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Waterford 3

W3F1-2000-0171
A4.05
PR

December 13, 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) 00-012-00 for Waterford Steam Electric Station Unit 3. This report provides details of a plant mode change (from Mode 5 to Mode 4) during startup after Refuel 10 with Charging Pump B control switch in the off position. This mode change constituted a violation of Technical Specification 3.1.2.4. This condition is being reported pursuant to 10CFR50.73(a)(2)(i)(B) for the plant having operated in violation of the plant's Technical Specifications.

The commitments contained in this submittal are identified on the attached Commitment Identification / Voluntary Enhancement Form.

Very truly yours,

Everett P. Perkins Jr.

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

EPP/OPP/ssf
Attachment

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

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NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001
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.

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TITLE (4)
Mode Change In Violation of Technical Specifications Due To a Mispositioned Control Panel Switch.

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
									N/A	N/A
11	13	00	00	012	00	12	13	00	FACILITY NAME N/A	DOCKET NUMBER N/A

OPERATING MODE (9)	4
POWER LEVEL (10)	0

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

	20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(2)(i)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.405(a)(1)(ii)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER
	20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Name / Title Oscar P. Pipkins / Senior Licensing Engineer	(504) 739-6707

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

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

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 November 13, 2000, with the plant shut down in Mode 5 and starting up from the Refuel 10 outage, a plant mode change was made from Mode 5 to Mode 4 with the control switch for Charging Pump B in the "off" position. Technical Specification 3.1.2.4 requires two operable Charging Pumps to make this mode change. Operable, in this case, means that the pump is capable of starting in response to a safety injection actuation signal. Therefore, Charging Pump B was inoperable when the mode was changed, since the switch being in the off position prevented the pump from being capable of an automatic start. The event is being reported as a violation of plant Technical Specifications. The condition was discovered approximately 8 hours after the mode change was made. The mode change checklist does not provide an organized method of verifying that control panels are configured as required for mode changes. Contributing causes included Operator fatigue and supervisory distractions due to administrative burden. The condition did not compromise the health and safety of the general public. Corrective measures are currently being evaluated in the Corrective Action Program (CR-WF3-2000-1515). In the interim, Operator awareness is being heightened via required reviews of the associated root cause analysis. The condition is not considered a Safety System Functional Failure (SSFF).

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

REPORTABLE OCCURRENCE

On November 13, 2000 it was discovered that the plant mode had been changed from Mode 5 to Mode 4 with the Charging Pump B control switch in the "off" position. This constituted a violation of Technical Specification 3.1.2.4, which requires two operable Charging Pumps to make this mode change. Operability, in this case, hinges upon the capability of the Charging Pumps to auto start for a safety injection actuation signal (SIAS). The 'B' Pump was therefore inoperable at the time of the mode transfer due to the control switch being in the "off" position. The condition is being reported in accordance with 10CFR50.73(a)(2)(i)(B) as a Technical Specification violation.

INITIAL CONDITIONS

Waterford 3 was shut down for Refuel 10. The outage was ending and a plant startup was in progress. Surveillances, other required actions and signoffs were being completed to go from Mode 5 to Mode 4. Throughout the outage, the available Charging Pump control switches were primarily left in the "off" position (during Modes 5 and 6) under the control of the Primary Nuclear Plant Operator (PNPO). This is the preferred and acceptable switch configuration during Modes 5 and 6 to prevent inadvertent pump starts. The Charging Pumps were run as necessary at various times during the outage as plant conditions warranted.

EVENT DESCRIPTION

On November 13, 2000 at 2230, during plant startup from the Refuel 10 outage, it was discovered that a mode change had been made at 1449, going from Mode 5 to Mode 4, with the control switch for Charging Pump [CB-P] B in the "off" position. At the time of the transition, the 'A' Pump was running. Technical Specification 3.1.2.4 requires two operable Charging Pumps to make this mode change. In this case, for Charging Pump B to be operable, the control switch needed to be in the auto position. Charging pump AB was tagged out in accordance with Technical Specification 3.1.2.9. The condition was discovered by the PNPO and the Control Room Supervisor while they were making preparations to adjust Charging Pump B pulsation dampeners. Upon discovery, Technical Specification 3.1.2.4 and Technical Requirements Manual (TRM) 3.1.2.4 were entered. The operating crew then proceeded with

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pulsation dampener adjustments on Charging Pump B.

CAUSAL FACTORS

Root Cause: Work Organization, Job Scoping Did Not Identify Special Condition. The work scoping process was ineffective in detecting work process elements having a dependency upon other conditions. The applicable mode change checklist contains numerous checks and verifications required for the mode transition. The process consists of administrative verifications that can potentially be distracting to the operating crew. The checklist does not provide an organized method of verifying that control panels are configured as required for mode changes.

Contributing Cause 1: Supervisory Methods, Direct Supervisory Involvement In the Task Interfered With the Overview Role. Supervision became so involved with the detailed steps in the process that overall command and control were adversely affected. The Mode 5 to Mode 4 checklist has numerous signoffs from various department heads and signoffs for individual surveillance tasks. This checklist placed an administrative burden on the Shift Manager and Control Room Supervisor that distracted them from providing more oversight with regard to preparing their Control Room for mode change.

Contributing Cause 2: Work Schedule, Reduced Alertness/Fatigue

The assigned task was adversely affected by personnel fatigue. Most of the operators involved in the incident stated that they were feeling fatigued as a result of the working rotation during the outage. The fatigue was magnified when combined with the time pressure involved with the mode change, as well as the multiple tasks in progress. The specific area that the fatigue impacted was the control board walkdowns. Prior to the mode change, several members of the crew performed board walkdowns and did not correct the control switch position. Board walkdowns were performed again when the night shift relieved the day shift. The switch position was again not corrected. Time pressure, multiple tasks and distractions are traps normally encountered as part of the Control Room Operator's job. However, the addition of fatigue contributed to the control switch position not being corrected during the board walkdowns.

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CORRECTIVE ACTIONS

Entergy will evaluate the mode change process within the Corrective Action Program and make adjustments as necessary to reduce the potential for future mispositioned control board switches. In the interim, the root cause analysis for this condition is being distributed as required reading for Operations licensed personnel to raise their level of awareness.

Operations management will review management expectations associated with outage overtime extensions with Shift Managers and Control Room Supervisors to address traps associated with working while fatigued.

SAFETY SIGNIFICANCE

In Modes 1 through 4, Technical Specification 3.1.2.4 requires two independent Charging Pumps to be operable. With only one pump operable, the action requires restoring two Charging Pumps to operable status within 72 hours or place the plant in Mode 4. Once in Mode 4, the second Charging Pump must be restored to operable status within seven days or the plant must be in Mode 5 within the next 30 hours. From the time RCS temperature was raised to > 200 °F to the time when Charging Pump B was discovered with the control switch in the "off" position was 7.68 hours. Charging Pump B remained inoperable for pulsation dampener adjustments, and Technical Specification 3.1.2.4 was exited 19.18 hours after temperature was raised to > 200 °F. Both conditions were significantly less that the seven-day allowed outage time.

The Bases for Technical Specification 3.1.2.4 describes that one Charging Pump will provide the required boron injection flow above 200 °F, but that two pumps are required to ensure single functional capability in the event an assumed failure renders one of the systems inoperable. During the period that Reactor Coolant System temperature was > 200 °F and only one Charging Pump was operable, there was always one Charging Pump in operation. No other portions of the required boron injection system were inoperable during this period. Also, during this period, all CEAs were fully inserted in the

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core, and RCS boron concentration stayed between 2488 and 2544 PPM. With the combination of RCS boron concentration, CEA position, and the duration the control switch was in the "off" position, this error posed no significant safety concern for the boron injection function.

Another function of the Charging Pumps is for injection in a small break loss of coolant accident. Flow from one Charging Pump is assumed to supplement High Pressure Safety Injection flow. From the time Mode 4 was entered (November 11, 1449) until approximately 1900 that same day, RCS pressure was kept < 392 psia for Shutdown Cooling conditions. At 1900, efforts began to raise RCS pressure to <1750 psia. At the time Charging Pump B control Switch was discovered in the "off" position, RCS pressure was approximately 1380 psia. Both High Pressure Safety Injection Pumps remained operable throughout this period. The analysis for a small break LOCA assumed initial conditions associated with 102% power, conservatively high decay heat values, normal operating pressure of 2250 psia, and a HPSI shutoff head of 1365 psia. At greater than 30 days after shutdown and with 76 new fuel assemblies loaded in the core, decay heat was well below that assumed in the analysis. The lower decay heat, lower RCS pressure, and availability of High Pressure Safety Injection offsets the potential loss of Charging Pump A during the time that Charging Pump B was inoperable. Therefore, changing modes from Mode 5 to Mode 4 with one operable Charging Pump posed no significant safety concern for a small break LOCA.

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

SIMILAR EVENTS

Waterford 3 has reported two similar events within the last three years.

One event occurred on November 10, 1997 and was reported in LER 97-027-00. It was discovered that both trains of the Auxiliary Component Cooling Water (ACCW) were inoperable for about seven and one half-hours. This condition resulted because, the controller for valve ACC-126A was inadvertently left in the manual position, which made ACCW Train A inoperable. Subsequently ACCW

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Train B was made inoperable for a system maintenance outage. Control board walkdown expectations and effectiveness were addressed to correct this case. Control board walkdowns were also ineffective in correcting the current condition (Charging Pump B control switch in the "off" position). However, the former condition occurred three years ago, with no recognized evidence that corrective measures taken at that time were ineffective until the current condition.

Another event occurred on September 27, 1999 and was reported in LER 99-015-00. Waterford 3 was raising Reactor Coolant System (RCS) pressure during a normal plant startup. Upon reaching RCS pressure of approximately 420 pounds per square inch absolute (psia), the shift realized that Containment Spray (CS) Train B was inoperable due to failure to perform the CS system fill and vent. In addition, it was determined that all four Safety Injection Tanks (SIT) were also inoperable because the shift failed to open the SITs outlet isolation valves. The root cause was inadequate communication among shift personnel. There are no common mode failures or common root causes between that condition and the current condition.

ADDITIONAL INFORMATION

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

COMMITMENT IDENTIFICATION/VOLUNTARY ENHANCEMENT FORM

Attachment 1 to W3F1-2000-0171
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COMMITMENT(S)	ONE-TIME ACTION*	CONTINUING COMPLIANCE*	SCHEDULED COMPLETION DATE (IF REQUIRED)	ASSOCIATED CR OR ER
1) In the interim, the root cause analysis for this condition is being distributed as required reading for Operations licensed personnel to raise their level of awareness.	X			CR-WF3-2000-1515
2) Entergy will evaluate the mode change process and make adjustments as necessary to reduce the potential for future mispositioned control board switches.	X			CR-WF3-2000-1515
3) Operations management will review management expectations associated with outage overtime extensions with Shift Managers and Control Room Supervisors to address traps associated with working while fatigued.	X			CR-WF3-2000-1515

*Check one only

VOLUNTARY ENHANCEMENT(S)	ASSOCIATED CR OR ER