

# WOLF CREEK

NUCLEAR OPERATING CORPORATION

Clay C. Warren  
Chief Operating Officer

December 19, 1996

WO 96-0168

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Station P1-137  
Washington, D. C. 20555

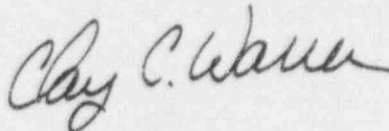
Subject: Docket No. 50-482: Correction to Licensee Event  
Report 96-018-00  
Reference: Letter WO 96-0161 dated November 5, 1996, from  
C. C. Warren, WCNOG, to the NRC

Gentlemen:

The referenced letter and the attached Licensee Event Report 96-018-00 incorrectly reflect a submittal date of November 5, 1996. The correct date of submittal is December 5, 1996. We apologize for any inconvenience this may have caused.

If you should have any questions regarding this issue, please contact me at (316) 364-8831 extension 4485, or Mr. Terry S. Morrill at extension 8707.

Very truly yours,



Clay C. Warren

9612300005 961205  
PDR ADOCK 05000482  
S PDR

CCW/jad

Attachment

cc: L. J. Callan (NRC), w/a  
W. D. Johnson (NRC), w/a  
J. F. Ringwald (NRC), w/a  
J. C. Stone (NRC), w/a

JE22/1

260052

## LICENSEE EVENT REPORT (LER)

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

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.

FACILITY NAME (1)

WOLF CREEK GENERATING STATION

DOCKET NUMBER (2)

05000482

PAGE (3)

1 OF 6

TITLE (4)

Failure To Comply With Technical Specification Surveillance Requirement 4.3.2.2

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
11	5	96	96	018	00	12	05	96	FACILITY NAME	DOCKET NUMBER	
OPERATING		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
MODE 1		20 402(b)			20 405(c)			50 73(a)(2)(iv)			73 71(b)
POWER		20 405(a)(1)(i)			50 36(c)(1)			50 73(a)(2)(v)			73 71(c)
100%		20 405(a)(1)(ii)			50 36(c)(2)			50 73(a)(2)(vii)			OTHER
		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

Terry S. Morrill  
Manager Regulatory Services

TELEPHONE NUMBER (Include Area Code)

316-364-8707

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
		N/A							

SUPPLEMENTAL REPORT EXPECTED (14)

EXPECTED

MONTH

DAY

YEAR

YES

X

NO

(If yes, completed EXPECTED SUBMISSION DATE)

ABSTRACT:

On November 5, 1996, Wolf Creek Nuclear Operating Corporation's Auxiliary Feedwater System Functional Assessment Team identified that Technical Specification Surveillance Requirement 4.3.2.2 for Engineered Safety Features (ESF) Response Time Testing was not being adequately accomplished for the Turbine Driven Auxiliary Feedwater (TDAFW) Pump. The team concluded that to accurately meet the ESF response time requirement the procedure should have verified that the TDAFW pump was available to provide flow to the steam generators within 60 seconds of an initiating signal. The root cause is that management did not ensure that there were proper mechanisms in place to verify that their standards and expectations were being met. Corrective actions include: Development of a Corrective Action Review Board; Changing the leadership of the Plant Safety Review Committee; Changing the members of the Offsite Safety Review Committee; Revising the surveillance procedure; and, Performing a sample review of other surveillances.

**LICENSEE EVENT REPORT (LER)**  
TEXT CONTINUATION

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

**Plant Conditions Prior to the Event:**

MODE = 1

Reactor Coolant Pressure = 2234 psig

Reactor Power = 100%

**Basis for Reportability:**

10 CFR 50.73(a)(2)(i)(B) requires each licensee to report any operation or condition prohibited by the plant's technical specifications.

Technical Specification Surveillance Requirement 4.3.2.2 states that the Engineered Safety Features (ESF) Response Time of each ESF actuation signal function shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one train such that both trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESF actuation signal function as shown in the "Total No. of Channels" column on Table 3.3-3.

Functional Unit 6B of Table 3.3-3 requires that the Auxiliary Feedwater Automatic Actuation Logic and Actuation Relays [BA-RLY] be verified operable. To meet this requirement the surveillance test acceptance criteria should have included steps ensuring that the Turbine Driven Auxiliary Feedwater (TDAFW) pump [BA-P] was available to provide flow to the steam generators [AB-SG] within 60 seconds of an initiating signal by reaching its rated speed of 3850 rotations per minute (RPM).

Failure to adequately perform Technical Specification Surveillance Requirement 4.3.2.2 is reportable per 10 CFR 50.73(a)(2)(i)(B).

**Description of Event:**

WCNOC currently has a team of employees performing a Functional Assessment of the Auxiliary Feedwater (AFW) System. The assessment scope includes review of the following: adequacy of current design assumptions, adequacy of incorporation of lessons learned from industry experience, agreement of the Updated Safety Analysis Report (USAR) with the design basis, effectiveness of testing and surveillance programs to verify safety functions, and focus of prioritization and scheduling of Engineering activities.

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During the assessment team's review of the AFW system's licensing basis documentation they questioned whether surveillance procedures were verifying that the TDAFW pump was able to provide flow to the steam generators within 60 seconds of an initiating signal. They specifically questioned the acceptance criteria for the associated surveillance procedure, STS AL-104, "Turbine Driven Auxiliary Feedwater Pump Engineered Safety Features Response Time Test."

The assessment team concluded that start-up testing had verified that the TDAFW pump provided the rated flow of 1120 GPM, including recirculation flow within 60 seconds. However, the initial surveillance procedure and subsequent revisions since start-up did not include verifying that the TDAFW pump was able to provide flow to the steam generators within 60 seconds of a initiating signal by reaching its rated speed of 3850 RPM.

As part of the corrective action, the procedure was revised to stipulate that the time required for the TDAFW pump to start and reach its full operating speed be used as the acceptance criteria. The TDAFW pump performance curve demonstrates that the pump will be capable of delivering the flow required by the safety analysis if it reaches its rated speed of 3850 RPM within 60 seconds.

The assessment team concluded that there were missed opportunities to correct this problem:

- Surveillance procedure acceptance criteria were reviewed during an internal audit of Technical Specifications in 1989. This audit checked the Technical Specification bases against the Technical Specification surveillance requirements and verified that the surveillance procedure adequately met the requirements. The audit did not include verifying the acceptance criteria against the design basis. The surveillance procedure containing the AFW ESFAS response time testing acceptance criteria for Technical Specification 4.3.2.2. was reviewed and determined to be acceptable.
- In surveillance procedure STS AL-104, Revision 0, dated September 21, 1994, a reviewer remarked that measuring the stroke time of the trip and throttle valve [BA-MOV] was not the best way to verify the TDAFW pump start time, and suggested using the time it takes the pump to reach rated speed or discharge pressure as being a better method. The resolution stated that the testing criteria were taken directly from the previous procedure containing this acceptance criteria, and that no further changes were necessary.
- Personnel performing an AFW self assessment in 1995 asked why the trip and throttle valve response time was used as an indication of TDAFW pump response time. The response to this question was to add an administrative limit of 45 seconds to



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surveillance procedure STS AL-104 and to require contacting the system engineer if the administrative limit was exceeded. This was an effort to ensure that the 60 second limit was not exceeded by the trip and throttle valve and consequently not exceeded by the TDAFW pump.

- The current assessment team also reviewed Plant Modification Request (PMR) 06279 which provided design changes to slow down the opening stroke time of the TDAFW pump's trip and throttle valve. Post modification testing included surveillance procedures, STS AL-104, STS AL-103, "TDAFW Pump Inservice Pump Test," and STS FC-201, "Auxiliary Feedwater Pump Turbine Inservice Valve Test." The post modification testing did not include verification that the TDAFW pump reached rated speed within 60 seconds. Subsequent testing has proven that the modification did not increase valve opening stroke time enough to prevent the TDAFW pump from reaching rated speed within 60 seconds.

Root Cause and Corrective Actions:

Root Cause and Contributing Factors:

The root cause is that management did not ensure that there were proper mechanisms in place to verify that their standards and expectations were being met.

Corrective Actions

The Shift Supervisor was notified on November 5, 1996, and the TDAFW pump was declared inoperable at 1923 CST.

Performance Improvement Request 96-2878 was initiated to document the problem and address the root cause and corrective actions.

On November 6, 1996, surveillance procedure STS AL-104 was revised to adequately verify the TDAFW pump response time per step 6.1 which requires turbine rotation of greater than 3850 rpm, with a start time less than or equal to 58 seconds.

Surveillance procedure STS AL-104 was performed on November 7, 1996. The TDAFW pump reached a rated speed of greater than 3850 rpm in 28.99 seconds. The TDAFW pump was declared operable on November 7, 1996, at 0153 CST.

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WCNOC is taking the following actions to provide the management tools necessary to ensure that expectations are being met: Implementation of a Corrective Action Review Board; Changing the leadership of the Plant Safety Review Committee; and Changing the members of the Nuclear Safety Review Committee, WCNOC's offsite safety review committee. All of these actions will be completed by March 31, 1997.

A random sample of ten Technical Specification surveillances will be reviewed to verify that the acceptance criteria are correct and are being met. This review will be completed by January 17, 1997.

WCNOC uses a Qualified Reviewer process to review procedures and ensure that the proper technical review occurs and all comments are adequately resolved. The Qualified Reviewer process will be evaluated using Third Quarter 1996 data. The intent of the review is to define the scope of any weaknesses in the Qualified Reviewer program and to verify that the accurate level of detail and appropriate questioning attitude is being used during the procedure revision and review process. The review will be completed by December 31, 1996.

Performance Improvement Request 96-2878 will be discussed in Operations Support, Support Engineering and System Engineering staff meetings. The meetings will reinforce the need to have a questioning attitude and to base judgments on sound technical basis. The meetings will occur by December 31, 1996.

Other actions previously committed to that address the generic implications of this event include engineering initiatives to prioritize, schedule, and appraise work products. In addition system assessments, such as the one that found this issue, are scheduled for the following systems: Essential Service Water and Service Water Systems, Residual Heat Removal and Main Turbine Systems, and the Component Cooling Water and Main Generation Systems.

**Safety Significance:**

Based on AFW start-up and commercial testing records, data compiled by the System Engineer, and successful completion of the revised surveillance procedure, it is believed that the TDAFW pump has always performed per design. Therefore, this event has no safety significance.

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Other Previous Occurrences:

LER 96-017-00 discusses an inadequate surveillance requirement for testing components at the Auxiliary Shutdown Panel (ASP). This event is similar in that the requirements were not accurately determined during the initial development of the surveillance procedure and the oversight was not corrected during the procedure revision process. The corrective actions to this LER are still in progress and would not have prevented this occurrence.

LER 92-005-00 discussed failure to incorporate all the required valves into a surveillance procedure. It was determined that Containment Isolation Valves, EJVI87 and EJVI89 [BP-ISV], "Containment Recirculation Sump to Post-Accident Sampling System Test Connection and Drain Valves," had not been included in the appropriate surveillance test procedure. The root cause of this event was inadequate attention to detail when preparing the test procedure prior to plant start-up. Corrective actions taken were specific to the procedure in question and would not have prevented this event.