



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

October 16, 1992

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

Dear Sir:

Licensee Event Report #92-013-00, Docket #050-374 is being submitted to your office in accordance with 50.73(a)(2)(v).

G. J. Diederich
Station Manager
LaSalle County Station

GJD/MMT/mkl

Enclosure

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

190067

9210200280 921016
PDR ADDCK 05000374
S PDR

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) LaSalle County Station Unit 2
 Title (4) Reactor Core Isolation Cooling System Spurious Initiation During LIS-LC-403 Due To A Pressure Spike
 Docket Number (2) 0 | 5 | 0 | 0 | 0 | 3 | 7 | 4
 Page (3) 1 | of | 0 | 5

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	17	9	2	9	2	0	1	3	0	0	1	0	1	6	9	2	0	5	0	0	0	1	1
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			6			20.402(b)			20.405(c)			50.73(a)(2)(iv)			73.71(b)			
												20.405(a)(1)(i)			50.36(c)(1)			X 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: Michael Tennyson, Technical Staff Engineer, Extension 2421
 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	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS
B	B	N	V	N					

SUPPLEMENTAL REPORT EXPECTED (14)

Expected Submission Date (15) X | NO
 Yes (If yes, complete EXPECTED SUBMISSION DATE)

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

On September 17, 1992 Unit 2 was in Operational Condition 1 (Run), at 96% power. At 0556 hours the Reactor Core Isolation Cooling System (RCIC) initiated resulting in a vessel injection for approximately twenty (20) seconds. The RCIC System initiation occurred while Technicians from the Instrument Maintenance Department were performing LaSalle Instrument Surveillance, LIS-LC-403, "Unit 2 MSIV Leakage Control Inboard Reactor Vessel Pressure Functional Test." As the Technician was slowly opening the instrument stop valve, a pressure transient "spiked" the adjoining rack 2H22-P026 (Reactor Pressure and Level Panel), and the system was initiated.

At the time of this incident the High Pressure Core Spray (HPCS) System and the other Emergency Core Cooling Systems (ECCS) were fully operable.

Operating verified that the RCIC initiation was inadvertent. The Normal-Bypass Turbine Trip Switches were placed in the Bypass position and the RCIC System was subsequently shutdown following the initiation.

An evaluation on the cause of the instrument stop valve failure indicated that installation of an anti-surge valve, along with some type of delay or dampening to the Rosemount Reactor Vessel Low Water Level Transmitter output would assist in preventing or possibly eliminate RCIC initiations during the instrument surveillances.

This event is reported to the Nuclear Regulatory Commission as a Licensee Event Report in accordance with 10CFR50.73(a)(2)(v) due to RCIC being declared inoperable following the event. (Loss of a safety system function).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION											Form Rev 2.0
FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)			
		Year	///	Sequential Number	///	Revision Number					
LaSalle County Station Unit 2	0 5 0 0 0 3 7 4	9 2	-	0 1 3	-	0 0	0 2	OF	0 5		
TEXT Energy Industry Identification System (EIIIS) codes are identified in the text as [XX]											

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor

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

A. CONDITION PRIOR TO EVENT

Unit(s): 2 Event Date: 09/17/92 Event Time: 0556 Hours

Reactor Mode(s): 1 Mode(s) Name: Run Power Level(s): 96%

B. DESCRIPTION OF EVENT

On September 17, 1992 Unit 2 was in Operational Condition 1 (Run), at 96% power. At 0556 hours, the Reactor Core Isolation Cooling (RCIC, RI) [BN] System initiated resulting in a vessel injection for approximately twenty (20) seconds. The RCIC System initiation occurred while Control System Technicians (CST) from the Instrument Maintenance Department were performing LaSalle Instrument Surveillance, LIS-LC-403, "Unit 2 MSIV Leakage Control Inboard Reactor Vessel Pressure Functional Test".

LIS-LC-403 is a functional test that is performed monthly for Pressure Transmitters PT-2E32-N050 and PT-2E32-N060. Following satisfactory testing of PT-2E32-N060, the Technicians were in the process of completing the surveillance by returning Pressure Transmitter PT-2E32-N060 to service when a Control Room alarm for low water level 2 (-50") occurred and the RCIC System initiated at 0556 hours on September 17, 1992.

The Nuclear Station Operator (NSO) in the Control Room acknowledged the RCIC Running Alarm, verified normal water level, moved the RCIC Normal-Bypass Turbine Trip Switches 2E51-S45A and 2E51-S45B to the Bypass position. RCIC had injected into the vessel for approximately 20 seconds before it was secured.

The RCIC System was shutdown in accordance with LaSalle Operating Abnormal Procedure, LOA-1(2)H13-P601-D406, "RCIC Running". The Instrument Maintenance Technicians were contacted and notified of the situation.

Previous RCIC initiations and subsequent vessel injections have occurred on Unit 1 on July 24, 1991 and June 22 1992. Procedure revisions to LIS-LC-303/403 were completed by the Instrument Maintenance Department, calling for careful attention to the stop valves due to "pressure spikes" while returning the pressure transmitters to service. These were completed on August 12, 1992.

This event is reported to the Nuclear Regulatory Commission as a Licensee Event Report in accordance with 10CFR50.73(a)(2)(v) due to RCIC being declared inoperable following the event. (loss of a safety system function).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION												Form Rev 2.0				
FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)								
		Year	Sequential Number	Revision Number												
LaSalle County Station Unit 2	0151010103714	9	2	-	0	1	3	-	0	1	0	0	3	OF	0	5
TEXT Energy Industry Identification System (EIIIS) codes are identified in the text as [XX]																

C. APPARENT CAUSE OF EVENT

The RCIC initiation occurred during return to service of the Pressure Transmitter PT-2E32-N060. While the Technician was slowly opening the stop valve that returns PT-2E32-N060 to service, a pressure transient "spiked" the adjoining rack 2H22-P026 (Reactor Pressure and Level Panel). The pressure spike tripped Division 2 Reactor Vessel Low Water Level Instruments and this caused the low water level 2 signal that initiated the RCIC System.

According to the Sequence of Events Recorder (SER), the Low Water Level Alarm Signal actuated twice. The first signal was 30 milliseconds in duration, and the second signal 40 milliseconds. The Rosemount Transmitters and Trip Units that actuate during a Reactor Vessel Low Water Level have a response time range between 10 and 30 milliseconds in this application.

The root cause investigation determined that the pressure spike which came from manipulating the instrument's stop valve and the response time of the Rosemount Switches are the exact cause for the initiation. The stop valve for PT-2E32-N060 caused two pressure spike transients of 30 and 40 milliseconds while it was being opened.

The Rosemount Transmitter and Trip Units that monitor reactor vessel low water level actuate for all signals with a duration of greater than 10 to 30 milliseconds. The pressure spike transient that occurred while Pressure Transmitter, PT-2E32-N060, was being returned to service, was enough to actuate the circuitry for the RCIC System initiation.

D. SAFETY ANALYSIS OF EVENT

The consequences of this event were minimal, the RCIC System ran for approximately one minute during the initiation. The RCIC Injection Inboard and Outboard Testable Check Valves 2E51-F066 and 2E51-F065 were opened for 20 seconds. The estimated injection time was 20 seconds and the total estimated flow into the vessel was 200 gallons.

There is a four minute time delay after a RCIC initiation before a trip of the Main Turbine and Turbine Driven Feedwater Pumps occurs. The time delay provides the Nuclear Station Operator the time necessary to verify proper Reactor Vessel level. The RCIC System was shutdown after it was determined that the initiation was inadvertent and Reactor Vessel level was satisfactory.

At the time of this incident the High Pressure Core Spray (HPCS) System and the other Emergency Core Cooling Systems (ECCS) were fully operable.

E. CORRECTIVE ACTIONS

Operating verified that the RCIC initiation was inadvertent. The RCIC Normal-Bypass Turbine Trip Switches 2E51-S45A and 2E51-S45B were placed in the Bypass position. The RCIC System was subsequently shutdown in accordance with LOA-1(2)H13-P601-D406 following the initiation.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION												Form Rev 2.0	
FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)					
		Year	Sequential Number	Revision Number									
LaSalle County Station Unit 2	0 5 0 0 0 3 7 4	9 2	-	0 1 3	-	0 1	V	0 4	OF	0 5			
TEXT Energy Industry Identification System (EIS) codes are identified in the text as [XX]													

E. CORRECTIVE ACTIONS CONTINUED

After the June 22, 1992 RCIC initiation that occurred while LIS-LC-303 was being performed, the Instrument Maintenance Department completed the following:

- The duties for performance of LIS-LC-303/403 were transferred to Control System Technicians (CST).
- Instrument Maintenance Department Personnel were cautioned about the opening of the Pressure Transmitter Stop Valve and its potential for causing a RCIC initiation.
- LIS-LC-303/403 were revised to include written communications involving the possibility of pressure spikes while the surveillance is being performed.

An evaluation on the cause of the stop valve failure at PT-1E32-N050 was performed. The results indicated that installation of an anti-surge valve, along with some type of delay or dampening to the Rosemount Reactor Vessel Low Water Level Transmitters would assist in preventing or possibly eliminating RCIC initiations during the instrument surveillance.

Work requests L16413 and L16414 are replacing the instrument stop valves at Pressure Transmitters 1E32-N050 and 1E32-N060. The valves will be replaced with anti-surge valves. Action Item Record (AIR) 373-200-91-08301 is tracking replacement of the anti-surge valves. Action Item Record (AIR) 374-180-92-06901 will track replacement of the Unit 2 valves.

The delay or dampening of the Reactor Vessel Low Water Level Signal is presently being considered. Action Item Record (AIR) 374-200-90-06501 will track this evaluation. This evaluation was in progress at the time of this event and was initiated from previous problems encountered during Main Turbine Trips. The Main Turbine Trip caused a similar situation in that a pressure spike was induced from the Main Turbine Stop Valves closing, which then propagated back to the Reactor Pressure Vessel. The resulting "pressure ringing" also caused a RCIC System initiation. See Section F, "Previous Events", below for more information.

LaSalle Instrument Surveillance, LIS-LC-203, "Unit 2 MSIV Leakage Control Inboard Reactor Vessel Pressure Calibration", and LIS-LC-403, "Unit 2 MSIV Leakage Control Inboard Reactor Vessel Pressure Functional Test" have been revised to bypass the RCIC initiation, ECCS Actuation Instrumentation, and MSIV Leakage Control System Instrumentation during the performance of the surveillance. This mechanism will remain in place until the output of the RCIC initiation signal from Reactor Water Level Instruments is acceptably dampened or delayed. AIR 374-180-92-06902 will track completion of unit 2 actions in this area.

F. PREVIOUS EVENTS

LER Number	Title
374/90-010-00	Reactor Scram On Generator Lockout During Surveillance Testing due To Short To Ground On B Phase Current Transformer In The 2E Main Power Transformer

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)						Page (3)				
		Year	///	Sequential Number	///	Revision Number						
LaSalle County Station Unit 2	0 5 0 0 0 3 7 4	9 2	-	0 1 3	-	0 0	0 5	OF	0 5			
TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]												

F. PREVIOUS EVENTS CONTINUED

LER Number	Title
373/92-003-00	Unit 1 Scram Due To Loss Of Condenser Vacuum
373/92-008-00	Reactor Core Isolation Cooling System Initiation With Injection To The Reactor Vessel Due To Pressure Perturbation
374/92-012-00	Reactor Scram Due To A Main Turbine Trip Caused By A Thrust Bearing Wear Detector Signal

G. COMPONENT FAILURE DATA

Manufacturer	Nomenclature	Model Number	MFG Part Number
Anderson Greenwood	Instrument Stop Valve	H7HPS-4QB-XP	N/A

EVENT SUMMARY AND CAUSE CODES

 DVR Number
 CL-2-92-069

<input type="checkbox"/> Lost generation	<input type="checkbox"/> Reactor trip	<input type="checkbox"/> NRC violation, level_
<input type="checkbox"/> Cost > \$25,000	<input type="checkbox"/> ESF actuation	<input type="checkbox"/> GSEP event, class_
<input type="checkbox"/> Hazard or Spill	<input type="checkbox"/> NRC reportable	<input type="checkbox"/> Tech Spec LCO
<input type="checkbox"/> Personnel injury	<input checked="" type="checkbox"/> LER	<input type="checkbox"/> Potential or future loss
<input type="checkbox"/> Component type	<input type="checkbox"/> PSE	<input type="checkbox"/> SALP functional area_
	Failure mode	

Department	
X	
X	
X	

Licensed? L or blank	Type	Level	Department	Detail code
A				
A				
A				

Type	Detail Code	Department
B	D15	EN G1
B		
B		

Type	Detail code
C	

Type of deficiency	Detail code	Procedure type
D		
D		
D		

Type	Detail code	Department
E		
E		
E		