

## LICENSEE EVENT REPORT (LER)

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

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 (MNR 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.

FACILITY NAME (1)

South Texas Unit 2

DOCKET NUMBER (2)

05000 499

PAGE (3)

1 OF 4

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

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 NAME	DOCKET NUMBER
12	17	92	92	-- 009 --	01	10	11	93	FACILITY NAME	DOCKET NUMBER
										05000
										05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
		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)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		Specify in Abstract below and in Text.	
		20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		NRC form 365A)	
		20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)			

LICENSEE CONTACT FOR THIS LER (12)

NAME

Jairo Pinzon - Senior Engineer

TELEPHONE NUMBER (Include Area Code)

(512) 972-8027

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)	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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.

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TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
South Texas, Unit 2	05000 499	92	-- 009 --	01	2 OF 4

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

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.

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.

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South Texas, Unit 2	05000 499	92	-- 009 --	01	3 OF 4

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

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 local monitor or 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.

Previously, the Unit 2 Toxic Gas Monitoring System consisted of two Foxboro toxic gas monitors. A modification has been implemented which upgraded the Unit 2 Toxic Gas Monitoring system similar to Unit 1. The Unit 1 and 2 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 was temporarily changed for Unit 2 to require that operator's logs be taken from the analyzer printer until the Unit 2 toxic gas monitor modification was implemented.
3. The Operator Log procedure has been 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 also includes the local monitor as an alternate data collection point which may be used to satisfy the logs.

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South Texas, Unit 2	05000 499	92	-- 009 --	01	4 OF 4

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

CORRECTIVE ACTIONS (Cont'd)

4. HL&P has performed 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 was to identify a validation process for transmission of data within the Toxic Gas Monitoring System. The FMEA did not identify any additional technical discrepancies or fault in the design of the control circuit.

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.