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

November 25, 1992

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

Dear Sir:

Licensee Event Report #92-015-00, Docket #050-374 is being submitted to your office in accordance with 10CFR50.73(a)(2)(iv).

For G. J. Diederich
Station Manager
LaSalle County Station

GJD/MC/mkl

Enclosure

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

IE22
1/1

LICENSEE EVENT REPORT (LER)

Form Rev 2.0

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

Title (4)

Reactor Water Clean Up Differential Flow Isolation Due To Personnel Error And Procedural Deficiency

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 5 0 0 0
1 0	2 9	9 2	9 2	0 1 1 5	0 0	1 1	2 5	9 2		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)					
1	___ 20.402(b)	___ 20.405(c)	X 50.73(a)(2)(iv)	___ 73.71(b)			
POWER LEVEL (10)	1 0 0	___ 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
Marty Cooper, HPES Coordinator, Extension 2860	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
A	C E			N					

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 October 29, 1992, Unit 2 was in Operational Condition 1 (Run) at 100% power. At 1057 hours the Unit 2 Reactor Water Cleanup System isolated on a sustained Delta Flow High signal which occurred when the 2A Reactor Water Cleanup (RWCU),(RT)[CE] Filter/Demineralizer (F/D) was de-isolated. The F/D had been backwashed and precoated, it was in the process of being put on line per LOP-RT-06 when the isolation occurred. After the Operator notified the Nuclear Station Operator in the Control Room, he turned the 2A vessel isolation control switch to de-isolate the F/D. A high differential flow condition was created when the air operated inlet and outlet valves opened. By the time the Nuclear Station Operator (NSO) phoned the Operators at the RWCU Control Panel to notify them to isolate the F/D, the RWCU Delta Flow Isolation timer had timed out (45 seconds), and the RWCU system isolated. A flow path from the downstream side of the 2A F/D through the F/D Post Strainer Drain Line to the 2WX01TB Phase Separator Tank was inadvertently established through the 2G33-2001-42A RWCU A Post Strainer Backwash to Phase Separator Tank Downstream Stop Valve (42A) and the 2G33-2001-43A (43A) RWCU A Post Strainer Backwash to Phase Separator Tank Upstream Stop Valve, both being open or partially open when they should have been in the closed position.

The RWCU isolation was verified to be valid and that no other flow paths existed. Notifications were made and the RWCU System was placed back on line.

This is reportable to the Nuclear Regulatory Commission pursuant to 10CFP50.73(a)(2)(iv) due to an Engineered Safety Feature actuation.

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: 10/29/92 Event Time: 1057 Hours

Reactor Mode(s): 1 Mode(s) Name: Run Power Level(s): 100%

B. DESCRIPTION OF EVENT

Unit 2 was in Operational Condition 1 (Run) at 100% power. On October 29, 1992 two A-qualified Equipment Attendants (EA, non-licensed Operator) isolated, backwasned and precoated the 2A Reactor Water Cleanup (RWCU),(RT)[CE] Filter Demineralizer (F/D). This work was performed in accordance with LaSalle Operating Procedure LOP-RT-06 "Reactor Water Cleanup System Filter/Demineralizer Precoat". One EA read the procedure steps, while the other performed most of the valving.

One EA contacted the Unit 2 NSO and informed him that they were about to de-isolate the 2A F/D, hanging up the phone after the NSO acknowledged the EA's information.

In accordance with step F.20 of LOP-RT-06, the EA then turned the 2A Vessel Isolation Control Switch to de-isolate the F/D, which caused the air operated inlet and outlet valves to open, subjecting 2A F/D to reactor pressure.

The Unit 2 NSO observed the Division 1 and the Division 2 RWCU Delta Flow Hi Alarms come up on panel 2H13-P601.

When the NSO saw that the two alarms stayed up longer than usual, he became concerned that RWCU might isolate. The NSO called the EA's at the RWCU Control Panel. By the time the EA answered, the RWCU Delta Flow high timer had timed out (45 seconds) and the RWCU System isolated.

The EAs at the RWCU Control Panel looked for evidence of leaks and checked the valve positions. They reported that the 2G33-2001-42A RWCU A Post Strainer Backwash to Phase Separator Tank Downstream Stop Valve (42A) was not full closed or full open . (The 42A is a 90 degree turn to open ball valve.) No one remembered if the 2G33-2001-43A A Post Strainer Backwash to Phase Separator Tank Upstream Stop Valve (43A) hand wheel had to be closed after the isolation.

The Unit 2 Shift Supervisor (SS) went to the Unit 2 RWCU Control Panel while the Control Room Personnel looked for any indication of leaks (such as changes in Drywell humidity, pressure, radiation, floor drain inputs, etc.) No leaks were found.

C. APPARENT CAUSE OF EVENT

Personnel error led to the initiation of the isolation signal of the Reactor Water Cleanup (RWCU) System and procedural inadequacy hindered the Operator's ability to take action to prevent the system isolation. The first concern being the plant conditions that initiated the isolation signal. The second concern is the communication method that allowed the RWCU System to isolate without any immediate corrective actions being taken to prevent it.

The 2G33-Z001-42A RWCU A Post Strainer Backwash to Phase Separator Tank Downstream Stop Valve and 2G33-Z001-43A RWCU A Post Strainer Backwash to Phase Separator Tank Upstream Stop Valve were not full closed, creating a flow path to the 2B Phase Separator Tank after deisolation of the 2A F/D, resulting in a valid RWCU Delta Flow High Isolation Alarm on Unit 2. LOP-RT-06 Step F.15.b. states, "Verify (Locally) that the following remote manual valves are closed." Included in the list are the 42A and 43A valves.

The EA deisolated the 2A F/D believing that he knew the status of the 42A and 43A valves based on position indication of the handwheels.

In preparation for putting the 2A F/D on line, step F.19 of LOP-RT-06, "Reactor Water Cleanup System (RWCU) Filter/Demineralizer Precoat", has the EA open the 2G33-Z001-41A RWCU A F/D Outlet Manual Stop Valve (41A). The 41A valve hand wheel is located high enough that it cannot be easily reached without climbing. In addition, there are numerous instrument lines crossing the narrow valve aisle walkway running parallel to the ceiling just below the 41A valve, causing a person to have to lean over the 43A and 42A hand wheels to reach the 41A valve, whether climbing on the equipment or on a ladder. The routing of these instrument lines is unique to the 2A RWCU F/D.

The EA climbed on the equipment to open the 41A valve instead of using a ladder. He did not use a ladder because he did not perceive the risk of a fall or the consequences of a fall to be serious since he was only climbing up 2' 6" above the floor level. The EA's thought that the 43A must be leaking by, and thought that the second valve (42A) might have been bumped open while reaching for the 41A valve. Although the EA thought that he may have bumped the 42A valve open, it is unlikely that the EA bumped or grabbed the hand wheel of both the 42A and the 43A valves while trying to reach the 41A valve.

The cognizant Technical Staff Engineer and his alternate visually inspected the 43A linkage and extended hand wheel operator on November 2, 1992. No sheared shaft, damaged pins, or other damage was observed.

During observation of a 2A RWCU F/D backwash on November 9, 1992, the 43A was tested and it was determined that it does not leak by. (Step F.4.a of LOS-RT-05 "Reactor water Cleanup System (RWCU) Filter/Demineralizer Backwash" has the downstream valve (42A) opened before the upstream (43A) valve. The F/D pressure did not drop when the 42A valve was opened. The pressure dropped to 0 immediately when the 43A valve was opened.)

It is possible that the Operator incorrectly read the position of the 42A and 43A valve. The mechanical stop positions cannot always be used to determine the valve position. On the RWCU System, the Operator must look at the HAND WHEEL to see which engraved word lines up with a solid arrow marker to determine if the valve is open or closed. There is no secondary position indication for these valves. (Such as lights, or flow indication, etc.)

It can not be determined absolutely how the 42A and 43A valves were opened however it is a fact that the valves were not adequately verified to be closed prior to deisolating the 2A F/D.

C. APPARENT CAUSE OF EVENT CONTINUED

Secondly the EA did not establish continuous communication with the Unit 2 NSO while deisolating the 2A F/D. LOP-RT0-06 does not state that continuous communication is required but in retrospect the isolation could have been prevented with continuous communication.

A note prior to step F.20 of LOP-RT-06 states:

> "To prevent RWCU isolation from differential flow, establish communications with the Unit NSO and be prepared to isolate the filter/demin if the differential flow alarm energizes in the Control Room."

This note was found to be inadequate because it does not clearly state for the operator to maintain constant communication with the Control Room Operator and be prepared to isolate the F/D if the RWCU Delta Flow High Isolation alarm does not clear within a specified amount of time. The note also does not state how the F/D is to be isolated.

D. SAFETY ANALYSIS OF EVENT

During this event, the RWCU Isolation equipment functioned as required. There was a drain path which existed from the Reactor to the 2B Phase Separator Tank; the Leak Detection Detection System correctly sensed it; the RWCU Isolation Signal was initiated; and the RWCU System was isolated as designed.

While there was a valid flow path during this event, the water was contained in a piped system to the 2B Phase Separator Tank, which is designed for these inputs. Therefore, there was no concern of radiological release to the environment.

E. CORRECTIVE ACTIONS

After the RWCU Isolation, the isolation was verified to be valid. Verification was made that no other leak paths existed, and appropriate notifications were made. The RWCU System was restarted.

The following corrective actions were developed as a result of the investigation.

A. LOP-RT-06, "Reactor Water Cleanup System (RWCU) Filter/Demineralizer Precoat", will be revised.

1. Where continuous communications are intended to be established, the procedure will be changed to specifically state this action is required.

2. The instructions will state the length of time the NSO may allow the RWCU Differential Flow Alarm to remain energized before directing the Operators to isolate a F/D that is being placed on line.

3. The method by which the Operator is to isolate the F/D will be defined.

Action Item Record (AIR) 374-180-92-07701 will track procedure revisions.

E. CORRECTIVE ACTIONS CONTINUED

B. Operators will be trained on this event to increase awareness about the following topics:

1. Climbing on plant equipment can inadvertently cause valve position changes, cause damage to equipment, and be a personnel safety concern.

2. Self-checking methods to avoid undesireable consequences.

AIR 374-180-92-07702 will track completion of Operator training.

F. PREVIOUS EVENTS

LER Number	Title
84-050-00	RWCU Hi Delta Flow Isolation/2 Valves In Series Mispositioned

G. COMPONENT FAILURE DATA

N/A

SHEET 7

EVENT SUMMARY AND CAUSE CODES

DVR Number 01-2-92-027

- [ ] Lost generation
- [ ] Cost > $25,000
- [ ] Hazard or Spill
- [ ] Personnel injury
- [ ] Reactor trip
- [x] ESF actuation
- [ ] NRC reportable
- [x] LER
- [ ] PSE
- [ ] NRC violation, level__
- [ ] GSEP event, class____
- [ ] Tech Spec LCO
- [ ] Potential or future los
- [ ] SALP functional area_

Component type | Failure mode | Department

X							
X							
X							
X							

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

1

A		w	01P		I	3
A						
A						

Type | Detail Code | Department

B				
B				
B				

Type | Detail code

C		

Type of deficiency | Detail code | Procedure type

2

D	~~w~~	~~I~~	~~13~~ (initialed 11-17-92)
D	I	3	40IP
D			

Type | Detail code | Department

E			
E			
E			