APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-285/85-03 License: DPR-40

Docket: 50-285

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

Facility Name: Fort Calhoun Station

Inspection At: Fort Calhoun Station, Blair Nebraska

Inspection Conducted: March 4-8, 1985

Inspectors: J R Boardman 5/21/85
J. R. Boardman, Reactor Inspector, Special Projects and Engineering Section, Reactor Project Branch 1 (pars. 1, 2, 6, and 7) Date

D. E. Norman 5/21/85
D. E. Norman, Reactor Inspector, Project Section B Reactor Project Branch 2 (pars. 1, 2, 3, 4, and 5) Date

Approved: D M Hunnicutt 5/21/85
D. M. Hunnicutt, Chief, Project Section B Reactor Project Branch 2 Date

Inspection Summary

Inspection Conducted March 4-8, 1985 (Report 50-285/85-03)

Areas Inspected: Routine, unannounced inspection of the licensee's record program; calibration, measuring and test equipment; program audit program

implementation; and followup on previous inspection findings. The inspection involved 84 inspector-hours onsite by two NRC inspectors.

Results: Within the five areas inspected, two violations were identified in one area (OPPD records program). The violations were failure to meet record retrieval requirements for thermal stress analysis of small pipe and failure to have procedures for identification of safety-related pipe requiring in service inspection (ISI).

DETAILS

1. Persons Contacted

OPPD

*R. L. Andrews, Division Manager, Nuclear Production
*R. T. Spetman, Division Manager, Management Systems Services
*W. G. Gates, Manager, Fort Calhoun Station
*R. L. Jaworski, Section Manager, Technical Services
*P. M. Surlser, Section Manager, Generating Station Engineering
*K. J. Morris, Manager, Quality Assurance (QA)
*D. R. Podell, Manager, Office Systems
*J. M. Gloshen, Manager, Records Management
*J. K. Gaspar, Manager, Reactor and Computer Technical Services
*J. T. Fisicaro, Supervisor, Nuclear Regulatory and Industry Affairs
*J. E. Bentzinger, Supervisor, Procurement QA
*A. W. Richard, Supervisor, Technical, Fort Calhoun Station
*M. R. Core, Supervisor, Maintenance, Fort Calhoun Station
M. Ellis, Foreman, Instrumentation and Controls
R. Mueller, Supervisor, Instrumentation and Electrical
D. Dale, Senior Quality Control (QC) Inspector
J. Folley, Electrical Engineer
J. Zelfel, QA Inspector
J. Hopp, QA Inspector

NRC

*L. Yandell, Senior Resident Inspector

*Denotes those attending the exit interview on March 8, 1985.

The NRC inspectors also interviewed other licensee personnel .

2. Followup on Previously Identified Items

a. (Open) (50-285/8317-01) Licensee Records Program - The NRC inspector initiated his review of OPPD responses to violation 50-285/8317-01 which identified the licensee's failure to take prompt corrective action on record program deficiencies identified by NRC Region IV from 1975-1981.

(1) Lack of Determination for Safety Significant Records

The NRC inspectors first reviewed OPPD actions to retrieve and identify construction records as committed in OPPD letter LIC-83-238, dated September 19, 1983. During this review, the

NRC inspector noted that one of the two status codes used to classify retrieved construction records against PSAR requirements was: "2. Similar Types of Records Identified." The other code was: "3. Specific Types of Records Identified." Discussions with licensee personnel revealed that specific verification of records against requirements may not have been accomplished where code 2 was used.

The use of code 2 does not show that records are acceptable. Code 2 was used for 75 (or 98 percent) of the 76 record types identified by the licensee under their category "PSAR Codes and Standards," and for 198 (or 77 percent) of the 256 record commitments and requirements for which OPPD was able to retrieve records. Of concern to the NRC inspector was the use of code 2 for PSAR requirements which affect the design base such as Engineered Safeguards. Examples include structural design of duct work and design base shop tests of Safety Injection (SI) system and other safety-related pumps and containment spray nozzle capacities.

Documentation of such tests is necessary to assure compliance with the design bases. For example, the PSAR, Section 6.2, states, "To permit full pressure and flow rate testing, each safety injection system and the containment spray system test lines could be increased to design capacity size with line restrictions to simulate the effect of discharge point back pressure. The full-size test line would require an automatic valve to close on an accident signal. This method of testing is not recommended, however, since the reduced capacity test and use of proved pump curves will provide a pressure test and an adequate verification of design flow while eliminating the possibility that a test line valve might fail open and render the system ineffective."

The NRC inspector discussed with licensee management that for safety significant records, such as the records documenting SI pump performance which cannot be verified without removing the pumps, a determination must be made that records exist which document the requirements. This will remain an unresolved item (50-285/8503-01) pending review by the NRC inspector during a subsequent inspection of licensee actions to verify safety significant records.

(2) Unretrievable Records of Thermal Stress Analysis for Safety-Related Pipe Below 2½"

Safety-related small pipe below 2½" diameter was field run. Cold pipe was installed using a nomograph provided by the

architect-engineer (AE). Small pipe subject to thermal growth was required to be analyzed by the AE, who would determine the amount, direction, and force of pipe thermal growth.

The NRC inspector reviewed construction records, including approximately 1 year of correspondence between the AE and the constructor. The correspondence was detailed and indicated that AE analysis was required, but nothing documented performance of the analysis. The licensee was unable to retrieve records of such analysis for safety-related pipe designed to specification USAS B31.7 (1968 draft), Class 1. USAS B31.7, Section 700, requires the preparation of a stress report for Class 1 piping, and its retention by the owner for the life of the plant. The licensee committed in its PSAR, Section A.2.6, in 1970, to retain design and construction records for the total operating life of the Fort Calhoun Station. The records of stress analysis, which were not retrievable, would have been generated beginning in 1971, after the date of the PSAR.

Failure to retrieve records of activities affecting safety is a violation of 10 CFR Part 50, Appendix B, Criterion XVII. (50-285/8503-02)

(3) Design of Pipe Supports for Thermally Stressed Safety-Related Pipe Below 2½"

In discussions with the licensee concerning the unretrievable thermal pipe stress analysis records for safety-related pipe below 2½", the NRC inspector determined that Fort Calhoun seismic analysis did not include thermal stresses.

This pipe was not reanalyzed under NRC Bulletin 79-14 because thermal analysis was not a dynamic analysis by computer. The wording of Bulletin 79-14 did not require reanalysis of pipe below 2½" except in those cases where the original analysis was a dynamic analysis by computer. Bulletin 79-14 was based on Bulletin 79-07 which addressed problems with computer codes. The question of including thermal stress analysis in small pipe support design was not raised or addressed. The NRC inspector has discussed this with the NRC staff. This will remain an unresolved item (50-285/8503-03) pending a retrieval by OPPD of documentation relating to thermal design considerations for small pipe supports, and a selective review of this documentation by the NRC inspector during a subsequent inspection.

b. (Closed) Unresolved Item (50-285/8133-03): Review of Fort Calhoun Station Stress Report - This item is closed on the following basis:

(1) 2½" and larger piping has been reviewed under NRC IE Bulletin 79-14.

(2) Piping below 2½" is now covered by unresolved item (50-285/8503-02).

c. (Closed) Open Item (50-285/8410-01): Biannual Review of Licensee Administrative Procedures - The licensee has instituted a change to Station Procedure G-36, "Operating Manuals Review Documentation," to require review of administrative procedures for incorporation of OPPD QA program requirements.

d. (Closed) Open Item (50-285/8410-02): Fort Calhoun Station Procedures for Implementing 10 CFR 50, Appendix B, Criterion XVI Corrective Action - At the time of NRC inspection (50-285/84-10), OPPD had revised its QA manual, converting it from a manual that covered all of OPPD to a department manual. Corrective action procedures for other than the QA department had not been issued. All OPPD corrective actions were being monitored by QA under QA Surveillance Plan E/C-84-2, "Procedures for Control of Deficiencies and Corrective Action Plan," approved April 2, 1984. Subsequently, the licensee issued OPPD Nuclear Production Division Procedure, "Reporting and Corrective Action of Conditions Adverse to Quality," approved September 9, 1984. Though not identified to the NRC inspector during inspection 84-10, OPPD Generating Station Engineering Administrative Procedure A-8, "Control of Deficiencies and Corrective Action," Revision January 1984, had been issued.

e. (Closed) Violation (50-285/8410-03): Failure to Have Procedures in Designation of Safety-Related Equipment and Components - The NRC inspector reviewed OPPD Design Procedure B12.1, Revision 1, "Critical Quality Element (QE) List Control," dated July 1984, and "Critical Quality Element (CQE) List," dated July 1, 1984, and found them to be acceptable.

f. (Open) Unresolved Item (50-285/8410-04): Control of Vendor Technical Information - The specific concern relating to use of the correct Reliance Motor Technical Manual for containment cooling fan motors was corrected. The general concern over OPPD control and use of correct vendor technical information had not been acted upon by OPPD. This concern is essentially the same as NRC Generic Letter 83-28, Section 2.2.2. OPPD response to Generic Letter 83-28 was letter LIC-83-267, dated November 4, 1983.

OPPD response to Section 2.2.2 was, "The District does not currently pursue all vendors of its CQE equipment to determine if we hold the latest revision of technical manuals or if any modifications have been recommended. The District has relied on those vendors (i.e.,

the NSSS vendor) and others who have a modification program and the NRC's Notice, Circular, and Bulletin system to obtain hardware data. The District also participates in NUS's NOMIS program, INPO's SEE-IN, and INPO's NOTEPAD for interaction with other utilities.

"The District is an active participant in the INPO "NUTAC on Generic Letter 83-28, Section 2.2.2." Through this program, a workable solution to the vendor interface problem is being sought. The scheduled output date for this NUTAC is February 1, 1984. As was previously stated, at that time the District will determine to what extent the findings of the NUTAC can be incorporated into District practices."

OPPD could show no action on NUTAC as delineated in INPO 84-10. developed by the Nuclear Utility Task Action Committee (NUTAC), dated March 1984. INPO 84-10, page 25, Section 4.2.2.1, had January 1, 1985, as the target date for its full implementation by utilities. In addition, INPO 84-10 did not directly address control of vendor technical information.

The NRC inspector discussed this situation with the NRC staff. Clarification of OPPD control of vendor technical information will be requested by the NRC staff. The staff concurred in leaving this item open pending clarification and implementation of OPPD controls for vendor technical information.

g. (Closed) Violation (50-285/8421-01a): Failure of Procedures to Provide a Means to Identify Plant Process Instrumentation Which was Calibrated with M&TE Found to be Out of Tolerance - Procedure SO M-28 was revised to provide a method for identifying calibration procedures for which each item of M&TE was used. If the M&TE is subsequently found to be out of tolerance each procedure can be readily identified. Implementation of the corrective action was verified by the NRC inspector.

h. (Closed) Violation (50-285/8421-02a): Failure to Perform Analysis for Out of Tolerance M&TE - Records showed that two M&TE standards were found out of tolerance at calibration and no analysis had been performed to determine the effect on plant process instruments which had been calibrated with the standards. After identification of the problems, the licensee performed an analysis of the two items and found the out of tolerance condition to have negligible effect on plant instrumentation. Procedure SO M-28 was changed to prevent recurrence of the problem. This action was verified by the NRC inspector.

i. (Closed) Violation (50-285/8421-02b): Failure to Establish Calibration Intervals - Minimum calibration intervals had not been

established for oscilloscopes and electrical current measuring standards. Intervals have subsequently been established and included in Procedure SO M-28. The NRC inspectors verified that the standards were being calibrated in accordance with the procedure.

j. (Closed) Unresolved Item (50-285/8421-03): Insufficient Records for Determining the Validity of Bergen-Patterson Snubber Tester (BPST-1) Calibration - Calibration of the BPST-1 had been performed by Nebraska Testing Laboratory and should have consisted of calibrating the tester load cell and velocity meter. Records were not available to show that the velocity meter had been calibrated. The licensee located the records and during this inspection the NRC inspectors reviewed Nebraska Testing Laboratory certification No. E-1666, dated March 2, 1984, for calibration of the velocity meter. The tester is typically used during fuel outages to perform snubber surveillance tests. When calibrated on March 2, 1984, the initial load cell error was 20 percent with a 2 percent error after calibration. During the March 1984 snubber tests the load cell was calibrated weekly because of a calibration drift problem.

   The licensee stated that future calibrations of the tester would be performed by the I&C calibration laboratory and Procedure SO M-28 would be revised to reflect this change.

k. (Open) Open Item (285/8217-01): Housekeeping Deficiencies - In response to the concerns expressed by the NRC inspector during NRC Inspection Report No. 50-285/82-17, the licensee committed to revise Administrative Procedure A-G-6 to reflect that controlled areas of the plant be kept at Zone IV and to update documentation of the weekly inspections and cleanup. These areas had been cited as deficiencies during licensee QA Audit 31-82. The NRC inspector reviewed Administrative Procedure A-G-6, Revision 13, dated June 27, 1983, and verified that the change had been made. Documentation of weekly inspections and cleanup were still not being made and had been cited again in QA Audit 21-84. This item will remain open pending review of the adequacy of the licensee corrective actions associated with QA Audit 21-84.

l. (Closed) Unresolved Item (285/8412-04): Identical to 285/8421-01a which was discussed above.

3. Measuring and Test Equipment Program

The NRC inspectors reviewed the measuring and test equipment (M&TE) program to verify compliance with regulatory requirements and licensee commitments.

The following documents were reviewed during this phase of the inspection:

- Quality Assurance Plan, Section 6.5, "Control of Measuring and Test Equipment," dated September 1, 1984
- Standing Order M-7, "Calibration of Mechanical Gauging Equipment," Revision 19, dated September 11, 1984
- Standing Order M-28, "Calibration of Test Equipment," Revision 17, dated January 31, 1985
- Calibration records for six mechanical standards

Calibration procedures and records for two torque wrench testers, three torque wrenches, and two outside micrometers were reviewed during the inspection. The records reviewed were in compliance with M&TE program requirements. The program for controlling instrumentation and controls (I&C) M&TE was reviewed during NRC Inspection Report No. 50-285/84-21 and several discrepancies were documented at that time. Reinspection of those items are covered in other sections of this report.

No violations or deviations were identified.

4. Calibration

This inspection was conducted to verify that the calibration of components and equipment associated with safety-related systems was in conformance with requirements of the Technical Specifications. The following documents which implement the program were reviewed by the NRC inspector:

- Quality Assurance Plan, Section 8.3, "Plant Surveillance Test Program," dated September 1, 1984
- Standing Order M-26, "Calibration Procedures," Revision 6, dated March 13, 1984

Procedures and calibration records for the following plant equipment, selected from Tables 3-1, 3-2, and 3-3 of the Technical Specifications, were reviewed to determine compliance with program requirements:

Instrument	Procedure	Revision	Date
Power Range Safety Channels	ST-RPS-1	35	May 23, 1984
Reactor Coolant Flow	ST-RPS-3	30	February 21, 1984
High Pressurizer Pressure	ST-RPS-5	10	February 21, 1984
Axial Power Distribution	ST-RPS-12	27	February 17, 1983
Pressurizer Pressure Low	ST-RPS-5	10	February 21, 1984

Pressurizer Pressure Low	ST-ESF-1	19	March 31, 1983
Containment Radiation High Signal	ST-RM-2	26	January 17, 1984
Boric Acid Tank Level	ST-ESF-9	12	September 18, 1981
4.16 KV Emergency Bus	ST-ESF-6	54	January 17, 1984
Low Voltage	ST-ESF-14	9	September 1, 1983
PORV Low Temperature Setpoint	ST-PORV-1	7	April 8, 1982
Containment H_2 Monitors	ST-VA-6	0	September 4, 1984

No violations or deviations were identified.

5. Audit Program and Implementation

The NRC inspector performed this inspection to determine if the licensee had developed and implemented an audit program that conformed with requirements of the Technical Specifications and regulatory requirements. The following plans and procedures which document the program requirements were reviewed:

- Quality Assurance Plan, Section 10.1, "Audit Program and Audits," dated September 1, 1984
- Quality Assurance Plan, Section 10.2, "Safety Audit and Review Committee Charter," dated September 1, 1984
- Quality Assurance Department Procedure No. 5, "Internal Audit and QA Surveillance Program Scheduling," Revision 2, dated November 30, 1984
- Quality Assurance Department Procedure No. 6, "Conduct of Audits," Revision 2, dated November 30, 1984
- Quality Assurance Department Procedure No. 7, "Conduct of Surveillance," Revision 2, dated November 20, 1984

Implementation of the documented program was verified by reviewing the following:

- Internal Audit Program which shows the title of each audit, by whom the audit is to be performed (QA or SARC), audit frequency, and the QA surveillance which supplements an audit
- 1985 audit schedule
- Six Safety Audit Review Committee (SARC) audit reports
- Ten QA audit reports

- Deficiency Reports (DRs) resulting from audit findings
- Response to DRs
- Qualification of one QA audit team leader

All audit reports are currently being stored on film and there were no historical records to show when audits were last performed. It was, therefore, necessary to review past reports on film in order to verify that audits were being performed as scheduled. In preparing schedules the licensee must either rely on the previous schedule or review all previous reports to determine when the next audit is due. Neither method ensures that permissible audit intervals will not be exceeded. Using a previous schedule assumes that audits were performed as scheduled and reviewing reports is cumbersome and could result in scheduling errors. All audits reviewed had been performed as scheduled, however, Procurement Control, which is on a 3-year cycle, was last audited in March 1982 (Report 4-82). It is currently scheduled to be audited in December 1985, 9 months past the permissible date.

A Technical Specification requirement of the SARC is to review the performance of all activities required by the QA program, in accordance with 10 CFR 50, Appendix B, at least once each 2 years. Each of the criteria could not be identified from the Internal Audit Program; therefore, the NRC inspectors requested that the licensee identify each 10 CFR 50, Appendix B, criteria to the Internal Audit Program.

Subsequent to the inspection licensee personnel contacted the NRC inspector and stated that a procurement control audit report which was dated later than the March 1982 report had been overlooked during the inspection and that the December 1985 audit would not be delinquent. They also stated that SARC inspections performed each two years reviewed all QA activities.

No violations or deviations were identified.

6. Failure to Request Exemption to ISI Requirements for 24" Safety Injection Recirculation Pipe

As part of the review of construction records, the NRC inspectors reviewed licensee construction contract 770 which covered 24" SI seam welded piping imbedded in concrete. The NRC inspectors asked licensee personnel if this piping were subsequently inspected under their ISI program. Licensee personnel stated that the piping was excluded based on ASME Code Section IWC 1220 which excluded pipe having a design temperature less than 200°F.

Subsequent to the inspection, licensee personnel contacted the NRC inspectors and stated Fort Calhoun Station USAR, Section 5.11, the design criteria for this pipe was 305°F, and that it should have been included in the Fort Calhoun Station ISI program, or an exemption obtained.

Failure to have procedures to assure determination that all required safety-related piping is properly evaluated for ISI is an apparent violation of 10 CFR Part 50, Appendix B, Criterion V, which requires activities affecting quality to be prescribed by procedures which shall include appropriate quantitative and qualitative acceptance criteria to determine that the activities have been satisfactorily accomplished. (50-285/8503-04)

7. Unresolved Item

An unresolved item is a matter about which more information is required in order to determine whether it is acceptable, a violation, or a deviation. One new unresolved item is discussed in this report in paragraph 2.

8. Exit Interview

An exit interview was conducted on March 8, 1985, with personnel in paragraph 1 of this report. The NRC senior resident inspector also attended this exit interview. At this meeting, the scope of the inspection and the findings were summarized.