that a puff of HCl gas or gaseous hydrocarbon was detected by the analyzer.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

ANALYSIS OF EVENT:

There were no adverse radiological or safety consequences as a result of this control room ventilation actuation to recirculation mode. Unit 1 was in Mode 5 and the control room ventilation dampers repositioned correctly to recirculation mode. This event did not result in any additional risk to the public. There would have been no safety consequences from this event at reactor power levels since actuated ESF equipment operated as expected.

While Technical Specifications do not require actuation of control room ventilation to recirculation mode on high concentrations of HCl, this actuation was incorporated into the control circuitry as a conservative measure for protection of control room personnel.

While any unnecessary challenge to an Engineered Safety Feature is undesirable, actuation of the Control Room Ventilation recirculation mode represents a minimal hazard since it could not cause, worsen or prevent mitigation of an accident. This event is reportable pursuant to 10CFR50.73(a)(2)(iv) as an unanticipated actuation of an Engineered Safety Feature.

CORRECTIVE ACTION:

The following corrective actions are being taken:

- 1) A memorandum will be issued to plant personnel emphasizing the sensitivity of the toxic gas analyzers to gases and fumes, and the need to notify the control room of activities producing gases or fumes in or around the power block. This action will be completed by June 5, 1988.
- 2) Control room personnel will be directed to make a public address announcement of toxic gas actuations and requiring personnel involved in activities producing any gases or fumes to immediately contact the control room. This action will assist plant personnel in determining the source of the gases that cause any future actuations. This action will be completed by June 5, 1988.

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

ADDITIONAL INFORMATION:

On January 10, 1988, analyzer XE-9326 failed due to a loose connection, causing a control room ventilation actuation. This event is described in LER 88-004.

On November 28, 1987, analyzer XE-9325 failed due to a failed programmable read only memory (PROM) computer chip, causing a control room ventilation actuation. This event is described in LER 87-020.

On October 17, 1987, analyzer XE-9325 failed due to a failed read only memory (ROM) printed circuit board, causing a control room ventilation actuation. This event is described in LER 87-011.

The toxic gas analyzer failures listed above resulted in analyzer inoperability until the causes were identified and corrected. In this event none of the previously identified failure modes was evident, operability of analyzer XE-9325 was verified, and insufficient evidence exists to suggest an intermittent failure.

On November 12, 1987, analyzer XE-9326 detected fumes from a painting activity, causing a control room ventilation actuation. This event is described in LER 87-014.

Other events involving the Toxic Gas Analyzer have been reported to the NRC, but are unrelated to this event.

Both toxic gas analyzers are Foxboro Miran 981 units.

NL.LER88030

# The Light company

Houston Lighting & Power

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

June 3, 1988  
ST-HL-AE-2668  
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 88-030 Regarding  
Control Room Ventilation Actuation to Recirculation  
Mode Due to a High HCl Trip on a Toxic Gas Monitor

Pursuant to 10CFR50.73, Houston Lighting & Power Company (HL&P) submits the attached Licensee Event Report (LER No. 88-030) regarding a control room ventilation actuation to recirculation mode due to a high hydrochloric acid (HCl) trip on a toxic gas monitor. 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.

B.E. Vaughn *by [Signature]*  
G. E. Vaughn  
Vice President  
Nuclear Plant Operations

GEV/RSS/lis

Attachment: Licensee Event Report 88-030  
Regarding a Control Room  
Ventilation Actuation to  
Recirculation Mode Due to a High  
HCl Trip on a Toxic Gas Monitor

cc:

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