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

January 14, 1993
ST-HL-AE-4309
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 92-009
Missed Technical Specification Required Surveillance
Due to a Faulty Toxic Gas Monitoring System Modem

Pursuant to 10CFR50.73, Houston Lighting & Power (HL&P) submits the attached Licensee Event Report 92-009 regarding a missed Technical Specification required surveillance due to a faulty Toxic Gas Monitoring System modem. This event did not have an adverse effect 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) 972-7921.

W. H. Kinsey, Jr.
Vice President,
Nuclear Generation

JMP/ag

Attachment: LER 92-009 (South Texas, Unit 2)

190013

IE27
1/1

cc:

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Revised 10/11/91

L4/NRC/

NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
South Texas, Unit 2	05000499	1 OF 05

TITLE (4) Missed Technical Specification Required Surveillance Due to a Faulty Toxic Gas Monitoring System Modem

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
										05000
12	17	92	92	009	00	01	14	93	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)					
POWER LEVEL (10)	100	20.402(b)		20.405(c)		50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)	OTHER
		20.405(a)(1)(iii)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (include Area Code)
Charles Ayala - Supervising Licensing Engineer	(512) 972-8628

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On December 17, 1992, Unit 2 was in Mode 1 at 100% power. Plant personnel performed an evaluation which determined that the Emergency Response Facility Data Acquisition Display System (ERFDADS) host monitor had been receiving garbled data from the channel associated with Toxic Gas Monitor XE-9326. This garbled data from Toxic Gas Monitor XE-9326, did not allow the operators to properly fulfill a Technical Specification surveillance which requires that each chemical detection system be demonstrated operable by performance of a channel check once per 12 hours. The cause of this event is due to a faulty modem associated with Toxic Gas Monitor XE-9326. Corrective actions included replacing the faulty modem and verifying that the system was operating properly.

REQUIRED NUMBER OF DIGITS/CHARACTERS
FOR EACH BLOCK

BLOCK NUMBER	NUMBER OF DIGITS/CHARACTERS	TITLE
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 -- FACILITY NAME 8 TOTAL -- DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

DESCRIPTION OF EVENT:

On December 17, 1992, Unit 2 was in Mode 1 at 100% power. Plant personnel performed an evaluation which determined that the Emergency Response Facility Data Acquisition Display System (ERFDADS) host monitor had been receiving garbled data from the channel associated with Toxic Gas Monitor XE-9326. This garbled data from Toxic Gas Monitor XE-9326, did not allow the operators to properly fulfill a Technical Specification surveillance requirement. In accordance with Technical Specification surveillance requirement 4.3.3.7, each chemical detection system shall be demonstrated operable by performance of a channel check once per 12 hours. It was noted by review of historical computer data that the condition had existed for several weeks.

This surveillance requirement is met by performance each shift of the Operator Log procedure. The operators were unable to detect this problem since the system health screen, when the host A monitor was used as master, indicated good data from Toxic Gas Monitor XE-9326. Troubleshooting identified that the Toxic Gas modem was faulty as of October 15, 1992. A review of ERFDADS history revealed that Toxic Gas Monitor XE-9326 will indicate a value of zero while indication from Toxic Gas Monitor XE-9325 will read a non-zero value (usually less than one ppm). Discussions with the system engineer as to the accuracy of the zero readout revealed this value to be adequate due to minor differences in calibration values and the monitors. Since these zero values cannot be distinguished from bad data it is difficult to determine the time when the modem failure occurred.

Work documents had been initiated on September 30, 1992, after it was identified that the host monitor Central Processing Unit (CPU) B would not communicate with the terminals when CPU B was the master. Troubleshooting identified a faulty communications processor board, synchronization board, and controller board. Additionally it was identified that data for Toxic Gas Monitor XE-9326 was displayed as being erroneous. A protocol analyzer was installed on December 10, 1992, to the outputs of Toxic Gas Monitor XE-9326 and it was identified that the data being transmitted was garbled. During this analysis, it was identified that the garbled data appeared to be satisfactory when viewed on the host A monitor and erroneous when viewed on the host B monitor.

DESCRIPTION OF EVENT: (Con't)

On December 11, 1992, troubleshooting of the problem with the garbled data, included replacing the Toxic Gas Monitor XE-9326 modem and verifying the correct version of the software. In addition, a RS-232 circuit board was replaced. On December 12, 1992, a Control Room Air Inlet Toxic Gas Analyzer Analog Channel Operational Test (ACOT) was performed as a post maintenance test on Toxic Gas Monitor XE-9326 with satisfactory results.

CAUSE OF EVENT:

The cause of this event is due to a faulty modem associated with Toxic Gas Monitor XE-9326. Failure of the modem has been attributed to aging. The modem is a non-safety related component. Modem failure is, in most cases, detected by ERFDADS as a loss of communication.

The operators were unable to detect this problem since the system health screen, when the host A monitor was used as master, indicated good data from Toxic Gas Monitor XE-9326. In order to recognize whether or not the values indicated by ERFDADS for Toxic Gas Monitor XE-9326 an accurate analysis would be required of the data at the point of transmission via use of a protocol analyzer or by transmitting the data to a printer so that all fields of data can be viewed.

ANALYSIS OF EVENT:

Failure to meet a Technical Specification required surveillance is reportable pursuant to 10CFR50.73(a)(2)(i)(b). Due to the failure of the modem, operators were not able to meet the requirements of Technical Specification 4.3.3.7, which requires that each chemical detection system be demonstrated operable by performance of a channel check once per 12 hours. The consequences of this event are considered minimal since both toxic gas monitors were operable throughout this event.

ANALYSIS OF EVENT: (Con't)

Currently, the Unit 2 Toxic Gas Monitoring System consists of two Foxboro toxic gas monitors. A modification will be implemented during the Spring, 1993 upcoming Unit 2 third refueling outage (2RE03), which will upgrade the Unit 2 Toxic Gas Monitoring system similar to Unit 1. The Unit 1 Toxic Gas Monitoring System consists of three Extrel (QUESTOR-3) toxic gas monitors. This allows for a two out of three logic for actuation.

CORRECTIVE ACTIONS

1. The faulty modem was replaced and the system was verified to be operating properly.

2. The Operator Log procedure will be changed for Unit 2 to require that operator's logs be taken from the analyzer printer until the Unit 2 toxic gas monitor modification is implemented during the upcoming Unit 2 third refueling outage. This action will be completed by January 25, 1993.

3. The Operator Log procedure will be changed to include a note that informs the operators that the toxic gas monitor indication should vary slightly due to the sensitivity of the monitor. Indication which does not vary should be interpreted as being faulty, thus, warranting further action. This revision will also include the printer as an alternate data collection point which may be used to satisfy the logs. The Unit 1 portion of the procedure will be effective by January 25, 1993 and the Unit 2 portion of the procedure will be effective after the completion of the toxic gas monitor modification.

4. HL&P will perform a Failure Modes and Effects Analysis (FMEA) on the new Toxic Gas Monitoring System to identify problems with the system. One of the purposes of this analysis is to identify a validation process for transmission of data within the Toxic Gas Monitoring System. Corrective actions will be developed as necessary based on the results of the analysis. This analysis will be completed by March 5, 1993.

ADDITIONAL INFORMATION:

The modem is model number 150-0035-0 and is manufactured by the Black Box Corporation.

During the past three years, there have been no similar problems involving a missed surveillance due to a faulty modem in the Toxic Gas Monitoring System.