

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report: 50-482/87-18

License: NPF-42

Docket: 50-482

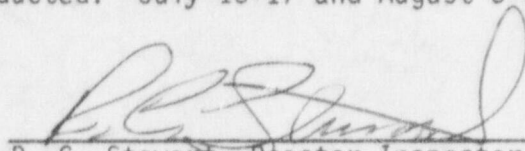
Licensee: Wolf Creek Nuclear Operating Corporation (WCNOC)  
P. O. Box 411  
Burlington, Kansas 66839

Facility Name: Wolf Creek Generating Station

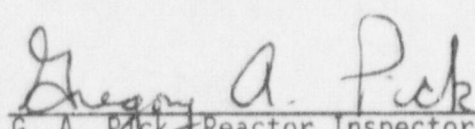
Inspection At: Burlington, Kansas

Inspection Conducted: July 13-17 and August 3-7, 1987

Inspectors:


  
R. C. Stewart, Reactor Inspector, Operations  
Section, Reactor Safety Branch

9/9/87  
Date

  
G. A. Pick, Reactor Inspector, Operations  
Section, Reactor Safety Branch

September 9, 1987  
Date

Approved:

  
for D. M. Hunnicutt, Chief, Operations Section  
Reactor Safety Branch

9/9/87  
Date

Inspection Summary

Inspection Conducted July 13-17 and August 3-7, 1987 (Report 50-482/87-18)

Areas Inspected: Routine, unannounced inspection of followup of licensee event reports, temporary procedure followup and design, design changes and modifications.

Results: Within the three areas inspected, no violations or deviations were identified.

DETAILS1. Persons ContactedWCNOC

\*B. Withers, President  
 \*+F. T. Rhodes, Vice President, Nuclear Operations  
 \*+J. A. Bailey, Vice President, Engineering and Technical Services  
 \*R. M. Grant, Vice President, Quality  
 +G. D. Boyer, Plant Manager  
 +W. Mutz, Manager, Nuclear Plant Engineering (NPE) Systems  
 \*+W. J. Rudolph II, Manager, Quality Assurance (QA)  
 +G. Rathbun, Manager, Management Systems  
 \*+M. G. Williams, Superintendent, Regulatory, Quality and Administrative Services  
 +C. E. Parry, Superintendent, Quality Engineering  
 \*K. Peterson, Supervisor, Licensing  
 \*W. M. Lindsey, Supervisor, Quality Systems  
 +D. C. Tokach, Configuration Management Supervisor  
 \*L. Stevens, Lead Engineer, NSE  
 \*+G. J. Pendergrass, Licensing Engineer  
 \*+C. J. Hoch, QA Technician  
 +B. L. Burgstrom, Technical Staff Specialist, NPE  
 M. D. Rich, Superintendent, Maintenance  
 M. C. Estes, Superintendent, Operations  
 M. Bové, Electrical Engineer

NRC

\*+R. C. Stewart, Reactor Inspector  
 \*+G. A. Pick, Reactor Inspector  
 \*R. B. Vickrey, Reactor Inspector  
 \*+J. E. Cummins, Senior Resident Inspector  
 +B. L. Bartlett, Resident Inspector

\*Persons attending exit interview on July 17, 1987.  
 +Persons attending exit interview on August 7, 1987.

2. Action on Previous Inspection Findings

(Closed) Violation 482/8701-01. The licensee completed the modification associated with Plant Modification Request (PMR) 02009. Retesting of the four safety-related dampers was successful and they were returned to service. This item is closed.

### 3. Licensee Event Report (LER) Followup

(Closed) 482/86-039, "TS Violation - Delay in Establishing Fire Watch Patrol." Fire door 32282 located in the chemistry hot laboratory was propped open to permit passage because the upper latch failed to close due to previous improper assembly. The control room was notified on two separate occasions, July 31 and August 1, 1986, respectively. This delay in establishing the hourly fire watch patrol was contrary to the requirements of TS 3.7.11. This report was placed in required reading for operations and maintenance personnel and all TS required fire doors were clearly posted as such with plant-on signs. This item is closed.

(Closed) 482/86-059, "Containment Atmosphere Radiation Monitor's Bypassed While Purge Valves Open." The Containment Atmosphere Radioactivity Monitors, GT-RE-32 and GT-RE-31, were sequentially placed in bypass on October 19 and 20, 1986, to allow their filters to be cleaned while a containment purge was in progress. This was a condition prohibited by TS 3.3.3.1. Emergency TS relief was denied and operations personnel were instructed to secure purge prior to placing GT-RE-31 or GT-RE-32 in bypass. A TS amendment request was sent to NRR on June 19, 1987. This item is closed.

(Closed) 482/86-068, "Reactor Trip Caused By Steam Generator Water Level Swings." The reactor tripped on low-low level due to the sensitivity at low power levels of steam generator level to swing with small changes in feedwater flow. Plant response to the reactor trip and engineered safety features actuation was satisfactory. Efforts were continuing to evaluate feedwater flow control enhancements and operator response to these types of changes were improving. This item is closed.

(Closed) 482/87-003, "Engineered Safety Features Actuation Signal Due to Procedure Deficiency." During performance of Surveillance Test STS IC-201, Revision 4, "Analog Channel Operational Test 7300 Process Instrumentation Protection Set I (red)," a reactor trip and main feedwater isolation signal (FWIS) occurred. The reactor tripped because only two reactor coolant pumps (RCP) were running concurrent with testing the Turbine Impulse Chamber Pressure (TICP). STS IC-201 (red) and STS IC-202 (white) were revised via Temporary Procedure Changes MA 87-008 and MA 87-009, respectively, to caution against testing the TICP with only two RCP's running. This item is closed.

(Closed) 482/87-007, "TS Violation Caused By Failure to Log Axial Flux Difference Values." The axial flux difference (AFD) for each excore detector had been monitored, but not logged as required by TS, during the periods the NSSS computer was taken out of service. The licensee changed off normal Procedure OFN 00-023, Revision 3, "Loss of NSSS/BOP Computer" to more clearly require logging of AFD values. This LER was placed in the operations required reading file, and the incorrect constant in the NSSS delta flux program was corrected through a work request. This item is closed.



(Closed) 482/87-012, "Control Room Ventilation Signal Caused By Chlorine Monitor Spurious Spike." A spurious spike on control room air intake chlorine monitor GK-AITS-2 caused a control room ventilation isolation signal (CRVIS). The cause of the spike could not be determined through troubleshooting and the monitor was returned to service. The licensee is working on a design change to correct these unnecessary CRVIS's generated by the chlorine monitors. This item is closed.

(Closed) 482/87-013, "TS Violation - Four Fire Dampers Not Actuated Due to Drawing Error." Personnel error by a design engineer who failed to update P&ID's to reflect electro-thermo links (ETL's) being added to four fire dampers. The dampers were added to the P&ID's and were cycled per work request 977-87. In addition, a walkdown of Halon systems was conducted and confirmed all installed ETLs were now identified. This item is closed.

(Closed) 482/87-014, "TS Violation Caused By Missed Surveillance Procedure." During a routine check by operations surveillance scheduling personnel for past due surveillances, it was identified that nonlicensed operations personnel had incorrectly entered a surveillance completion date for the auxiliary feedwater pump (AFW) operability list. Checking for past due surveillances was changed such that they are scheduled to be conducted weekly. Checks were added to the surveillance procedure scheduling computer program to avoid incorrect entry of scheduling dates. This item is closed.

(Closed) 482/87-018, "Cognitive Personnel Error While Placing Block Switch in 'Permit' Results in AFW Actuation and SG Blowdown Isolation." An auxiliary feedwater actuation signal (AFAS) and a steam generator blowdown and sample isolation signal (SGBSIS) occurred after the AFAS block switch was erroneously placed in "Permit" without first having verified that at least one main feedwater pump (MFP) was reset. This LER was placed in the operations required reading file and discussed with operations personnel. A change was made to the governing procedure to require double verification that one MFP was reset before placing the AFAS block switch in "Permit." This item is closed.

(Closed) 482/87-006, "Fire Damper Inoperability Caused By Improper Testing Reconfiguration." Four fire dampers were declared to be inoperable after testing determined they failed to close as designed per TS 3.7.11 Plant Modification Request 02009 revised the design of the TS-related electro-thermal link (ETL) fire dampers, so that the damper will close without interference from the flux conduit. Retesting has confirmed that the dampers operate as designed. This item is closed.

During the followup of Licensee Event Report (LER) 482/87-006, "Fire Damper Inoperability Caused By Improper Testing Reconfiguration," the NRC inspector, after discussions with the licensee and review of the corrective action package, determined that not all of the fire dampers referenced in the LER had a post-modification (operability) test performed on them. Work request (WR) 00838-87 implemented PMR 02009 for the

reworking of the ETL for 25 fire dampers one of which was not safety-related. The dampers were placed in a configuration where they were considered inoperable, in order to conduct the modification required by the PMR. After reworking the dampers, only dampers GKD051, -52, -53, -50, and GED059 were retested and were considered operable.

The licensee stated that it was a conscious decision not to retest the 20 remaining dampers, since they had been tested before the modification and all were determined to be operable during the previous test.

The NRC inspector determined that the dampers were modified to such an extent that they should have been declared inoperable and retested. The licensee could have left them in their fail-safe position or a fire impairment permit for the dampers could have been issued. Since the dampers were not tested and were restored to their normal configuration, a fire impairment permit should have been issued in accordance with Administrative Procedure ADM 13-103, Revision 3, "Fire Protection: Impairment Control."

Work Requests 70143-87 and 70144-87 were issued on April 13, 1987, to conduct operability testing per Technical Specification Surveillance STS MT-036 and STS MT-037, respectfully, on the modified ETLs. As of August 7, 1987, a retest had not been completed nor had a fire impairment been issued; however, these areas may have had a fire watch ongoing. On April 6, 1987, a fire impairment was issued for the power block for fire penetrations. The locations of the dampers may be in the same rooms as the penetrations, hence, the fire watch would have been indirectly instituted for the dampers. This is considered an unresolved item (482/8718-01) awaiting information to be provided by the licensee to verify that the 20 dampers were in a location which was under a current fire impairment permit while the dampers were inoperable.

#### 4. Design, Design Changes and Modifications

During this inspection, the NRC inspector reviewed the below listed procedures. The procedures controlled selected portions of the licensee's design change process and temporary modification program.

- QP 9.1, Revision 2, "Processing of Work Requests" prescribes procedures and establishes criteria for qualification review of WRs, that are safety related and of special scope.
- QP 12.1, Revision 2, "Inspection Planning for Work Activities."
- KGP-1131, Revision 5, "Plant Modification Process."
- KGP-1135, Revision 2, "Configuration Verification."
- ADM 01-057, Revision 11, "Work Request."
- ADM 01-042, Revision 10, "Plant Modification Request Implementation."



- ° EDPI 3.16(A)-30, Revision 3, "Criteria and Instructions for Performing 10 CFR 50.59 Safety Evaluations FSAR Changes/Technical Specifications (NUREG-1136-Wolf Creek Generating Station, Unit No. 1) Changes."
- ° EDPI 3.16(B)-30, Revision 2, "Criteria and Instructions for Performing and Documenting ALARA Reviews."
- ° EDPI 3.16(E)-30, Revision 2, "Fire Protection Reviews."

No violations or deviations were identified.

5. Inspection of Licensee's Actions Taken to Implement Generic Letter No. 81-21, Natural Circulation Cooldown

During this inspection period, an inspection was performed to verify that the licensee has established procedures and a training program which provides the necessary guidance to the operators to preclude reactor vessel voiding if it should occur during controlled natural circulation cooldown.

This inspection consisted of a review of the following documents:

- ° NRC Generic Letter No. 81-21, dated May 5, 1981.
- ° NRC IE Circular No. 80-15, dated June 20, 1980.
- ° SLNRC Letter, 81-126, dated November 17, 1981. (KG&E Response to Generic Letter No. 81-21).
- ° SLNRC Letter 81-083, dated September 1, 1981.
- ° "Safety Evaluation Report Related to the Operation of Callaway Plant Unit 1," NUREG-0830, October 1981 (Excerpts Only).
- ° Diablo Canyon Units 1 and 2 Natural Circulation Boron Mixing/Cooldown Testing Final Post-Test Report," March 1986.
- ° KSLKSL 86-051, dated December 1, 1986 (Documents KG&E Compliance with an NRC Commitment Concerning Natural Circulation Testing).
- ° ADM 06-221, Licensed Operator Initial Training Program.
- ° GEN 00-002, Cold Shutdown to Hot Standby.
- ° GEN 00-003, Hot Standby to Minimum Load.
- ° GEN 00-004, Power Operations.
- ° GEN 00-005, Plant Shutdown from 20 percent Minimum Load.

- EMG-ES-02, Reactor Trip Response.
- EMG-ES-04, Natural Circulation Cooldown.
- EMG-ES-05, Natural Cooldown with Steam Void in Vessel (Without RVLIS).
- EMG-ES-06, Natural Circulation Cooldown with Steam Void in Vessel (With RVLIS).
- Lesson Plan, LO-12-311-50, Natural Circulation Verification.
- Lesson Plan, LO-16-107-01, Core Damage and Heat Removals (Also, Handout, Mitigating Core Damage, Page 13 of 18).

The review included discussions with training department personnel and on shift control room operations personnel. Based on this inspection, it is concluded that the licensee has adequately implemented the commitments and requirements relative to all matters concerning Generic Letter No. 81-21, dated May 5, 1981.

No violations or deviations were identified.

6. Inspection of Licensee's Actions Taken to Implement Unresolved Safety Issue A-26: Reactor Vessel Pressure Transient Protection

During this inspection period, an inspection was performed to verify that the licensee has an effective mitigation system for low-temperature overpressure transient conditions in accordance with their commitments concerning Unresolved Safety Issue A-26.

This inspection consisted of a review of the following documents:

- SLNRC 81-105, dated September 17, 1981 (Subject: RSB Review).
- SLNRC 84-0029, dated February 10, 1984 (Subject: SNUPPS Technical Specifications).
- SLNRC 84-72, dated April 23, 1984 (Subject: SNUPPS Technical Specification - Use of RHR Suction Relief Valves for Cold Overpressurization Protection).
- SLNRC 84-0076, dated April 26, 1984, (Subject: SNUPPS Technical Specification - Use of RHR Suction Relief Valves for Cold Overpressurization Protection).
- KMLNRC 84-118, dated July 20, 1984 (Subject: Technical Specifications).
- KMLNRC 85-122, dated May 22, 1985 (Subject: Wolf Creek License Condition C(13) concerning low temperature overpressure projection).

- ° NRC Letter, dated August 19, 1985 (Subject: Wolf Creek - Low Temperature Overpressure Protection w/copy of Related-Safety Evaluation - RHRS LTOPS Modification).
- ° KMLNRC 86-071, dated May 2, 1986 (Subject: Low Temperature Overpressure Protection).
- ° NRC Letter, dated October 14, 1986 (Subject: Low Temperature Overpressure Protection).
- ° Plant Modification Package, PMP W084-BB089 (Selected documents, including approved work requests, safety evaluations, design drawings and PMP change notices).
- ° Wolf Creek - USAR Section 5.2.2, Overpressure Protection.
- ° Wolf Creek Technical Specifications, Section 3.4.9.3, associated bases, surveillances, and actions.
- ° Wolf Creek Operation Procedure GEN-00-002, "Cold Shutdown to Hot Standby".
- ° Wolf Creek Operation Procedure, GEN-00-006, "Hot Standby to Cold Shutdown".

Based on this inspection, it was concluded that the licensee had adequately established administrative controls, procedures, training, and equipment modifications that resulted in a system that provided mitigation for reactor coolant system low temperature overpressure events.

No violations or deviations were identified.

7. Inspection Followup to Generic Letter 83-28, Item 4.1

During this inspection period, an inspection was performed to verify that the actions required in item 4.1 of Generic Letter No. 83-28, "Reactor Trip System Reliability (Vendor Related Modification)" have been implemented.

The inspection consisted of a review of NRC Inspection Reports 50-482/84-44, dated January 23, 1985 and 50-482/85-11, dated May 8, 1985; the licensee's final response, dated February 29, 1984; and NRC Letter dated July 21, 1986 (Subject: Generic Letter 83-28, "Safety Evaluation").

Based on this review, it was concluded that the licensee had adequately implemented the requirements of Generic Letter 83-28, item 4.1 and that



these matters were previously verified by NRC inspection personnel during the preoperational inspection program (NRC Inspection Report 50-482/85-11).

No violations or deviations were identified.

8. Exit Interview

The NRC inspectors met with the licensee representatives denoted in paragraph 1, Mr. J. E. Cummins, NRC senior resident inspector, and Mr. B. L. Bartlett, NRC resident inspector on July 17 and August 7, 1987, and summarized the inspection scope and findings.