



**Florida
Power**
CORPORATION

Crystal River Unit 3
Docket No. 50-302

September 8, 1992
3F0992-10

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

Subject: Licensee Event Report (LER) 92-017

Dear Sir:

Enclosed is Licensee Event Report (LER) 92-017 which is submitted in accordance with 10 CFR 50.73.

Sincerely,

G. L. Boldt
Vic. President
Nuclear Production

EEF:mag

Enclosure

xc: Regional Administrator, Region II
Project Manager, NRR
Senior Resident Inspector

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PDR

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HOURS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (D150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON DC 20503.

FACILITY NAME (1) CRYSTAL RIVER UNIT 3 (CR-3)						DOCKET NUMBER (2) 0 5 0 0 0 3 0 2			PAGE (3) 1 OF 0 3		
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TITLE (4)
Improper Switch Adjustment and Solenoid Failure Cause Partial Loss Of Auxiliary Building Ventilation Exhaust And Entry Into Technical Specification 3.0.3

EVENT DATE (6)			LER NUMBER (8)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)					
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES N/A			DOCKET NUMBER(S) 0 5 0 0 0		
0 8	0 8	9 2	9 2	0 1 7	0 0	0 9	0 1	9 2	N/A			0 5 0 0 0		

OPERATING MODE (9) 1

POWER LEVEL (10) 1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (CHECK ONE OR MORE OF THE FOLLOWING) (11)

20.402(b)	20.405(a)(1)(i)	20.405(a)(1)(ii)	20.405(a)(1)(iii)	20.405(a)(1)(iv)	20.405(a)(1)(v)	20.405(a)(1)(vi)	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vii)	50.73(a)(2)(viii)(A)	50.73(a)(2)(viii)(B)	50.73(a)(2)(ix)	75.71(b)	75.71(c)	OTHER (Specify in Abstract below and in Text, NRC Form 396A)
						X									

LICENSEE CONTACT FOR THIS LER (12)

NAME: W. A. Stephenson, Nuclear Safety Supervisor

TELEPHONE NUMBER: 9 0 4 7 9 5 -- 6 4 8 6

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
X	V	F	S	V					
			J	0	7	3			NO

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

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

On August 8, 1992, Crystal River Unit 3 was operating in MODE 1 (POWER OPERATION) at 100% Rated Thermal Power. Operators attempted to start Auxiliary Building ventilation exhaust system fans A and C. Fan A did not start. Fans B and D were started to provide Auxiliary Building exhaust. Fan B tripped 38 minutes later. Although one fan in each pair did operate, this condition left the plant without sufficient flow for the Auxiliary Building ventilation exhaust system to remain operable and Technical Specification (T.S.) 3.0.3 was entered at 2238. A failed solenoid valve coil was found in the control air circuit for the dampers on fan B. Control air was supplied and fan B was started thus providing two OPERABLE exhaust fans. T.S. 3.0.3 was exited at 2300. A damper limit switch adjustment allowed returning the A fan to service on August 13, 1992 at 0140. The solenoid failure was age-related and a Preventative Maintenance (PM) item to inspect or replace it on a routine basis was added. The A fan failed to start due to improper adjustment of a limit switch on the inlet and outlet dampers. Similar solenoid valves are being placed on a 'M' program. Plaques will be placed near the limit switches to alert personnel of the sensitivity of the adjustment of the dampers. A plant modification is being proposed to improve the manner in which the dampers and fans are interlocked.

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TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	

TEXT (If more space is required, Use additional NRC Form 366A's (17))

EVENT DESCRIPTION:

On August 8, 1992, Crystal River Unit 3 was operating in MODE 1 (Power Operation) at 100% Rated Thermal Power producing 861 Megawatts. A routine Surveillance Procedure (SP) was being performed on the Auxiliary Building (AB) ventilation exhaust system [VF]. Technical Specification (T.S.) 3.7.8.1 requires in Modes 1 through 4, that the AB ventilation exhaust system shall be OPERABLE and shall consist of a minimum of two independent pairs of exhaust fans [VF, FAN]. T.S. 3.9.12 requires whenever there is irradiated fuel in the spent fuel pool, that the AB ventilation exhaust system servicing the storage pool area shall be OPERABLE. Normal operating configuration of the system has one pair of exhaust fans running and one pair shut down. The monthly SP required starting one pair of fans and running them for a minimum of 15 minutes. Air Handling Fans A and C (AHF-14A and 14C) which were to be started were already running. The fans were shut down and an attempt to restart them was made. AHF-14A did not restart. The nuclear operator started the AHF-14B and D pair of fans to provide AB exhaust. Action Statements for T.S. 3.7.8.1 and 3.9.12 were entered at 2200 and repair efforts were begun. The most restrictive action statement required the plant to restore the exhaust system to two pairs of operable fans or be in HOT STANDBY in seven days.

After 38 minutes of operation, AHF-14B tripped. This left the plant without the required pair of exhaust fans in service and without the required OPERABLE AB ventilation exhaust system. T.S. 3.0.3 was entered at 2238. Immediate investigation showed that the control air supply to the inlet and outlet dampers for AHF-14B had failed due to a solenoid valve [VF, SV] failing closed. Control air was supplied to the dampers using a bypass around the solenoid valve and the dampers were opened. AHF-14B was started thus providing two OPERABLE exhaust fans. T.S. 3.0.3 was exited at 2300. Investigation of the cause and repair work was continued on AHF-14A and it was returned to service on August 13, 1992 at 0140. Action Statements for T.S. 3.7.8.1 and 3.9.12 were exited at that time.

CAUSE

AHF-14A had failed to start because there was improper overlap of the damper shaft trigger bar on the NAMCO limit switch roller arm assembly. While the provided overlap was sufficient on occasion to allow functioning of the switch, it was not sufficient to make contact in all operational situations. This resulted in failure of the NAMCO snap-lock switch to fully actuate contacts in the fan start circuit on this occasion. The root cause of this failure was that maintenance personnel, who initially installed the NAMCO switch, failed to properly adjust or position it even though it initially passed post maintenance testing.

AHF-14B tripped because a 120VDC coil burned out on the solenoid valve which supplies control air to the fan inlet and outlet dampers. This caused the dampers associated with the B fan to close. Because each exhaust fan is interlocked with

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TEXT (If more space is required, Use additional NRC Form 300A (17))

its associated dampers, the B fan automatically shut down. The root cause of that failure was age related and the fact that there was no specific PM program step designed to inspect or replace the solenoid on a routine basis to prevent in-service end-of-life failures.

EVENT ANALYSIS

One AB exhaust fan was in operation at all times during this event thus ensuring that all releases were filtered through the building charcoal filters. None of the installed radioactivity monitors indicated elevated levels of airborne radioactivity during the event; therefore, there was no adverse effect on the health and safety of the general public during this event. The AB ventilation exhaust system does not have any secondary functions which were adversely impacted by the loss of the fans. There are no other backup systems which could provide the services required of the AB ventilation exhaust system.

CORRECTIVE ACTION

Warning plaques will be installed on the ductwork for AHF-14A, B, C, and D adjacent to the limit switches. These plaques will provide a reminder to personnel of the importance of the limit switch settings.

The four solenoid valves in the AB Air Handling Panel 15AB will be placed on a regular PM replacement program. Other solenoid valves in other air handling control panels for air handling equipment, which are considered important to plant operation, will also be added to the PM program.

PREVIOUS SIMILAR EVENTS

There have been five (5) previous reportable events concerning loss of the AB ventilation exhaust system. One of the events in 1983 had a similar solenoid failure.