

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION

P. O. BOX A

SANATOGA, PENNSYLVANIA 19464

(215) 327-1200 EXT. 2000

M. J. MCCORMICK, JR., P.E.
PLANT MANAGER
LIMERICK GENERATING STATION

October 31, 1989

Docket No. 50-352

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

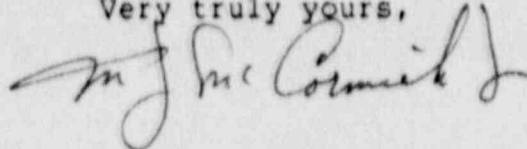
SUBJECT: Licensee Event Report
Limerick Generating Station - Unit 1

This LER was reports an automatic actuation of the Control Room Emergency Fresh Air Supply (CREFAS) system, an Engineering Safety Feature, resulting from a chlorine concentration signal believed to be caused by rainwater contacting a chlorine analyzer probe.

Reference: Docket No. 50-352
Report Number: 1-88-018
Revision Number: 01
Event Date: May 11, 1988
Report Date: October 31, 1989
Facility: Limerick Generating Station
P.O. Box A, Sanatoga, PA 19464

This revised LER is being submitted due to the completion of the modification committed to in the original LER. The original LER was submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(iv). Changes in the revised LER are indicated by revision bar markers in the right hand margin.

Very truly yours,



JKP:sc

cc: W. T. Russell, Administrator, Region I, USNRC
T. J. Kenny, USNRC Senior Resident Inspector

8911090098 881031
FDR AD0CK 05000352
S PDC



LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) **Limerick Generating Station, Unit 1** DOCKET NUMBER (2) **0 5 1 0 0 0 0 3 5 2 1 0 1 4** PAGE (3) **1**

TITLE (4) **Control Room HVAC Isolation Resulting from a High Chlorine concentration Signal caused by rainwater contacting an analyzer Probe**

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)
05	11	1988	1988	0118	01	10	03	1988			0 5 1 0 0 0 0 1 1
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)											

OPERATING MODE (9) 1	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.406(a)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 72.71(b)
POWER LEVEL (10) 0 9 0	<input type="checkbox"/> 20.406(a)(1)(ii)	<input type="checkbox"/> 50.38(a)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 72.71(c)
	<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 50.38(a)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 306A)
	<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)	
	<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)	
	<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(vi)	

LICENSEE CONTACT FOR THIS LER (12)

NAME **Carl R. Endriss, Regulatory Engineer, Limerick Generating Station** TELEPHONE NUMBER **2 1 5 3 2 7 - 1 2 0 0**

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) NO

EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR

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

On May 11, 1988 at 1448 hours, the main control room ventilation system isolated due to a 'C' channel high chlorine concentration signal. The 'A' train of the Control Room Emergency Fresh Air Supply (CREFAS) system, an Engineered Safety Feature, initiated as designed. The event occurred during rainy and windy weather conditions and the high chlorine concentration signal is believed to have been caused by rainwater coming in contact with the chlorine analyzer probe resulting in a chemical imbalance in the probe's electrolyte. The analyzer probes are located close to the outside air intake plenum. After the 'C' channel chlorine indicator spiked, the control room operators implemented Special Event Procedure SE-2 (Toxic Gas Procedure). A channel check of the 'A', 'B' and 'D' chlorine detectors was performed by Operations personnel and verified to be normal. Following the spike all chlorine channels indicated normal levels (less than 0.1 ppm). The isolation was reset at 1552 hours. The duration of the Control Room isolation was 1 hour 4 minutes. There was no chlorine intake to the control room. There was no release of radioactive material to the environment as a result of this event. A modification to move the chlorine detector probes was implemented by August 28, 1988 to mitigate false, environmentally related, automatic control room ventilation system isolations. A second modification to change the chlorine detection system logic from a "one-out-of-one-once" to a "two-out-of-two-once" configuration was completed on September 7, 1989.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Limerick Generating Station, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 5 2 8 8	LER NUMBER (3)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 8	0 1 1 8	0 1	0 2	OF 0 4

TEXT IF MORE SPACE IS REQUIRED. USE additional NRC Form 366A's (17)

Unit Conditions Prior to the Event:

Operating Mode 1 (Power Operation)

Reactor Power 90%

Description of the Event:

On May 11, 1988 at 1448 hours, the main control room ventilation system isolated due to a 'C' channel high chlorine concentration signal.

The 'A' train of the Control Room Emergency Fresh Air Supply (CREFAS) system, an Engineered Safety Feature, started as designed when the 'C' channel chlorine analyzer spiked to approximately 0.50 ppm for approximately 60 seconds. After the isolation control room operators implemented Special Event Procedure SE-2 (Toxic Gas Procedure). A channel check of the 'A', 'B' and 'D' chlorine detectors was performed by Operations personnel and verified to be normal. Instrumentation and Controls (I&C) was notified to inspect the chlorine detection system to determine the cause of the isolation signal. The isolation was reset and normal control room ventilation was restored by 1552 hours. The duration of the Control Room isolation was 1 hour and 4 minutes.

Consequences of the Event:

Normal control room ventilation system tripped and isolated. The 'A' train of the CREFAS responded as designed. The 'B' train of the CPEFAS was in standby and available for operation. There was no chlorine intake to the main control room. If actual chlorine was detected, the chlorine detection system was available and would have responded as designed. There was no release of radioactive material to the environment as a result of this event.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (3)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Limerick Generating Station Unit 1	05000352	88	018	010	3	04

TEXT (if more space is required, use additional NRC Form 266A 2/17)

Cause of the Event:

The cause of the main control room ventilation system isolation and initiation of the 'A' train of CREFAS is believed to have been caused by rainwater coming in contact with the 'C' chlorine analyzer probe during rainy and windy weather conditions. This caused a chemical imbalance in the probe's electrolyte which simulated a high chlorine condition. The probe is located approximately one foot away from the outside air intake louvers of the Control Enclosure intake plenum.

Corrective Actions:

Control room personnel implemented Special Event Procedure SE-2 (Toxic Gas Procedure) immediately following the isolation until the signal was confirmed as false. Following the spike Operations personnel verified that all four chlorine detector channels ('A', 'B', 'C' and 'D') indicated chlorine concentration levels below the alarm setpoint. The main control room ventilation system isolation was reset at 1552 hours and normal control room ventilation restored.

Actions Taken to Prevent Recurrence:

Two modifications to CREFAS were implemented to prevent spurious isolations of the Main Control Room (MCR) ventilation system. The first modification consisted of moving the analyzer probes away from the outside air louvers. This new location provides better protection for the analyzer probes from rainwater and dirt. Since the implementation of this modification on August 28, 1988, there have been no spurious environmentally related chlorine detection system isolation of the MCR ventilation system. The second modification changed the chlorine detection system logic from a "one out of one taken once" to a "two out of two taken once" configuration. With this change, a single spurious chlorine isolation channel signal will not result in a MCR ventilation system isolation. This modification will prevent any spurious environmentally related chlorine detection system isolations of the MCR due to a single false isolation signal or a single probe malfunction. This modification was completed on September 7, 1989.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Limerick Generating Station, Unit 1	DOCKET NUMBER (2) 0 1 5 0 0 0 3 5 2	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 8	0 1 8	0 1	0 4	OF 0 4

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

Previous Similar Occurrences:

Limerick LERS 86-46, 87-03, 87-06, 87-09, 87-051 and 88-014 reported CREFAS actuations resulting from a false 'C' or 'D' channel high chlorine concentration signal during rainy weather conditions.

Tracking Codes: (C) External Cause

(B99) Design Deficiency