

Commonwealth Edison Quad Cities Nuclear Power Station 22710 206 Avenue North Cordova, Illinois 61242 Telephone 309/654-2241

RLB-91-239

October 15, 1991

U. S. Nuclear Regulatory Commission Document Control Desk Washington, DC 20555

Reference: Quad Cities Nuclear Power Station Docket Number 50-254, DPR-29, Unit One

Enclosed is Licensee Event Report (LER) 90-026, Revision 01, for Quad Cities Nuclear Power Station.

Respectfully,

COMMONWEALTH EDISON COMPANY QUAD CITIES NUCLEAR POWER STATION

and 10 A-RIS R. L. Bas

Station Manager

RLS/TB/plm

Enclosure

cc: R. Stols T. Taylor INPO Records Center C Region III

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Pacility Name (1)			1	Docket Number (	2)   Page (3)
Quad Cities Unit One 01 51 01				0 5 0 0 0 0	21 51 4 1 of 0
Control Room Isolation	on High Toxic Gas Concentrat	ion Due To The	EPROM Not	weing Compatib	le With The Software.
Event Date (5)	LER Number (6)	Report Date	(7)	Other Facili	ties Involved (B)
Month Day Year Year	//// Sequential /// Revision //// Number /// Number	Month Day	Year	Facility Names	Docket Number(s)
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	LICENSEE	CONTACT FOR TH	15 LER (1	2)	ter sector to a sector s
Name Mike Harms, Tech Staff	Ext. 2159			AREA CODE	ELEPHONE NUMBER
COM	PLETE ONE LINE FOR EACH COMPON	ENT FAILURE DE	SCRIBED I	N THIS REPORT (	13)
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SUPP	EMENTAL REPORT EXPECTED (14)			Expe	ted  Month   Day   Year
Yes (If yes, complete	EXPECTED SUETISSION DATE)	X   NO		Submi Date	(15)

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

## ABSTRACT:

On December 20, 1990, at 2306 hours, Unit One was in the SHUTDOWN mode at 0 percent power and Unit Two was in the RUN mode at 100 percent of rated core thermal power. Alarm, Control Room Standby HVAC System Major Trouble, annunciated at this time. The Control Room Ventilation system (HVAC) isolated on high chlorine gas concentration. This resulted in a Control Room HVAC Engineered Safety Feature (ESF) actuation. The Instrument Maintenance (IM) Department refilled the chlorine probe with electrolytic solution when it was discovered that the probe had dried out. An Emergency Notification System (ENS) phone notification was completed at 0114 hours on December 21, 1990, as required by 10CFR50.72(b)(2)(ii). On December 22, 1990 at 1800 hours the Control Room Vent Toxic Gas Monitor was declared operable again.

The cause of this event was the Erasable/Programmable Read Only Memory (EPROM) was not compatible with current software.

Initial corrective action was to reduce system air flow as recommended by the manufacturer. The manufacturer completed an inspection of the system, and the Station has updated the EPROM via Minor Design Change PO4-0-91-018 per the manufacturers recommendation.

This report is submitted in accordance with IOCFR50.73 (a)(2)(1v).

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUHBER (6)	Page (3)	
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Qued Cities Unit One	0151010101215	14910 - 01216 - 011	01 2 OF 01 4	

'EXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

## PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2511 MWt rated core thermal power.

EVENT IDENTIFICATION: Control Room Isolation on High Toxic Gas Concentration Due to the EPROM Not Being Compatible With the Software.

A. CONDITIONS PRIOR TO EVENT:

Unit: O	Dne	Event	Date:	December	20,	1990	Event	Time:	2306
Reactor	Mode: 1	Mode	Name :	SHUTDOWN			Power	Level:	00%

This report was initiated by Deviation Report D-4-1-90-146

SPUTDOWN Mode (1) - In this position, a reactor scram is initiated, power to the control rod drives is removed, and the reactor protection trip systems have been deenergized for 10 seconds prior to permissive for manual reset.

# B. DESCRIPTION OF EVENT:

On December 20, 1990, at 2306 hours, Unit One was in Cold Shutdown for a refueling outage and Unit Two was in the Run mode at 100 percent of rated core thermal power. At this time, the Control Room [NA] received alarm [ALM] G12, Control Room Standby HVAC System Major Trouble, on the 912-1 panel [PL]. An operator was dispatched to the B Control Room Ventilation (HVAC) Local Control Panel. At 2350 hours, the operator reported that the Control Room Ventilation System [VI] had isolated on a toxic gas concentration high alarm and was in recirculation. The alarm was immediately reset and toxic gas sample point C was selected for recirculation. Toxic gas concentration readings were taken. The readings were as follows: 0.9 ppm Ammonia; 0.0 ppm Sulfur Dioxide; and 0.0 ppm Chlorine. These readings are below the toxic gas analyzer trip setpoints. At 0114 hours, on December 21, 1990, an Emergency Notification System (ENS) phone call was completed as required by 10CFR50.72(b)(2)(11).

Work request Q89026 was written for the Instrument Maintenance (IM) Department to investigate. The IMs found that the Cl analyzer probe had dried out. The probe was filled with electrolyte solution under procedure QIP 5700-2, Filling Procedure For The Chlorine Analyzer Probe. The probe was recalibrated and returned to service on December 22, 1990 at 1800 hours.

## C. APPARENT CAUSE OF EVENT:

This event is being reported according to 10CFR50.73(a)(2)(iv), which requires that the licensee report any event or condition that resulted in a manual or automatic actuation of any Engineered Safety Feature (ESF).

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBE	LER NUMBER (6)			
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The manufacturer has completed an inspection of the system and recommended upgrading the Erasable/Programmable Read Only Memory (EPROM) to match the current software. The probe tip was found to have dried out and was refilled.

## D. SAFETY ANALYSIS OF EVENT:

The safety consequences of the event are minimal. As per system design, the Control Room HVAC will isolate on high toxic gas concentration. Upon receiving the nigh chlorine concentration spike, the Control Room HVAC isolated as designed. Toxic gas concentrations were taken and verified to be below the trip setpoints.

Sargent & Lundy (S&L) did a study in May of '988 which showed that the possibility of a chlorine toxicity accident was minimal. With this information, the station is pursuing a Technical Specification change to remove the Chlorine and Sulfur Dioxide Analyzer as an ESF actuation.

# E. CORRECTIVE ACTIONS:

Immediate corrective actions were taken under work request Q89026. The IM's found that the Cl analyzer probe had dried out. The probe was filled with electrolyte solution under procedure QIP 5700-2. The analyzer was then recalibrated and returned to service at 1800 hours on December 22, 1990.

As a result of a recommendation from Anacon, the manufacturer of the Chlorine Analyzer, system flow was reduced with the flow control valve (FCV)[FCV]. The manufacturer performed an inspection of the system on January 15, 1991. The results of the inspection revealed that the EPROM was not compatible with the current software. The EPROM was updated via Minor Design Change PO4-O-91-018 and the problem has not returned.

### F. PREVIOUS EVENTS:

In the past five years there have been numerous events associated with the Toxic Gas Analyzers. The following is a list of events caused by the probe itself.

DVR/LER D4-1-87-014	DATE OF OCCURRANCE 1/25/87	DESCRIPTION CR Vent C1 Monitor Inop due to low
D4-1-87-042	5/20/87	electrolyte level. CR Vent Ammonia and Cl Analyzer failures due to corroded
D4-1-87-60 (LER 87-013)	6/29/87 7/09/87 7/14/87	solder joint on probe wire. CR Vent isolation due to Cl Monitor problem due to condensation, physical defects, and sample line contamination problems.

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TEXT Energy Industry :	tification System (EIIS)	codes are identified in the text as [XX]		
D4-1-87-106	1/28/87	CR HVAC C1 and Sulfur dioxide an failure due to unresponsive C1	nalyzer	
D4-1-88-001	1/01/88	CR HVAC C1 and Sulfur dioxide an	n. nalyzer	
D4-1-89-128	12/25/89	CR Vent Isol due to dried	IOW.	

Four of the above events were caused by a dried out chlorine probe which occurred during cold, dry weather.

out 1 probe.

#### COMPONENT FAILURE DATA: G.

(LER 89-26)

The Toxic Gas Monitor is made by Anacon, Inc. Part #: 150002-05 Model Model #: M-17