

LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) LaSalle County Station Unit 1
 Docket Number (2) 0 | 5 | 0 | 0 | 0 | 3 | 7 | 3
 Page (3) 1 | of | 0 | 4

Title (4)
 Spurious Ammonia Detector Trip Due to Design Deficiency in the Chemcassette Tape Mechanism

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)
0 9	2 6	8 8	8 8	0 2 0	0 0	1 0	2 1	8 8	LaSalle Unit 2	0 5 0 0 0 3 7 4

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 9 9	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> Other (Specify in Abstract below and in Text)
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

Name: George A. Roumeliotis, Technical Staff Engineer, extension 640
 TELEPHONE NUMBER: AREA CODE 8 | 1 | 5 | 3 | 5 | 7 | - | 6 | 7 | 6 | 1

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
B	V	I	D	E					

SUPPLEMENTAL REPORT EXPECTED (14)

Expected Submission Date (15) _____

Yes (If yes, complete EXPECTED SUBMISSION DATE) NO

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

At 0945 hours on September 26, 1988 with Unit 1 and 2 in Operational Condition 1 (Run) at 99% and 67% power, respectively, the "B" Control Room HVAC System (VC) "A" ammonia detector (OXY-VC165A) tripped. Per design, an Engineered Safety Feature (ESF) damper actuation occurred which isolated the "B" VC system from outside air and placed the "odor eater" (charcoal adsorber) in operation.

The consequences of this event were minimal since the "B" VC system responded to ESF actuation per design.

The Instrument Maintenance Department investigated the event and found that the chemcassette tape was not moving. The chemcassette tape, Rena pump, panel meter, photocell board, fiber optics optics block and capstan rubber roller were replaced. Proper movement of the chemcassette in the detector was verified, and the detector was declared operable at 1045 hours on September 30, 1988.

The root cause of this event is a design deficiency in the chemcassette tape mechanism. A Technical Specification amendment request has been submitted that would allow removal of these detectors if approved.

This event is reportable pursuant to the requirements of 10CFR50.73(a)(2)(iv) due to the actuation of an ESF system.

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

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor

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

A. CONDITION PRIOR TO EVENT

Unit(s): 1/2 Event Date: 9/26/88 Event Time: 0945 Hours

Reactor Mode(s): 1/1 Mode(s) Name: Run/Run Power Level(s): 99%/67%

B. DESCRIPTION OF EVENT

At 0945 hours on September 26, 1988 with Unit 1 and 2 in Operational Condition 1 (Run) at 99% and 67% power, respectively, the "B" Control Room HVAC System (VC) [VI] "A" ammonia detector (OXY-VC165A) tripped. Per design, an Engineered Safety Feature (ESF) damper actuation occurred which isolated the "B" VC system from outside air (minimum outside dampers, OVC52YB and OVC05YB, closed) and placed the "odor eater" (charcoal adsorber) in operation (inlet and outlet dampers, OVC11YB and OVC12YB, opened and the adsorber's bypass damper, OVC13YB, closed).

The "A" detector (OXY-VC165A) of "B" Control Room HVAC system was declared inoperable per Technical Specification 3.3.7.8 and an entry was made in the Corroded Equipment Log (#525-88-1 and #468-88-2).

The "B" VC train was in operation during this event. No other systems or components were inoperable at the beginning of the event which contributed to this event.

This event is reportable pursuant to the requirements of 10CFR50.73(a)(2)(iv) due to the actuation of an ESF system.

C. APPARENT CAUSE OF EVENT

The Instrument Maintenance Department investigated the tripped ammonia detector. They found that the "A" ammonia detector (OXY-VC165A) in the "B" VC air intake had a jammed chemcassette tape, causing this detector to seal in its alarm and ESF actions.

The chemcassette consists of a reel of chemically treated paper which darkens when exposed to ammonia gas. Normally, this tape is spooled past an air sample line where it darkens according to the ammonia concentration in the sample. Optical equipment compares the exposed tape portion to an unexposed section of the tape and generates an electric signal corresponding to the darkness of the exposed tape. When the signal reaches the detector's setpoint (25 ppm ammonia), the detector alarms and initiates the ESF functions described above.

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C. APPARENT CAUSE OF EVENT (Continued)

The chemcassette tape jammed in such a manner that a piece of tape came to rest in front of the sample line and impurities in the sample caused the tape to darken to the point that the detector tripped on a perceived high ammonia concentration.

Due to the number of previous chemcassette tape failures, the root cause of this event has been determined to be a design deficiency in the chemcassette tape mechanism.

D. SAFETY ANALYSIS OF EVENT

The consequences of this event were minimal since the "B" VC system responded to the ESF actuation per design. The detector actuation resulted in an ESF actuation which placed the "odor eater" (charcoal adsorber) in operation and the minimum or side air isolation dampers closed. This event would not have been worse under other conditions because the system entered the safety mode as a result of the failure. The "B" VC system remained in the recirculation (safety) mode of operation until the ammonia detector returned to service. The non-operating "A" VC train was available. The ammonia detector chemcassette tape mechanism was repaired and restored to service within seven days thus meeting all operational requirements of Technical Specification 3.3.7.8.

E. CORRECTIVE ACTIONS

As part of the maintenance program the rena pump, panel meter, photocell board, fiber optics, optics block and capstan rubber roller were replaced with identical units from MDA Scientific Company. The chemcassette was replaced in accordance with LaSalle Instrument Surveillance, LIS-PM-940, "Routine Change of Control room HVAC Ammonia Detector Cassettes." The applicable portions of LIS-VC-053, "Control Room HVAC System Ammonia Detector Functional Test," were performed satisfactorily and the ammonia detector (OXY-VC165A) was returned to service at 1045 hours on September 30, 1988.

A preventative maintenance program is presently in place to maximize the performance of the ammonia detectors. This program consists of inspecting and cleaning (all moving parts) of the ammonia detectors on an annual basis.

A preliminary conceptual design work in the form of a modification management report for the Ammonia Detection System - Logic Change, has been completed. The modified logic would require an additional subsystem to each train, to modify the Ammonia Detection System from a one-out-of-two to two-out-of-three logic. The reason for this modification is to minimize spurious actuation signals from the Ammonia Detection System.

A Technical Specification amendment request has been submitted that would allow removal of these detectors if approved.

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F. PREVIOUS EVENTS

LER Number	Title
373/88-017-00	Spurious Ammonia Detection Trip Due to Design Deficiency in the Chemcassette Tape Mechanism
373/88-010-00	Spurious Ammonia Detection Trip Due to Design Deficiency in the Chemcassette Tape Mechanism
373/87-036-00	Spurious Ammonia Detection Trip Due to Design Deficiency in the Chemcassette Tape Mechanism
373/87-028-00	Spurious Ammonia Detection Trip Due to Design Deficiency in the Chemcassette Tape Mechanism
373/87-024-00	Spurious Ammonia Detection Trip Due to Design Deficiency in the Chemcassette Tape Mechanism
373/87-018-00	Spurious Ammonia Detection Trip Due to Design Deficiency in the Chemcassette Tape Mechanism
373/87-012-00	Spurious Ammonia Detector Trip Due to Broken Chemcassette Tape
373/87-004-00	Jammed Chemcassette Tape in Ammonia Detector Causes LSF Actuation
373/86-027-00	Spurious Ammonia Detector Trip Due to Broken Chemcassette Tape
373/86-018-00	Spurious Ammonia Detector Trip Due to Broken Chemcassette Tape
373/86-014-00	Spurious Ammonia Detector Trip Due to Broken Chemcassette Tape
373/86-004-00	Spurious Ammonia Detector Trip Due to Broken Chemcassette Tape
373/85-050-00	Spurious Ammonia Detector Trip Due to Broken Chemcassette Tape
373/85-038-00	Spurious Ammonia Detector Trip Due to Broken Chemcassette Tape
373/85-091-00	Spurious Ammonia Detector Trip Due to Broken Chemcassette Tape
373/84-078-00	Spurious Ammonia Detector Trip Due to Broken Chemcassette Tape
373/84-066-00	Spurious Ammonia Detector Trip Due to Broken Chemcassette Tape
373/82-060-03L	Spurious Ammonia Detector Trip Due to Broken Chemcassette Tape
373/82-157-03L	Spurious Ammonia Detector Trip Due to Broken Chemcassette Tape

G. COMPONENT FAILURE DATA

Manufacturer	Nomenclature	Model Number	MFG Part Number
MDA Scientific Company	Chemcassette	7060-FAN	706004
MDA Scientific Company	Diaphragm Rena Pump	7060-FAN	700083
MDA Scientific Company	Capstan, Rubber Roller	7060-FAN	700121
MDA Scientific Company	Photocell Board	7060-FAN	744306
MDA Scientific Company	Panel Meter	7060-FAN	706101
MDA Scientific Company	Fiber Optics	7060-FAN	744106
MDA Scientific Company	Optics Block	7060-FAN	744001



Commonwealth Edison
LaSalle County Nuclear Station
Rural Route #1, Box 220
Marseilles, Illinois 61341
Telephone 815/357-6761

October 21, 1988

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Dear Sir:

Licensee Event Report #88-020-00, Docket #050-373 is being submitted to your office in accordance with 10CFR50.73(a)(2)(iv).

WRD
for G. J. Diederich
Station Manager
LaSalle County Station

GJD/GAR/kg

Enclosure

xc: Nuclear Licensing Administrator
NRC Resident Inspector
NRC Region III Administrator
INPO - Records Center

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