

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1): LaSalle County Station Unit 2
DOCKET NUMBER (2): 0 5 0 0 0 3 7 4
PAGE (3): 1 OF 0 3

TITLE (4):

Reactor Water Clean Up High Differential Flow Isolation

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 NUMBERS	
0 8	0 1	8 4	8 4	0 4	4	0 1	0 8	2 7	8 5	NA	0 5 0 0 0	
										NA	0 5 0 0 0	

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5 (Check one or more of the following) (11)											
POWER LEVEL (10): 0 0 1	2	20.402(a)				20.406(a)				<input checked="" type="checkbox"/> 20.73(a)(2)(iv)		73.71(b)	
		20.406(a)(1)(i)				20.36(a)(1)				20.73(a)(2)(v)		73.71(c)	
		20.406(a)(1)(ii)				20.36(a)(2)				20.73(a)(2)(vi)		OTHER (Specify in Abstract below and in Text NRC Form 364)	
		20.406(a)(1)(iii)				20.73(a)(2)(i)							
		20.406(a)(1)(iv)				20.73(a)(2)(ii)							
		20.406(a)(1)(v)				20.73(a)(2)(iii)							
20.406(a)(1)(vi)				20.73(a)(2)(iv)				20.73(a)(2)(viii)(B)					
20.406(a)(1)(vii)				20.73(a)(2)(vi)				20.73(a)(2)(ix)					

LICENSEE CONTACT FOR THIS LER (12):
NAME: JoAnn M. Shields, extension 571
TELEPHONE NUMBER: 8 1 5 3 5 7 - 6 7 6 1
AREA CODE: 8 1 5

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)									
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
X	CIE	1 RIV	L21615	N					

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	NO				
<input checked="" type="checkbox"/>					

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

On August 1, 1984, at 1451, with Unit 2 in Start Up, Reactor Water Clean Up isolated on high differential flow. At the time of the event, vessel level was being controlled by RWCU Blowdown Flow. A lifted relief valve, combined with the reactor start up, caused the isolation. Safe plant conditions were maintained at all times. The premature lifting of the relief valve was due to pipe stress and continual water hammer on the valve. Correction and minimization of these two situations, along with a change to the procedure for heat exchanger rotation, LOP-RT-10, has resulted in a major reduction in Reactor Water Clean Up isolations or high differential flow.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
LaSalle County Station Unit 2	05000374	84	044	01	02	OF	03

TEXT (if more space is required, use additional NRC Form 366A 2/117)

I. EVENT DESCRIPTION

On August 1, 1984, at 1451, with Unit 2 in Start Up Mode and at about 800 psig, Reactor Water Clean Up (CE, RWCU) isolated on high differential flow (JM). At the time of the event, vessel level was being controlled by RWCU blowdown flow. While running at 800 psig, the "B" regenerative heat exchanger shell side relief valve, 2G33-F340B, lifted, venting to the Reactor Building equipment drain tank (WD). The system isolated according to design upon reaching the 70 gpm isolation setpoint. Safe plant conditions were maintained at all times.

II. CAUSE

The valve, 2G33-F340B, RWCU "B" regenerative heat exchanger shell side relief valve, lifted, venting water to the Reactor Building equipment drain tank. The loss of flow through the RWCU design flowpaths added to the differential flow value and isolated the system.

Inspection of the 2G33-F340B relief piping revealed the line to be four inches out of alignment. This additional stress contributed to the valve lifting early. The relief piping was cut and rewelded, removing the stress. This work was completed May 30, 1984.

To compound the event, the RWCU differential flow instruments are designed for operation at rated pressures and temperatures. As a result, the various flow loops are calibrated at the appropriate water density expected during steady state operation. In start-up, however, the water densities will not be at rated conditions, causing the instruments to indicate conservatively.

System isolations caused by Riley temperature sensor instrumentation and the flow sensors resulted in water hammer of the relief valves eventually eroding and damaging the valves. Inspection of the Unit 2 "B" shell side relief on September 5, 1984, revealed extensive damage due to water hammer. This damage contributed to allowing the valves to lift prematurely.

The above two basics, a lifted relief valve and a reactor start-up, combined to give the isolation.

III. PROBABLE CONSEQUENCES OF THE OCCURRENCE

The event was of minimal significance as the system operated according to design. Flow out the relief valve was routed to the Reactor Building equipment drain tank. Safe plant conditions were maintained at all times.

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TEXT (If more space is required, use additional NRC Form 365A 2/117)

IV. CORRECTIVE ACTION

A Work Request was written to investigate the relief valve lifting at less than design pressure. Excessive piping strain caused by piping misalignment was discovered on the 2G33-F340B relief line. The relief piping was cut and rewelded, removing the stress. The Riley temperature sensors monitoring the RWCU pump room differential temperature had been a common cause of past isolations, and had caused erosion and damage to the relief valve bodies. These sensors have been isolated, as their setpoint is meaningless, and the water hammer of the reliefs has been minimized as a result. (Amendment 7 to the Technical Specifications.)

The operating procedure for heat exchanger rotation, LOP-RT-10, was revised to keep the standby heat exchanger inlet valves open while it is not in service. This keeps the string and their reliefs at rated temperatures and pressures.

The net result of the removal of the pipe stress, the minimization of valve hammering, and the procedure change has been a major reduction in Reactor Water Clean Up isolations due to high differential flow.

V. PREVIOUS OCCURRENCES

Other reports of relief valves lifting at less than design pressure are detailed in LER 374/84-13-00 and LER 374/84-23-00.

Other reports of isolations while the reactor is in start up and blowing down to the condenser have occurred on Unit 1 and Unit 2 and are detailed in LER's 373/84-030-00, 84-033-00, 84-040-00 and 374/84-029-00, 84-041-00.

VI. NAME AND TELEPHONE NUMBER OF PREPARER

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August 27, 1985

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

Dear Sir:

Reportable Occurrence Report #84-044-01, Docket #050-374 is being submitted to your office to supercede previously submitted Reportable Occurrence Report 84-044-00, to supplement cause and corrective actions.

R.D. Bishop
for G. J. Diederich
Station Manager
LaSalle County Station

GJD/DRR/kg

Enclosure

xc: NRC, Regional Director
INPO-Records Center
File/NRC

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