Commonwealth Edison
LaSalle County Nuclear Station
2601 N. 21st. Rd.
Marseilles, Illinois 61341
Telephone 815/357-6761

May 6, 1993

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

Dear Sir:

Licensee Event Report #92-007-01, Docket #050-373 is being submitted to your office in accordance with 10CFR50.73(a)(2)(iv).

Gary Spedl

G. F. Spedl
Station Manager
LaSalle County Station

GFS/PAS/lja

Enclosure

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

110007

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

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

Title (4)

Spurious Auto Start Of Control Room Ventilation Emergency Make-up Train Due To High Radiation Spike

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

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)			
		___ 20.402(b)	___ 20.405(c)	X 50.73(a)(2)(iv)	___ 73.71(b)
POWER LEVEL (10)	9 8 %	___ 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 (Specify
		___ 20.405(a)(1)(iii)	___ 50.73(a)(2)(i)	___ 50.73(a)(2)(viii)(A)	in Abstract
		___ 20.405(a)(1)(iv)	___ 50.73(a)(2)(ii)	___ 50.73(a)(2)(viii)(B)	below and in
		___ 20.405(a)(1)(v)	___ 50.73(a)(2)(iii)	___ 50.73(a)(2)(x)	Text)

LICENSEE CONTACT FOR THIS LER (12)

Name	TELEPHONE NUMBER
	AREA CODE
Joseph Sparacino, Technical Staff Engineer, Extension 2421	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	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS
B	I L								

SUPPLEMENTAL REPORT EXPECTED (14)

		Expected Submission Date (15)	Month	Day	Year
X	Yes (If yes, complete EXPECTED SUBMISSION DATE)	___ NO	1 0	0 1	9 2

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

On May 31, 1992 at approximately 1930 hours, Units 1 and 2 were in Operational Condition 1 (Run) at 98 percent power. At that time a Control Room Ventilation (VC) [VI] Intake High Radiation spike was received on the 2D18-K751A Process Radiation Monitor (PR) [IL]. This High Radiation spike caused the 'B' VC Emergency Makeup Train to auto-start. Upon investigation and verification that the High Radiation indication was false, the High Radiation signal was cleared and the Emergency Make-up Train was shutdown.

The apparent cause of the initiation of the Emergency Makeup Train was due to the High Radiation spurious spike that was given off by the "A" Radiation Detector. The cause of the spurious spike is due to normal variations in background radiation.

The safety consequences of this event were minimal because the Emergency Make-up Train did initiate when the High Radiation spike occurred. That is the correct action for this system.

To correct this spurious high radiation spiking problem, the radiation monitor will be modified per the vendors suggestion.

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 Event Date: 5/31/92 Event Time: 1930 Hours

Reactor Mode(s): 1 Mode(s) Name: Run Power Level(s): 98%

B. DESCRIPTION OF EVENT

On May 31, 1992 at approximately 1930 hours, Units 1 and 2 were in Operational Condition 1 (Run) at 98 percent power. At that time a Control Room Ventilation (VC) [VI] Intake High Radiation spike was received on the 2D18-K751A Process Radiation Monitor (PRM, PR) [IL]. This High Radiation spike caused the 'B' VC Emergency Makeup Train to auto-start. Upon investigation and verification that the High Radiation indication was false, the High Radiation signal was cleared and the Emergency Make-up Train was shutdown. The Emergency Make-up Train was then taken out-of-service for work on the PRM's starting on the first shift of June 1.

This is reportable pursuant to 10CFR50.73(a)(2)(iv) due to the automatic initiation of an Engineered Safety Feature (ESF).

C. APPARENT CAUSE OF EVENT

The apparent cause of the initiation of the Emergency Makeup Train was due to the High Radiation spurious spike that was given off by the "A" Radiation Detector. The cause of the spurious spike is due to normal variations in background radiation readings.

D. SAFETY ANALYSIS OF EVENT

The safety consequences of this event were minimal because the Emergency Make-up Train did initiate when the High Radiation spike occurred. That is the correct action for this system.

E. CORRECTIVE ACTIONS

Many solutions were attempted to try to correct the High Radiation spikes. All of the detectors were taken apart, cleaned and inspected. The connections and housing were cleaned, inspected and put back together. Chart recorders were connected to the detector signals and observed for spike signals. After all of this work was done, the High Radiation spikes continued. The calibration procedures, LaSalle Instrument Surveillance LIS-AR-105A, B, C, D, and LIS-AR-205A, B, C, D "Unit 1/2 Main Control Room Radiation Monitor Channel A, B, C, D Refuel Calibration", were reviewed and were found to be calculating the background Radiation incorrectly.

E. CORRECTIVE ACTIONS (CONTINUED)

The background calculation was too conservative, and this caused the detector to be too sensitive. The procedure was revised and the detectors were recalibrated. The correct calibration data helped to cut down the number of alarms that were created from the High Radiation spikes, but the problem still existed.

To correct this problem a Root Cause Investigatvie Team was formed. To assist with this solution to this problem, a Senior Design Engineer from the manufacturer was on site during the week of October 5, 1992 and at that time a proposal was made to modify the electronics of the radiation monitors and detectors. This modification took place between March 10 and March 17, 1993 on all eight of the Control Room Ventilation Radiation Monitor Assemblies, (both A and B trains). The change to each of the radiation monitors consisted of replacing four of the existing capacitors with new capacitors of a different capacitance. There were many changes resulting from the capacitance change. The most important of which was the change in the way in which the monitor reads the signals from the radiation detector. The response time of the monitor was increased thus allowing the circuit to monitor a smoother waveform. This should prevent the spurious spikes from occurring because the monitor will not allow the quick instantaneous spike to occur. Another capacitance change was done to the circuit which prevents an initiation signal to be sent out from the monitor while it is in the check source mode. The dead time is the time delay that prevents an initiation signal from being sent out after the monitor is taken out of the check mode. This dead time has been increased because of the previous change. Because the reponse time for the monitor has been increased, it means that it will also take longer for the levels to decrease after the monitor has been taken out of the check mode. The last change that was made to the monitor was to increase the malfunction trip delay time. This is the time in which the monitor must see some sort of background radiation level. If no background radiation can be detected within that time frame, then the monitor will extinguish its (green) operate light to warn the user that maybe something is wrong.

The changes to the radiation detectors have not taken place as of yet, but will be accomplished as soon as the weather permits. This is due to the fact that the detectors are located on top of the Auxiliary Building Roof inside of sealed boxes. The detectors are very susceptible to moisture. These changes will include a new Geiger-Mueller (G-M) tube and bracket, and two new resistors will be replaced because of the new G-M tube.

The performance of the radiation monitors has already shown improvements.

F. PREVIOUS EVENTS

LER Number	Title
373/91-010-00	Spurious Auto Start Of Control Room Ventilation Emergency Makeup Train Due To High Radiation Spike
373/91-008-00	Spurious Auto Start Of Control Room Ventilation Emergency Makeup Train
373/88-016-00	Auto Start Of Control Room Ventilation EMU Train Due To Spurious Spike Of The Intake Rad Monitor

F. PREVIOUS EVENTS CONTINUED

LER Number	Title
373/87-034-00	Auto Start Of "A" VC EMU On Spurious Rad Spike
373/86-025-00	Spurious Trip Of Control Room Ventilation Hi Radiation Monitor
373/86-021-00	Control Room Ventilation Actuation Due To Spurious Rad Monitor Trip

G. COMPONENT FAILURE DATA

There were no component failures.