

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report No. 50-482/92-21

Operating License No. NPF-42

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

Facility Name: Wolf Creek Generating Station (WCGS)

Inspection At: WCGS, Burlington, Kansas

Inspection Conducted: July 20-24, 1992

Inspector: R. B. Vickrey, Reactor Inspector, Plant Systems Section
Division of Reactor Safety

Approved: T. F. Westerman
T. F. Westerman, Chief, Plant Systems Section
Division of Reactor Safety

8-18-92
Date

Inspection Summary

Inspection Conducted July 20-24, 1992 (Report 50-482/92-21)

Areas Inspected: Routine, announced inspection of Instrumentation and Electrical maintenance (components and systems) including observation of work activities, and review of quality records.

Results: No violations or deviations were identified during the inspection. The licensee was very supportive throughout the inspection and has implemented instrumentation and electrical maintenance programs that are in conformance with regulatory requirements. There were some areas noted where improvements could be made and the licensee was receptive to these observations.

The procedures were for the most part well written with sufficient detail for maintenance personnel to perform the work required and appropriate for maintaining the components at the required quality levels. However, the nonsafety-related Maintenance, Corrective, Electrical (MCE) procedures did not provide explicit detail and restoration instructions.

DETAILS

1. PERSONS CONTACTED

WCGS

- *T. Anselmi, Licensing Engineer
- *M. Barbee, Supervisor, Electrical System Engineering
- *R. Buffum, Electrical Training Supervising Instructor
- *C. DeLong, Supervisor, Quality Plant Support
- *D. Dullum, Supervisor, Plant Trending
- *R. Flannigan, Manager, Nuclear Safety Engineering
- *C. Fowler, Manager, Instrumentation & Control (I&C)
- *R. Holloway, Manager, Maintenance and Modifications
- *W. Lindsay, Manager, Quality Assurance
- *O. Maynard, Director Plant Operations
- *K. Moles, Manager, Regulatory Services
- *T. Morrill, Manager, Radiation Protection
- *D. Moseby, Supervisor Operations
- *C. Parry, Performance Enhancement Program Team Leader
- *F. Rhodes, Vice President, Engineering
- *R. Rowe Jr., Supervisor, I&C Planning
- *T. Schlesener, Supervisor, Electrical Maintenance
- *C. Sprout, Manager, Nuclear Plant Engineering, Wolf Creek
- *D. Williams, Supervisor, Maintenance Planning

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- *L. Myers, Resident Inspector

* Indicates those persons who attended the exit meeting conducted on July 24, 1992. In addition to the above, the inspector contacted other licensee personnel during this inspection.

2. INSTRUMENTATION MAINTENANCE (52704)

The purpose of this portion of the inspection was to ascertain whether the licensee had developed and implemented an instrumentation maintenance program in conformance with regulatory requirements, Technical Specifications (TS) commitments, and industry standards. The inspector reviewed the preventive maintenance schedule, selected administrative procedures, selected maintenance procedures and work observations.

2.1 Procedure Review

The inspector reviewed a sample of instrumentation maintenance procedures to determine if the procedures were adequate to keep safety-related systems and components at the quality level required for them to perform their intended safety functions. The procedures reviewed by the inspector were:

STN IC-230, "Channel Calibration Auxiliary Feedwater Pump Suction & Discharge Pressure Gauges," Revision 1;

STN IC-430A, "Channel Calibration Excess Letdown to PRT Modulating Valve Instrumentation Loop BB HC-8157A," Revision 1;

STN IC-530, "Channel Calibration Control Building Hot Laboratory Area Radiation Monitor SDRE31," Revision 3;

STS IC-530A, "Channel Calibration RCS Wide Range Pressure Transmitter," Revision 5;

STS IC-630A, "Slave Relay Test K630 Train A Containment Isolation Phase A," Revision 4;

STS IC-730A, "Turbine Trip and Feedwater Isolation Final Device Response Time Test - Train A," Revision 0;

STS IC-830, "Vibration and Loose Parts Monitor Analog Channel Operational Test," Revision 2; and

STS IC-930A, "LOCA and Shutdown Sequencer Time Interval Verification Train A," Revision 1.

The procedures were, in general, well written with sufficient detail for the maintenance personnel to perform the work required and appropriate for maintaining the components at the required quality levels.

2.2 Maintenance Observation

The inspector observed portions of the following TS surveillance procedures being performed:

STS IC-201, "Analog Channel Operational Test 7300 Process Instrumentation Protection Set I (Red)," Revision 12;

STS IC-202, "Analog Channel Operational Test 7300 Process Instrumentation Protection Set II (White)," Revision 12;

STS IC-203, "Analog Channel Operational Test 7300 Process Instrumentation Protection Set III (Blue)," Revision 11; and

STS IC-204, "Analog Channel Operational Test 7300 Process Instrumentation Protection Set IV (Yellow)," Revision 11.

The procedures were properly followed and the maintenance and test equipment and meters were verified to be within their calibration periods. The I&C Technicians exhibited good work practices and attention to detail. During the performance of STS IC-201, the licensee identified a typographical error in Step 5.3.95 that required a procedure change. Appropriate action was taken to revise the procedure before continuing with the test.

Due to a flow anomaly, the licensee had established the practice of performing the first section of the above four procedures at a reduced power. Since only one procedure was allowed to be performed at a time (i.e., all channels of each Redundant Protection Set in their NORMAL, UNTRIPPED Condition) the

licensee would complete the first section of each procedure, restore the Protection Set, and proceed to the next procedure. When the first section of all four procedures were completed, the licensee would then restore power to 100% for the completion of the remaining sections of the procedures. The inspector noted that the procedures had not been changed or revised to recognize this anomaly and that the restoration steps were not specifically identified for conducting the procedures in this manner. The inspector brought to the attention of the licensee, that this method of testing would probably continue to be the norm and that the procedures did not clearly delineate how to restore each channel and proceed. The licensee acknowledged this observation and agreed that they should change the procedures to meet the current testing restrictions for section one of the procedures.

2.3 Maintenance Records Review

The inspector reviewed the vaulted records of maintenance activities performed in accordance with the procedures selected in paragraph 2.1. The records were quickly retrievable and no discrepancies were noted. In addition to the required data recorded the inspector found that several records contained additional useful information recorded as clarifying or explanatory notes by the craft.

2.4 Failure Trend Analysis

The inspector reviewed KGP-1212, "Hardware Failure Analysis," Revision 1. This procedure provided the methodology for analyzing plant equipment failures and malfunctions to identify root cause(s) and for specifying corrective action(s) to preclude the occurrence of additional failures by the same failure scenarios. In addition the inspector reviewed the I&C hardware failure analysis request tracking log.

No actual process results were looked at. However, the tracking log for failure analysis was reviewed and appeared to adequately track failures for input into the KGP-1212 process.

2.5 Qualified Equipment Replacement

The inspector reviewed KGP-1268, "Equipment Qualification," Revision 1. This procedure established the organizational responsibilities and the interfacing requirements for the licensee's equipment qualification program. The inspector made comparisons between the licensee's EQ file and the I&C maintenance data base. The EQ and maintenance data bases receive a weekly computer generated printout to identify discrepancies between the two bases. A printout for planning purposes is also provided to assure that EQ components are replaced within their qualified life. The licensee appears to have an adequate system to ensure the scheduling of EQ qualified replacement parts for qualified equipment.

3. ELECTRICAL MAINTENANCE (62705)

The purpose of this portion of the inspection was to ascertain whether the licensee had developed and implemented an electrical maintenance program in conformance with regulatory requirements, commitments, and industry standards.

The inspector reviewed the preventive maintenance schedule, selected administrative procedures, selected maintenance procedures, and work observations.

3.1 Procedure Review

The inspector reviewed a sample of electrical maintenance procedures to determine if the procedures were adequate to keep safety-related systems and components at the quality level required for them to perform their intended safety functions. The procedures reviewed by the inspector were:

MCE M766Q-02, "Rod Drive Motor-Generator Set Generator Bearing Replacement," Revision 4;

MCE QJ-001, "AP, AN, BL and BN Systems Heat Trace Operation Verification," Revision 1;

MGE E00P-015, "Auxiliary Time Delay Relay (TDR) Testing," Revision 1;

MPE M063-02, "Polar Crane Electrical Inspection & Lubrication," Revision 6;
and

STS MT-001, "Pressurizer Heater Verification," Revision 5.

The procedures were, in general, well written with sufficient detail for the maintenance personnel to perform the work required and were in compliance with TS. However, the inspector noted that the Maintenance, Corrective, Electrical (MCE) procedures (nonsafety-related) reviewed could be more explicit in detail and restoration instructions. The licensee agreed that improvements could be made to enhance maintenance activities with regard to detail and restoration instructions. One of the procedures commented on by the inspector, MCE QJ-001, was subsequently revised to include double verification for jumper restoration.

3.2 Maintenance Observation

The inspector observed portions of four separate electrical maintenance work activities that were conducted in conjunction with an "A" Train Outage. Three of the work activities were being concurrently performed in diesel generator room "A." These activities included lube oil heater inspection, lube oil transfer motor checks, and lube oil transfer breaker checks. The other work activity was the observation of a bench test of a circuit breaker. The scheduling and coordination of these activities resulted in most of the maintenance activities being successfully completed within the first 8 hours of the outage which was well within the allowed outage time of 72 hours. The procedures were properly followed and the observed maintenance and test equipment were verified to be within their calibration periods. The electricians were very conscientious in their work performance and exhibited good work practices.

3.3 Maintenance Records Review

The inspector reviewed the vaulted records of the maintenance activities most recently performed in accordance with the procedures selected in paragraph 3.1. The records were quickly retrievable and no discrepancies were noted. In addition to the required data recorded the inspector found that several records contained additional useful information recorded as clarifying or explanatory notes on the craft.

3.4 Failure Trend Analysis

The inspector reviewed the maintenance and modifications service request tracking log which conformed with the requirements of KGP-1212. In addition, maintenance and modifications had a computer generated system that would generate equipment history for equipment that required more than two corrective action work requests within one year. Electrical maintenance appeared to have measures established to identify repetitive component failures based on maintenance history.

3.5 Qualified Equipment Replacement

The maintenance and modifications EQ program operated on the same weekly check system as discussed in paragraph 2.5. In addition the system automatically initiated a work request to assure that EQ components were replaced within their qualified life.

4. EXIT INTERVIEW

The inspector met with personnel identified in paragraph 1 on July 24, 1992, to discuss the findings and conclusions reached during the inspection. The licensee personnel acknowledged the findings. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspector during this inspection.