

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)										DOCKET NUMBER (2)										PAGE (3)			
CRYSTAL RIVER UNIT 3										0 5 0 0 0 3 0 2										1 OF 0 3			

TITLE (4)

Voluntary Entry into T.S. 3.0.3 for Troubleshooting and Repair of EF I&C System

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																
0	7	1	6	8	7	8	7	-	0	1	3	-	0	1	0	3	3	1	8	8	N/A					0 5 0 0 0				

OPERATING MODE (9)		1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following): (11)				
POWER LEVEL (10)	0, 6, 5	20.402(b)		20.406(c)		50.73(a)(2)(iv)	73.71(b)
		20.406(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)	73.71(c)
		20.406(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 356A)
		20.406(a)(1)(iii)	X	50.73(a)(2)(i)		50.73(a)(2)(vii)(A)	
		20.406(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(vii)(B)	
20.406(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)			

LICENSEE CONTACT FOR THIS LER (12)	
NAME	TELEPHONE NUMBER
L. W. MOFFATT, NUCLEAR SAFETY SUPERVISOR	AREA CODE 9 0 4 7 9 5 - 6 4 8 6

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (12)					
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
X	J E	X T	V 1 2 4	YES	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO		0 1 6	3 1 0	8 1 8

ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single space typewritten lines) (18)

On July 12, 1987, Crystal River Unit 3 was operating at 65% Rated Thermal Power, generating 530 MWe. Steam line and feedwater isolation functional testing was in progress. During the surveillance, indication of a partial trip in the Emergency Feedwater Initiation and Control (EFIC) System was received.

On three separate occasions (July 16, 17, and 18, 1987) the output breakers of both "A" and "B" EFIC channels were opened, disabling the automatic function of the system. This was done to preclude the possibility of spurious actuations while repairs were being made. Operation with both EFIC automatic actuation channels disabled is a condition prohibited by the CR-3 Technical Specifications. Therefore, these actions amounted to voluntary entry into the requirements of Specification 3.0.3.

The partial trip was caused by a degraded light emitting diode (LED) in the optical transmitter of the channel C emergency feedwater initiate circuit. The LED was replaced.

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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) 05000302	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		87	013	01	02	OF	03

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

EVENT DESCRIPTION

On July 12, 1987, Crystal River Unit 3 was operating at 65% rated thermal power and was generating 530 MWe. Steam line and feedwater isolation functional testing was in progress. During the surveillance, indication of a partial trip in the Emergency Feedwater Initiation and Control (EFIC) [JE] System was received. Surveillance was stopped to allow development and implementation of a troubleshooting/repair plan.

On three separate occasions (July 16, 17, and 18, 1987) the output breakers of both "A" and "B" EFIC channels were opened, disabling the automatic function of the system. This was done to preclude the possibility of spurious actuations while repairs were being made. Operation with both EFIC automatic actuation channels disabled is a condition prohibited by the CR-3 Technical Specifications. Therefore, these actions amounted to voluntary entry into the requirements of Specification 3.0.3.

Appropriate management personnel were notified prior to opening the output breakers on each occasion. Additionally, dedicated operators were stationed to manually initiate protective actions if actuation limits were reached.

The LED was replaced and tested satisfactorily.

CAUSE

The EFIC system partial trip was caused by a degraded light emitting diode (LED) in the optical transmitter [JE, XT] of the channel C emergency feedwater initiate circuit. Electronic noise generated during the steam line and feedwater isolation surveillance affected the output of the degraded LED. (Feedwater isolation surveillance is conducted within the EFIC cabinets.) The LED generated a spurious emergency feedwater initiate signal. No other initiate signals were present, so the logic required for a full trip was not complete, (i.e., a partial trip occurred). A study has been conducted and the cause of the LED failure was determined to be an effect called "Dark Line Defects". This phenomena can result from excessive thermal or electrical stress on the LED.

Technical Specification 3.0.3 was voluntarily entered, on three occasions, to perform planned troubleshooting and maintenance.

SAFETY CONSIDERATIONS

The EFIC control functions were manually operable at all times. A licensed operator was stationed to observe actuation parameters and initiate protective actions if actuation limits were reached. All actuation parameters were observed to be within limits and EFIC was not actuated. On each occasion, repair and troubleshooting activities were completed within the one hour time limit of Technical Specification 3.0.3. These events did not impact the health and safety of the public.

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		0 1 3	0 1	0 3	OF	0 3	

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

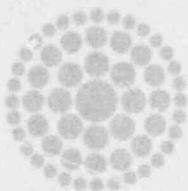
CORRECTIVE ACTION

The LED was replaced.

A study has been completed by an independent organization and the cause of the led failure has been determined. FPC Engineering has developed recommended actions to be taken over the long term. These recommended actions are being evaluated to determine the best course of action. An additional supplement will be provided following completion of this evaluation.

PREVIOUS SIMILAR EVENTS

Ten previous similar events (voluntary entry into Technical Specification 3.0.3) have occurred at Crystal River Unit 3. The most recent was reported in IER 87-002. Six of these events were associated with the EFIC system and four of the six were associated with LED failures.



**Florida
Power**
CORPORATION

March 31, 1988
3F0388-28

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

Subject: Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72
Licensee Event Report No. 87-013-01

Dear Sir:

Enclosed is Licensee Event Report (LER) 87-013-01 which is submitted in accordance with 10 CFR 50.73.

Should there be any questions, please contact this office.

Sincerely,

K. R. Wilson
Manager, Nuclear Licensing

WLR:mag

Enclosure

xc: Dr. J. Nelson Grace
Regional Administrator, Region II

Mr. T. F. Stetka
Senior Resident Inspector

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