



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

May 20, 1992

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

Dear Sir:

Licensee Event Report #92-006-00, 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/JW/tsh

Enclosure

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

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

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

Title (4) Reactor Water Clean-Up High Differential Flow Isolation Due to Relief Valve Lifting

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 4	2 0	9 2	9 2	0 0 6	0 0	0 5	2 0	9 2		0 5 0 0 0

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 2 0	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)(iii)	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: John Washko, Technical Staff System Engineer, Extension 2640

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	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
X	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)

At 0847 hours, on April 20, 1992, with Unit 2 in Operational Condition One (Run) at 20% power, the Reactor Water Clean-up (RWCU) System was being shut down for testing when Operations Personnel received a high differential flow alarm signal from the system instrumentation. The signal, which initiates a 45-second timer prior to isolating the system, was initially determined to be spurious and, therefore, bypassed. Additional operating personnel were immediately dispatched to provide confirmation of available indication. The Regenerative Heat-Exchanger Shell-Side Relief Valve was found to be lifted and immediately the high differential flow signal was restored allowing the system to isolate as designed.

While the investigation has not been completed, there have been several factors identified as contributing to this event. It appears from computer data that a valve on the discharge of the pumps may have been partially or completely closed prior to the shutdown of the pumps. This may have caused a pressure transient which caused the relief valve to lift.

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

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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: 04-20-92 Event Time: 0850 Hours

Reactor Mode(s): 1 Mode(s) Name: Power Operation Power Level(s): 20%

B. DESCRIPTION OF EVENT

On April 20, 1992, at approximately 0847, Unit 2 was in Operational Condition 1 (Run) at 20% power. Operations Personnel were in the process of shutting down the Reactor Water Clean-up (RWCU) [CE] System in accordance with LaSalle Operating Procedure LOP-RT-03, "Reactor Water Clean-up System Shutdown". This was in preparation for special testing of RWCU Inboard and Outboard Isolation Valves, 2G33-F001 and 2G33-F004.

Several weeks earlier on April 2, 1992, during Unit 2 start-up, the RWCU System isolated on a spurious high differential flow signal. The 2G33-F001 and 2G33-F004 valves went fully closed, however, the motors for the valve operators were severely damaged in the process.

Under normal operating conditions the motor operators for these valves will stop in the closed direction when the full-closed torque limit switch opens. Backup protection is provided by thermal overload protective devices. Under conditions where an engineered safety feature (ESF) isolation actuation signal is present, as in the April 2, 1992 event, the torque switches are normally bypassed until the valve is less than two percent open. With an ESF actuation signal present the thermal overload protective devices will be continuously bypassed until the signal is reset. Upon investigation of the April 2, 1992 event, (OVR 01-02-92-043), it was determined that the isolation valves, which were of a new design installed during the last refuel outage (L2R04), required new setpoints for the closed limit switches due to different seating characteristics. These setpoints were changed and LaSalle Special Test LST-90-080 was developed to test the adequacy of these new setpoints.

On April 20, 1992, approximately ten seconds after the final shutdown step of LOP-RT-03 was completed, the operator began to receive a high differential flow alarm which initiated a 45-second timer prior to the isolation signal. This was actually the third high differential flow alarm received during this ten second interval, as the alarm condition fluctuated on and off. The operator and supervisor checked the light indication on Control Room Panel 2H13-P602, and determined that the system was shutdown. Because the system was shutdown, and because other instrumentation did not indicate abnormal conditions, the high differential flow condition appeared to be spurious. Operating personnel were concerned that the new limit switch settings might not be adequate, and to prevent unnecessary damage to the isolation valves, the supervisor immediately decided to by-pass the isolation signal. An operator who was in the RWCU equipment area was asked to listen for leakage to verify that a leak did not exist.

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B. DESCRIPTION OF EVENT (CONTINUED)

The high differential flow signal continued when, at 0850 hours, an operator checked the Heat Exchanger Relief Valves and reported that the RWCU Regenerative Heat Exchanger Shell-side Relief Valve (2G33-F340B) was lifted. Concurrently, one of the Control Room Operators noted a steady increase in the Reactor Building Equipment Drain Tank level. The Control Room Operator was directed to immediately bypass the isolation logic. The Inboard and Outboard Isolation Valves closed immediately and the high differential flow alarm cleared. The special testing of 2G33-F001 and 2G33-F004 was then performed satisfactorily per LST 92-080. After the crew verified that no other leak paths existed, the system was unisolated and returned to service with no further lifting of the Heat Exchanger Relief Valve.

C. APPARENT CAUSE OF EVENT

During the investigation of the event, it was determined that the RWCU Return Valve (2G33-F040) began to close approximately 15-20 seconds prior to shutdown of the system pumps. This caused a transient in the system which in turn caused RWCU Regenerative Heat Exchanger Shell-Side Relief Valve (2G33-F340B) to lift. Through possible dynamic effects caused by two-phase flow through the relief valve as the water flashed to steam, as well as possible thermal expansion effects on the coolant in the heat exchanger, the relief valve remained open until the RWCU System Isolation Valves were allowed to close.

The primary reason for bypassing the isolation was due to the belief, based on a review of the available leak detection instrumentation and past experience, that the signal was spurious. Additionally, there was concern for valve damage, based on the event of April 2, 1992. Based on experience gained during previous Reactor heatups and cooldowns, spurious signals were known to be caused by the difference between calibration conditions and actual heatup and cooldown conditions. Therefore, at times it was necessary to enter the LCO, and bypass this signal, to avoid challenging the isolation and subsequent loss of reactor inventory level control until system parameters were consistent with the calibration conditions. This practice of bypassing the isolation signal was inappropriately applied to this event.

D. SAFETY ANALYSIS OF EVENT

During the event, the Primary Containment Isolation Instrumentation functioned as designed. There was a drain path which existed from the reactor, the Leak Detection System sensed this, and the isolation signal was initiated, as designed. In accordance with Technical Specification 3.3.2, when the signal was bypassed, the 1-hour timeclock was entered. Within three minutes, the high differential flow signal was concluded to be valid, the isolation signal was enabled and the system isolated as designed.

While there was a valid leakage path during this event, it was to a piped system, Reactor Building Equipment Drain Tank, which is designed for these inputs. Therefore, there was no concern for radiological release to the environment.

E. CORRECTIVE ACTIONS

Immediately following the isolation, the stroke testing was completed for the isolation valves, other leak paths were verified to not exist, and the system was restarted with no further occurrence of the relief valve lifting.

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E. CORRECTIVE ACTIONS (CONTINUED)

In order to determine if the relief valve setpoint had drifted, the 2G33-F340B valve was replaced. Work Request L15472 was generated to test the setpoint of the valve which was in place at the time of the event. At the time of this report, this work request had not been completed. However, once setpoint testing is complete, if the test results are within specified limits, the valve will be placed into the storeroom for later use and no further actions will be taken with regard to valve performance. If results from setpoint tests are low, a plan will be developed and implemented which will address the potential setpoint drift for all of these valves in use. AIR 374-180-92-05001 will track completion of this item.

Operating Management will clarify the meaning of step-by-step and substep procedural adherence. This will include what must be done to vary from step-by-step/substep adherence during procedure usage. AIR 374-180-92-05002 will track completion of this item.

A review will be done of the RWCU system start-up and shutdown procedures for adequacy, and enhancements will be made as determined by the review. The LOA for RWCU delta-flow will also be reviewed. AIR 374-180-92-05003 will track completion of these items.

Training will be conducted for operators on issues which result from the above reviews/revisions. AIR 374-180-92-05004 will track completion of this item.

The RWCU System Delta-flow instrumentation should be reviewed for adequacy in light of technological advances since installation. AIR 374-180-92-05005 will track completion of this item.

Specific guidance on the bypassing of RWCU delta-flow isolations which are currently expected during plant heat-up and cooldown evolutions will be issued by the Station Manager. An interim letter has been issued to the Shift Engineers directing that the RWCU delta-flow isolation is NOT to be bypassed at normal operating pressure and temperature unless specified in an approved station procedure. AIR 374-180-92-05006 will track completion of this item.

The current station practice/philosophy of bypassing isolations or actuations will be reviewed and the Station Manager will issue a formal station policy. AIR 374-180-92-05007 will track completion of this item.

Station management will review those phrases in the "Conduct of Operations" procedure which deal with defeating actuations. Based on the findings of the review, clarifications of the meanings and station expectations will be issued. AIR 374-180-92-05008 will track completion of this item.

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F. PREVIOUS EVENTS

No previous events involving RWCU isolation on system shutdown were found.

G. COMPONENT FAILURE DATA

Manufacturer	Nomenclature	Model Number	MFG Part Number
Dresser Industries, Inc.	Safety Relief Valve	1-1/2" 1914G-1-XLS1-NC3062	N/A