

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report: 50-482/88-17

Operating License: NPF-42

Docket: 50-482

Licensee: Wolf Creek Nuclear Operating Corporation (WCNOC)  
P.O. Box 411  
Burlington, Kansas 66839

Facility Name: Wolf Creek Generating Station (WCGS)

Inspection At: WCGS, Burlington, Kansas

Inspection Conducted: May 2-6, 1988

Inspectors: *H. F. Bundy* 6/6/88  
H. F. Bundy, Reactor Inspector, Test Programs  
Section, Division of Reactor Safety Date

*T. O. McKernon* 6/6/88  
T. O. McKernon, Reactor Inspector, Test  
Programs Section, Division of Reactor Safety Date

Approved: *W. C. Seidle* 6/6/88  
W. C. Seidle, Section Chief, Test Programs  
Section, Division of Reactor Safety Date

Inspection Summary

Inspection Conducted May 2-6, 1988 (Report 50-482/88-17)

Areas Inspected: Routine, unannounced inspection of activities associated with followup to licensee event reporting, modification testing, and surveillance procedures and records.

Results: Within the three areas inspected, three violations were identified (failure to have procedures appropriate to circumstances, failure to maintain adequate and complete records, and failure to take adequate and timely corrective action, paragraphs 2, 3, and 4, respectively).

DETAILS1. Persons ContactedLicensee

- \*F. Rhodes, Vice President, Nuclear Operations
- \*W. M. Lindsay, Manager, Quality Evaluation
- \*S. Austin, Operations Support Supervisor
- \*D. Dees, Surveillance Coordinator
- \*J. Gilmore, License Training Supervisor
- \*M. G. Williams, Plant Support Manager
- \*C. W. Fowler, Manager, Instruments and Control
- \*K. Peterson, Licensing Supervisor
- \*H. Chernoff, Licensing
- \*R. W. Holloway, Manager, Maintenance and Modification
- \*B. McKinney, Manager, Technical Support
- \*R. M. Grant, Vice President, Quality
- R. Raykiewitz, Quality Assurance
- D. Gerrelts, Instrumentation & Control Support Supervisor
- E. Asbury, Configuration Management Supervisor
- D. Walsh, IST Pump and Valve Coordinator
- C. M. Estes, Operations Manager

NRC

- \*H. F. Bundy, Reactor Inspector, RIV
- \*T. O. McKernon, Reactor Inspector, RIV
- \*B. L. Bartlett, Senior Resident Inspector
- \*M. E. Skow, Resident Inspector

The NRC inspectors also interviewed other licensee employees during the course of the inspection.

\*Denotes those present during the exit interview held on May 6, 1988.

2. Followup to Licensee Event Reporting (92700)

The purpose of this portion of the inspection was to review the loose parts monitoring system (LPMS) event as reported in Licensee Event Report (LER) 88-04. The NRC inspector reviewed the licensee's immediate corrective actions taken, the root cause analysis, generic implications, management's involvement in the event, and subsequent reporting. The LPMS event involved a violation of Technical Specifications (TS) surveillance requirements during a 3-year period.

The NRC inspector noted the following facts during the review of the incident. The LPMS surveillance requirements are specified in TS 4.3.3.9.a, b, and c, and in licensee commitments to Regulatory

Guide 1.133. Regulatory Guide 1.133 states that the manual mode of data acquisition shall be used during startup and power operation periods to perform a channel check at least once per 24 hours and to listen to the audio portion of signals from all recommended sensors for the purpose of detecting the presence of loose parts at least once per 7 days. Furthermore, Regulatory Guide 1.133 defines a channel check as the qualitative assessment of channel behavior during operation by observation, including, where possible, comparison of the channel indication with other indications derived from independent channels measuring the same parameter.

On May 2, 1985, Revision 1 to Procedure CR-001, Revision 0, was issued. This revision eliminated an appropriate surveillance instruction and substituted an instruction which verified only power and alarms for each channel. This instruction was in effect and used on a daily basis until May 26, 1987, when Revision 5 added a note stating, "cable fault alarm for Channels 1 and 2 have been defeated." Revisions 2, 3, and 4 to Procedure CR-001 did not effect the surveillance requirements for the loose parts monitoring system. During October 1986, Plant Modification Request (PMR) No. 1371 was performed for Channels 1 and 2. This modification replaced the Endevco 52M9 charge converters with Rockwell International charge converters, which were environmentally qualified per 10 CFR 50.49 requirements. Post-modification testing performed after completion of PMR 1371 on December 10, 1986, showed no indications of cable fault alarms present. On April 27, 1987, Work Request (WR) 01523-87 was submitted to investigate a channel fault alarm light illuminated. On May 8, 1987, WR 01523-87 was "closed in process" by Instrumentation and Control (I&C) personnel. A notation on the WR was made stating, "Channels 1 and 2 do not have a reliable cable fault indication." Subsequent to the closure of WR 01523-87, no further action was taken to resolve the erroneous cable fault signals on Channels 1 and 2 except to make the above mentioned Revision 5 to the surveillance procedure.

The NRC inspector reviewed the licensee's draft to LER 88-04 for accuracy and a definitive corrective action plan. The licensee's immediate corrective actions as stated in the LER appeared to be adequate. The licensee has been implementing a generic review of TS surveillances and the surveillance procedures for adequacy. The NRC inspector noted through discussions with the licensee's training personnel that training's contribution, or lack thereof, to the prevention of the above incident was indeterminate. It was stated that the vendor's original LPMS training provided to operators prior to initial criticality was of such a depth and degree that many may not have gotten much benefit from the training. Subsequent training was provided by the licensee through the reactor operator qualification and requalification training program.

The efforts of the Quality Assurance (QA) department in the final identification and resolution of the cable/fault and surveillance procedure problem were evident. Normally, in such cases where prompt and adequate corrective action is taken to preclude future recurrence the issuance of a Notice of Violation (NOV) is foregone. However, in this

instance, it was determined that the problem existed for an inordinate period (2-3 years), that there was a failure of management to review a procedure revision for adequacy which initiated the error, and that there was another failure to review WR 01523-87 for adequacy of corrective actions in April 1987 which allowed the problem to continue.

The Code of Federal Regulations, Title 10, Part 2 (10 CFR 2), Appendix C.V.G.1.e states, in part, that a licensee may be considered exempt from enforcement action if the problem was not a violation that could reasonably be expected to have been prevented by the licensee's corrective action for a previous violation. In regard to the above violation, the licensee had an opportunity to identify and to correct in April 1987. However, because of inappropriate corrective actions and incomplete technical resolution resulting from inadequate managerial review, the problem continued until rediscovered through a QA audit in April 1988. Furthermore, a similar previous violation occurred on July 1, 1987, and was reported in LER 87-029. If the licensee had accomplished comprehensive generic review of all TS surveillance procedures at that time as part of their corrective actions, the violation might have been detected and resolved. The licensee's failure to provide procedures appropriate to the circumstances is an apparent violation of TS 6.8.1. (482/8817-01)

No deviations were identified.

This closes followup action for LER 88-04.

### 3. Modification Testing (72701)

The purpose of this inspection was to verify whether the licensee's modification testing program for modified systems and components is in conformance with the TS, design documentation, regulatory requirements, and industry-approved codes and standards.

During the inspection, the NRC inspector reviewed the following PMR record packages and procedures:

- PMR 01371
- PMR 01800
- PMR 00950
- PMR 00823
- KPG-1131, Revision C, "Plant Modification Process," dated May 29, 1987
- ADM 01-042, Revision 10, "Plant Modification Request Implementation," dated August 11, 1987

- ADM 02-101, Revision 18, "Temporary Modifications," dated October 16, 1987

During review of the above, the NRC inspector noted the following:

Technical Specification 6.8.1 requires adherence to Appendix A of Regulatory Guide 1.33, Revision 2, dated February 1978. Regulatory Guide 1.33 requires, in part, that general procedures for modification work be developed. The licensee further translated this requirement into administrative instructions for plant modification implementation (ADM 01-042) and Specific Installation Instructions 10466-E-11013(Q), Revision 1, "Installation, Inspection, and Testing Details for Electric Equipment and Cable," dated April 22, 1986. Procedure 10466-E-11013(Q) endorses those requirements of IEEE 336-1971, which requires inspections to verify correctness of installation and, in part, stipulates that tests be performed to ascertain circuit continuity and proper functioning of the system. The NRC inspector found that the licensee could not furnish evidence from the PMR record files that post-modification tests were performed. In some instances, the PMR package contained records of visual quality control inspection, but did not reference or contain records of performance tests. In discussion with I&C personnel, records of surveillance tests were retrieved which indicated that a functional test was performed on the applicable systems within a reasonable time period following the PMR installation work. In reviewing the cited surveillance test records, no evidence or reference to the PMR package was made.

The licensee's failure to maintain traceability through the modification records suggests that post-modification testing may not have been accomplished. The inadequate and incomplete PMR packages are an apparent violation of 10 CFR 50, Appendix B, Criterion XI (Test Control) (482/8817-02).

No deviations were identified.

#### 4. Surveillance Procedures and Records (61700)

The purpose of this part of the inspection was to ascertain whether the surveillance of safety-related systems and components was being conducted in accordance with approved procedures as required by the TS. Pursuant to this objective, the NRC inspector reviewed the following licensee documents:

- Administrative Procedure ADM 02-300, Revision 11, TPC MA 88-23, "Surveillance Testing"
- ADM 02-311, Revision 4, TPC MI 88-088, "Surveillance Test Master Cross-Reference and Review Requirements"

The NRC inspector then selected certain TS surveillance requirements and reviewed the associated licensee test procedures and an appropriate number of test results records for each procedure. Also, selected test personnel were verified to have appropriate certifications. The TS surveillance requirements, together with the associated test procedures reviewed by the NRC inspector, are tabulated in the Attachment.

The NRC inspector determined that the required tests were being scheduled and performed as required in accordance with approved procedures. Acceptance criteria were specified in the procedures, and the records stated satisfaction of acceptance criteria. Appropriate instructions for returning equipment to service following testing were given. With the exception of analyses and followup on out-of-tolerance as-found data as discussed below, all requirements appeared to have been satisfied.

In reviewing completed TS surveillance test records, the NRC inspector noted that as-found data taken was out of tolerance for several tests. Typically, the applicable procedure provided for adjustment of the components to bring as-left data into the acceptable tolerance bands and no further corrective action was required. However, it cannot be easily determined how long the equipment was out of tolerance prior to the adjustments (calibration) performed pursuant to the procedure. Of specific concern to the NRC inspector were six consecutive calibration test records between December 19, 1987, and April 15, 1988, for Containment H<sub>2</sub> Analyzer GS 065A in which as-found data was out of tolerance.

In pursuing this problem with the licensee's I&C support staff, the NRC inspector learned that the licensee had no formal program for trend analysis of equipment failures discovered during surveillance testing. However, the TS surveillance coordinator and members of the I&C staff are purportedly alert for repeated failures and initiate corrective action as appropriate. With regard to the high failure rate of containment hydrogen analyzers Wolf Creek Event Report (WCER) 86-49 had been issued by the TS Surveillance Coordinator on June 24, 1986. It challenged the assumption that instruments are in calibration until the next surveillance test in instances where they are consistently found out of calibration. It also questioned whether responsible operations individuals would be informed under the system that existed. It went on to suggest that the licensee should consider trending high failure rates of equipment and instruments. Furthermore, it suggested that the periodicity of tests for such instruments and equipment should be shortened. As of May 5, 1988, corrective action for WCER 86-49 had neither been determined nor implemented. The failure to determine and implement prompt corrective action for the problems identified in WCER 86-49 is an apparent violation of 10 CFR 50, Appendix B, Criterion XVI, as implemented by the licensee's Updated Safety Analysis Report, paragraph 17.2.16.1, which requires prompt corrective action for equipment failures and malfunctions. (482/8817-03)

The NRC inspector asked the I&C support staff if any other problems involving repeated failures identified during surveillance testing

currently existed; the chlorine air intake monitors were identified. It was also stated that some plant equipment had been replaced because of repeated surveillance test failures. The NRC inspector stated that his ultimate concern is that the plant might be operated with out-of-calibration equipment or instruments which would not meet safety analysis requirements.

No deviations were identified.

5. Exit Interview

The NRC inspectors conducted an exit interview on May 6, 1988, with the licensee personnel denoted in paragraph 1. At this meeting, the scope and findings of the inspection were summarized. The licensee did not identify as proprietary any of the materials provided to or reviewed by the NRC inspectors during the inspection.

ATTACHMENT

PROCEDURES AND RECORDS REVIEWED

<u>Requirement</u>	<u>Description</u>	<u>Procedures</u>
TS 4.1.3.4.a	Measure rod drop times following removal of reactor vessel head	STS RE-007, R3, TPC MA 88-067
TS 4.2.4.1	Determine QUADRANT POWER TILT RADIO	STS RE-012, R1, TPC MA 87-218
TS 4.3.1.1, Table 4.3-1, Item 12	Reactor Coolant Flow-Low trip channel calibration	STS IC-504B, R3, TPC MA 87-344; STS IC-504C, R3
TS 4.3.2.1, Table 4.3-2, Item 2.c	Containment Pressure High-3 containment spray actuation channel calibration	STS IC-501A, R2, TPC 86-0716; STS IC-501B, R4, TPC MA-326
TS 4.4.4.1	Demonstrate PORVs OPERABLE by performance of channel calibration	STS IC-502A, R2, TPC 87-431; STS IC-502B, R2; STS IC-502C, R0, TPC MA-87-188
TS 4.4.11.c	Verify flow through reactor vessel head vent paths	STS BB-206, R4
TS 4.5.1.2	Perform channel calibration for each accumulator water level and pressure channel	STS IC-908A, R2; STS IC-908B, R2; STS IC-909A, R1; STS IC-909B, R2
TS 4.5.2.e.(1)	Verify automatic actuation of SI flow path valves on SI test signal and/or on auto switchover to containment sump from RWST level-low coincident with SI test signal	STS IC-740A, R4
TS 4.6.2.3.b.	Verify containment cooling fans start in slow speed and cooling water flow rate increases to at least 4000 gpm on SI signal	STS IC-925A, R1, TPC MA 86-0640; STS IC-925B, R0, TPC MA 86-0641; STS KJ-001A, R5, MA 87-511; STS KJ-001B, R5



<u>Requirement</u>	<u>Description</u>	<u>Procedures</u>
TS 4.6.3.2	Verify correct automatic actuation of containment isolation valves for Phases A and B test signals and containment purge isolation test signal	STS KJ-001A, R5; STS KJ-001B, R5; STS GP-001, R6, TPC 87-488
TS 4.6.4.1	Demonstrate containment hydrogen analyzers operable by performance of analog channel operational tests and channel calibrations	STS IC-912, R5; STS IC-913, R4
TS 4.6.4.2	Verify operability of hydrogen recombiner systems	STS IC-914A, R2; STS IC-914B, R2; STS MT-007, R3, TPC 86-0875
TS 4.7.1.2.1a.	Verify proper operation of all AFW pumps	STS AL-103, R7
TS 4.7.1.2.1b.	Verify automatic start of AFW pumps and operation of valves on test signal input	STS A1-005, R7
TS 4.7.1.2.2	Verify AFW flow path and normal flow to at least two steam generators	STS AL-212, R1; STS AL-211, R1
TS 4.7.1.3.1	Verify condensate storage tank operable	STS CR-001, R7, TCP MA 88-247
TS 4.7.1.3.2	Verify ESW system operable when it is coolant source for ESW pumps	STS CR-001, R7, TCP MA 88-247
TS 4.7.1.4	Verify specific activity of secondary coolant system is within limits	ADM 04-020, R14