

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 03		
TITLE (4) INADVERTENT EMERGENCY FEEDWATER INITIATION & CONTROL (EFIC) ACTUATION																
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)			
08	16	85	85	014	00	09	23	85	N/A				0 5 0 0 0			
OPERATING MODE (9) 3			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following) (11)													
POWER LEVEL (10) 0 0 0			20.408(b)			20.408(c)			X 50.73(a)(2)(iv)			73.71(b)				
			20.408(a)(1)(i)			50.38(e)(1)			50.73(a)(2)(v)			73.71(e)				
			20.408(a)(1)(ii)			50.38(e)(2)			50.73(a)(2)(vi)			OTHER (Specify in Abstract below and in Text, NRC Form 365A)				
			20.408(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(vii)(A)							
			20.408(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(vii)(B)							
			20.408(a)(1)(v)			50.73(a)(2)(iii)			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 - 3 8 0 2						
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS						
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)

On August 16, 1985 at approximately 2119 hours, the plant experienced a steam to feedwater flow imbalance and received two successive actuations of the Emergency Feedwater Initiation and Control system (EFIC) due to low steam generator level. The plant was in Mode 3 and in the process of making an adjustment to the average Reactor Coolant System temperature after testing the main turbine. The audible function of the Annunciator System was inoperable and corrective maintenance was being performed. Steam generator low level conditions were caused by a temporary imbalance between feed flow and steam flow due to operator error; the imbalance condition was corrected and normal level control was established.

This event will be reviewed by licensed operators, and the involved personnel will be counselled.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

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

EVENT DESCRIPTION

Prior to the event, the turbine bypass valves (SO,FCV) had been isolated to stop valve leakage and conserve Reactor Coolant System (AB) (RCS) heat during turbine testing. On August 16, 1985, the plant experienced a steam to feedwater flow imbalance which caused an Emergency Feedwater Initiation and Control System (JE) (EFIC) actuation due to Once Through Steam Generator (OTSG) low level conditions. At the time of the actuation, the plant was in Mode 3 and raising average RCS temperature (Tave) to its normal shutdown value following a post-outage turbine test. The steam generator level control systems (JB) were in manual control. The audible function of the Annunciator System (IB) had been taken out of service for repair.

The startup feedwater control valves (SJ,FCV) were in manual control and the main feedwater pump (SJ,P) was in manual control with the speed/discharge pressure set below the usual value to accomodate the lower than usual RCS temperatures.

At 1942, the turbine testing was completed and the RCS began heating up because the turbine bypass valves were isolated. Since the running main feedwater pump was still in manual control (constant discharge pressure) main feedwater flow was being reduced as the OTSG pressure increased with temperature. Even though feedwater flow was minimal, the OTSG levels were slowly increasing because the steam flow was isolated. At approximately 543F Tave, the operators realized that the turbine bypass valves were still isolated but failed to recognize that the feedwater pump was in manual. At 2118, they unisolated the turbine bypass valves and slowly opened them to reduce the RCS temperature.

Once steam flow was initiated the minimal feedwater flow became inadequate and the OTSG levels boiled down to 19 inches. At 2120, EFIC actuated, and restored level. At 30 inches EFIC was manually reset and Emergency Feedwater (BA) was stopped. However, the main feedwater pump discharge pressure/flow (initial condition unchanged) was still insufficient to maintain the level; thus the level again decreased and, at 2123, EFIC actuated (lowest OTSG level was 11 inches). By this time the RCS temperature and OTSG pressure (520F/810 psig) had decreased to a point where the pump discharge pressure was more than adequate and the OTSG levels began increasing rapidly. EFIC was reset and at a level of approximately 60 inches, the operators then recognized the status of the startup feedwater control valves and the main feedwater pump. They placed the startup feedwater control valves in automatic and increased the pump discharge pressure.

The above transient caused an RCS overcooling of approximately 27F; the operators responded by opening a High Pressure Injection valve (BQ,V) (MUV-24) to restore pressurizer (AB,PZR) level (minimum level was 22 inches).

CAUSE

Licensed plant operators failed to recognize the imbalance between feedwater and steam flow rates. This imbalance caused both low steam generator level EFIC actuations.

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Adequate procedural guidance exists regarding maintenance of steam generator levels when control stations are in the manual control mode.

It should be noted that the judgement and responses of the operators were definitely impaired by the previous loss of the audible function of the Annunciator System. Corrective maintenance was being performed on the Annunciator System at the time of the event.

SAFETY CONSIDERATIONS

This event had no impact on the health and safety of the public. The EFIC system functioned repeatedly as expected thus ensuring adequate heat removal. Although main feedwater pressure was temporarily inadequate, it did re-establish adequate flow at reduced pressures thus precluding a total loss of main feedwater. The extent of the overcooling was manageable and did not challenge any Engineered Safeguard Systems.

CORRECTIVE ACTION

Personnel involved will be counselled regarding the maintenance of steam generator levels in the manual control mode.

Using appropriate administrative controls, a detailed review and discussion of the entire event will be provided to all operators.

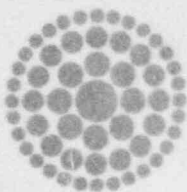
Implementation of additional administrative controls regarding conduct of testing and failure of the annunciator audible function is being considered.

Corrective maintenance on the annunciator was pursued on a continuous basis and completed; and the audible function was returned to an operable status.

HISTORY OF SIMILAR EVENTS

This was the first event involving a steam to feedwater flow mismatch which resulted in an EFIC actuation.

There have been a total of 12 prior events involving the EFIC system, 11 of them have been categorized as inadvertent actuations and the 12th involved only the overfill protection function of the EFIC system.



**Florida
Power**
CORPORATION

September 23, 1985
3F0985-17

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. 85-014-00

Dear Sir:

Enclosed is Licensee Event Report (LER) No. 85-014-00 which is submitted in accordance with 10 CFR 50.73. This report has been delayed as described in our letter dated September 16, 1985.

Should there be any questions, please contact this office.

Sincerely,

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

AEF/feb

Enclosure

cc: 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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