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 4

Title (4)

Unit Shutdown Due to Automatic Depressurization System Nitrogen Backup Pressure Regulator Failure

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
0 8	3 1	8 8	8 8	0 1 1 0	0 0	0 9	2 8	8 8		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)	___ 50.73(a)(2)(iv)	___ 73.71(b)
	___ 20.405(a)(1)(i)	___ 50.36(c)(1)	X 50.73(a)(2)(v)	___ 73.71(c)
POWER LEVEL (10) 0 7 4	___ 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)	X 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
Robert Ayer, Technical Staff Engineer, extension 639	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	L E	R G	T 0 2 0	N					
X	L E	C M P	I 0 7 5	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 0435 hours on August 31, 1988, with Unit 2 at 74% power, the "2A" Drywell Pneumatic compressor (normally lead compressor) was out of service for maintenance and a decreased output from the "2B" Drywell Pneumatic compressor (normally standby compressor) was noticed. From 0439 to 0630 hours the "D" Automatic Depressurization System (ADS) accumulator low pressure alarm activated. At 1435 hours "C" ADS accumulator low pressure alarmed which placed Unit 2 on a 12 hour timeclock per Technical Specification 3.5.1. At 1645 hours the "2A" (2IN01CA) compressor was returned to service. During degradation of the "2B" compressor, the nitrogen bottle bank backup did not maintain sufficiently high system pressure. It was determined that the south side regulator had a sluggish system pressure response during pressure drop testing and declared inoperable. A Generating Station Emergency Plan (GSEP) Unusual Event was declared at 1910 hours. By 0231 hours on September 1, 1988, all control rods were inserted, and at 0335 hours the GSEP was exited. Safety consequences of the event were minimal as other systems, including an emergency backup system, were operational. Disassembly of the regulator revealed minor debris. A surveillance has been initiated to verify the regulator operation every 18 months. This event is being reported per 10CFR50.73(a)(2)(i) and 10CFR50.73(a)(2)(v).

IE22
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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: 8/31/88 Event Time: 1910 Hours

Reactor Mode(s): 1 Mode(s) Name: Run Power Level(s): 74%

B. DESCRIPTION OF EVENT

LaSalle Unit 2 was in Operational Condition 1 (Run) at 74% power on August 31, 1988. The "2A" Drywell Pneumatic (IN) [LE] compressor (2IN01CA) normally the lead compressor, was out of service for maintenance. The "2B" compressor (2IN01CB) normally the standby compressor, was operating to maintain system pressure.

At 0435 hours, decreased output from the "2B" Drywell Pneumatic (IN) compressor was experienced, dropping IN system pressure to approximately 155 psig. Normal operating pressure for the "2A" and "2B" compressors is 167-175 psig and 162-175 psig, respectively. At 0439 hours, the "D" Automatic Depressurization System (ADS) [SB] accumulator low pressure alarm (set at 152 psig) annunciated and reset periodically. At 0630 hours, this alarm remained in the annunciated condition. Other ADS accumulators remained above their alarm setpoints. The "2A" compressor was tested and still had high interstage pressure and was run for approximately two hours for observation purposes, and at 1300 hours was again taken out of service for troubleshooting.

At 1318 hours, the "D" ADS accumulator low pressure alarm annunciated, as it had earlier when the "2A" compressor was out of service. At 1435 hours, the "C" ADS accumulator low pressure alarm initiated. At this time, less than 6 ADS valves were considered operable, and per Technical Specification 3.5.1, action "e", a 12 hour timeclock to Hot Shutdown was begun. At 1448 hours the "V" ADS accumulator low pressure alarm activated. While investigating the "C" ADS accumulator alarm, an IN system pressure of 148-150 psig was observed, indicating further degradation of the "2B" IN compressor. Pressure gauges were installed on the "C", "V" and "D" ADS accumulator low pressure switches. Indicated accumulator pressures were 146-148 psig, below the alarm setpoint of 152 psig.

The Mechanical Maintenance Department determined that the "2A" compressor unloader valves were not operating properly, and adjustments were made to correct the problem. At 1645 hours, the "2A" compressor was returned to service and all ADS accumulator alarms were reset.

B. DESCRIPTION OF EVENT (Continued)

The ADS Nitrogen Bottle regulators should have maintained system pressure when the "2B" IN compressor degraded. It appeared that the regulator setpoints had changed or that the regulators were malfunctioning. The ADS nitrogen regulators were tested for the north (2IN038) and the south (2IN035) bottle banks. The performance of the north side regulator was determined to be acceptable, but the south side regulator demonstrated a very slow/sluggish response, taking approximately twice the time (compared to 2IN038) to repressurize the system during pressure drop tests.

Work Request #L83419 was initiated to make adjustments to the south side regulator (2IN035). However, little effect on pressure response time was noted. Since there was no readily available criteria with which to evaluate the ADS regulator for repressurization rate, the nitrogen bottle backup for ADS was considered inoperable. A plant shutdown was initiated as a conservative action. At 1910 hours, a Generating Station Emergency Plan (GSEP) Unusual Event was declared and proper notifications were made.

On September 1, 1988, at 0100 hours, the south side bottle bank was controlling at 161 psig, which is an acceptable pressure setpoint, but response was still sluggish. And an inspection of the valve internals was deemed necessary.

At 0231 hours, all control rods were inserted and the mode switch was placed in shutdown. At 0335 hours, the GSEP was exited.

This event is being reported due to the requirements of 10CFR50.73(a)(2)(i) and 10CFR50.73(a)(2)(v).

C. APPARENT CAUSE OF EVENT

This event was caused by the slow response of the south side bottle bank regulating valve (2IN035) when tested for IN system repressurization rate. This sluggish response was present because the regulator had not been recently operated and because there was no specific criteria as to what the regulator flow setpoint should be. The following factors contributed to the discovery of the problem:

1. The "2A" compressor, normally the lead compressor, was taken out of service for maintenance.

2. The performance of the "2B" compressor, normally the standby compressor, degraded during operation, reducing system pressure to the alarm setpoint of 152 psig. When the "2B" compressor replaced the "2A" compressor, the "2B" compressor was functioning properly.

3. The south side regulator (2IN035) operated properly, but recharging of system pressure was sluggish during pressure drop tests, taking approximately twice as long as the north side regulator (2IN038).

D. SAFETY ANALYSIS OF EVENT

At the time of the event, the High Pressure Core Spray (HPCS) [BG] system was fully operational. By 1645 hours, the "2A" compressor was returned to service, restoring system pressure to normal. During the period from 1435 to 1645 hours, four of the seven ADS accumulator low pressure alarms had not annunciated, and the three ADS accumulators that had caused alarms, still had a pressure of 146-148 psig, enough to open the ADS valves under all analyzed conditions. All safety valves were operable at the time of the event. (These valves are supplied with 100 psig air.)

E. CORRECTIVE ACTIONS

1. The Mechanical Maintenance Department (MMD) repaired the "2A" and "2B" Drywell Pneumatic compressors.

2. MMD inspected the 2IN035 regulator. Two pieces of a rubber material were found, but these did not appear to have caused the operational problem. A new stem assembly was installed and the regulator was tested per LLP-88-057 (Drywell Pneumatic Regulator Adjustment) by Operating and Technical Staff personnel with satisfactory results.

3. Operating and Technical Staff personnel adjusted the 2IN038 regulator to control at a higher pressure. Testing per LLP-88-057 yielded satisfactory results.

4. LaSalle On-Site Review (LOSR) 88-057 for Unit 2 startup provides for:

   a. A surveillance procedure to be written to functionally cycle the ADS bottle bank pressure regulators on a refuel (18 month) testing frequency. Action Item Record (AIR) 374-240-88-05701 addresses this issue.

   b. Annunciator/Abnormal procedural guidance to be developed for ADS accumulator low pressures, to outline actions to be taken when the ADS bottle bank pressure is fluctuating at the low pressure alarm setpoint. AIR 374-240-88-05702 addresses this issue.

   c. BWR Engineering to determine the criteria for operability of the ADS bottle bank subsystem to assist the station in operability assessments and setpoints. AIR 374-240-88-05703 addresses this issue.

5. At 2237 hours on September 2, 1988, unit startup commenced, and at 1110 hours on September 3, 1988 the Unit 2 generator was brought on line.

F. PREVIOUS EVENTS

LER Number	Title
82-178/03L-0	Low Pressure ADS Valves S, C, & U
374/85-004-00	False ADS Accumulator Low Pressure Alarm

G. COMPONENT FAILURE DATA

Manufacturer	Nomenclature	Model Number	MFG Part Number
Ingersol Rand	Compressor	ESH-2NL-2	
Target Rock Corp.	Regulator		

Commonwealth Edison
LaSalle County Nuclear Station
Rural Route #1, Box 220
Marseilles, Illinois 61341
Telephone 815/357-6761

September 28, 1988

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

Dear Sir:

Licensee Event Report #88-010-00, Docket #050-374 is being submitted to your office in accordance with 10CFR50.73(a)(2)(i) and 10CFR50.73(a)(2)(v).

for G. J. Diederich
Station Manager
LaSalle County Station

GJD/RAA/kg

Enclosure

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

IE22
1/1