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

April 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 #93-008-00, Docket #050-373 is being submitted to your office in accordance with 10CFR50.73(a)(2)(iv).

W Reed for
G. F. Spedl
Station Manager
LaSalle County Station

GFS/MT/grv

Enclosure

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

120011

JE22

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) Inadvertent Group 8 Isolation During Return to Service Due to A Reactor Core Isolation Cooling System Division 2 Isolation

Event Date (5) Month	Day	Year	LER Number (6) Year	Sequential Number	Revision Number	Report Date (7) Month	Day	Year	Other Facilities Involved (8) Facility Names	Docket Number(s)
										0 5 0 0 0
0 3	0 7	9 3	9 3	0 0 8	0 0	0 4	0 6	9 3		0 5 0 0 0

OPERATING MODE (9): 2

POWER LEVEL (10): 0 0 0

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)
	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 in Abstract below and in Text)
	20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		
	20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		
	20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

Name		TELEPHONE NUMBER AREA CODE	
Michael Tennyson, System Engineer	Ext. 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
X	B N			YES					

SUPPLEMENTAL REPORT EXPECTED (14)

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

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

On March 7, 1993, Unit 1 was in Operational Condition 2 (Startup) at 0% power. At 0529 hours, the Reactor Core Isolation Cooling System (RCIC, RI) received a Division 2 (inboard) isolation signal on RCIC high steam line flow. At the time of the event, the RCIC Steam Line Inboard Isolation Warmup Bypass Valve 1E51-F076 was being throttled open to warm up the RCIC steam line.

The RCIC steam line isolation was not a valid high steam flow signal. Shortly after the Inboard Isolation Warmup Valve lifted off of its seat, a pressure increase occurred, and the Division 2 Inboard RCIC Steam Isolation Valves 1E51-F076 and 1E51-F063 received an isolation signal due to a high steam flow signal.

The Outboard Isolation Valve, 1E51-F008, was open at the time of the isolation signal, and it remained open during the isolation. LaSalle Special Test, LST-93-033, was being performed to verify operability of the Inboard Isolation Valve. RCIC System piping integrity was verified and the isolation logic was reset. Warming up of the RCIC System proceeded with no further incidents.

Because of the off-normal temperature and pressure of the RCIC Steam Line for performance of the special test at the time of the high steam flow instrument actuation, this incident is considered isolated and a recurrance should not occur.

This event is reported to the Nuclear Regulatory Commission as a Licensee Event Report in accordance with 10CFR50.73(a)(2)(iv) due to an automatic actuation of an Engineered Safety Feature (ESF).

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: 3/7/93   Event Time: 0529 Hours

Reactor Mode(s): 2   Mode(s) Name: Startup   Power Level(s): 0%

B. DESCRIPTION OF EVENT

On March 7, 1993, at 0529 hours the Reactor Core Isolation Cooling System (RCIC, RI) [BN] received a Division 2 (inboard) isolation signal on RCIC high steam line flow. At the time of the event, the RCIC Steam Line Inboard Isolation Warmup Bypass Valve, 1E51-F076, was being throttled open to warm up the RCIC steam line. Unit 1 was in Operational Condition 2 (Startup) at 0% power.

LaSalle Special Test, LST-93-033, "1E51-F063 Valve Testing", was being performed to verify operability of the RCIC Steam Line Inboard Isolation Valve, 1E51-F063. Since valve 1E51-F063 previously failed to open due to hydraulic locking, the valve was being retested after holes were placed in the upstream disc to equalize the pressure across the valve discs.

Following valve repairs, Unit 1 was returned to rated temperature and pressure and valve 1E51-F063 was closed for approximately ten hours. This was done in order to de-pressurize and decrease the temperature of the RCIC Steam Line downstream of 1E51-F063.

The post-maintenance warm up procedure required the RCIC Steam Line Inboard Isolation Warmup Bypass Valve, 1E51-F076, be throttled open. After the RCIC steam line temperature and pressure on both sides of the Inboard Isolation Valve was equal, 1E51-F063 would be opened.

Shortly after the 1E51-F076 lifted off of its seat, a pressure increase occurred. Within four seconds of the pressure increase the Division 2 Inboard RCIC Steam Isolation Valves 1E51-F076 and 1E51-F063 received an isolation signal due to a High Steam Flow Signal from the Pressure Differential Switches 1E31-N007BA and 1E31-N013BA.

The RCIC Steam Line Outboard Isolation Valve, 1E51-F008, was open at the time of the isolation signal and it remained open during the isolation. This valve is not affected by the Inboard Isolation Logic. Following the isolation, 1E51-F076 was re-opened and the RCIC Steam Line was warmed in accordance with the special test, this time without incident.

This event is reported to the Nuclear Regulatory Commission as a Licensee Event Report in accordance with 10CFR50.73(a)(2)(iv) due to an automatic actuation of an Engineered Safety Feature (ESF).

C. APPARENT CAUSE OF EVENT

The cause of the RCIC Steam Line isolation was due to a spurious high steam flow signal generated when steam was admitted to the RCIC Steam Line. While the Inboard Isolation Valves were closed, condensation due to the temperature difference occurred just above the inboard valves on the upstream side. This led to a build up of water upstream of the valves.

Upon opening of 1E51-F076, the steam/water expanded into the downstream piping causing a surge of the steam/water mixture. This activated the High Steam Flow Instruments for the Division 2 logic and resulted in closure of both the Inboard Isolation Valves.

The cause of the Division 2 isolation can also be attributed to the change in system temperature and pressure during the period that the system was isolated and while the steam line was being warmed for return to service. This change in system lineup was part LaSalle Special test, LST-93-033. The RCIC System was isolated by closure of 1E51-F063 at approximately 2100 hours on March 6, 1993. The Outboard Isolation Valve 1E51-F008 was never closed.

Normal system isolation is performed with closure of 1E51-F063, a cool down time for the piping downstream of the Inboard Isolation Valve, and then closure of 1E51-F008. During the system return to standby, the High Steam Flow Isolation Instruments are valved out of service and the Outboard Isolation Valve is opened Then the instruments are returned to service, the Steam Line Warmup Bypass Valve is opened, and finally the Inboard Isolation Valve is opened.

The isolation of the High Steam Flow Instruments during opening of 1E51-F008 prevents high steam flow isolations. This is the first isolation that has occurred while the 1E51-F076 was being opened.

The isolation logic for high RCIC Steam Line flow has a four second time delay built in it to prevent spurious isolation when fast starting RCIC. However, the basis for the flow measurements used in the isolation logic is that the elbows would sense steam, not a steam/water mixture. The isolation was reset satisfactorily.

D. SAFETY ANALYSIS OF EVENT

Upon receiving the High Steam Line Flow Isolation Signal, the RCIC Steam Line Inboard Isolation Valves isolated satisfactorily. This action was conservative from the standpoint of Primary Containment (PC) [NH] integrity.

The Inboard Isolation Valve, 1E51-F063, was already closed. The Inboard Isolation Warmup Bypass Valve, 1E51-F076, closed due to the isolation signal and the Outboard Isolation Valve, 1E51-F008, remained open throughout the transient. The isolation function of the inboard valves had been met.

RCIC was already inoperable due to surveillance testing. Satisfactory operation of the High Flow Differential Pressure Switches was observed during subsequent testing on March 11, 1993, which showed that the pressure pulse(s) did not damage the switch's diaphragms.

Consequences of this event were minimal since the High Pressure Core Spray (HP) [BG] and other Emergency Core Cooling Systems (ECCS) were fully operable.

E. CORRECTIVE ACTIONS

RCIC System piping integrity was verified and the isolation logic was reset. Warming up of the RCIC System Steam Line proceeded with no further incidents and testing of 1E51-F063 in accordance with LaSalle Special Test LST-93-033 was completed satisfactorily. RCIC was returned to standby at approximately 0820 hours on March 7, 1993.

LaSalle is presently defeating the Pressure Differential Switches that isolate the RCIC System while the Outboard Isolation Valve is being re-opened, during a RCIC return to standby in accordance with LaSalle Operating Procedure, LOP-RI-05, "Preparation For Standby of RCIC System".

The Division 2 isolation occurred due to the temperature and pressure change in the steam line piping from the normal isolation condition. This was due to the performance of LST-93-033. This is an isolated incident, and should not recur. The evaluation for LST-93-033 will address this event. Action Item Record 373-180-93-02501 will track completion of Special Test LST-93-033 evaluation.

F. PREVIOUS EVENTS

All previous events occurred during the opening of the Outboard Isolation Valve 1E51-F008. This is the first incident that a Division 2 Isolation occurred while the Inboard Isolation Warmup Bypass Valve was being opened.

G. COMPONENT FAILURE DATA

None.

SHEET 7

EVENT SUMMARY AND CAUSE CODES

DVR Number
QL-L-93-025

☐	Lost generation	☐	Reactor trip	☐	NRC violation, level___
☐	Cost > $25,000	☒	ESF actuation	☐	GSEP event, class_____
☐	Hazard or Spill	☐	NRC reportable	☐	Tech Spec LCO
☐	Personnel injury	☒	LER	☐	Potential or future loss
		☐	PSE		SALP functional area__

	Component type		Failure mode		Department		
X	P	M	M	9		M M	
X							
X							

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

	Type	Detail Code	Department	
B				
B				
B				

	Type	Detail code	
C			

	Type of deficiency	Detail code	Procedure type
D			
D			
D			

	Type	Detail code	Department	
E				
E				
E				