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D. F. Packer
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Waterford 3

W3F1-92-0484
A4.05
QA

December 30, 1992

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 Number LER-92-016-00 for Waterford Steam Electric Station Unit 3. This Licensee Event Report is submitted in accordance with 10CFR50.73(a)(2)(i)(B).

Very truly yours,

TRLeonard for DFP
D.F. Packer
General Manager - Plant Operations

DFP/TWG/ssf
Attachment
cc: J.L. Milhoan, NRC Region IV
G.L. Florreich
J.T. Wheelock - INPO Records Center
R.B. McGehee
N.S. Reynolds
NRC Resident Inspectors Office
Administrator - LRPD

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NRC FORM 366
(5-92)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1) Waterford Steam Electric Station Unit 3	DOCKET NUMBER (2) 05000 382	PAGE (3) 1 OF 06

TITLE (4)
Administrative Weakness Results in Valve Out of Position and Inoperable Equipment

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									N/A	05000
12	01	92	92	016	00	12	30	92	FACILITY NAME N/A	DOCKET NUMBER 05000

		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
OPERATING MODE (9)	1	☐	20.402(b)	☐	20.405(c)	☐	50.73(a)(2)(iv)	☐	73.71(b)
POWER LEVEL (10)	100	☐	20.405(a)(1)(i)	☐	50.36(c)(1)	☐	50.73(a)(2)(v)	☐	73.71(c)
		☐	20.405(a)(1)(ii)	☐	50.36(c)(2)	☐	50.73(a)(2)(vii)	☐	OTHER
		☐	20.405(a)(1)(iii)	☒	50.73(a)(2)(i)	☐	50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
		☐	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)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME D.W. Vinci, Operations Superintendent	TELEPHONE NUMBER (Include Area Code) (504) 464-3178

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 NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
☐	YES (If yes, complete EXPECTED SUBMISSION DATE)	☒	NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On December 1, 1992, while operating at 100% power, Waterford 3 operators determined that Nitrogen System valve NG-627C was closed when it was expected (and required) to be open. The closed valve isolated motive gas to an Auxiliary Component Cooling Water (ACCW) valve such that it could not automatically perform its required function. The disabled ACCW valve in turn made Essential Chiller 'A' inoperable because the unit would not have been available without manual operator action under certain accident conditions.

The root cause of this event is a weakness in the mechanism by which operators ensure that components being worked on are properly aligned after maintenance is completed. Corrective action will include improving this mechanism.

Given the redundancy of the Essential Services Chilled Water System, this event posed no risk to the health and safety of the public. There have been no similar events.

REQUIRED NUMBER OF DIGITS/CHARACTERS FOR EACH BLOCK

BLOCK NUMBER	NUMBER OF DIGITS/CHARACTERS	TITLE
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 – FACILITY NAME 8 TOTAL – DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

REPORTABLE OCCURRENCE

On December 1, 1992, while operating at 100% power, Waterford 3 operators determined that Nitrogen System (EIIS Identifier LK) valve NG-627C was closed when it was expected (and required) to be open. The immediate effect of the closed nitrogen system valve was to isolate the motive gas supply to an Auxiliary Component Cooling Water (ACCW; EIIS Identifier BI) valve such that the valve was not capable of automatic repositioning. Through its effect on the ACCW system, the closed nitrogen valve made Essential Chiller (EIIS Identifier KM) 'A' inoperable because the unit would not have been available without manual operator action under certain accident conditions.

This event represents operation prohibited by Technical Specifications (TS) since it resulted in Essential Chiller 'A' being inoperable for a period of time longer than allowed by TS 3.7.12. As such this event is reportable as a Licensee Event Report (LER) in accordance with 10CFR50.73(a)(2)(i)(B).

INITIAL CONDITIONS

Plant Power:	100%
Mode:	1
Procedures Being Performed Specific to this Event:	OP-903-049
Technical Specification LCO's in Effect Specific to this Event:	None
Major Equipment Out of Service Specific to this Event:	None

EVENT SEQUENCE

On December 1, 1992, while operating at 100% power, Waterford 3 operators determined that Nitrogen System valve NG-627C was closed when it was expected

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LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

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

(and required) to be open. NG-627C isolates both instrument air and nitrogen to pneumatically operated ACCW valve ACC-112A, thus rendering the valve incapable of remote manual or automatic repositioning. ACC-112A is provided to automatically realign the essential chiller 'A' condenser heat sink from the Component Cooling Water (CCW; EIIS Identifier CC) system to the ACCW system if CCW system temperature reaches a predetermined setpoint. This realignment is expected to occur only under accident conditions.

The CCW system is the normal heat sink for the essential chiller condensers. Under certain accident conditions however, load must be shed from the CCW system in order to maintain both CCW system temperature and essential chiller efficiency at appropriate levels. Under these conditions, the essential chillers are automatically realigned such that the ACCW system becomes the heat sink for the essential chillers. With NG-627C closed, ACCW would not have been properly lined up to the chiller condenser; if a transfer had been necessary with the chiller operating, the chiller would have lost cooling water flow to the condenser.

ACC-112A operated as expected on October 6, 1992 when it was tested in accordance with Surveillance Procedure OP-903-032, "Quarterly IST Valve Tests."

On October 29, 1992, NG-627C was tagged out in order to repair a minor packing leak that had been identified during earlier testing. The valve was repacked in accordance with Maintenance Procedure MM-006-001, "Valve Maintenance." After the new packing was installed, NG-627C should have been stroked "several times" as directed by MM-006-001, step 8.1.12.5. Depending on the

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circumstances, either Operations or Maintenance personnel could have stroked NG-627C. In this case, because NG-627C was isolated, the mechanics working the job probably stroked the valve although this cannot be conclusively determined because the assigned mechanics were outage contractors who are no longer on site.

With the valve repacked, the tag-out was cleared and a packing leak check was performed on NG-627C. The leak check was recorded as satisfactory. The repair package was closed on November 5, 1992.

On December 1, 1992, during the performance of OP-903-032, NG-627C was found shut.

CAUSAL FACTORS

A review of this event concluded that NG-627C was probably left in the closed position by the maintenance personnel who repacked the valve at the end of October.

The root cause of this event is a weakness in the mechanism by which operators ensure that components being worked on are properly aligned after maintenance is completed. When work is complete, the clearance process routinely checks the condition of the work boundaries. A process by which the position of components inside the work boundaries can be routinely and easily checked short of using an annotated copy of a complete system lineup does not exist.

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NON-CAUSAL FACTORS

It appears that the guidance of Administrative Procedure OP-100-009, "Control of Valves and Breakers," may not be specific enough to ensure a comprehensive operability check of air operated valves. OP-100-009, section 5.2.2, provides a list of five items to be checked in order to determine the operability of a control valve. Included in the list is the requirement to check that "air is available to pneumatically operated valves." It appears that the OP-100-009 guidance concerning air availability to pneumatic valves has been interpreted as requiring only that the local air isolation valve be checked open. In this example, checking the local air isolation valve was not sufficient to verify that air was available to ACC-112A. A more comprehensive check may have resulted in earlier identification of the valve line-up discrepancy associated with NG-627C.

IMMEDIATE CORRECTIVE MEASURES

The following immediate corrective action was taken in response to this event:

1. Nitrogen system valve NG-627C was opened and ACC-112A was tested satisfactorily. This restored the operability of essential chiller 'A.'
2. Each of the nitrogen manifold isolation valves for the eight nitrogen accumulators were verified to be in their normal positions. No discrepancies were identified.
3. Partial valve line-ups were performed on safety-related portions of the Nitrogen System, Primary Make-Up Water System, Chilled Water System, Station Air System, Containment Atmosphere Release System, and the Instrument Air System. No discrepancies were noted.

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ACTIONS TO PREVENT RECURRENCE

To address the root cause of this event, Waterford 3 will implement guidance to ensure that appropriate components are properly aligned after the completion of maintenance.

To address the non-causal factor, Waterford 3 will review the guidance of OP-100-009 as it relates to determining the operability of control valves and make changes as necessary to that guidance or, alternatively, to appropriate system valve line-ups.

Finally, this event will be reviewed by Operations and Maintenance Department personnel. Maintenance will discuss the event during the routine training cycle; Operations will add the event to the required reading program.

All corrective actions related to this event will be complete by June 16, 1993.

SAFETY SIGNIFICANCE

This event posed no risk to the health and safety of the public. The Essential Services Chilled Water System consists of three 100% capacity subsystems. In the event that Essential Chiller 'A' is inoperable, Essential Chiller 'B' can support necessary cooling loads.

SIMILAR EVENTS

None