

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report: STN 50-482/84-38

Construction Permit: CPPR-147

Docket: 50-482

Category: A2

Licensee: Kansas Gas and Electric Company  
P. O. Box 208  
Wichita, Kansas 67201

Facility Name: Wolf Creek Generating Station

Inspection At: Wolf Creek Site, Coffey County, Burlington, Kansas

Inspection Conducted: October 1-12, 1984

Inspectors: R. Smith 11-13-84  
R. Smith, Team Leader, Wolf Creek Task Force Date

for S. E. Martin 11/14/84  
B. Breslau, Reactor Inspector, Wolf Creek Task Force Date

Approved: S. E. Martin 11/14/84  
L. Martin, Chief, Wolf Creek Task Force Date

Inspection Summary

Inspection Conducted October 1-12, 1984 (Report STN 50-482/84-38)

Areas Inspected: Routine, unannounced inspection of control room operations, preoperational test and testing, and review of completed preoperational tests. The inspection involved 1.2 inspector-hours onsite by two NRC inspectors.

Results: Within the three areas inspected, one violation was identified (failure to follow administrative procedures as related to control of preoperational testing).

DETAILS

1. Persons Contacted

Kansas Gas and Electric Company (KG&E)

- \*F. T. Rhodes, Plant Manager
- \*C. J. Hoch, Technician
- \*R. M. Grant, Director, Quality
- \*F. D. McLavin, Assistant Startup Manager
- \*M. G. Williams, Superintendent of Regulatory, Quality, and Administrative Services
- \*K. R. Ellison, Supervisor, Startup Technical Support
- \*W. M. Lindsay, Supervisor, Quality Systems
- \*R. L. Stright, Licensing
- F. Duddy, Project Director
- R. Glover, Startup Manager
- C. Anderson, Hot Functional Test Director
- G. Baker, Test Supervisor
- R. L. Hoyt, Emergency Planning Supervisor
- R. I. Gass, Test Director
- J. Zell, Operations Superintendent
- G. Koester, Vice President Nuclear
- O. Maynard, Licensing Supervisor
- \*J. Rudolph, Quality Assurance Manager, Site
- W. B. Norton, Reactor Engineering Supervisor
- T. Dempster, Quality Control Manager
- T. Mitchell, Systems Startup Engineer
- H. Campbell, Startup Engineer
- J. Gilmore, Reactor Operator
- D. Byerley, Reactor Operator
- N. Guyer, Reactor Operator
- W. F. Erbe, Shift Supervisor

The NRC inspectors also contacted other site personnel including plant operators, startup engineers, test engineers, administrative and clerical personnel.

\*Denotes those attending the exit interview on October 12, 1984.

2. Preoperational and Startup Test Procedure Review

During this inspection the NRC inspectors reviewed the following preoperational and startup test procedures.

- |          |   |
|----------|---|
| SU3-AL03 | Auxiliary Feedwater Motor and Turbine Driven Endurance Test             |
| SU3-EM03 | Accumulator and Safety Injection System Check Valve Preoperational Test |

SU3-BB08	Pressurizer Heater and Spray Test
SU7-0011	Plant Trip From 100 Percent Power
SU7-SR03	Incore Moveable Detector Test
SU7-0018.4	Calibration of Steam and Feedwater Flow Instrumentation at Power

The listed test procedures were reviewed to ensure the contents were in accordance with Regulatory Guide 1.68 and the licensee's administrative procedures. The procedures were reviewed to verify the following:

Were the documents controlled by title revision, approval, page numbers, and correct as to indices?

Were the procedures organized to include objectives, scope prerequisite precautions, conditions, tools, instruments, and quality control witness requirements?

Were the procedures written to include clear, concise directions and were the procedures written to technically accomplish the objectives?

Were acceptance criteria included and were these criteria at least the same as the final safety analysis report?

Within the areas examined the NRC inspectors found the procedures acceptable. No violations or deviations were identified.

### 3. Reviewed Administrative Procedures

The listed administrative procedures were reviewed to verify that each is in appropriate format as specified in the administrative controls and is technically adequate to accomplish its stated purpose.

ADM 01-057	Work Request
ADM 02-020	Plant Operations Logs
ADM 02-021	Use of Procedures in Operations
ADM 07-100	Preparation, Review, Approval, and Distribution of WCGS Procedures
ADM 07-101	WCGS Procedures Content and Format
ADM 14-402	Startup Field Report
ADM 14-407	Rejected Internal Control Startup Field Report

4. Preoperational Test Witnessing

Prior to witnessing of the test, the NRC inspectors performed a review of the test procedure. The review was conducted to verify that:

The procedure provided a clear statement which specified the function it was to perform.

The acceptance criteria were clearly stated and addressed the appropriate requirements.

The communications between all persons concerned with the test were addressed.

The procedure contained appropriate quality control witness points.

There were provisions for verification of actions performed with appropriate signoffs provided for assurance of procedure step performance.

The performance of the procedures would, when completed, assure that the acceptance criteria were met.

The procedures were clearly written, properly reviewed and approved in accordance with the licensee's administrative procedures.

The NRC inspectors then observed the licensee's performance of the test. After verifying that the correct revision of the test procedure was in use, the NRC inspectors verified, during the test performance, that:

There were sufficient personnel to perform the test.

The test steps were performed in the proper sequence to yield valid results.

That paper documentation of test problems, procedure changes, and test stoppages were documented as required by ADM 14-200.

The following tests were observed in part:

SU3-AL02	Auxiliary Feedwater Turbine Driven Pump and Valve Test
SU3-AL03	Auxiliary Feedwater Motor and Turbine Driven Endurance Test
SU3-BB08	Pressurizer Heater and Spray Test
SU3-EJ02	Residual Heat Removal System
SU3-EM03	Accumulator and Safety Injection System Check Valve Preoperational Test

During witnessing of SU3-BB08, the NRC inspectors noted that the chronological log entry for September 10, 1984, indicated testing was stopped. Testing resumed October 8, 1984, entry on that date indicates the licensee did not comply with ADM 14-200, Revision 7, paragraph 4.4.1, which requires several actions to be taken to place a test in a suspend status when testing activity is not expected to continue for a period of 48 hours.

Test discrepancies TD-001, TD-002, and TD-003 for preoperational test SU3-BB08 had no entry in the chronological log, as required per ADM 14-200, Revision 7, paragraph 4.6.4, "explaining why the discrepancy will not invalidate subsequent steps or sections."

Test discrepancies TD-010 and TD-011 for SU3-EM03 were resolved and entered on the discrepancy log but they were not signed and dated by the test engineer as required by ADM 14-200, Revision 7, Attachment #E, step 8.

During witnessing of SU3-008, the NRC inspectors also conducted a review of the control room log, dated October 9, 1984. Log entry 10/9/84 at 1425 indicates reactor coolant pump (RCP) seal water return valves were actuated shut but RCP "D" did not shut, holding RCS pressure at  $\geq 100$  psig until "D" closed. Log entry 10/9/84 at 1930 states SU3-BB08 complete. No log entry, as required by ADM 02-020, paragraph 6.3.2.4, was made noting the restoration of RCP "D" seal water return isolation valve (BB-H1S-8141D) and subsequent closing, which permitted further cooldown in support of test SU3-BB08.

The shift supervisor informed the NRC inspectors that maintenance personnel decided to repair air line fitting connecting service air supply to the pressure regulator that actuates valve BB-H1S-8141D without the issuance of an approved work permit, which is required by ADM 01-057, paragraph 2.3.

The NRC inspectors noted that the licensee did not comply with ADM 01-057, paragraph 3.3.1.1.a when issuing work request no. 13702-84 which was issued to cover work that had been accomplished during the previous day.

The above items are considered a violation of the Level IV Severity (482/8438-01).

During the performance of preoperational test SU3-EM03, the NRC inspectors noted 32 of the check valves tested did not meet the back leakage test acceptance criteria. This discrepancy is being evaluated by the licensee to determine corrective actions needed, which may include retest. This corrective action will be reviewed by the NRC and the retests will be observed by an NRC inspector.

5. Test Results Review

The NRC inspectors reviewed the following preoperational test results for technical content, compliance with the Safety Analysis Report, Regulatory Guide 1.68, and compliance to the licensee's administrative procedures:

SU3-AL03, Auxiliary Feedwater Motor Driven Pumps Endurance Test - The objectives of this preoperational test are to:

Demonstrate that the auxiliary feedwater pumps can operate for 48 continuous hours without exceeding any of their limiting design specifications.

Demonstrate that the auxiliary feedwater pumps can operate for 1 hour after a cooldown from the 48-hour test.

Demonstrate that the room environmental conditions are not exceeded during the 48-hour test.

The NRC inspectors reviewed the results package of this experiment and from this review, the inspectors consider that the stated objectives were satisfied.

SU3-EJ02, Residual Heat Removal System - The objective of this test is:

To demonstrate that the residual heat removal system will cool the reactor coolant system at the design rate.

To demonstrate that the residual heat removal room coolers will maintain room temperature within design limits.

The acceptance criteria is to verify accomplishment of the above two objectives.

The NRC inspectors did a partial review after completion of this test and prior to having been evaluated by the licensee test personnel. From this review this test meets the acceptance criteria.

SU3-GF02, Miscellaneous Building HVAC System - The objectives of this preoperational test are to:

Demonstrate control logic of main steam enclosure supply and exhaust fans.

Demonstrate fan capacities for the main steam enclosure building supply air unit, and main steam enclosure building exhaust fans.

Demonstrate the response of the main steam enclosure building damper to a safety injection signal (SIS).

The acceptance criteria are:

System fan capacities are within design specifications.  
(2.1 and 2.2)

The main steam enclosure building . . . dampers close on receipt of an SIS. (2.3)

The NRC inspectors reviewed the test results package and from this review it was determined that the objectives and acceptance criteria were adequately verified.

SU3-GG01, Fuel Building HVAC - The objectives of this test are:

To demonstrate that the emergency exhaust fans are capable of maintaining a negative pressure in the fuel building or the auxiliary building during accident conditions with the buildings isolated.

To demonstrate the capacities of the fuel building supply unit fans, emergency exhaust fans, and the spent fuel pool pump room cooler fans.

The operability of system instrumentation and controls, including the components' response to safety signals, is also verified.

The acceptance criteria are:

The auxiliary building and fuel building pressures maintained by the emergency exhaust fans are within design specifications.

The fuel building supply fans, emergency exhaust fans, and spent fuel pool pump room cooler fans' capacities are within design specifications.

The fuel building ventilation system fans and dampers properly respond to FBIS and SIS, in accordance with system design.

From a review of the test results package, the NRC inspectors consider this test adequate to meet the objectives and verify acceptance criteria.

SU3-GF03, Miscellaneous Building HVAC System - The acceptance criteria for this test are:

System fan capacities are within the specified design and the tendon access gallery dampers close on receipt of an SI signal.

The objectives and performance of this test supported that the above criteria were verified. The NRC inspectors reviewed the test results package and from this review found this test acceptable.

SU3-GG01, Fuel Building HVAC - The objectives of this test are:

To demonstrate that the emergency exhaust fans are capable of maintaining a negative pressure in the fuel building or the auxiliary building during accident conditions with the buildings isolated.

To demonstrate the capacities of the fuel building supply unit fans, emergency exhaust fans, and the spent fuel pool pump room cooler fans.

The operability of system instrumentation and controls, including the components' response to safety signals, is also verified.

The acceptance criteria are:

The auxiliary building and fuel building pressures maintained by the emergency exhaust fans are within design specifications.

The fuel building supply fans, emergency exhaust fans, and spent fuel pool pump room cooler fans' capacities are within design specifications.

The fuel building ventilation system fans and dampers properly respond to FBIS and SIS, in accordance with system design.

The NRC inspectors reviewed the test results documentation and from this review determined that this test met the above requirements.

SU3-KE01, Spent Fuel Pool Crane - The objectives are:

To demonstrate proper operation of the spent fuel pool bridge crane control circuits and associated interlocks.

To prove structural integrity at 125 percent rated load.

To demonstrate the capability of the spent fuel pool crane to operate correctly under 100 percent rated load.

To demonstrate the ability of the spent fuel pool crane to transfer a dummy fuel assembly from the new fuel elevator to the pit side upender.

To demonstrate the proper operation of the spent fuel handling tool.



To demonstrate the ability of the spent fuel pool crane to move and install the transfer gates.

Weights were used to test the crane at 125 percent rated load. The crane was operated at 100 percent load.

Control circuits and interlocks were tested by operating the bridge, trolley, and hoist circuits. Interlocks were checked with interfacing equipment by operation of the interfacing equipment in conjunction with the spent fuel pool crane.

A dummy fuel element and the transfer gates were maneuvered through all storage and movement locations.

The acceptance criteria are:

The spent fuel pool bridge crane control circuits and interlocks operate in accordance with system design.

The spent fuel pool bridge crane electric and manual hoists support 125 percent of their rated load.

The spent fuel pool bridge monorail center span deflection at rated load is within design specifications.

The spent fuel pool crane bridge, trolley, and hoist speeds at rated loads are within design specifications.

The NRC inspectors reviewed the results packages and from this review, considered the test acceptable.

SU3-KE03, Fuel Handling and Storage, and SU8-KE02, Cask Handling Crane Load Test - The objectives of SU3-KE03 and SU8-KE02 are:

To prove structural integrity at 125 percent rated load.

To demonstrate the capability of the cask handling crane to operate correctly under 100 percent rated load.

To demonstrate proper operation of the cask handling crane control circuits.

To demonstrate the ability of the cask handling crane to transfer a dummy fuel element.

To demonstrate the ability of the cask handling crane to reach all locations in the new fuel storage racks.

To demonstrate the ability of the new fuel handling tool to handle a dummy fuel element.

Actual weights were used to prove the structural integrity and the operational readiness of the cask handling crane at 125 percent and 100 percent rated load.

Control circuits were proved by operating the crane and allowing the bridge, trolley, and hoist circuits to perform their functions with minor simulations. Those circuits that had simulation used in them during SU3-KE03 were proved during SU3-KE02 by performing the action without simulating the condition.

The dummy fuel element was used to prove accessibility to all new fuel element storage location.

The dummy fuel element was used to demonstrate the capability of the new fuel handling tool to operate properly.

All linear measurements called for in the SU3-KE03 procedure were measured by use of survey crews.

The cask handling crane and auxiliary monorail support 125 percent of rated load, which was 378,898 lbs. on the main hoist and 12,900 lbs. on the auxiliary hoist.

From evaluation of the test data, the NRC inspectors consider that these are acceptable tests.

6. Exit Interview

An exit interview was conducted on October 12, 1984, with licensee representatives (identified in paragraph 1). The operations resident inspector also attended the exit interview. During this interview, the lead inspector discussed the inspection findings.