

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) South Texas, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 9 8	PAGE (3) 1 OF 4
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TITLE (4)  
Control Room Ventilation Actuation to Recirculation Due to a High Ammonia Trip on a Toxic Gas Analyzer

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MO. TH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		
09	21	88	88	054	001	09	21	88	DOCKET NUMBER(S) 0 5 0 0 0		

OPERATING MODE (9) 1

POWER LEVEL (10) 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (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(e)
20.406(a)(1)(ii)	50.36(e)(2)		50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)
20.406(a)(1)(iii)	50.73(a)(2)(i)		50.73(a)(2)(vii)(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)	
20.406(a)(1)(vi)	50.73(a)(2)(iv)		50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Charles A. Ayala - Supervising Licensing Engineer	TELEPHONE NUMBER AREA CODE 5112 91721-81628
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NPDOS	CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NPDOS
X	VIM	QN	F180	No					

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 1918 hours on September 21, 1988, with the plant in Mode 1 (power operation) at approximately 100 percent power, an automatic actuation of the control room ventilation to recirculation mode occurred as a result of a high ammonia trip on one of two toxic gas analyzers. Automatic safety features functioned as designed. Ammonia fumes from a transfer of condensate polishing system waste to a neutralization basin were the most likely cause of the trip, which may have actuated at an actual ammonia concentration which was lower than indicated due to the extreme sensitivity of the instrument in the low range. A request to increase the Technical Specification value for the high level ammonia trip setpoint has been submitted to the NRC.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (if more space is required, use additional NRC Form 305A's) (7)

DESCRIPTION OF OCCURRENCE:

At approximately 1918 hours on September 21, 1988, with Unit 1 in Mode 1 (power operation) at approximately 100 percent power, an automatic actuation of the control room ventilation to recirculation mode occurred as a result of a high level trip of the ammonia channel on one of two toxic gas analyzers (XE-9325). Control room ventilation actuation to recirculation mode is an Engineered Safety Feature (ESF). Control room personnel verified that ESF equipment operated as required and initiated an investigation of the event. The NRC was notified of the event at approximately 2212 hours on September 21, 1988.

At the time of the occurrence, waste from the condensate polishing system was being transferred to the neutralization basin in accordance with approved plant procedures. The neutralization basin is located in the yard area just south of the power block. This is a routine procedure during power operation. Personnel involved with the transfer of this waste noted the presence of ammonia fumes at the neutralization basin. Wind direction data showed that the wind could have carried these fumes to the intake plenum for the control room envelope. Control room personnel did not report any noticeable presence of ammonia.

There were no personnel working on or around the toxic gas analyzers at the time of the occurrence. One analyzer (XE-9325) indicated an ammonia concentration of 6.03 ppm for one sample period. The other analyzer (XE-9326) showed no abnormal ammonia readings, and there were no abnormal readings for the other gases monitored by the analyzers. The indicated concentration of ammonia on analyzer XE-9325 returned to normal level upon the next sample. The actuation setpoint for ammonia is 4.3 ppm and the Technical Specification limit is 5 ppm. On the following day, the monthly surveillance test was successfully performed on analyzer XE-9325. No evidence was found to suggest an analyzer failure.

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, gases or fumes passing through the plenum could be sensed by one analyzer and no longer be present when the other analyzer takes its sample.

Due to the number of different gases monitored and their interaction, the extreme sensitivity of the instruments, and the complexity of the circuitry involved, the actual ammonia concentration could have been less than the 6.03 ppm indicated by analyzer XE-9325. A minute amount of gases or fumes other than those monitored, which interact with the ammonia channel, can make the analyzer unusually sensitive in the low end of the range. While this condition is conservative, it is undesirable when it results in an unnecessary challenge to ESF equipment.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 388A's) (17)

CAUSE OF OCCURRENCE:

The ESF actuation was caused by a momentary high level reading on the ammonia channel of a single toxic gas analyzer. The ammonia fumes being produced at the neutralization basin are the most likely cause of the high level reading. The extreme sensitivity of the toxic gas analyzer at low values may have caused a trip at a concentration below the actual setpoint of the instrument.

ANALYSIS OF EVENT:

There were no adverse radiological or safety consequences as a result of this control room ventilation actuation to recirculation mode since actuated ESF equipment operated as required.

While any unnecessary challenge to an Engineered Safety Feature is undesirable, actuation of the control room ventilation system to recirculation mode represents a minimal hazard since it could not cause, worsen, nor 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:

A revised analysis was performed, and a request to increase the Technical Specification limit for a high level ammonia trip from 5 ppm to 25 ppm was submitted to the NRC on March 8, 1988 (HL&P letter ST-HL-AE-2545). When NRC approval of this change is received, the high ammonia trip setpoint will be increased to prevent further unnecessary ESF actuation due to very low ammonia concentrations.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (if more space is required, use additional NRC Form 388A's) (17)

ADDITIONAL INFORMATION:

On November 12, 1987, a similar event occurred when toxic gas analyzer XE-9326 caused an automatic actuation due to painting activities in the vicinity of the analyzers. This event, described in LER 87-014, resulted in strict controls on painting activities to minimize the possibility of inadvertent actuation.

Several other events involving the toxic gas analyzers have been reported, but have no direct relationship to this occurrence. The plant task force assembled to improve the reliability of the toxic gas analyzers will remain active, and is pursuing other improvements not directly related to this occurrence.

Both toxic gas analyzers are Foxboro Miran 981 units.

# The Light company

Houston Lighting & Power

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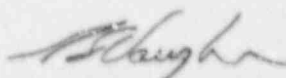
October 18, 1988  
ST-HL-AE-2811  
File No.: G26  
10CFR50.73

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 88-054 Regarding  
Control Room Ventilation Actuation to Recirculation  
Mode Due to a High Ammonia Trip on a Toxic Gas Analyzer

Pursuant to 10CFR50.73, Houston Lighting & Power Company (HL&P) submits the attached Licensee Event Report (LER 88-054) regarding a control room ventilation actuation to recirculation mode due to a high ammonia trip on 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.



G. E. Vaughn  
Vice President  
Nuclear Plant Operations

GEV/RSS/n1

Attachment: LER 88-054

cc:

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