

APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-482/89-08

Operating License: NPF-42

Docket: 50-482

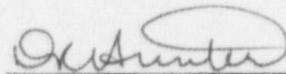
Licensee: Wolf Creek Nuclear Operating Corporation (WCNOC)
P.O. Box 411
Burlington, Kansas 66839

Facility Name: Wolf Creek Generating Station (WCGS)

Inspection At: Burlington, Kansas, WCGS site

Inspection Conducted: March 6-10, 1989

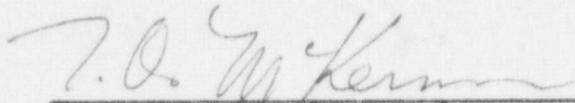
Inspectors:



D. R. Hunter, Senior Reactor Inspector
Operational Programs Section, Division of
Reactor Safety

4/7/89

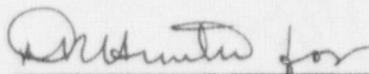
Date



T. O. McKernon, Reactor Inspector, Test
Programs Section, Division of Reactor Safety

3/30/89

Date



M. E. Skow, Resident Inspector, Project
Section D, Division of Reactor Projects

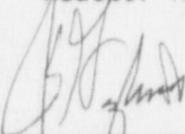
4/7/89

Date

Accompanying
Personnel:

D. V. Pickett, Licensing Project Manager
Wolf Creek Generating Station, Nuclear
Reactor Regulation

Approved:



J. E. Magliardo, Operational Programs Section
Division of Reactor Safety

4/10/89

Date

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Inspection Summary

Inspection Conducted March 6-10, 1989 (Report 50-482/89-08)

Areas Inspected: Routine, announced inspection of previous inspection findings and SSOMI items.

Results: Within the areas inspected, three violations were identified: failure to provide an adequate procedure (482/8908-01, paragraph 2.2.2); failure to conduct necessary training of operators regarding a modification (482/8908-02, paragraph 2.2.8); and failure to conduct adequate testing (482/8908-03, paragraph 2.2.7).

The inspection revealed the need for continuing management involvement in strengthening the attention to detail concerning procedural implementation and changes to the facility.

DETAILS

1.0 Persons Contacted

WCNOC

- *B. D. Withers, President
- *S. F. Hatch, Supervisor, Quality Systems
- *J. A. Bailey, Vice President, Nuclear Operations
- *C. W. Fowler, Manager, Instrumentation and Control
- *C. E. Parry, Manager, Site Quality
- *O. L. Maynard, Manager, Licensing
- *R. M. Grant, Vice President, Quality
- *N. W. Hoadley, Lead Engineer
- *C. Sprout, Section Manager, Nuclear Plant Engineering Systems
- *A. A. Freitag, Manager, Nuclear Plant Engineering
- *M. G. Williams, Manager, Plant Support
- *B. McKinney, Manager, Operations
- *R. W. Holloway, Manager, Maintenance and Modifications
- *W. M. Lindsay, Manager, Quality Assurance
- *S. Wideman, Licensing Specialist
- *W. Goshorn, Wolf Creek Coordinator (KEPCo)
- *T. S. Morrill, Health Physicist
- *D. Fehr, Manager, Operations Training
- *J. E. Gilmore, Supervisor, License Training
- J. L. Houghton, Operations Supervisor

The NRC inspectors contacted other licensee administrative and technical personnel.

NRC

- *B. L. Bartlett, Senior Resident Inspector

*Denotes those attending the exit interview conducted on March 10, 1989.

2.0 Followup of Previously Identified Inspection Findings

2.1 Violations/Deviations (92702)

- 2.1.1 (Closed) Deviation (482/8827-02): Inadequate Emergency Lights - The deviation involved the licensee's failure to provide a temporary power source to emergency lighting during modification work and to provide for periodic checks to ensure emergency lights provide acceptable illumination.

During the followup inspection, the NRC inspector reviewed the licensee's response and corrective actions taken regarding the deviation. The licensee incorporated periodic checks of emergency lights into the preventive maintenance program, in accordance with Procedure ADM 08-211, Revision 2, "Updating Procedure for Managed

Maintenance Data Base," dated August 26, 1988. Key personnel have been trained in regard to the deviation and the requirement to provide a temporary emergency lighting power source. The licensee's corrective actions appear sufficient.

This deviation is closed.

2.2 Unresolved Items (92701)

- 2.2.1 (Closed) Unresolved Item (482/8807-10): PMR 2206 Auxiliary Building Fire Detection System
- 2.2.2 (Closed) Unresolved Item (482/8807-11): PMR 2206 Auxiliary Building Fire Detection System
- 2.2.3 (Closed) Unresolved Item (482/8807-12): PMR 2206 Auxiliary Building Fire Detection System

The three items above concerned fire protection impact of Plant Modification Request (PMR) 2206, which was generated by the licensee to consider fire protection for rooms 1128 and 1129 in the 1974 foot level of the auxiliary building. These rooms were initially designed to store equipment to be used for the auxiliary steam generator feed pumps and the building sump pumps. The amount of transient combustible materials to be stored in these rooms was considered minimal in the USAR. Subsequent to the original design, additional combustible radioactively contaminated materials have been stored in these rooms. A fire hazards analysis was updated due to the increased amount of expected combustibles.

Item 8807-10 concerned the fixed fire suppression systems. As a result of the fire hazards analysis, additional fire insulation was added to portions of the rooms and improved fire detection capability was added. There did not appear to be any definitive requirement that additional suppression be added to the rooms. The NRC inspectors have no further questions regarding this matter.

Item 8807-11 concerned uncovered cable trays for the motor driven AFW pumps with less than 20 feet separation. Appendix 9.5B, paragraph A.1.7.2 of the USAR addresses the issue of both motor driven AFW pumps' power cables being located in Room 1128 and having 19 feet separation. This issue had already been addressed in the USAR. The NRC inspectors have no further questions regarding this matter.

Item 8807-12 concerned the location of storage areas in close proximity to safety-related systems. Appendix 9.5B, paragraph A.1.7.2 of the USAR, addresses the issue of a fire in this area causing the potential loss of both motor driven AFW pumps. The USAR recognized that the turbine driven AFW pump would be unaffected and would be available for the safe shutdown function.

The licensee recently completed a QA audit of the fire protection program. The QA audit identified findings indirectly related to the above items. The findings addressed other concerns that the NRC inspectors had with the fire hazards analysis and the process of completing the PMR. The NRC inspectors have no further questions regarding this area.

The three unresolved items are closed.

In the process of reviewing the PMR, the fire hazards analysis was examined. The NRC inspectors noted that there was no consideration of the effect of increased smoke from the stored material. Because the stored material was radioactively contaminated, the smoke would likely be contaminated. In discussions with the licensee, the analysis used the premise that dosage limits in specified fire zone areas would not change beyond the specified limits. Furthermore, should a fire occur, the releases would not exceed those specified in 10 CFR Parts 20 and 100 for accident conditions. However, the licensee had not implemented controls, which on a continual basis would limit or account for the quantities of radioactively contaminated material that could be stored in the rooms, to ensure that the limits would not be exceeded.

Procedure KGP-1131, Revision 6, "Plant Modification Process," Paragraph 7.2.1 required the licensee to perform an engineering licensing evaluation review in the PMR design phase to address the fire hazards analysis to determine the consequences of a fire in any location in the plant to minimize and control the release of radioactivity to the environment. The review included a 10 CFR 50.59 safety evaluation, ALARA review, and a fire protection review. Failure to consider the radiological consequences adequately in the fire protection review and establish operational controls, which would limit the quantities of radioactively contaminated material in the storage areas on a continual basis, is an apparent violation. (482/8908-01)

2.2.4 (Closed) Unresolved Items (482/8807-15) and (482/8727-04): Battery Discharge of October 15, 1987, and Licensee Corrective Actions -These items concerned the failure to use adequate procedural controls and the assessment of damage to the affected equipment.

The NRC inspector reviewed licensee operational procedures regarding the removal of equipment from service and return to service. Procedure SYS NG-331, "Deenergization of 480V (Class 1E) Bus(es)," Revision 7, referenced supplying the 480V NK bus during outage and/or maintenance. MPE E051 Q-03, "Supplying Power to NK Bus During NB Outage or Charger Maintenance," Revision 0, was written and approved on August 24, 1988. Additionally, a memorandum was issued

to operations personnel on November 21, 1987, OP 87-173, "Use of Procedures," addressing the use of informational tags. Furthermore, requalification training was provided to licensed personnel, (No. LR 1437001), Revision 0, January 12, 1988, Item D, "Use of Procedures in Operations," ADM 02-21, regarding the subject.

Licensee reviews indicated that no damage had occurred to either the steam generators because of the ingress of lake water or to the station batteries as a result of a deep discharge. Furthermore, the control work authority (CWA) area was moved to the control room area to improve communications. The NRC inspector has no further questions regarding this item.

These unresolved items are closed.

- 2.2.5 (Closed) Unresolved Item (482/8807-16; paragraph 2.1.2.10): Battery Discharge of October 15, 1987 - This item involved a failure by the operations department to use battery sizing calculations and to consult engineering during a battery discharge event.

As corrective action, the licensee has implemented specific procedures related to removing and returning power to the NK bus (i.e., providing temporary power to Station Batteries NK12 and NK14) during Vital Bus NB02 outage or charger modifications. Furthermore, the licensee has effected changes to Plant Procedure KPN-E-314, Revision 6, which required nonconforming conditions be reviewed for the ability of the system to continue to provide its original design features.

The NRC inspector reviewed the following procedures:

- ° KPN-E-314, Revision 6, "Dispositions of Nonconformance Reports, Engineering Evaluation Reports, Field Change Reports, and Corrective Work Requests," dated April 5, 1988.
- ° MPE E051Q-03, Revision 0, "Supplying Power to NK Bus during NB Outage or Charger P.M.'s," dated August 22, 1988.

The procedures were reviewed for adequacy and fulfillment of stated purposes. The NRC inspector found the procedures to be satisfactory. This item has been addressed as one of several items contributing to the NOV stated in NRC Inspection Report 50-482/87-31. Corrective actions committed to by the licensee regarding the use of battery sizing calculations have been implemented and appeared satisfactory. The NRC inspector had no further questions regarding this item.

This unresolved item is closed.

- 2.2.6 (Closed) Unresolved Item (482/8807-17; paragraph 2.1.2.11): Battery Sizing Calculation E-3 - This item involved the use of potentially inadequate battery sizing calculations by the architect engineer during the initial design process.

The NRC inspector reviewed the licensee response to the above item. Although the battery sizing calculations did not account for maximum current draw during a 200-minute discharge profile, the calculations did approximate the maximum conditions. Furthermore, the other two discrepancies, which related to input data of cell characteristics and consideration of minimum cell temperature, have been addressed by the licensee. The existing station batteries were within the sizing requirements of the IEEE standards and those stated in Revision 6 to the FSAR. The NRC inspector had no further questions regarding this matter.

This unresolved item is closed.

- 2.2.7 (Closed) Unresolved Item (482/8807-18; paragraph 2.1.2.12): Battery Performance Test - This item involved the failure to conduct a performance test adequately and to evaluate the test results related to station battery surveillance testing.

The performance of Surveillance Test STS MS-022, performed on Station Battery NK12, on October 27, 1987, was interrupted prior to completion in order to jumper out a deficient battery cell. Because of an inordinate period of time prior to restarting the test, the performance test results indicated an incorrect battery capacity (138.75 percent versus a calculated 125 percent). The failure to test adequately and to evaluate the results of the battery performance test is a violation of Appendix B, Criterion XI, in that, an adequate test procedure was not conducted (482/8908-03).

The NRC inspectors reviewed the licensee's response to this finding. The licensee has implemented changes to Surveillance Procedure STS MT-022 to incorporate a specification for a maximum interruption time period and provisions for staging jumper cables prior to the test commencement. In addition, the NRC inspector reviewed training records related to station battery maintenance conducted by vendor instructors. The licensee's corrective actions appear satisfactory and comprehensive and the NRC inspector had no further questions regarding this item. No further written response to this violation on the part of the licensee is required.

This unresolved item is closed.

- 2.2.8 (Closed) Unresolved Item (482/8807-20): Emergency Diesel Generator Breaker (EDG) Operations - This item concerned the automatic closure of the EDG output breaker on the deenergized emergency bus.

The NRC inspector reviewed the completed Plant Modification Package PMR 02427/G and the associated work orders (WR-01274-88 and WR-01275-88), which implemented the change to the EDG output

breakers. The change was reviewed by plant safety review committee (PSRC) members and approved by the PSRC chairman on March 18, 1988, utilizing a "serial" review. This is another example of the violation recently identified by the NRC regarding the review of two temporary modifications (482/8907-02).

The change to the EDG output breakers allowed the breakers anti-pumping closing circuit to be reset from the control room by placing the EDG breaker control switch to the "Normal" position for at least 3 seconds. The breaker could be closed automatically or manually by the operator.

The NRC inspector reviewed Alarm Procedures ALR 00-018C, NF 039A S/D Sequencer Actuated, Revision 5, and ALR 00-021C, NF 039B S/D Sequencer Actuated, Revision 5, to ensure that the change to the EDG output breaker was addressed (Step 4.1).

Document review and discussions revealed that no specific training was required prior to returning the EDG output breakers to operation. The training, which was provided to the operations personnel, was minimal and not documented. The licensee immediately implemented training of the onshift personnel regarding the change to the EDG output breaker (PMR 02427) by issuing a night order to be reviewed during shift relief and turnover. Specific training was being implemented regarding the PMR during the scheduled requalification program. The NRC inspector reviewed the formal lesson plan prepared by the training department (Plant/Industry Events, No. LR 10 10811, Revision 0, Item I, February 22, 1989). Discussions and review revealed that at the time of the inspection, the licensee had completed training of about 50 percent of the personnel in the requalification program.

Federal Regulations, 10 CFR 55.59, requires that information on design changes be provided operators. Failure to provide this training prior to returning the emergency diesel generator controls to service is an apparent violation (482/8908-02).

The NRC inspector's review of the operating procedures revealed that the licensee had not provided a specific off-normal procedure (OFN), addressing the loss of the essential 4160V AC buses, NB-01 and NB-02. Discussions and reviews revealed that the loss of 4160V AC power was addressed by alarm (bus undervoltage); off-normal procedures (affected equipment, e.g., OFN 00-015: "Loss of Shutdown Cooling (RHR)," Revision 6); and normal system procedures (restoration of power, e.g., SYS NB-132, "Energization of Bus NB01/NB02," Revision 6). The NRC inspector review revealed that the alarm and off-normal procedures referenced the system procedures. The NRC inspector has no further questions regarding this matter.

This unresolved item is closed.

- 2.2.9 (Closed) Unresolved Item (482/8807-26): PMR 2329 Raychem Splices/LOCA Environment Evaluation - This item concerned an apparent discrepancy between the tested and actual LOCA conditions of the splices.

The NRC inspector reviewed the documented evaluation provided in EQWP-E-01013, supporting PMR 2329 and the attached WR No. 4443-87, which demonstrated that the parameters of the Wyle Test Report No. 17859-02P enveloped the WCGS safety analysis conditions.

The NRC inspector reviewed Nuclear Plant Engineering Procedure KPN-D-319, "Environmental Qualification Review of Electrical Equipment To 10 CFR 50.49," Steps 6.5 through 6.8 and 8.0, and noted that the reviews were required to be documented and maintained.

The NRC inspector noted that the licensee subsequently replaced the Raychem splices. The NRC inspector has no further questions regarding this matter.

This unresolved item is closed.

- 2.2.10 (Closed) Unresolved Item (482/8807-27): PMR 2329 Raychem Splices/Bend Radius - This item concerned the Raychem splice bend radius.

The NRC inspector noted that the area of Raychem configurations at WCGS was the subject of the specific EQ inspection performed by the NRC (NRC Inspection Report 50-482/87-24) and the subject of an associated violation. The violation was reviewed and closed in NRC Inspection Report 50-482/88-38, dated December 9, 1988. The violation followup and closure included the NRC review of the following Wyle EQ Report No. 17859-02P, "Raychem Nuclear Cable Splices at . . . Nuclear Generating Stations," Revision A, dated August 19, 1987; the licensee EQ work package (EQWP) No. 01013, "Raychem Cable Termination Material"; the Instrument and Control (I&C) Procedure INC-S-506, "Wire Splicing and Termination with Raychem," Revision 3, November 16, 1987; and the Maintenance Procedure MGE-E00C-12, "Raychem WCSF Tubing (In-Line Splices) Select, Install and Inspect," Revision 0, June 24, 1988.

The NRC inspector has no further questions regarding this matter.

This unresolved item is closed.

- 2.2.11 (Closed) Unresolved Item (482/8807-28): PMR 2329 Raychem Splices/Bending Cool vs. Hot - This item concerned the difference between the tested and actual conditions of the splices.

The NRC inspector noted that the area of Raychem work instructions was previously reviewed by the NRC (NRC Inspection Report 50-482/88-38) and the licensee procedures were found acceptable. The vendor instructions specified that the tubing should

not be flexed until after cooling to prevent thinning of the tubing at the point of bending. The Wyle EQ Report No. 17859-02P revealed satisfactory performance of Raychem splices, which were bent hot (bend radius of 1.2 times the outside diameter or greater). The Wyle EQ Report No. 17859-02B revealed satisfactory performance of Raychem splices in that they were bent "double" (zero bend radius) while cooled.

The NRC inspector has no further questions regarding this matter.

This unresolved item is closed.

2.3 Open Items (92701)

- 2.3.1 (Closed) Open Item (482/8808-01): IEB 85-03 Valve Ongoing Maintenance Program - This open item involved the requirement for the licensee to develop plant procedures to assure the maintenance of correct Limitorque switch settings throughout the lifetime of the plant.

The NRC inspector reviewed the following procedures:

- ADM 08-228, Revision 0, "IEB 85-03 Valve Ongoing Maintenance Program," dated October 6, 1988
- ADM 08-229, Revision 0, "Limitorque Operator Limit Switch Setpoint Document," dated October 25, 1988

The procedures were reviewed for adequacy and conformance to the IEB 85-03 requirements and were found to be acceptable.

This open item is closed.

- 2.3.2 (Closed) Open Item (482/8827-01): Dirty Ventilation Supply Screens in EDG Rooms - This item involved the observations noted during a walkdown inspection.

The NRC inspector reviewed work request (WR No. 04325-88) dated September 23, 1988, which required maintenance to clean the EDG room ventilation supply screens. Work was completed prior to September 27, 1988, and no further deficiencies were noted.

This open item is closed.

3.0 Exit Interview

The NRC inspectors summarized the inspection scope and findings with the individuals identified in paragraph 1. The licensee did not identify as proprietary any information provided to or reviewed by the NRC inspectors.