



Entergy
Operations

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Ref: 10CFR50.73(a)(2)(i)

W3B5-91-0217

A4.05

QA

July 29, 1991

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

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Reporting of Licensee Event Report

Gentlemen:

Attached is Licensee Event Report Number LER-91-014-00 for Waterford Steam Electric Station Unit 3. This Licensee Event Report is submitted pursuant to 10CFR50.73(a)(2)(i).

Very truly yours,

D.F. Packer
General Manager - Plant Operations

DFP/WEF/jrr
Attachment

cc: Messrs. R.D. Martin
G.L. Florreich
J.T. Wheelock - INPO Records Center
E.L. Blake
D.L. Wigginton
N.S. Reynolds
NRC Resident Inspectors Office

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PDR ADOCK 05000382
S PDR

JE27

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Waterford Steam Electric Station Unit 3										DOCKET NUMBER (2) 0 5 0 0 0 3 8 2										PAGE (3) 1 OF 4																					
TITLE (4) Main Feed Isolation Valve Inoperable due to Accumulator Leak																																									
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 6			2 7			9 1			9 1			0 1			4			0 0			0 7			2 9			9 1			N/A						0 5 0 0 0					
OPERATING MODE (9) 1						THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)																																			
POWER LEVEL (10) 1100						20.402(b)						20.405(a)						50.73(a)(2)(iv)						73.71(b)																	
						20.405(a)(1)(i)						50.36(a)(1)						50.73(a)(2)(v)						73.71(c)																	
						20.405(a)(1)(ii)						50.36(a)(2)						50.73(a)(2)(vi)						OTHER (Specify in Abstract below and in Text, NRC Form 366A)																	
						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)(ix)																													
LICENSEE CONTACT FOR THIS LER (12)																																									
NAME J.G. Hoffpauir, Plant Maintenance Superintendent																TELEPHONE NUMBER AREA CODE 5 0 4 4 6 4 - 1 3 1 3 8																									
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																			
YES (If yes, complete EXPECTED SUBMISSION DATE)																X NO																									

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

At 0540 hours on June 27, 1991, Operations personnel identified a low nitrogen (N2) pressure indication on Main Feedwater Isolation Valve (MFIV) 184B, accumulator(ACC) 'B'. Instrumentation and Control Maintenance performed a N2 precharge pressure check and found the N2 pressure on ACC 'B' to be 40 psig. A subsequent check of ACC 'A' indicated a N2 precharge pressure reading of 2200 psig. Both N2 ACC for MFIV 184B were less than 2500 psig precharge, therefore, MFIV 184B was inoperable greater than 4 hours exceeding the action requirement of Technical Specification (TS) 3.6.3. The plant operated in a condition prohibited by TS.

The root cause of this event was N2 leakage from both MFIV 184B ACC. A contributing cause was the difficulty of accurately indicating low N2 precharge pressure. Corrective action taken was to recharge the MFIV 184B ACC. Long term corrective actions include an investigation of modifications to allow more accurate N2 ACC precharge pressure readings and the issuance of a standing instruction change for monitoring MFIV's hydraulic fluid level and N2 precharge pressure. Added protection of a Main Feed Regulating Valve and a Start-Up Regulating Valve, which both receive a Main Steam Isolation Signal to close, and a check valve in the main feedwater piping, isolation of the steam generators would be accomplished, if necessary, therefore; this event did not threaten the health and safety of the public or plant personnel.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20585, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (6)

PAGE (3)

Waterford Steam
Electric Station Unit 3YEAR SEQUENTIAL REVISION
NUMBER NUMBER NUMBER

0 5 0 0 0 3 8 2 9 1 - 0 1 4 - 0 0 0 2 OF 0 4

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

At 0540 hours on June 27, 1991, Operations personnel identified a low nitrogen pressure indication on Control Room Panel (EIIS Identifier NA-PL) 8, Main Feedwater Isolation Valve (MFIV) (EIIS Identifier SJ-ISV) 184B accumulator (EIIS Identifier ACC) 'B'. Instrumentation and Control Maintenance performed a nitrogen precharge pressure check, which involves bleeding off the hydraulic pressure from the accumulator, and found the precharge pressure on accumulator 'B' to be 40 psig. A subsequent check of accumulator 'A', indicated a precharge pressure reading of 2200 psig. There was no indication in the Control Room of a low nitrogen precharge condition on accumulator 'A'. One of the two accumulators for each MFIV must have a precharge pressure of 2500 psig or greater for the MFIV to be considered operable. A nitrogen precharge of 2500 psig is necessary to provide sufficient volume of nitrogen to close the MFIV. TS 3.6.3 states that MFIV 184B shall be operable, with isolation times as listed in TS, or the valve be restored to operable status within 4 hours, or isolate the affected penetration within 4 hours by use of at least one deactivated automatic valve secured in the isolation position. Since Waterford 3 did not discover immediately that MFIV 184B was inoperable, the action requirements for TS 3.6.3 were not satisfied, therefore, the plant operated in a condition prohibited by TS.

The MFIV's purpose is to isolate the steam generators and the main steam generator feedwater supply. In the event of a Main Steam Isolation Signal (MSIS) (EIIS Identifier JE), the MFIV's will close, isolating main feedwater to the steam generators.

Each MFIV is hydraulically operated by fluid stored in accumulators. Valve (EIIS Identifier V) closure is accomplished by draining the hydraulic fluid below the actuator, such that the nitrogen pressure of the accumulator acting on the hydraulic fluid above the actuator shuts the valve.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 HRS. 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 (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (3)

PAGE (3)

Waterford Steam
Electric Station Unit 3YEAR SEQUENTIAL REVISION
NUMBER NUMBER NUMBER

0 5 0 0 0 3 8 2 9 1 - 0 1 4 - 0 0 0 3 OF 0 4

TEXT (If more space is required, use additional NRC Form 386A's) (17)

Hydraulic fluid and nitrogen, both present in the accumulator, are separated by a piston. The accumulator is pressurized with nitrogen to approximately 3600 psig. Then, hydraulic fluid is added to the accumulator and maintained at approximately 5500 psig, by a hydraulic control unit (EIIIS Identifier HCU).

If nitrogen begins to leak from the accumulator, the nitrogen volume is reduced, but the nitrogen pressure will continue to be maintained as hydraulic fluid is added to maintain the hydraulic pressure. The hydraulic pressure must be bled off of the accumulator to receive an accurate reading of nitrogen pressure. If there is a nitrogen leak, hydraulic fluid level in the reservoir will be reduced as the hydraulic fluid replaces nitrogen in the accumulator. Consequently, nitrogen pressure indication in the Control Room is not an accurate means of measuring sufficient nitrogen volume to close the valve, since nitrogen pressure will be maintained by hydraulic fluid pressure even when a nitrogen leak is present.

The root cause of this event was nitrogen leaks on MFIV 184B, accumulator 'A' and 'B', which allowed the nitrogen precharge pressure to drop below a 2500 psig. A contributing cause is the difficulty in accurately indicating a low nitrogen pressure in the accumulator, due to design limitations which allow hydraulic pressure in the accumulator to mask the effect of a nitrogen leak.

Immediate corrective actions were taken to recharge accumulators 'A' and 'B', and check for leaks. There was no leakage detected after the recharge, though slow leaks would not necessarily be immediately detected. Long term corrective actions include an investigation of modifications to the MFIV accumulators to allow more accurate accumulator nitrogen precharge pressure readings and the issuance of a standing instruction change for monitoring MFIV's hydraulic fluid level and nitrogen precharge pressure.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20585, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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PAGE (3)

Waterford Steam
Electric Station Unit 3

0 5 0 0 0 3 8 2 9 1 - 0 1 4 - 0 0 0 4 OF 0 4

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

Due to the added protection of a Main Feed Regulating Valve (EIIS Identifier SJ-V) and a Start-up Regulating Valve (EIIS Identifier SJ-V), which both receive a Main Steam Isolation Signal (MSIS) to close, and a check valve (EIIS Identifier FCV) in the main feedwater piping, isolation of the steam generators during a MSIS would be accomplished, therefore; this event did not threaten the health and safety of the public or plant personnel.

SIMILAR EVENTS

NONE

PLANT CONTACTS

J.G. Hoffpauir, Plant Maintenance Superintendent (504)464-3138