

Commonwealth Edison Company
LaSalle Generating Station
2601 North 21st Road
Marseilles, IL 61341-9757
Tel 815-357-6761

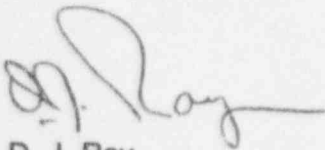
ComEd

June 2, 1995

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Licensee Event Report #95-009-00, Docket #050-374 is being submitted to your office in accordance with 10CFR50.73(a)(2)(iv).

Sincerely,



D. J. Ray
Station Manager
LaSalle County Station

DJR/PS/lja

Enclosure

cc: NRC Region III Administrator
NRC Senior Resident Inspector
INPO - Records Center
IDNS Resident Inspector
IDNS Senior Reactor Analyst
Nuclear Licensing Administrator
Nuclear Safety Review

9506070106 950602
PDR ADOCK 05000374
S PDR

PROBLEM IDENTIFICATION FORM (PIF)

LAP-1500-8 TB

Revision 1

May 20, 1994

1 (FINAL)

NTS# 374 - 180 - 95 - 00936 PIF

SECTION 1 - ORIGINATOR

DATE: 5/03/95	TIME: 1347	UNIT MODE: 4	UNIT: 2	SYSTEM: NB
NWR#:	OOS#:	RWP#:	PCE#:	SURV#:
<input type="checkbox"/> Work Around	<input type="checkbox"/> Rework	<input checked="" type="checkbox"/> Lessons Learned	EID/EPN:	
SUBJECT: LIP-NB-618, Reactor Vessel Backfill				
DESCRIPTION OF PROBLEM:	At 1347 on 5/03/95 during the performance of LIP-NB-618, "Unit 2 Reactor Vessel Water Level Reference Leg Continuous Backfill Panel 2C11-P002 Operation", while valving panel 2C11-P002 onto its associated instrument reference leg, an instrument rack spike occurred. This action resulted in a low RWL 1/2 scram, a 1/2 isolation signal to PCIS groups 1, 2, 3, 4, 5, 6, 7 and 10, a 1/2 initiation signal to ARI and a HPCS diesel generator and pump initiation. The backfill rack was immediately isolated. The HPCS pump injected into the RPV raising RWL from 47 inches to 57 inches on narrow range. The HPCS injection was secured in 7 seconds. The low level initiation signal was immediately reset and the 2B D/G was shutdown at 1349 on 5/03/95. The 1/2 scram was reset and the PCIS system was reset. An investigation as to why the spike occurred is in progress. At the time of the event, Unit 2 was in OC #4 with all rods full in.			
<input type="checkbox"/> I WOULD LIKE TO BE INVOLVED IN THE SOLUTION.	PROPOSED SOLUTION:			

PERSONNEL KNOWLEDGEABLE/INVOLVED IN THE EVENT/PROBLEM:

J. Reis / OPS / 2202	A. Devera / IMD /
(Name) (Dept.) (Ext.)	(Name) (Dept.) (Ext.)

ORIGINATED BY: R. Bengtson / OPS / 2204 DATE: 5/03/95
(Please Print) (Name) (Dept.) (Ext.)

HAND CARRY TO IMMEDIATE SUPERVISOR OR SHIFT ENGINEER (IF SUPERVISOR UNAVAILABLE)

SECTION 2 - IMMEDIATE SUPERVISOR

IMMEDIATE CORRECTIVE ACTION(S):		
WORK REQUEST NEEDED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	WR#:	
IMMEDIATE SUPERVISOR SIGNATURE: _____		DATE: _____
HAND CARRY TO SHIFT ENGINEER		

SECTION 3 - SHIFT ENGINEER

OPERABILITY SCREENING	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> OPERABLE <input type="checkbox"/> OPERABLE/Forward to Engineering <input type="checkbox"/> INOPERABLE/Forward to Engineering <input type="checkbox"/> INOPERABLE **** RECORD JUSTIFICATION BELOW ****
WERE ANY AREAS, EQUIPMENT, OR RECORDS QUARANTINED. <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If <u>YES</u> , then attach copy of quarantine list.	
REPORTABILITY SCREENING	UTILIZE THE CEC _o REPORTABILITY MANUAL TO DETERMINE REPORTABILITY, <u>THEN</u> CHECK ON OF THE FOLLOWING: <input type="checkbox"/> NO ENS CALL REQUIRED <input checked="" type="checkbox"/> FOUR HR ENS CALL <input type="checkbox"/> ONE HOUR ENS CALL <input type="checkbox"/> OTHER <input type="checkbox"/> NO CALL AT THIS TIME, FORWARD TO REG. ASSURANCE
IF an ENS or NARS phone call is made <u>THEN</u> attach a copy of the notification form to the PIF.	
SHIFT ENGINEER'S COMMENTS:	SHIFT ENGINEER SIGNATURE/DATE: [R. E. Bengtson] / 5/03/95

NRC FORM 366 (5-92)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95			
LICENSEE EVENT REPORT (LER)								
FACILITY NAME (1) LaSalle County Station Unit 2					DOCKET NUMBER (2) 05000374		PAGE (3) 1 OF 6	
TITLE (4) High Pressure Core Spray (HPCS) Diesel Generator and HPCS Pump Initiation Due to Procedural Deficiency								
EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR
05	03	95	95	-- 009 --	00	06	02	95
						OTHER FACILITIES INVOLVED (8)		
						FACILITY NAME None		
						DOCKET NUMBER		
						FACILITY NAME		
						DOCKET NUMBER		
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)						
N		20.2201(b)			20.2203(a)(3)(i)			50.73(a)(2)(iii)
		20.2203(a)(1)			20.2203(a)(3)(ii)			X 50.73(a)(2)(iv)
POWER LEVEL (10)		20.2203(a)(2)(i)			20.2203(a)(4)			50.73(a)(2)(v)
000		20.2203(a)(2)(ii)			50.36(c)(1)			50.73(a)(2)(vii)
		20.2203(a)(2)(iii)			50.36(c)(2)			50.73(a)(2)(viii)(A)
		20.2203(a)(2)(iv)			50.73(a)(2)(i)			50.73(a)(2)(viii)(B)
		20.2203(a)(2)(v)			50.73(a)(2)(ii)			50.73(a)(2)(x)
LICENSEE CONTACT FOR THIS LER (12)								
NAME Paul Smith, Master Instrument Mechanic, Extension 2289						TELEPHONE NUMBER (Include Area Code) (815) 357-6761		
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)								
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT
				N				
SUPPLEMENTAL REPORT EXPECTED (14)						EXPECTED SUBMISSION DATE (15)		
YES (If yes, complete EXPECTED SUBMISSION DATE).						MONTH DAY YEAR		
X NO								

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On May 3, 1995, Unit 2 was in Operational Condition 4 (Cold Shutdown). At the time of the event, the Instrument Maintenance Technician was returning a continuous backfill panel to service per LaSalle Instrument Procedure LIP-NB-618, "Unit 2 Reactor Vessel Water Level Reference Leg Continuous Backfill Panel 2C11-P002 Operation". Backfill panel 2C11-P002 maintains a constant fill to the instrument reference leg to maintain the correct water column height and flush non-condensable gases from the reference leg piping.

At 1347 hours, during valving operations, an instrument line pressure spike resulted the following actuations:

- * High Pressure Core Spray (HPCS) Diesel Generator initiation, HPCS pump initiation and HPCS injection into the reactor vessel;
- * Channel 'A' Reactor Protection System Low Reactor Vessel Water Level half Scram signal;
- * Channel 'A' half isolation signal to Primary Containment Isolation System Groups 1 through 7 and 10; and
- * Channel 'A' half initiation signal to Alternate Rod Insertion.

The root cause of this event was a procedural deficiency. Valve manipulations specified in the procedure provided inadequate control of instrument reference leg backfill supply pressure when returning the backfill panel to service with reactor pressure at zero psig. The sequencing of valve manipulations induced the instrument sensing line pressure transient.

Operations verified the actuation was invalid, and secured HPCS and other affected systems. Appropriate Unit 2 procedures were revised, and the Unit 1 procedures are being revised. Instrument reference leg hydraulic sensitivity will be evaluated by Engineering to assist in preventing recurrence of these types of events.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
LaSalle County Station Unit 2	05000374	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 6
		95	-- 009 --	00	

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

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): 2 Event Date: 5/03/95 Event Time: 1347 Hours
Reactor Mode(s): 4 Modes(s) Name: Cold Shutdown Power Level(s): 0%

B. DESCRIPTION OF EVENT

On May 3, 1995, at 1347 hours, LaSalle Unit 2 was in Operational Condition 4 (Cold Shutdown). At the time of the event, an Instrument Maintenance (IM) Technician was returning a continuous backfill panel to service per LaSalle Instrument Procedure LIP-NB-618, "Unit 2 Reactor Vessel Water Level Reference Leg Continuous Backfill Panel 2C11-P002 Operation". Backfill panel 2C11-P002 provides a low-continuous flow of high pressure water to the reactor vessel instrument reference leg piping to ensure that the reference column is filled to its proper height and that any non-condensable gases are flushed from the reference leg piping.

At 1347 hours, during valving operations, an instrument line pressure spike caused the following actuations:

- * High Pressure Core Spray (HPCS, HP) [BG] Diesel Generator (DG) [EK] and HPCS pump initiation. The HPCS DG started but did not load, as expected. The HPCS pump started and injected into the reactor vessel.
- * Channel 'A' Reactor Protection System (RPS) [JC] low Reactor Water Level half Scram signal.
- * Channel 'A' half isolation signal to Primary Containment Isolation System (PCIS, PC) [BF] Groups 1,2,3,4,5,6,7 & 10.
- * Channel 'A' half initiation signal to Alternate Rod Insertion (ARI, RS) [AA].

These actions occurred as a result of a reference leg sensing line pressure spike caused by the valving sequence specified in the procedure used to restore the backfill panel to service. HPCS injected into the vessel for approximately seven seconds. Reactor vessel water level increased approximately eight inches during the period of injection. The reactor operator secured the affected systems after verifying the actuation was invalid. The IM Technician recognized the transient and quickly reclosed the downstream rack isolation valve.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
LaSalle County Station Unit 2		05000374		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 6
				95	-- 009 --	00	

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

C. CAUSE OF EVENT

The root cause of this event was procedural deficiency. The procedurally prescribed sequencing of valve manipulations induced the instrument sensing line pressure transient.

LaSalle Station had experienced recurring problems with physical damage to needle valves when they were used to isolate the backfill panels. In response to these problems, the associated procedures were revised in February 1995, to specify a valving sequence to isolate and return to service the backfill panel without having to manually torque the needle valves (V3) and (V4) in the closed direction. (Refer to attached diagram for simplified piping diagram and valve numbers). The procedure revision prescribed steps to carefully establish backfill system pressure slightly above reactor pressure by positioning the downstream needle valve (V4) one turn in the open direction from the fully closed position and manipulating the upstream rack isolation valve (V1), the test valve (V10), and the downstream rack isolation valve (V13).

The procedure erroneously excluded the steps to establish backfill pressure slightly above reactor pressure when returning the backfill panel to service from conditions with reactor pressure at zero psig. The valving sequence specified for the zero reactor pressure condition, opened the downstream rack isolation valve (V13) and the upstream rack isolation valve (V1) with both needle valves (V3 and V4) full open. This resulted in a pressure transient in the instrument reference leg because the Control Rod Drive (CRD) system pressure which supplies the backfill panel is approximately 250 psi greater than reactor pressure.

For extended reactor shutdown periods, the continuous backfill panels are shutdown and depressurized. At the time of this event, reactor vessel pressure was at zero psig. The downstream rack isolation valve of the continuous backfill panel was opened in accordance with the procedure. The valving manipulation resulted in a flow surge in the instrument reference leg due to the differential pressure between the backfill supply and the instrument reference leg. This rapidly changing pressure condition was sensed by the differential pressure transmitters as rapidly decreasing reactor water level. By design, the trip logic cards associated with these differential pressure transmitters responded and initiated their protective functions. The IM Technician recognized the transient and quickly reclosed the downstream rack isolation valve.

A contributing cause to this event is the sensitivity of these instrument reference legs to hydraulic transients.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
LaSalle County Station Unit 2	05000374	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 6
		95	-- 009 --	00	

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

D. SAFETY ANALYSIS

This event is reportable pursuant to 10CFR50.73(a)(2)(iv) due to an actuation of an Engineered Safety Feature.

The event was caused by an invalid signal and not by an actual low reactor vessel level. The level instrumentation affected by the pressure perturbation responded as designed. Low level 1 (-129"), level 2 (-50"), and level 3 (+12.5") invalid signals were generated.

The affected Safety Systems responded as designed. HPCS and the HPCS DG initiated. Also, a half scram, a partial isolation signal (channel A) for Groups 1 through 7 and 10, and a partial (channel A) ARI signal were generated. As expected, none of these partial signals resulted in an actuation.

HPCS injected into the reactor vessel. Reactor water level rose approximately 8 inches, which resulted in no adverse consequences. If the reactor operator had not secured the HPCS pump, the HPCS System would have stopped injecting due to high level closure of the HPCS injection valve. The addition of suppression pool water did not reduce the reactor water temperature to below the minimum bolt-up temperature (86 degrees) or the minimum temperature used in shutdown margin calculations (68 degrees). Reactor water temperature remained above 120 degrees during this event.

E. CORRECTIVE ACTIONS

Immediate corrective actions included proper response of Operating Personnel to alarm/annunciator conditions including performance of required immediate actions. The HPCS pump was secured after verification that actual reactor vessel water level was not low. The IM Technician recognized the transient and quickly reclosed the downstream rack isolation valve. Work was stopped on the return to service of the continuous backfill panel.

Due to the unique nature of the backfill panel operation, IM Technicians will be trained on the difference between normal instrument restoration and backfill panel restoration.

There are six continuous backfill panels per unit with an individual procedure for each. To date, the six procedures associated with Unit 2 have been revised to reflect the correct valve sequencing. Each has been successfully performed subsequent to the procedure revision.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
			YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
LaSalle County Station Unit 2		05000374	95	-- 009 --	00	5 OF 6

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

E. CORRECTIVE ACTIONS (Continued)

The six procedures associated with Unit 1 continuous backfill panels are in the process of being revised. The current revision cannot be used at or near zero psig reactor pressure.

F. PREVIOUS OCCURRENCES

A previous events search was performed, looking for instrument line/instrument rack spike LER events occurring over the past two years. Four Engineered Safety Feature (ESF) events were found in which valve manipulation was involved. Event causes and corrective actions were reviewed.

Previous events have shown reference legs to be sensitive to minor perturbations and vulnerable to actuations. Instrument reference legs are being evaluated by engineering to determine if additional measures can be implemented to assist with preventing these types of events.

LER NUMBER	TITLE
373/93-001	Instrument Spike with Resulting Division 2 Low Pressure Coolant Injection Pump Start and 1A Diesel Generator Start
374/94-010	Division 2 Emergency Core Cooling System and Reactor Core Isolation Cooling Initiation Due to Pressure Switch Isolation Valve Leaking
374/95-001	Division 1 Emergency Core Cooling System/Reactor Core Isolation Cooling Initiated Due to a RV Level Spike Due to Personnel Error
374/95-007	Division 2 ESF Actuation Due to Instrument Reference Line Pressure Spike

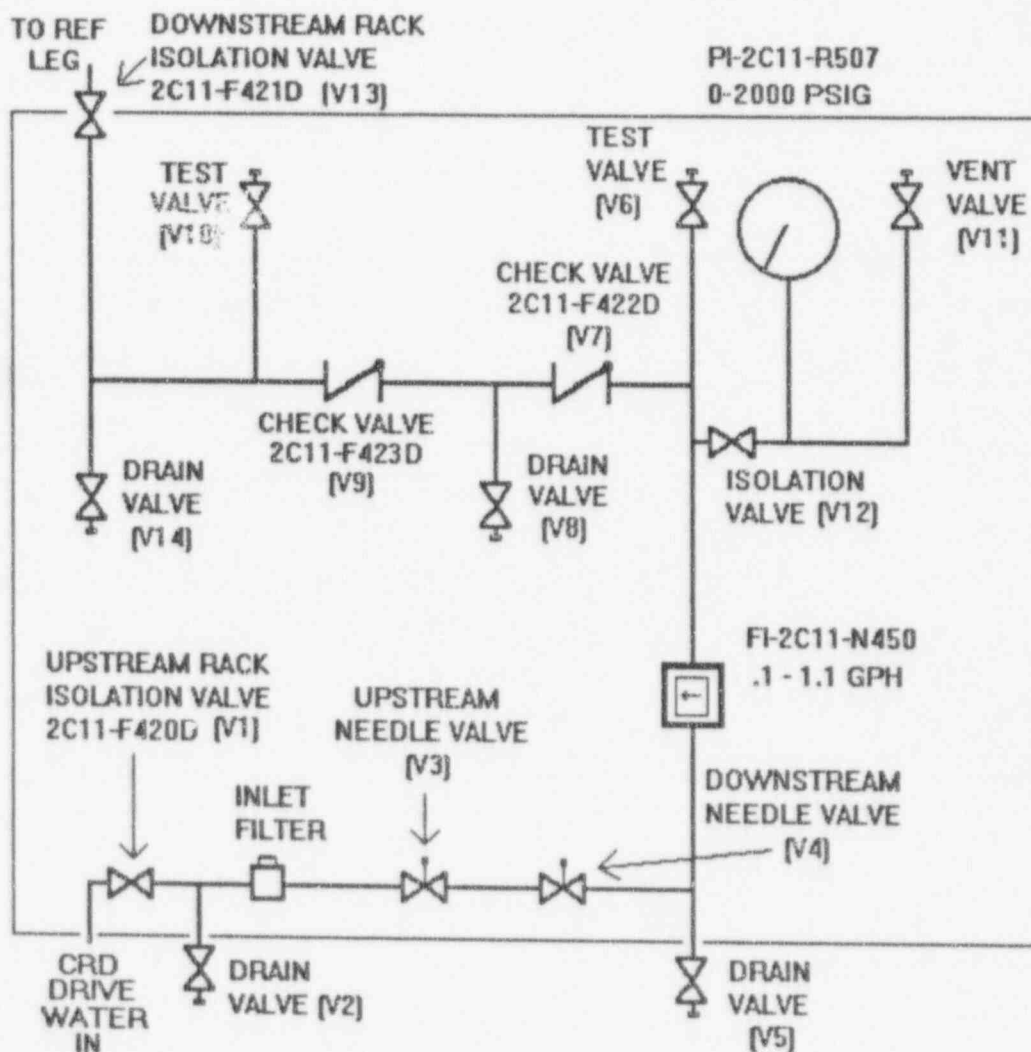
G. COMPONENT FAILURE DATA

Since no component failure occurred, this section is not applicable.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATIONESTIMATED BURDEN PER RESPONSE TO COMPLY WITH
THIS INFORMATION COLLECTION REQUEST: 50.0 HRS.
FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO
THE INFORMATION AND RECORDS MANAGEMENT BRANCH
(MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION,
WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK
REDUCTION PROJECT (3150-0104), OFFICE OF
MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
YEAR	SEQUENTIAL NUMBER		REVISION NUMBER		
LaSalle County Station Unit 2	05000374		95 -- 009 -- 00	6 OF 6	

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

ATTACHMENT A
CONTINUOUS BACKFILL PANEL LAYOUT

2C11-P002