

**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 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.

FACILITY NAME (1) WOLF CREEK GENERATING STATION	DOCKET NUMBER (2) 05000482	PAGE (3) 1 OF 5
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TITLE (4)  
Failure To Correctly Test A Portion Of The Auto-Start Circuitry Of Component Cooling Water Pumps "C" And "D".

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
12	23	1998	1998	008	00	01	22	99	FACILITY NAME	DOCKET NUMBER
OPERATING MODE (9)		MODE 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		100 percent	20.402(b)			20.405(c)			50.73(a)(2)(iv)	73.71(b)
			20.405(a)(1)(i)			50.38(c)(1)			50.73(a)(2)(v)	73.71(c)
			20.405(a)(1)(ii)			50.38(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 Michael J. Angus Manager, Licensing and Corrective Action	TELEPHONE NUMBER (Include Area Code) 316-364-4077

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	X	NO						

ABSTRACT (16):  
On December 23, 1998, Wolf Creek Generating Station Operations personnel identified a failure to adequately perform Technical Specification Surveillance Requirement 4.7.3.b.2. Surveillance Test Procedure (STS) KJ-001A(B), "Integrated D/G And Safeguards Actuation Test", requires installation of a test jumper that bypasses a portion of the Component Cooling Water (CCW) Pump C(D) auto-start circuitry. Subsequent testing with this jumper in place resulted in a failure to adequately test a portion of the circuitry required to satisfy Technical Specification Surveillance Requirement 4.7.3.b.2.

The failure to appropriately test the 152 STA/b contacts was caused by an inadequate procedure. Corrective actions for this event include functional testing of the omitted circuitry, procedure revision, and review of the event with responsible personnel. There was no adverse impact to the health and safety of the public or to plant equipment as a result of this event.

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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  
Power --- 100 percent  
Temperature --- varied  
Pressure --- varied

**Basis for Reportability:**

NUREG-1022, Revision 1, "Event Reporting Guidelines 10 CFR 50.72 and 50.73" issued in January of 1998, Section 3.2.2(3) "TS Surveillance Requirements" states "Missed surveillance tests are reportable when the surveillance interval plus allowed surveillance interval extension...plus the LCO action statement time is exceeded." Technical Specification 4.7.3.b requires verification, at least once per 18 months during shutdown, that "...each operable Component Cooling Water System pump starts automatically on a Safety Injection and Loss-of-Power test signal." Because of a failure to adequately test a portion of the circuitry required to satisfy Technical Specification 4.7.3.b.2, Wolf Creek Nuclear Operating Company (WCNOC) was in violation of Technical Specification 3.7.3 by having one loop of Component Cooling Water (CCW) System inoperable for greater than 72 hours.

Therefore, the condition in this LER is being reported under 10 CFR 50.73(a)(2)(i)(B), as a condition prohibited by the Wolf Creek Generating Station (WCGS) Technical Specifications.

**Event Description:**

On December 23, 1998, WCNOC Operations personnel identified that Section 8.1 of Surveillance Test Procedure (STS)KJ-001A(B), "Integrated D/G And Safeguards Actuation Test", requires installation of a test jumper that bypasses a portion of the CCW Pump C(D) auto-start circuitry. Technical Specification 4.7.3.b.2 requires verification, during shutdown, that "...each operable Component Cooling Water System pump starts automatically on a Safety Injection and Loss-of-Power test signal." This verification is required at least once per eighteen months during shutdown. Subsequent testing with this jumper in place resulted in a failure to adequately test the 152 STA/b contacts, which are part of the circuitry required to be tested to satisfy Technical Specification 4.7.3.b.2.

If CCW Pump A(B) fails to auto-start, continuity through the 152 STA/b contacts is necessary in order for CCW Pump C(D) to automatically start. During performance of STS KJ-001A(B), in order to achieve an auto-start of the CCW Pump C(D), these contacts were bypassed. In STS KJ-001A(B) Section 8.1, the jumper that is used to facilitate CCW stand-by pump start is removed. CCW Pump C(D) is not started during any subsequent portions of the test. Thus, because of this jumper installation which was made in an April, 1986, revision of procedure STS KJ-001A(B), the 152 STA/b contacts were not being correctly tested.

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Because Technical Specification 4.7.3.b.2 requires an auto-start, all active components in the auto-start circuitry for all four CCW pumps must be tested. Section 8.1 of STS KJ-001A(B) was last performed on November 12, 1997, with the 152 STA/b contacts bypassed. Therefore, Technical Specification 4.7.3.b.2 was not satisfied at that time, and CCW Pumps C and D were not proven operable. The B CCW pump in the B train was out of service for maintenance from April 27 through May 9, 1998. Because the D CCW pump was relied upon for B train loop operability, WCNOG was in violation of Technical Specification 3.7.3 by having one loop of the CCW System inoperable for greater than 72 hours. Upon identification of this condition, on December 23, 1998, CCW Pumps C and D were declared inoperable because of a failure to adequately meet the surveillance requirement.

The design of the WCGS CCW System is uniquely redundant relative to other safety related systems at Wolf Creek. The CCW system has two 100% capacity pumps in each loop. The WCGS CCW System Technical Specifications require only one pump to be operable for a loop to be operable. Because one CCW pump in each loop is operable, WCGS is currently in compliance with its technical specifications.

**Root Cause:**

Performance Improvement Request (PIR) 98-3894 was written to investigate this issue and determine appropriate corrective actions. The following information was obtained.

- The failure to appropriately test the 152 STA/b contacts was caused by an inadequate procedure. The individual who drafted the STS KJ-001A(B), Revision 2, procedure step that initiated the installation of the jumper failed to ensure that STS KJ-001A(B) effectively tested the 152 STA/b contacts. As a result, a step was written that only partially accomplished what was intended, because it still did not properly test the auto-start circuitry of the standby CCW Pumps. Investigation could not determine why the individual did not choose an alternate method for obtaining auto-start of the standby CCW pumps.

**Corrective Actions Taken:**

- The Shift Supervisor was notified on December 23, 1998.
- CCW pumps C and D were declared inoperable on December 23, 1998.
- The 152 STA/b contacts were proven functional on December 24, 1998.

**Actions to Prevent Recurrence:**

- Procedure STS KJ-001A(B) will be revised to correctly address Technical Specification 4.7.3.b by March 12, 1999.
- Technical Specification 4.7.3.b.2 requires performance of this surveillance "during shutdown." Therefore, WCNOG submitted, by letter dated January 15, 1999, a request to

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expedite issuance of a portion of the Improved Technical Specification amendment associated with Technical Specification 4.7.3.b. This change deletes the requirement to perform the subject surveillance during shutdown and reflects the appropriate plant conditions in the associated 3/4.7.3 Bases. The changes to the Bases acknowledge that the surveillance is not performed during normal operation due to the potential for an unplanned transient if the surveillance were performed with the reactor at power. This amendment will allow the necessary logic testing to restore the inoperable pumps C and D to an operable status.

- Operations personnel will conduct a review of Technical Specification 3/4.7.3 and its Bases for the NRC Generic Letter (GL) 96-01 Resolution Team members. This corrective action will be completed by February 25, 1999.
- Coaching on Human Error Reduction Techniques, and how they could have been successfully implemented to prevent this error, will be performed by Engineering for GL 96-01 Resolution Team members. This corrective action will be completed by February 25, 1999.

**Safety Significance:**

There was no safety significance associated with the specific problem described in this LER. Because CCW Pumps A and B were correctly tested in STS KJ-001A(B), they satisfied the requirements\* of Technical Specification 3.7.3,\* which requires two independent component cooling water loops to be operable. In addition, after testing the continuity of the 152 STA/b contacts for CCW Pumps C and D, it was determined that CCW Pump C(D) would have started upon an unsuccessful start of CCW Pump A(B), and would have performed the intended component cooling function. Therefore, there was no impact to the health and safety of the public or plant equipment as a result of this event, and the CCW System would have provided cooling water to Engineered Safety Systems, as required.

**Other Previous Occurrences:**

- LER 97-001-03, issued September 12, 1997, also documented a violation of the same 4.7.3.b Technical Specification Surveillance Requirement and also resulted from incorrect procedure direction. However, the LER 97-001-03 event violated the 4.7.3.b requirement for performing testing during shutdown, while the 98-008-00 event violated the 4.7.3.b requirement for testing of all circuitry.
- LER 98-006-00, issued November 11, 1998, was similar to this 98-008-00 event in that a portion of circuitry was bypassed and not appropriately tested. However, the root cause, and corrective action, as well as the technical specification violated, were different from the event identified in this 98-008-00 LER.

LER 98-006-00 violated Technical Specification 4.8.1.1.2.a.1. The root cause of the 98-006-00 event was the failure of the participants in this license amendment process to ensure that a well-constructed, clear, and unambiguous license amendment was

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submitted. Corrective actions included remedial surveillance testing, revision of procedures and forms, training, improvements in communication, and improvements in the License Amendment Request process.

- LERs 97-010-00, 97-010-01, 97-010-02, and 97-010-03 identified that WCGS procedures did not provide for full overlap testing of the P-11 circuits; did not test all contacts of Slave Relay K643 on a quarterly basis; and did not assure that certain relay contacts were tested. These incidents, as reported in LER 97-010-00, were violations of Technical Specification 4.3.2.1, and were associated with NRC Generic Letter 96-01 reviews.

Root cause for the incidents described in LER 97-010-03 and earlier revisions was identified as inadequate or incomplete procedures due to misinterpreting, not understanding, or not clarifying technical specification requirements during writing or revising the procedures. Corrective actions included the correction of the procedures and an approved WCGS Technical Specification amendment. LER 97-010-03 and its earlier revisions were similar to LER 98-008-00 in root cause and corrective actions taken, but involved different Technical Specifications.

Investigation of the LER 98-008-00 event also reviewed the resolution of NRC Generic Letter 96-01 and Industry Technical Information Program (ITIP) item 3940, to determine why this issue was not identified earlier. The investigation identified that the unique nature of CCW configuration, coupled with distractions during these reviews, resulted in the individual losing focus on the function of the 152 STA/b contacts. This loss of focus resulted in the individual making an inappropriate assumption regarding the requirement for testing these contacts.

**LIST OF COMMITMENTS**

The following table identifies those actions committed to by Wolf Creek Nuclear Operating Corporation (WCNOC) in this document. Any other statements in this submittal are provided for information purposes and are not considered to be commitments. Please notify the Manager Licensing & Corrective Action at Wolf Creek Nuclear Generating Station of any questions regarding this document or any associated commitments.

COMMITMENT	Date/Event
Procedure STS KJ-001A(B) will be revised to correctly address Technical Specification 4.7.3.b:2	March 12, 1999.
Review of Technical Specification 3/4.7.3 and its Bases will be conducted by Operations personnel for NRC Generic Letter (GL) 96-01 Resolution Team members.	February 25, 1999.
Coaching on Human Error Reduction Techniques, and how they could have been successfully implemented to prevent this error, will be performed by Engineering for GL 96-01 Resolution Team members.	February 25, 1999.