APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-285/86-14 License: DPR-40

Docket: 50-285

Licensee: Omaha Public Power District
1623 Harney Street
Omaha, Nebraska 68102

Facility Name: Fort Calhoun Station

Inspection At: Fort Calhoun Station, Blair, Nebraska

Inspection Conducted: May 1-31, 1986

Inspector: _____ 6/20/86
P. H. Harrell, Senior Resident Reactor Inspector Date

Approved: _____ 7/2/86
D. R. Hunter, Chief, Project Section B, Reactor Projects Branch Date

Inspection Summary

Inspection Conducted May 1-31, 1986 (Report 50-285/86-14)

Areas Inspected: Routine, unannounced inspection of operational safety verification, maintenance, surveillance, plant tours, safety-related system walkdowns, followup on previously identified items, followup on a licensee event report (LER), and followup on a 10 CFR Part 21 report on Valcor valves.

Results: Within the eight areas inspected, one violation was identified (failure to maintain cable trays in accordance with design documentation, paragraph 6).

DETAILS

1. Persons Contacted

*W. Gates, Plant Manager
C. Brunnert, Operations Quality Assurance Supervisor
M. Core, Maintenance Supervisor
D. Dale, Quality Control Inspector
J. Fisicaro, Nuclear Regulatory and Industry Affairs Supervisor
J. Foley, I&C and Electrical Field Maintenance Supervisor
M. Kallman, Security Supervisor
*L. Kusek, Operations Supervisor
*T. McIvor, Technical Supervisor
R. Mueller, Plant Engineer
*G. Roach, Chemical and Radiation Protection Supervisor
J. Tesarek, Reactor Engineer
*S. Willrett, Administration Services and Security Supervisor

*Denotes attendance at the monthly exit interview.

The inspector also contacted other plant personnel, including operators, technicians, and administrative personnel.

2. Followup on Previously Identified Items

(Closed) Open Item 8425-01: Isolation capability of the feed regulating valve bypass valve.

This item is closed based on actions taken by the licensee. See paragraph 3 for a detailed discussion of this item.

(Closed) Unresolved Item 8526-01: Component cooling water pump A piping vibration.

The licensee has installed wooden wedges between the piping and the piping floor penetration to minimize the vibration. Subsequent to installation of the wedges, the licensee took readings to verify that the vibration levels were within the allowable limits. The NRC inspector reviewed the results of the vibration readings taken by the licensee and confirmed that all readings were within specifications. Readings were also taken for the B and C pumps, and no problems were noted. The licensee has performed an engineering evaluation to verify that the wooden wedges installed adjacent to the piping will not adversely affect system operation.

3. Licensee Event Report Followup

Through direct observation, discussions with licensee personnel, and review of records, the following event report was reviewed to determine that reportability requirements were fulfilled, immediate corrective

action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with Technical Specifications (TS).

LER 85-009 described a circuit that did not comply with the single failure criteria for plant protection systems. The circuit was designed to shut the main steam isolation valves in the event of a main steam line break. During a review of this circuit by the licensee, the licensee noted that a single relay provided the signal to shut both main steam isolation valves. In the event of a main steam line break concurrent with the failure of the relay to assume its accident position, the automatic closure of both main steam isolation valves would not occur. The licensee has modified the logic to eliminate the single failure concern and has also reviewed other modifications designed during the time frame of this design to verify no other safety-related systems were installed using relays subject to a single failure. The result of the licensee review indicated that no other designs contained the same type of problem. The NRC inspector reviewed the documentation associated with the licensee activities. No problems were noted and we have no further questions of this matter at this time.

No violations or deviations were identified.

4. Followup on a 10 CFR Part 21 Report on Valcor Valves

In a letter to the NRC dated March 17, 1986, the licensee reported that problems had been encountered with the operation of 2-inch, Series V526 Valcor valves. The licensee noted that two valves in the charging and volume control system would not operate on an open signal.

The licensee performed an inspection of the valves and found that the disc guide assembly springs had failed. When maintenance personnel opened the valve, the springs were found to be in numerous pieces. Laboratory testing found that the springs had failed due to hydrogen embrittlement. The licensee replaced the springs and the valves tested satisfactorily. The replacement spring used to repair the valve was the same type of spring that had originally failed in the valve. The licensee performed an engineering evaluation and determined that the same spring will allow proper operation until the next refueling outage currently scheduled for March 1987. The licensee intends to replace the springs during the outage.

The licensee inspected other Valcor valves to determine if the spring problem exists in another system. No other problems were noted with the Valcor valves. Based on inspection of the valves and the results of the failure analysis, the licensee has concluded that the failure will most likely occur in an application where the valve will contact primary coolant.

Based on the documentation reviewed and discussions with licensee personnel, it appeared that the licensee has taken the appropriate corrective action for ensuring that all potential valve failures were addressed.

No violations or deviations were identified.

5. Operational Safety Verification

The NRC inspector conducted the reviews and observations of selected activities to verify that facility operations were performed in conformance with the requirements established under 10 CFR, administrative procedures, and the TS. The NRC inspector made several control room observations to verify:

- Proper shift staffing.
- Operator adherence to approved procedures and TS.
- Operability of reactor protective system and engineered safeguards equipment.
- Logs, records, recorder traces, annunciators, panel indications, and switch positions complied with the appropriate requirements.
- Proper return to service of components.
- Maintenance orders initiated for equipment in need of maintenance.
- Appropriate conduct of control room and other licensed operators.

No violations or deviations were noted.

6. Plant Tours

The NRC inspector conducted plant tours at various times to assess plant and equipment conditions. The following items were observed during the tours:

- General plant conditions.
- Equipment conditions, including fluid leaks and excessive vibration.
- Plant housekeeping and cleanliness practices including fire hazards and control of combustible material.
- The physical security plan implementation in accordance with the station security plan.

. Adherence to the requirements of radiation work permits

. Work activities performance in accordance with approved procedures

During tours of the auxiliary building, the NRC inspector noted that cables and cable trays were not being maintained in accordance with basic installation and design documentation. The following discrepancies were identified:

a. Drawing 11405-E-60, "Reactor Auxiliary Building Tray Conduct Layout Plan," required in Note 17 that solid covers be installed on cable trays. The NRC inspector noted that trays in various locations in Rooms 69 and 57, and in the east and west switchgear rooms did not have the tray covers properly installed. The cables in the trays contained safety-related circuits.

b. Drawing 11405-E-151, "Cable and Conduit Schedule Notes," required in Note 18 that control and instrument cable be tied down in a neat configuration after installation in trays. The NRC inspector noted that safety-related control and instrumentation cables installed in vertical trays EA 5-4 and EB 5-4 were not tied down. Without being secured, the cable was protruding into the personnel pathway causing a potential problem with snagging the cable.

c. Drawing 11405-E-151 also required in Note 20 that 600-volt power cable not exceed a 40 percent cable tray fill criteria. The NRC inspector noted that the cable exceeded this limit at tray location 21-S.

These discrepancies are examples of the failure to maintain cable tray installations in accordance with design and installation documentation. This is an apparent violation. (285/8614-01)

As a result of this NRC inspection finding, the licensee has initiated walkdowns of the plant safety-related cable trays to verify that the installation was in accordance with the requirements. The control and instrumentation cable in trays EA 5-4 and EB 5-4 has been secured to prevent snagging.

The NRC inspector also noted during plant tours that manual valves in branch lines between the outside of the containment wall and the first automatic isolation valve were not locked. The valves were located in branch lines in the component cooling water supply and return lines for the nuclear detector well cooling units. The NRC inspector notified the licensee of the situation and discussed the status of containment isolation as required by Criterion 57 of Appendix A to 10 CFR 50. The licensee locked the two valves in question as a prudent action while reviewing the status of the applicability of Criterion 57 for the Fort Calhoun Station (FCS).

Subsequent to this discussion with the licensee, the NRC inspector also noted that valves in branch lines between the outside containment wall and the first isolation valve in the chemical and volume control system were not locked. The NRC inspector discussed the applicability of 10 CFR Part 50, Appendix A, Criterion 55 with the licensee. The licensee locked the valves with circular handwheels. Due to there being no convenient method for locking valves with T-handles, the licensee performed an evaluation and determined that a shut valve with an installed cap was sufficient. This action was taken because the licensee felt it was the prudent thing to do while reviewing the applicability of Criterion 55 for the FCS.

The licensee has yet to determine whether or not 10 CFR Part 50, Appendix A, Criteria 55 and 57 is applicable to the FCS. The NRC inspector discussed this item with the NRR Project Manager (PM) for the FCS. This item will remain unresolved pending further review by the NRC to determine the specific applicability of Criteria 55 and 57 of Appendix A to 10 CFR 50 to the FCS. (285/8614-02)

The NRC inspector also reviewed the Updated Safety Analysis Report (USAR) in an attempt to determine the applicability of Criteria 55 and 57. The NRC inspector noted that the discussion provided in Section 5.9.5 of the USAR did not discuss the criteria applicability. However, the NRC inspector did note that the discussion provided in Section 5.9.5 and Table 5.9-1 did not reflect the actual plant installation. For example, Table 5.9-1, in conjunction with Figure 5.9-19, indicated that the steam generator secondary side drains are two air-operated valves in series. The actual installed configuration in the plant was two manual valves in series. The licensee stated a review of Section 5.9.5 and Table 5.9-1 in conjunction with Figure 5.9-19 would be performed to verify that the information provided was correct. This is an open item pending review of the USAR information during a subsequent inspection. (285/8614-03)

7. Safety-Related System Walkdowns

The NRC inspector walked down accessible portions of the following safety-related emergency diesel generator 1 and 2 systems to verify system operability. Operability was determined by verification of selected valve and switch positions. The systems were walked down using Procedures OI-DG-1, Revision 19, OI-DG-2, Revision 19, and the drawings noted below:

- Fuel oil system (Drawing M-262, Revision 6)
- Air start system (Drawing B120F07001, Revision 12)
- Lubricating oil system (Drawing B120F03001, Revision 1)
- Jacket cooling water system (Drawing B120F04002, Revision 1)

During the walkdowns, the NRC inspector noted minor discrepancies of an editorial nature between the drawings, procedures, and plant as-built conditions. None of the conditions noted affected the TS operability or safe operation of the system. Licensee personnel stated that the noted minor discrepancies would be corrected.

No violations or deviations were identified.

8. Monthly Maintenance Observation

The NRC inspector reviewed/observed selected station maintenance activities of safety-related systems and components to verify the maintenance was conducted in accordance with approved procedures, regulatory requirements, and the TS. The following items were considered during the reviews/observations:

- The limiting conditions for operation were met while systems or components were removed from service.
- Approvals were obtained prior to initiating the work.
- Activities were accomplished using approved maintenance orders (MO) and were inspected, as applicable.
- Functional testing and/or calibrations were performed prior to returning components or systems to service.
- Quality control records were maintained.
- Activities were accomplished by qualified personnel.
- Parts and materials used were properly certified.
- Radiological and fire prevention controls were implemented.

The NRC inspector reviewed/observed the following maintenance activities:

- Overhaul and repair of motor-driven fire water pump (MR FC-83-69).
- Inspection of wiring on Limitorque motor-operated valves (MO 862062).

No violations or deviations were noted.

9. Monthly Surveillance Observation

The NRC inspector observed selected TS required surveillance testing on safety-related systems and components. The NRC inspector verified the following items during the testing:

- Testing was performed using approved procedures.

- Test instrumentation was calibrated.
- Limiting conditions for operation were met.
- Removal and restoration of the affected system and/or component were accomplished.
- Test results conformed with TS and procedure requirements.
- Test results were reviewed by personnel other than the individual directing the test.
- Deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The NRC inspector witnessed the following surveillance test activities:

- Component cooling water pump quarterly test (ISI-CC-3-F.1).
- Emergency diesel generator monthly test (ESF-6-F.2).
- Control element assembly check (CEA-1-F.4).

No violations or deviations were identified.

10. Exit Interview

The NRC inspector met with Mr. W. G. Gates (Plant Manager) and other members of the OPPD staff at the end of this inspection. At this meeting, the inspector summarized the scope of the inspection and the findings.