

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1): LaSalle County Station Unit 1	DOCKET NUMBER (2): 0 5 0 0 0 3 7 3	PAGE (3) 1 OF 03
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TITLE (4):
1B RR Pump Suction Temp. RTD Well Leak

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 (5)
11	11	18	84	075	01	02	11	85	NA		0 5 0 0 0
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OPERATING MODE (9): 4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 6 (Check one or more of the following) (11):						
POWER LEVEL (10): 0 0 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.408(c)	<input type="checkbox"/> 90.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)			
	<input type="checkbox"/> 20.408(a)(1)(ii)	<input type="checkbox"/> 90.38(e)(1)	<input type="checkbox"/> 90.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)			
	<input type="checkbox"/> 20.408(a)(1)(iv)	<input type="checkbox"/> 90.38(c)(2)	<input type="checkbox"/> 90.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)			
	<input type="checkbox"/> 20.408(a)(1)(vi)	<input type="checkbox"/> 90.73(a)(2)(ii)	<input type="checkbox"/> 90.73(a)(2)(viii)(A)				
	<input type="checkbox"/> 20.408(a)(1)(vii)	<input checked="" type="checkbox"/> 90.73(a)(2)(iii)	<input type="checkbox"/> 90.73(a)(2)(viii)(B)				
<input type="checkbox"/> 20.408(a)(1)(viii)	<input type="checkbox"/> 90.73(a)(2)(iii)	<input type="checkbox"/> 90.73(a)(2)(ix)					

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME Dave Zoloty, extension 421		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 NRD'S	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRD'S	
X	A	D T W	R 3 7 3	Y						

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

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

During a hydrostatic pressure test of the Unit 1 "B" Reactor Recirculation system, a leak was discovered in the 1B33-N023B thermowell. Visual inspection indicated a 180° circumferential crack in the thermowell body. The failed Rosemount Engineering Co. thermowell and RTD assembly were replaced with an identical unit. Following metallurgical analysis of the failed thermowell, CECO's Station Material Analysis Department (SMAD) determined the cause of cracking to be mechanical fatigue, apparently caused by turbulent flow conditions. Three thermowells of the same or slightly different design exist on the suction side of each reactor recirc. pump. During the first Unit 1 and Unit 2 refuel outages a close visual inspection for leakage at operating pressure will be performed on the reactor recirc. thermowells with their RTD elements removed.

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TEXT (If more space is required, use additional NRC Form 388A's) (17)

I. EVENT DESCRIPTION

At 1440 on November 11, 1984, a hydrostatic pressure test at 1122 psig on the Unit 1 "B" Reactor Recirculation (AD) system revealed a leak around the 1B33-N023B RTD thermowell. This instrument monitors the inlet temperature of the "B" Reactor Recirc. Pump. Closer visual inspection revealed that a crack had developed at a machined 1/4" radius where the thermowell base necks down to a 7" long cone-shaped cylinder which protrudes 4" into the Recirculation System flow. The hairline crack had grown to extend approximately 180° around the thermowell circumference. The stainless steel thermowell was manufactured by Rosemount Engineering Co. of Minneapolis, Minn.

II. CAUSE

In an effort to determine the cause of failure, the CECO Station Material Analysis Department (SMAD) applied metallographic examination techniques to the failed thermowell. In their estimation, mechanical cyclic fatigue resulting from flow turbulence was what produced the thermowell failure.

III. PROBABLE CONSEQUENCES OF THE OCCURRENCE

The leaking thermowell did not affect the operability of its associated Resistance Temperature Detector (RTD). Although, exposure to a water environment may have caused the eventual failure of this RTD. The consequences of this type of failure would not be severe because an identical RTD arrangement exists on the "A" Reactor Recirc. Loop:

A failure possibility with more severe consequences would be the development of a 360° circumferential through-wall crack in the thermowell during power operation and the eventual separation of the thermowell tip from its welded base. In this case, some leakage would seep through the RTD/thermowell threaded connection and, if significant, would be detected as unidentified leakage by the Primary Containment floor sumps (IJ). Another result of the tip/base separation failure during operation would be the introduction of a 7" long piece of stainless steel directly into the Reactor Recirc. Pump impeller. The pump impeller could possibly be damaged and pieces of metal may be injected into the reactor vessel jet pumps.

An incident of this nature would cause significant unit downtime, and could be detected by the daily jet pump operability surveillance or by the loose parts (II) monitoring system. It is expected, however, that the unidentified leakage monitoring system would have detected the leak long before total failure of the thermowell had occurred.

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TEXT (If more space is required, use additional NRC Form 285A's) (17)

IV. CORRECTIVE ACTIONS

Following the discovery of the cracked thermowell, the thermowell and its associated RTD were promptly replaced with identical units. Prior to installation of the new thermowell, in addition to vendor non-destructive examinations, a penetrant exam was performed on-site for information only.

Due to the relatively high velocity of reactor coolant in the Recirculation system, further investigation as a result of this matter will be limited to the thermowells on the Reactor Recirc. system. Two thermowells of identical design and one of a very similar design to that of the failed thermowell are present, on the suction piping of each recirculation pump.

A visual examination will be performed for evidence of leakage on each of the susceptible thermowells while their RTD elements are removed. These examinations will be performed for both the Unit 1 and the Unit 2 thermowells while the Recirculation system is subjected to operating pressure during each unit's first refuel outage (AIR 01-85-67015 and 67016). If no evidence of thermowell leakage is discovered during these examinations, no further actions will be taken.

V. PREVIOUS OCCURRENCES

No previous thermowell failures of this nature have occurred at LaSalle County Station.

VI. NAME AND TELEPHONE NUMBER OF PREPARER

D. A. Zoloty, 815/357-6761, extension 421.



Commonwealth Edison
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February 11, 1985

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

Dear Sir:

Reportable Occurrence Report #84-075-01, Docket #050-373 is being submitted to your office to supercede previously submitted Reportable Occurrence Report 84-075-00.

for R.D. Budy
G. J. Diederich
Station Superintendent
LaSalle County Station

GJD/MLD/kg

Enclosure

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

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