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Waterford 3

W3F1-94-0036
A4.05
PR

April 1, 1994

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-94-003-00 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,

D.F. Packer
General Manager
Plant Operations

DFP/WHP/tjs
Attachment

cc: L.J. Callan, 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)	DOCKET NUMBER (2)	PAGE (3)
Waterford Steam Electric Station Unit 3	05000 382	1 OF 9

TITLE (4)
Reactor Protection Instrumentation Inoperable Due to Missed Surveillances

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
03	05	94	94	-- 003 --	00	04	01	94	n/a	05000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

OPERATING MODE (9): 3			
POWER LEVEL (10): 3E-7			
20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
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 (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)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
D. W. Vinci, Superintendent, Operations	(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)	X NO				

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

On March 5, 1994 at approximately 0525 hours, while shutdown for refueling outage, it was discovered that the surveillance requirements of T.S. Table 4.3-1 were not completely satisfied for Manual Reactor Trip, Logarithmic Power Level-High, Reactor Protection System Logic, and Reactor Trip Breakers prior to enabling Control Element Assembly movement. This placed the Reactor Protective instrumentation in a condition prohibited by T.S.. This condition was discovered while performing Plant Protection system surveillances in preparation for scheduled maintenance on the Control Element Drive Mechanism Control System. The root cause for this condition is the omission of relevant prescriptive information from the applicable operations procedures. Immediate corrective actions for this event included opening the Reactor Trip Switchgear Breakers to place the plant in a mode where the specifications did not apply. Actions to prevent recurrence include, in part, procedural improvements and personnel debriefing. This event did not compromise the health and safety of the public or plant personnel.

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

REQUIRED NUMBER OF DIGITS/CHARACTERS FOR EACH BLOCK

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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 March 4, 1994 at 2321 hours the Reactor Trip Switchgear (RTSG) Breakers (EIIS Identifier JC-BKR) were opened to begin refueling outage 6. The CEA Motor Generators (EIIS Identifier AA-MG) remained in service with their load contactors closed to allow maintenance on the Control Element Drive System Control System (CEDMCS) (EIIS Identifier AA). At 0525 hours on March 5, 1994, the RTSG Breakers were reclosed to allow completion of surveillance OP-903-107, Plant Protection System Channel 'A' Functional Test (EIIS Identifier JC). This placed the Control Element Assemblies (CEA) in a condition where they were capable of being withdrawn (i.e., CEA Motor Generators operating with load contactors closed and the RTSG Breakers closed).

The Technical Specification Table 4.3-1 for Manual Reactor Trip, Logarithmic Power Level-High, Reactor Protection System Logic and Reactor Trip Breakers specifies that CHANNEL FUNCTIONAL TEST surveillances are required for each Startup or when required with the RTSG Breakers closed and the CEA drive system is capable of rod withdrawal, if not performed within the previous 7 days. The required surveillance OP-903-107, Plant Protection System Channel _A_B_C_D Functional Test, sections 7.1 thru 7.4. 7.6, 7.24, and 7.26 and surveillance OP-903-006, Reactor Trip Circuit Breaker Test, section 7.1, was not performed within the previous 7 days prior to making the CEA drive system capable of rod withdrawal. This placed all required channels of Manual Reactor Trip, Logarithmic Power Level-High, Reactor Protection System Logic, and Reactor Trip Breakers as listed on the Reactor Protective Instrumentation Table 3.3-1 in a condition not allowed by Technical Specification 3.3.1.

The Modes Applicable during this event for the inoperable instrumentation channels as listed in Technical Specification Table 3.3-1 are Mode 3, 4, and 5. These Modes apply only with the protective system trip breakers in the closed position, the CEA drive system capable of CEA withdrawal, and fuel in the reactor vessel. The ACTION statement for the inoperable channels states that, "with the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour. Operations personnel immediately opened the RTSG Breakers when the condition was recognized, thus placing the plant in a condition not applicable to the specification. This condition is reportable as a 30 day LER per 10CFR50.73 (a)(2)(i)(B), "...any operation or condition prohibited by the plant's Technical Specifications".

INITIAL CONDITIONS

Plant Power	3 E-7%
Plant Operating Mode	Mode 3; Hot Standby
Procedures Being Performed Specific to this Event	OP-010-001, General Plant Operations. OP-903-101, Startup Channel Functional Test Startup Channel _1 and _2. OP-903-102,Safety Channel Nuclear Instrumentation Functional Test. OP-903-107 Plant Protection System Channel _A_B_C_D Functional Test. OP-004-004, Control Element Drive.
Technical Specification LCO's in Effect Specific to this Event	T.S. 3.3.1
Major Equipment out of Service Specific to this Event	Logarithmic Power Level-High, Channel B.

EVENT SEQUENCE
(Times are approximate)

On March 4, 1994 at 2321 hours the Reactor Trip Switchgear (RTSG) Breakers were opened in accordance with OP-010-001, General Plant Operations, to begin refueling outage 6. The CEA Motor Generators remained in service, as previously planned, with their load contactors closed to allow maintenance on the Control Element Drive System Control System (CEDMCS) Automatic CEDM Timing Modules (ACTM) (EIIS Identifier AA-34). This condition was contrary to the normal post-shutdown activities, where the CEA Motor Generators are secured after plant shutdown.

March 5, 1994, at approximately 0010 hours, in preparation for aligning CEDMCS for maintenance, the on-shift control room staff started performance of the scheduled surveillances, OP-903-101, Startup Channel Functional Test Startup Channel _1 and _2, OP-903-102, Safety Channel Nuclear Instrumentation Functional Test, and OP-903-107, Plant Protection System Channel _A_B_C_D Functional Test.

Between the hours of 0010 and 0438 on March 5, 1994, surveillances OP-903-101 Channels 1 and 2 along with OP-903-102 Channels A, B, C, and D Startup sections were completed. While performing surveillance OP-903-107, Plant Protection System Channel 'A' Functional Test, it was determined that the RTSG Breakers were required to be closed to complete section 7.24. The control room staff conducted a review of procedures and Technical Specifications followed by discussion to determine if the appropriate conditions existed to close the RTSG Breakers. The control room staff believed that since the OP-903-102 surveillances had been completed, all the conditions were satisfied to close the RTSG Breakers. The RTSG Breakers were closed at 0525 hours on March 5, 1994. This placed the Control Element Assemblies (CEA) in a condition which enabled CEA movement (i.e., CEA Motor Generators operating with load contactors closed and the RTSG Breakers closed).

Completion of OP-903-107 for the remaining channels was turned over to the on-coming shift. After reviewing the Technical Specifications, the reactor operator assigned for surveillance completion questioned his supervisors if it was allowable for the RTSG Breakers to be closed. Following a brief review of the Technical Specifications, the reactor operator was directed to open the RTSG Breakers. This occured at 0755 hours on March 5, 1994. This placed the plant in a condition where the specification was not applicable. The T.S. Table 4.3-1 (1),(3),(12),and (13) for Manual Reactor Trip, Logarithmic Power Level-High, Reactor Protection System Logic and Reactor Trip Breakers specifies in Table Notation (1) that surveillances are required for each Startup or when required with the RTSG Breakers closed and the CEA drive system capable of rod withdrawal, if not performed within the previous 7 days. Surveillance OP-903-107, Plant Protection System Channel _A_B_C_D Functional Test, sections 7.1 thru 7.4, 7.6, 7.24, and 7.26 and surveillance OP-903-006, Reactor Trip Circuit Breaker Test, section 7.1 was not completed within the previous 7 days, prior to making the CEA drive system capable of rod withdrawal. This placed Manual Reactor Trip, Logarithmic Power Level-High, Reactor Protection System Logic and Reactor Trip Breakers in a condition not allowed by Technical Specification Table 3.3-1,(1),(3),(12), and (13).

Condition Report 94-165 was written to document this occurrence.

CAUSAL FACTORS

The root cause of this event is omission of relevant prescriptive information from the applicable operations procedures. It is believed that had the specific surveillance procedural requirements for enabling the CEA Drive system been included in the operations procedures reviewed during this event that the appropriate surveillances

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

would have been performed and this condition would have been avoided.

Although there is adequate procedural guidance in OP-010-001 to ensure these surveillances are done prior to Startup, there is no clear procedural guidance which provides specifics for matching surveillance procedure requirements to Technical Specification Table 4.3-1 components. The plant was in a shutdown condition preparing for refueling and was not preparing for startup. In addition, the RTSG Breakers are shut in accordance with OP-004-004 section 6.4 which makes no reference to any surveillance requirements prior to closing the RTSG Breakers.

A contributing cause for this event is inappropriate action by the control room staff in that a review of Technical Specifications was performed which precipitated the incorrect assumption and conclusion that all of the appropriate surveillances were complete to close the RTSG Breakers thus enabling the CEA drive system. A second contributing cause was insufficient training on this complex and infrequently applied Technical Specification.

IMMEDIATE CORRECTIVE MEASURES

When the condition was recognized, the on-shift operations personnel opened the Reactor Trip Switchgear Breakers, thus placing the CEAs in a condition that would prohibit CEA movement and make the specification not applicable.

ACTIONS TO PREVENT RECURRENCE

Waterford 3 will address actions to prevent recurrence by making appropriate procedure improvements to procedures OP-004-004, Control Element Drive; OP-100-014, Technical

Specification Compliance; OP-010-001 General Plant Operations; OP-903-102, Safety Channel Nuclear Instrumentation Functional Test; OP-903-107, Plant Protection System Channel _A_B_C_D Functional Test, and UNT-007-004, Technical Specification Surveillance Control. Additionally, personnel involved have been debriefed in accordance with the Improving Human Performance program and this event will be reviewed with all Operations Department personnel via the Operations Department Required Reading list. The Training department will conduct a case study of this event with all licensed operators.

The Required Reading review will be completed by May 15, 1994. The procedural improvements will be completed by July 31, 1994. Training department presentation of a case study will be completed by September 30, 1994.

SAFETY SIGNIFICANCE

In modes 3,4, and 5, with the RTSG Breakers closed, and the CEA drive system capable of CEA withdrawal, protection is required for CEA withdrawal events originating when THERMAL POWER is less than 1 E-4% rated thermal power. For events originating above this power level, other trips provide adequate protection. The protection required is provided by the Logarithmic Power Level-High trip. The Logarithmic Power Level-High trip protects the integrity of the fuel cladding and helps protect the reactor coolant pressure boundary in the event of an unplanned criticality from a shutdown condition.

The circumstances of this event placed the CEA drive system in a condition that would allow CEA withdrawal without the appropriate reactor protection system surveillances being completed. The total time that this condition existed was approximately 2.5 hours. During this time there were no attempts to withdraw CEAs and the CEDMCS control panel Mode select switch, in the Control Room, was maintained in the OFF position.

Maintaining the CEDMCS control switch in the OFF position essentially prohibits any intentional movement of CEAs. Therefore, there was no CEA movement or positive reactivity changes made during this event.

Even though the lack of proper surveillances rendered the required channels of the Reactor Protection System technically inoperable there was no condition during this time which would have caused an unplanned criticality requiring the Reactor Protection System to function. The fuel cladding and reactor coolant pressure boundary was not challenged, therefore this event did not compromise the health and safety of the general public or plant personnel.

SIMILAR EVENTS

For this event there were two similar LER's identified, LER-85-010-00, and LER-85-053-00. The following is a brief description of each.

LER-85-010-00: On March 22, 1985 while returning to power following a Reactor trip, a review of the operations surveillance logs revealed that a portion of the Excore Nuclear Instrumentation Log Channel Functional Test, as defined in procedure OP-903-102, Safety Channel Instrumentation Functional Test Channel__A, __B, __C, __D, had not been completed within seven days prior to the startup as outlined in Technical Specification 3.3.1. Upon discovering the deficiency, Operations Personnel satisfactorily completed the appropriate surveillances.

LER-85-053-00: At 1830 hours on December 12, 1985 Waterford was in Mode 5 (Cold Shutdown) when plant personnel discovered that a portion of the CPC (Core Protection Calculator) Technical Specification Functional Test was not performed for several surveillance intervals from June 1985 to the time of discovery. Technical

Specification 4.3.1.1 and 4.3.1.6 requires that the trip logic for the four channels of the CPC to be tested at least once per 31 days. However, in June of 1985 a change was made to procedure MI-3-126, "CPC Functional Test," which satisfies the above Technical Specification requirements alleviating the requirement to test the trip logic when reactor power was below 1.0E-4%. This was done due to the fact that the trips are in place below 1.0E-4% and it was incorrectly assumed that they could not be cleared.

As soon as the discrepancy was discovered, a change was made to the procedure to ensure that adequate testing of the reactor trip contacts is performed at all required plant conditions.