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Waterford 3

W3F1-2000-0038
A4.05
PR

April 5, 2000

U.S. Nuclear Regulatory Commission
Attn: 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 (LER) 00-003-00 for Waterford Steam Electric Station Unit 3. This report provides details of a Reactor Shutdown in accordance with Technical Specification Limiting Condition for Operation 3.0.3 due to a cracked weld in the Charging System, which rendered all three charging pumps inoperable. This condition is being reported pursuant to 10CFR50.73(a)(2)(i)(A), the completion of any nuclear plant shutdown required by the plant's Technical Specifications.

This letter contains new commitments that are listed on the attached Commitment Identification/Voluntary Enhancement Form.

If you have any question, please contact Charles DeDeaux at (504) 739-6531.

Very truly yours,

E.P. Perkins, Jr.
Director,
Nuclear Safety Assurance

EPP/CED/rtk
Attachment

cc: E.W. Merschoff, (NRC Region IV), N. Kalyanam, (NRC-NRR),
A.L. Garibaldi, P. Lewis - INPO Records Center,
J. Smith, N.S. Reynolds, NRC Resident Inspectors Office,
Louisiana DEQ/Surveillance Division

IE22

Estimated burden per response to comply with this mandatory information collection request: 50.0 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Waterford Steam Electric Station, Unit 3

DOCKET NUMBER (2)
05000-382

PAGE (3)
1 of 5

TITLE (4)
Shutdown Per TS LCO 3.0.3 Due to Cracked Weld Which Rendered the Charging System Inoperable

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 NAME	DOCKET NUMBER
03	06	00	00	003	00	04	05	00	N/A	N/A
									N/A	N/A

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)				
1	100	20.2201(b)	20.2203(a)(2)(v)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)	50.73(a)(2)(viii)
		20.2203(a)(2)(i)	20.2203(a)(3)(i)	<input type="checkbox"/>	50.73(a)(2)(ii)	50.73(a)(2)(x)
		20.405(a)(1)(ii)	20.2203(a)(3)(ii)	<input type="checkbox"/>	50.73(a)(2)(iii)	73.71
		20.2203(a)(2)(ii)	20.2203(a)(4)	<input type="checkbox"/>	50.73(a)(2)(iv)	OTHER
		20.2203(a)(2)(iii)	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
		20.2203(a)(2)(iv)	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME
Charles E. DeDeaux, Sr., Licensing Supervisor

TELEPHONE NUMBER (Include Area Code)
(504) 739-6531

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/>	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i. e., approximately 15 single-spaced typewritten lines) (16)

On 3/6/00, Waterford 3 was shut down per Technical Specification (TS) Limiting Condition for Operation (LCO) 3.0.3 due to a weld crack adjoining a hydrostatic test connection on the Charging Pump A suction line. Since the cracked weld was unisolable from the Charging header, all three Charging Pumps were declared inoperable. Technical Specification LCO 3.1.2.4 requires at least two Charging Pumps to be Operable and does not contain Actions for three Charging Pumps inoperable. Therefore, TS LCO 3.0.3 was entered.

On 3/6/00, at approximately 0715, an Auxiliary Operator discovered boric acid buildup on the socket weld adjoining a hydrostatic test connection on Charging Pump A suction piping. Subsequent investigation by Engineering and Maintenance resulted in identifying visual indication of leakage (approximately one drop every two minutes) through an approximate 1/4 inch full penetration crack. Since the crack cannot be isolated from the Charging header, all three Charging Pumps were declared inoperable and TS LCO 3.0.3 was entered at 1145.

There is no safety significance associated with this event. The Charging System remained capable of performing its design function (emergency boration and coolant injection) throughout the event. This event had no adverse affects on health and safety of the general public.

This event is not considered a Safety System Functional Failure (SSFF).

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Waterford Steam Electric Station, Unit 3	05000-382	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 5
		00	003	00	

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

REPORTABLE OCCURRENCE

On 3/6/00, Waterford 3 was shut down per TS LCO 3.0.3 due to a weld crack adjoining a hydrostatic test connection on Charging Pump A [P] suction line (CVC-187 [V] cracked weld). Since the cracked weld was unisolable from the Charging header, all three Charging Pumps were declared inoperable. Technical Specification LCO 3.1.2.4 requires at least two Charging Pumps to be Operable in Modes 1-4 and does not contain Actions for three Charging Pumps inoperable. Therefore, TS LCO 3.0.3 was entered. This 30 day Licensee Event Report is being reported pursuant to 10CFR50.73(a)(2)(i)(A), the completion of any nuclear plant shutdown required by the plant's Technical Specifications.

A one-hour telephone notification was made to the NRC on 3/6/00 pursuant to 10CFR50.72(b)(i)(A) for the initiation of the plant shutdown per TS LCO 3.0.3.

INITIAL CONDITIONS

When this condition was identified, Waterford 3 was operating in Mode 1 at an approximate thermal power level of 100%. There was no equipment out of service and no TS Limiting Conditions for Operation action statements in effect that were specific to the Charging System.

EVENT DESCRIPTION

On March 6, 2000 at 1222, Waterford 3 commenced a plant shutdown per Technical Specification (TS) Limiting Condition for Operation (LCO) 3.0.3 subsequent to declaring all three Charging Pumps inoperable. All three charging pumps were declared inoperable due to a leaking weld crack adjoining a hydrostatic test connection on the Charging Pump A suction piping. The leaking weld was unisolable from the entire Charging header; therefore, all three Charging Pumps were declared inoperable. Technical Specification LCO 3.1.2.4 requires at least two Charging Pumps to be Operable in Modes 1-4. Since there is no Action in TS 3.1.2.4 for three Charging Pumps inoperable, TS LCO 3.0.3 was entered.

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

On March 6, 2000, at approximately 0715, a Nuclear Auxiliary Operator discovered boric acid buildup on the socket weld adjoining a hydrostatic test connection (2CH1 1/2-138 A/B) on Charging Pump A suction piping (2CH4-41A). Subsequent investigation by Engineering and Maintenance resulted in identifying an approximate ¼ inch long full penetration crack with visual indication of the leakage (approximately one drop every two minutes). Charging Pump A/B was started and Charging Pump A secured to minimize vibration at the affected weld area. Since the weld crack could not be isolated from the Charging header, all three Charging Pumps were declared inoperable and TS LCO 3.0.3 was entered at 1145.

At no time during this event would the leakage from the CVC-187 cracked weld have prevented the system from performing its design function. The most closely affected charging pump (Charging Pump A) was secured to limit the line vibration. The plant commenced a shutdown and cooldown in order to affect repairs on the leaking weld.

This hydrostatic test line along with all the hydrostatic test lines in the Charging System were recommended to be removed in 1998 via ER-98-0946. The Engineering Request (ER) was written to remove test line valves and cap stub lines to minimize the effects of cyclic stress. However, the modification was not included on the Refuel 9 modification scope and was not added as emergent work. These valves were also not included on the Cycle 10 potential forced outage work list. Waterford 3 had three forced outages between August and December of 1999.

CAUSAL FACTORS

Root Cause

Management Methods- Corrective Action in response to a known problem was not completed in a timely manner due to the failure to recognize the urgency of the problem.

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

CORRECTIVE ACTIONS

IMMEDIATE CORRECTIVE ACTIONS:

Repair CVC-187 cracked weld.

Complete: The CVC-187 cracked weld was repaired by implementation of ER-98-0946, MAI# 400494. The repair consisted of removing the valve and capping the line.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

Implement ER-98-0946 for the remaining hydrostatic connections as emergent work in the 12-week schedule.

CVC-191AB [V] work was completed on 1/12/00. The work on CVC-191A [V] and CVC-191B [V] is scheduled for mid 2000.

Other long term and programmatic enhancements are being developed through the Waterford 3 Corrective Action Program.

SAFETY SIGNIFICANCE

The charging pumps are one component of the boron injection system that ensures negative reactivity control is available during all modes of operation. The charging pumps are also required for a small break loss of coolant accident and for emergency boration during reactivity events. With RCS temperature >200°F (Mode 4 and higher), two separate and redundant injection systems are required. Failure of the weld on CVC-187 affected both trains of charging due to the location on the common suction header. However, the Charging system remained available for emergency boration and coolant injection because the leak rate through the weld crack was negligible throughout the event.

It is postulated that the CVC-187 cracked weld would have been discovered and would not have propagated sufficiently to allow piping failure. The cracked weld was discovered when the leak was negligible (approximately one drop every two minutes). The cracked weld is on a system (Charging

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System) that continually operates. CVC-187 is easily accessible and located in close proximity to Charging Pump A. Operations routinely (via shiftly logs) makes rounds through the Charging Pump A room. The CVC weld crack was discovered during these routine shiftly inspections. Any increase in the leakage would have been self-revealing and actions taken to isolate the leak and established plant conditions necessary to complete repairs. Other methods are also available in the Control Room to detect increasing leakage. The control room operators could have detected the leakage based on lowering Volume Control Tank (VCT) [TK] level, rising Waste Tank [TK] levels, and local area radiation monitor readings trending up.

This event is not considered a Safety System Functional Failure (SSFF). The Charging system remained available for emergency boration and coolant injection throughout this event.

SIMILAR EVENTS

Past experience at Waterford 3 identified cracked welds as a result of fatigue failure. On 4/13/89, a cracked weld was discovered on a Charging Pump B suction pressure instrument sensing line. Repairs were made and documented on CI #262413. On 5/8/97, a crack was discovered on a hydrostatic test connection on the Charging Pump B discharge piping. CR-97-1160 was written and repairs were completed. Corrective actions required inspections of similar hydrostatic test connections on Charging Pumps A and AB piping. No deficiencies were discovered. On 9/18/97, CR-97-2277 was written to document the fatigue failure of a weld on a Charging Pump A relief valve vent. The same valve failed again less than two months later and was documented in CR-97-2421. On 3/13/98, a cracked weld on Charging Pump B suction pressure instrument sensing line was discovered and documented in CR-98-0374.

ADDITIONAL INFORMATION

Energy Industry Identification System (EIIIS) codes are identified in the text within brackets [].

COMMITMENT IDENTIFICATION/VOLUNTARY ENHANCEMENT FORM

Attachment A to W3F1-2000-0038
 Reporting of Licensee Event Report (LER-00-003-00)
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COMMITMENT(S)	ONE-TIME ACTION*	CONTINUING COMPLIANCE*	SCHEDULED COMPLETION DATE (IF REQUIRED)	ASSOCIATED CR OR ER
Implement ER-98-0946 for CVC-191A.	✓		N/A	CR-2000-199
Implement ER-98-0946 for CVC-191B.	✓		N/A	CR-2000-199

*Check one only

VOLUNTARY ENHANCEMENT(S)	ASSOCIATED CR OR ER