

Common Agaith Edison Mad Ches Nucles Tower Station 22730-206 Avenue North Cordova, Illinois 61242-9740 Telephone 309/654-2241

RLB-91-27

January 21, 1991

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

Reference: Quad Cities Nuclear Power Station Docket Number 50-254, DFR-29, Unit One Docket Number 50-265, DFR-30, Unit Two

Enclosed is Licensee Event Report (LER) 90-034, 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 a manual or automatic actuation of any Engineered Safety Feature (ESF).

Respectfully,

COMMONWEALTH EDISON COMPANY QUAD CITIES NUCLEAR POWER STATION

R. L. Bax Station Manager

RLB/MJB/jmt

Enclosure

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

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

ABSTRACT:

On December 23, 1990, Unit One was in the shutdown mode for a refueling outage and Unit Two in the RUN mode at 96 percent of rated core thermal power. At 2055 hours, an Operator reported during his rounds that a high chlorine concentration indication existed. The Control Room Ventilation (HVAC) was manually isolated which is an Engineered Safety Feature (ESF) actuation. At 2330 hours, an Emergency Notification System (ENS) phone call was completed per 10CFR 50.72(b)(2)(ii).

On December 31, 1990, the IM's determined the high concentration reading was actually an instrument error code, and the indicated chlorine concentration had been well below the trip setpoint.

The cause of the event was a manual ESF actuation due to a misinterpretation of the Cl Analyzer indication. The indication was believed to be a high chlorine concentration. It was later discovered that a high chlorine concentration was not present.

It is unknown what caused the alarm which was believed to be a high chlorine concentration. As part of corrective action, the manufacturer was contacted and an inspection of the system was completed. The inspection results are pending. A revised report will be submitted.

This report is submitted in accordance with IOCFR 50.73(a)(2)(iv).

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER_	HBEF	R (6)	Page (3)				
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Quad Cities Unit One	0 5 0 0 0 0 0 2 1	5 4 9 1 0		0 3 4	-	0 0	01 2	OF	01

PLANT AND SYSTEM IDENTIFICATION:

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

EVENT IDENTIFICATION: Manual Isolation Of Control Room HVAC Due To Misinterpretation of the Cl Analyzer Indication.

A. CONDITIONS PRIOR TO EVENT:

Unit: One Event Date: December 23, 1990 Event Time: 2055 Reactor Mode: 1 Mode Name: SHUTDOWN Power Level: 00%

This report was initiated by Deviation Report D-4-1-90-150

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 23, 1990, Unit One was in a refueling outage with the mode switch in the shutdown position. Unit Two was in the RUN mode at 96 percent of rated core thermal power. At 0754 hours, an event (D4-1-90-149, LER 254/90-033) had occurred which caused Reactor Building [NG][VA] and Control Room [NA] Ventilation (HVAC)[VI] to isolate and Standby Gas Treatment (SBGT)[BH] to auto start. Repairs were made to the systems. At 1835 hours, the reactor building ventilation was reset and the fans [FAN] turned back on. At 1900 hours, control room ventilation was reset and toxic gas sample point A was selected. At 2055 hours, the Unit One Equipment Attendant (EA) reported during his operating rounds that a Toxic Gas Chlorine (C1) indication of 2.8 to 3.3 ppm existed. This is above the trip setpoint of the Toxic Gas Analyzer. Control Room HVAC was manually isolated and toxic gas sample point C was selected for the recirculation mode. At 2200 hours, the Instrument Maintenance (IM) Department reported that the Control Room chlorine detector had dried out (a loss of electrolyte solution). At 2330 hours, an Emergency Notification System (ENS) phone call was completed per 10CFR 50.72(b)(2)(ii).

After further investigation, the IM's discovered that the Toxic Gas Chlorine indication of 2.8 to 3.3 ppm was not an actual concentration indication but rather an operational error code. The chlorine gas concentration was measured by the Chemistry Department and found to be well below the trip setpoint.

C. APPARENT CAUSE OF EVENT:

This event is being reported according to IOCFR 50.73(a)(2)(iv) which requires the licensee report any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF).

The cause of the event was a manual ESF isolation of the Control Room HVAC caused by a misinterpretation of the Cl analyzer indication. The operator read the sporadic indication as a high concentration, but the monitor was actually giving an operational error code; therefore, an automatic isolation was not required.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)	Page (3)		
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Quad Cities Unit One	0 5 0 0 0 2 5	490-01314-010			

The cause for the system malfunction 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. The ventilation system will remain in the recirculation mode until all appropriate corrective actions identified from the manufacturer's report are implemented. A revised report will be submitted.

D. SAFETY ANALYSIS OF EVENT:

The safety consequences of this event are minimal. The high toxic gas chlorine concentration read by the operator was actually an operational error code. The measured chlorine concentration was found to be well below the trip setpoint. Therefore, the Control Room Ventilation did not require isolation. The manual isolation of Control Room Ventilation was conservative in nature and represents the proper system alignment had the chlorine concentration exceeded the trip setpoint, which the operator originally believed to be the case. Sargent & Lundy completed a study in May 1988 which showed that the possibility of a chlorine toxicity accident was minimal. With this information, the station is pursuing a Technical Specification revision to remove the Chlorine and Sulfur Dioxide Analyzers as a required Control Room HVAC isolation signal.

E. CORRECTIVE ACTIONS:

The chlorine concentration was measured and found to be below the alarm setpoint. Work request, Q89087, was written to investigate. The Chlorine analyzer probe was filled with solution. The Control Room HVAC is being kept in the recirculation mode to observe the performance of the chlorine analyzer and to perform further investigation.

As recommanded by 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, when received, will be reviewed. System improvements will be initiated as appropriate. A revised report will be submitted. (NTS 2542009015001).

The training lesson plant for the Cl analyzer will be enhanced to include the operational self-checks of the analyzer. (NTS 2542009015002)

F. PREVIOUS EVENTS:

In the past five years there have been numerous events involving the Toxic Gas Analyzers. The following is a list of DVR's and LER's written on the Toxic Gas Analyzer problems:

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 failure due to corroded solder joint on probe wire.
D4-1-87-060	6/29/87	CR Vent Isol due to Cl Monitor problem

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION									
FACILITY NAME (1)		DOCKET NUMBER (2)	LER NUMBER (LER NUMBER (6)					
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TEXT Energy Indu	stry Identifi	cation System (EIIS) cod	es are identified	in the text as	[XX]				
LER 90-13	7/9/87	due to conden	sation, physica) defects,	and				
	7/14/87	sample line c	ontamination pr	oblems					
D4-1-87-106	1/28/87	CR HVAC C1 an unresponsive	d sulfur dioxic Cl detector, ar	le analyzer id sporadic	failure Speratio	due on.	to		
D4-2-88-0001	1/1/88	CR HVAC C1 an probe seeing	d sulfur dioxic too much flew.	le analyzer	failure	due	to		
D4-1-89-128	12/25/89	CR Vent Isol	due to dried ou	ut C1 probe					
LER 89-26									
D4-1-90-146	12/20/90	CR Vent Isol	due to dried of	ut C1 probe					
LER 90-26									

Five 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 #: 15002-05 Model #: M-17

The Toxic Gas Monitor is not NPRDS reportable.

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