

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) CRYSTAL RIVER UNIT 3										DOCKET NUMBER (2) 0 5 0 0 0 3 0 2					PAGE (3) 1 OF 0 3			
TITLE (4) FEEDWATER BOOSTER PUMP TRIP RESULTS IN REACTOR COOLANT SYS. HIGH PRESSURE TRIP																		
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)					
									N/A				0 5 0 0 0					
1	1	0	8	8	5	0	2	5	0	0	1	2	0	6	8	5	N/A	0 5 0 0 0
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 8: (Check one or more of the following) (11)																
1		20.402(b)				20.405(c)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				73.71(b)				
POWER LEVEL (10)		0 9 6				20.405(a)(1)(i)				50.36(e)(1)				73.71(e)				
		20.405(a)(1)(ii)				50.36(e)(2)				50.73(a)(2)(v)				OTHER (Specify in Abstract below and in Text, NRC Form 386A)				
		20.405(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(vii)								
		20.405(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(A)								
		20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(viii)(B)								
						50.73(a)(2)(ix)												
LICENSEE CONTACT FOR THIS LER (12)																		
NAME W. K. BANDHAUER, NUCLEAR SAFETY SUPERVISOR										TELEPHONE NUMBER AREA CODE 9 0 4 7 9 5 - 6 4 8 6								
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								
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)

On November 8, 1985, Crystal River Unit 3 was operating at 96% full power. At 03:51, the "A" feedwater booster pump (FWBP) tripped. The Integrated Control System immediately initiated a power runback. The ensuing mismatch between Reactor Coolant System (RCS) heat addition and removal could not be overcome by the plant runback and the reactor tripped on high RCS pressure approximately 20 seconds later.

The cause of the FWBP trip cannot be determined.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1) CRYSTAL RIVER UNIT 3	DOCKET NUMBER (2) 0 5 0 0 0 3 0 2	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 5	0 2 5	0 0	0 2	OF	0 3

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

EVENT DESCRIPTION

On November 8, 1985, Crystal River Unit 3 was operating at 96% full power. All stations of the Integrated Control System (ICS) (JA), were in the automatic control mode. Operators were performing a routine surveillance procedure to check Reactor Coolant System (RCS) (AB) water inventory. The operators were also operating the pressurizer (AB,PZR) spray to remove noncondensable gases from the RCS.

At 03:51, the "A" feedwater booster pump (FWBP) (SJ,P) tripped. The ICS initiated a power runback as a result of the pump trip. The ensuing mismatch between RCS heat addition and removal could not be overcome by the plant runback and the reactor tripped on high RCS pressure approximately 20 seconds later.

Operators opened High Pressure Injection System valves (BQ,INV) to line up an additional water source from the Makeup and Purification System to aid RCS volume control following the reactor trip. It was necessary to manually isolate one main steam atmospheric dump valve (SB,V) which did not close properly. Also, operators had to isolate the "A" startup feedwater control valve (SJ,FCV), which did not reseal properly.

CAUSE

Feedwater Booster Pump automatic trip may be caused by the following:

1. Low lubricating oil pressure.
2. Low deaerator level.
3. Motor breaker ground overcurrent trip.
4. Motor breaker phase overcurrent trip.
5. Suction valve closure.
6. Motor breaker undervoltage trip.

Items 1, 2, 3, and 4 are all annunciated in the control room. None of these alarms were received before the FWBP trip. It is not likely that the pump trip was caused by any of these.

Feedwater booster pump suction valve open/closed status is indicated in the control room. Interviews with the control room operators reveal the valves did not close before the pump trip, therefore, Item 5 could not have been the cause of the pump trip.

Based on subsequent successful operation of the FWBP, it is not likely that pump trip was caused by Item 6. However, this item is under further investigation.

Also, it is possible that plant personnel who may have been working near the FWBPs may have accidentally contacted and tripped the local trip switch for the "A" pump. Subsequent investigation has not been able to prove or disprove this possibility.

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SAFETY CONSIDERATIONS

The Reactor Protection System (RPS) (JC) performed as designed by inserting the control rods (AA,ROD) when the RCS high pressure trip setpoint was reached.

The core was cooled through the secondary plant. The event did not require actuation of engineered safety features other than RPS.

Because of small leaks existing in the steam generators, a small radioactive release occurred via the main steam safety (SB,RV) and atmospheric dump valves. The release did not exceed Technical Specification limits.

No safety equipment was damaged or otherwise made inoperable during the event.

CORRECTIVE ACTIONS

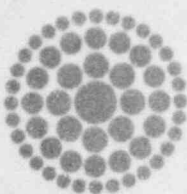
A cover has been placed over the local control switches for both FWBPs to prevent the switches from being accidentally actuated.

The atmospheric dump valve controls have been examined and adjusted. Maintenance personnel inspected and adjusted the "A" startup feedwater control valve control module. It has not been possible to establish an undisputable cause for the trip of the FWBP.

Florida Power Corporation is considering adjustments to the RCS high pressure trip setpoint and the Integrated Control System to improve the capability to carry out an automatic power runback without reactor trip. This change is being coordinated as part of a Babcock and Wilcox Owner's Group activity.

SIMILAR PREVIOUS EVENTS

Of the 56 automatic reactor trips at Crystal River 3, 25 have resulted from high RCS pressure due to feedwater control problems. This is the first reactor trip initiated by a feedwater booster pump trip.



**Florida
Power**
CORPORATION

December 5, 1985
3F1285-02

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

Subject: Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72
Licensee Event Report No. 85-025-00

Dear Sir:

Enclosed is Licensee Event Report (LER) No. 85-025-00 which is submitted in accordance with 10 CFR 50.73.

Should there be any questions, please contact this office.

Sincerely,

G. R. Westafer
Manager, Nuclear Operations
Licensing and Fuel Management

AEF/feb

Enclosure

xc: Dr. J. Nelson Grace
Regional Administrator, Region II
Office of Inspection & Enforcement
U.S. Nuclear Regulatory Commission
101 Marietta Street N.W., Suite 2900
Atlanta, GA 30323

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