



Commonwealth Edison

Quad Cities Nuclear Power Station
22710 206 Avenue North
Cordon, Illinois 61242-9740
Telephone 312-54-2241

RLB-91-010

January 21, 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 00, for Quad Cities Nuclear Power Station.

This report is submitted in accordance with the requirements of the Code of Federal Regulations, Title 10, Part 50.73(a)(2)(iv): The licensee shall report any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF).

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD CITIES NUCLEAR POWER STATION

R. L. Bax
R. L. Bax
Station Manager

RLB/MJB/kas

Enclosure

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

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Quad Cities Unit One Docket Number (2) 0 | 5 | 0 | 0 | 0 | 2 | 5 | 4 Page (3) 1 of 0 | 4
 Title (4) Control Room Isolation on High Toxic Gas Concentration. Cause Under Investigation.

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)
1 2	2 0	9 0	9 0	0 2 6	0 0	0 1	2 1	9 1	QUAD CITIES	0 5 0 0 0 2 6 5

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)									
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	X	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 (F...					
		20.405(a)(1)(iii)	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)	in Abstra...					
		20.405(a)(1)(iv)	50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)	below and i...					
		20.405(a)(1)(v)	50.73(a)(2)(iii)		50.73(c)(2)(x)	Text)					

LICENSEE CONTACT FOR THIS LER (12)
 Name: Rachel Hamann, Tech Staff Ext. 2119
 TELEPHONE NUMBER: AREA CODE 3 | 0 | 9 6 | 5 | 4 | - | 2 | 2 | 4 | 1

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS
X	V I	D E T	X 9 9 9	N					

SUPPLEMENTAL REPORT EXPECTED (14)
 Expected Submission Date (15) X | Yes (If yes, complete EXPECTED SUBMISSION DATE) | NO | 0 | 3 | 1 | 5 | 9 | 1

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 the event is unknown at this time. An inspection was completed by the manufacturer and a revised report will be submitted when the results have been received and reviewed.

Initial corrective action was to reduce system air flow as recommended by the manufacturer. The manufacturer completed an inspection of the system, and further corrective actions are in progress.

This report is submitted in accordance with 10CFR50.73 (a)(2)(iv).

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TEXT Energy Industry Identification System (EIS) 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. Cause Under Investigation.

A. CONDITIONS PRIOR TO EVENT:

Unit: One 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

SHUTDOWN 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).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT Energy Industry Identification System (EIS) codes are identified in the text as [XX]

The cause of this event is unknown at this time and is under investigation. The manufacturer has completed an inspection of the system and the inspection results are pending. The probe tip was found to have dried out and was refilled. A revised report will be submitted.

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 high 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 1988 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, once received, will be reviewed. System improvements will be initiated as appropriate. A revised report will be submitted. (NTS 2542009014601)

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.

<u>DVR/LER</u>	<u>DATE OF OCCURRENCE</u>	<u>DESCRIPTION</u>
D4-1-87-014	1/25/87	CR Vent Cl Monitor Inop due to low electrolyte level.
D4-1-87-042	5/20/87	CR Vent Ammonia and Cl Analyzer failures due to corroded solder joint on probe wire.
D4-1-87-60 (LER 87-013)	6/29/87 7/09/87 7/14/87	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 Identification System (EIIS) codes are identified in the text as [XX]

D4-1-87-106	1/28/87	CR HVAC C1 and Sulfur dioxide analyzer failure due to unresponsive C1 detector, and sporadic operation.
D4-1-88-001	1/01/88	CR HVAC C1 and Sulfur dioxide analyzer failure probe seeing too much flow.
D4-1-89-128 (LER 89-26)	12/25/89	CR Vent Isol due to dried out C1 probe.

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

G. COMPONENT FAILURE DATA:

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