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W3F1-2002-0030
A4.05
PR

April 1, 2002

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) 2002-003-00 for Waterford Steam Electric Station Unit 3. This report provides details of operating contrary to Technical Specification requirements due to the inoperable condition of the auxiliary component cooling water pump.

This condition is being reported pursuant to 10CFR 50.73(a)(2)(i)(B) as operation or condition prohibited by Technical Specifications. Since the opposite train pump remained operable during this event, this condition had minimal safety significance.

There are no commitments contained in this submittal. Actions described herein are controlled and tracked via the Waterford 3 Corrective Action Program.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Robert D. Peters".

R.D. Peters
Acting Director,
Nuclear Safety Assurance

RDP/GCS/cbh
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

IE22

LICENSEE EVENT REPORT (LER)

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

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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.

1. FACILITY NAME

Waterford Steam Electric Station, Unit 3

2. DOCKET NUMBER

05000 382

3. PAGE

1 OF 5

4. TITLE

Inoperable Auxiliary Component Cooling Water Pump due to Lack of Lubrication

| 5. EVENT DATE | | | 6. LER NUMBER | | | 7. REPORT DATE | | | 8. OTHER FACILITIES INVOLVED | |
|----------------|-----|------|---|-------------------|--------|--------------------|-----|------|------------------------------|--------------------|
| MO | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REV NO | MO | DAY | YEAR | FACILITY NAME | DOCKET NUMBER |
| 02 | 15 | 2002 | 2002 | 003 | 00 | 04 | 01 | 2002 | N/A | N/A |
| | | | | | | | | | N/A | N/A |
| | | | | | | | | | N/A | N/A |
| 9. OPERATING | | | 11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) | | | | | | | |
| 1 | | | 20.2201(b) | | | 20.2203(a)(3)(ii) | | | 50.73(a)(2)(ii)(B) | 50.73(a)(2)(ix)(A) |
| 10 POWER LEVEL | | | 20.2201(d) | | | 20.2203(a)(4) | | | 50.73(a)(2)(iii) | 50.73(a)(2)(x) |
| 100 | | | 20.2203(a)(1) | | | 50.36(c)(1)(i)(A) | | | 50.73(a)(2)(iv)(A) | 73.71(a)(4) |
| | | | 20.2203(a)(2)(i) | | | 50.36(c)(1)(ii)(A) | | | 50.73(a)(2)(v)(A) | 73.71(a)(5) |
| | | | 20.2203(a)(2)(ii) | | | 50.36(c)(2) | | | 50.73(a)(2)(v)(B) | OTHER |
| | | | 20.2203(a)(2)(iii) | | | 50.46(a)(3)(ii) | | | 50.73(a)(2)(v)(C) | |
| | | | 20.2203(a)(2)(iv) | | | 50.73(a)(2)(i)(A) | | | 50.73(a)(2)(v)(D) | |
| | | | 20.2203(a)(2)(v) | | X | 50.73(a)(2)(i)(B) | | | 50.73(a)(2)(vii) | |
| | | | 20.2203(a)(2)(vi) | | | 50.73(a)(2)(i)(C) | | | 50.73(a)(2)(viii)(A) | |
| | | | 20.2203(a)(3)(i) | | | 50.73(a)(2)(ii)(A) | | | 50.73(a)(2)(viii)(B) | |

12. LICENSEE CONTACT FOR THIS LER

NAME

Gregory Scott, Senior Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

(504) 739-6703

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

| CAUSE | SYSTEM | COMPONENT | MANU-FACTORER | REPORTABLE TO EPIX | CAUSE | SYSTEM | COMPONENT | MANU-FACTORER | REPORTABLE TO EPIX |
|-------|--------|-----------|---------------|--------------------|-------|--------|-----------|---------------|--------------------|
| | | | | | | | | | |

14. SUPPLEMENTAL REPORT EXPECTED

YES (If yes, complete EXPECTED SUBMISSION DATE).

x

NO

15. EXPECTED SUBMISSION

MONTH DAY YEAR

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

On February 15, 2002, with the plant operating in Mode 1 at 100% reactor power, it was determined that the Auxiliary Component Cooling Water Pump B had been inoperable for a period exceeding the 72 hour allowed outage time of Technical Specification 3.7.3. The inoperability of the pump was caused by the failure of the pump's outboard bearing, which resulted from the failure to exclude foreign material from the lubricant during maintenance or oil addition. This resulted in a lack of lubrication to the bearing. The bearing failure was identified on December 30, 2001. The bearing oil was drained from the ACCW Pump B, all pump accessible areas were cleaned and the outboard was replaced. A failure analysis was performed on the bearing. This analysis determined that the initial failure had likely occurred on December 23, 2002.

This condition is being reported pursuant to 10CFR 50.73(a)(2)(i)(B), as operation or condition prohibited by Technical Specifications. Although Auxiliary Component Cooling Water Pump B was inoperable, the opposite train pump was available to perform all necessary safety functions. Therefore, this condition did not compromise the health and safety of the general public. This event is not considered a Safety System Functional Failure.

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| | | 2002 | 003 | 00 | |

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

REPORTABLE OCCURRENCE

On February 15, 2002, it was determined that the Auxiliary Component Cooling Water Pump had been inoperable for a period of approximately 7 days. The required Technical Specification actions were not entered, as this condition was unknown to plant personnel. Accordingly, this condition is being reported pursuant to 10CFR 50.73(a)(2)(i)(B) as operation or condition prohibited by Technical Specifications.

INITIAL CONDITIONS

Upon discovery of this event, Waterford 3 was operating in mode 1 at 100% reactor power. There were no major systems, structures or components that were inoperable at the time of discovery that contributed to the condition.

SYSTEM DESCRIPTION

The Auxiliary Component Cooling Water (ACCW) [BS] and the Component Cooling Water (CCW) [CC] systems work together to supply sufficient cooling to safety and non-safety related reactor auxiliaries. This cooling is also maintained to mitigate the consequences of a design basis accident. The ACCW pumps provide the driving head for the ACCW system. The ACCW System removes heat from the CCW System via the CCW Heat Exchanges during normal operation, normal shutdown, and accident conditions. The heat is transferred to the Wet Cooling Towers (WCT) for dispersal to the atmosphere. The ACCW System is required to operate whenever the heat rejection capacity of the CCW System is exceeded by accident conditions, or whenever ambient conditions prevent the CCW System from rejecting its required heat load by way of the Dry Cooling Towers. If not required, the ACCW system is placed in standby with the ACCW Pumps secured.

EVENT DESCRIPTION

On December 23, 2001, ACCW pump B was started for chemical mixing of the WCT basin. Prior

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to the pump start, lubricant levels were confirmed to be satisfactory. On December 30, 2001, ACCW pump B was again started for chemical mixing of the WCT basin. Again, prior to the pump start, lubricant levels were confirmed to be satisfactory. Subsequent to this start, the pump's outboard bearing temperature increased to 270°F over a five-minute period. (Normal outboard bearing temperatures are near 110°F). The pump was declared inoperable and then disassembled, where it was determined the outboard bearing had been damaged (i.e. wiped).

Following the December 30, 2001 pump failure, a failure analysis was performed which included a review of the data from the December 23, 2001 run. The review revealed that eight minutes following this pump start, the outboard bearing temperature increased to 179°F and then returned to its normal temperature of 110°F. The pump's lube oil reservoir temperature remained constant for approximately nine minutes following the pump start, increased to 125°F and then return to its normal temperature of 110°F.

ROOT CAUSE

A root cause determination was completed to investigate this event. It was concluded that the lubricant inlet port was partially blocked by foreign material subsequent to the pump start on December 23, 2002. The foreign material prevented oil from reaching the bearing for several minutes. During this time, the bearing was starved for oil and the shaft scored the soft babbit material of the bearing. The outboard pump bearing thermocouple temperature then increased to approximately 60°F above normal operating temperature. It was surmised that foreign material was then dislodged from the inlet port. Consequently, oil began flowing pass the outboard bearing and draining to the pump reservoir. Reservoir temperature increased rapidly to 125°F. Pump flow rate increased which resulting in reduced load on the outboard bearing. This reduction in load allowed the pump's shaft to move clockwise, away from the damage area on the bearing. The shaft movement allowed an oil wedge to be formed in the bearing. The outboard bearing and reservoir temperature then returned to normal.

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The root cause determination attributed the root cause of this event to be the failure to exclude foreign material from the lubricant during maintenance or oil addition.

CORRECTIVE ACTIONS

The bearing oil was drained from ACCW Pump B, all pump accessible areas were cleaned and the outboard bearing was replaced.

Additional corrective actions to preclude recurrence (i.e. preventing intrusion of foreign material into the pump oil) have been entered, and are being tracked in the plant's corrective action program. (Reference Condition Report CR-WF3-2001-1399)

SAFETY SIGNIFICANCE

The inoperable condition of the Auxiliary Component Cooling Water Pump B rendered one train of ACCW inoperable for approximately 7 days. During this period Train A of ACCW was available to perform necessary functions of the ACCW system.

The risk impact of this condition was quantified. The evaluation assumes the condition (inoperable ACCW pump B) existed for a one week period. The increase in Core Damage Probability was determined to be not risk significant (8.2E-7).

Therefore, the condition identified in this LER has minimal safety significance. This event is not considered a Safety System Functional Failure.

SIMILAR EVENTS

LER 99-018, documents that a failure of a reach rod caused the Low Pressure Injection System to be inoperable beyond the Technical Specification allowed outage time.

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ADDITIONAL INFORMATION

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