



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

Docket No. 50-285

March 19, 1986

Omaha Public Power District  
ATTN: Mr. Bernard W. Reznicek  
President and Chief Executive Officer  
1623 Harney Street  
Omaha, Nebraska 68102

Gentlemen:

SUBJECT: SAFETY SYSTEM OUTAGE MODIFICATION INSPECTION (INSTALLATION  
AND TEST) 50-285/85-29

This letter conveys the results and conclusions of the installation and test portions of the Fort Calhoun Station Safety Systems Outage Modification Inspection conducted by the NRC's Office of Inspection and Enforcement. The inspection team was composed of personnel from the NRC's Office of Inspection and Enforcement, Region IV and consultants. The inspection took place at the Fort Calhoun Station and at your offices in Omaha, Nebraska. This inspection was part of a trial NRC program being implemented to examine the adequacy of licensee management and control of modifications performed during major plant outages.

The purpose of the installation and test portions of the Trial Safety Systems Outage Modification Program was to examine, on a sampling basis, installation and testing of plant modifications accomplished during the September 1985-January 1986 outage at Fort Calhoun Nuclear Station. This portion of the trial program concludes the inspection program at Fort Calhoun. Reports forwarding the results of the design inspection and the vendor inspections have already been issued. The applicable report numbers are provided in Section 3 of the report.

Section 2 of the report is the detailed discussion of the installation and testing inspection. The effort was hardware and test oriented and centered around 18 modifications accomplished during the outage. Particular attention was directed toward adequacy of installation procedures, conformance of the modifications to requirements, adequacy of functional tests, material control, and safety-related maintenance activities.

Section 1 of the report is a summary of the results of the inspection and the conclusions reached by the team. The most significant concerns identified were examples in the areas of: (1) lack of engineering safety evaluations for design changes, (2) nonconforming installations, (3) inadequate quality control, and (4) inadequate material control.

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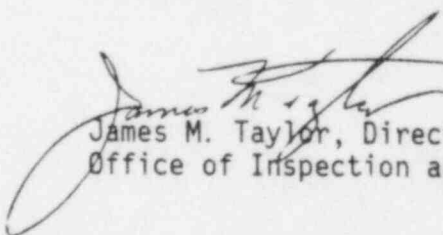
During this inspection the NRC inspection team performed a preliminary review of your planned corrective actions for the significant findings which has been identified at an interim status briefing on October 8, 1985 for the design portion of the Safety Systems Outage Modification Inspection. In addition, Section 1.4 of this report discusses corrective actions for specific items which the OPPD representatives indicated, during the exit meeting of December 18, 1985, would be corrected prior to plant startup following the outage.

The Appendix to this letter contains a list of potential enforcement actions which are based on the deficiencies identified during the installation and testing inspection. These will be reviewed by the Office of Inspection and Enforcement and the NRC Region IV office for appropriate action. At the completion of that review, the Region IV office will issue any enforcement actions resulting from the installation and testing inspection, as well as from the earlier design and vendor inspections. In addition, Region IV will monitor your corrective actions relating to those enforcement actions.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosures will be placed in the NRC Public Document Room. No reply to this letter is required at this time. You will be required to respond to these findings after a decision is made regarding appropriate enforcement action.

Should you have any questions concerning this inspection, please contact me or Mr. James Konklin (301-492-9656) of this office.

Sincerely,



James M. Taylor, Director  
Office of Inspection and Enforcement

Enclosures:

1. Appendix, Potential Enforcement Actions
2. Inspection Report 50-285/85-29

cc w/enclosures:  
See next page

cc w/enclosure:

Harry H. Voigt, Esq.  
LeBoeuf, Lamb, Leiby & MacRae  
1333 New Hampshire Avenue, N.W.  
Washington, D.C. 20036

Mr. Jack Jensen, Chairman  
Washington County Board  
of Supervisors  
Blair, Nebraska 68023

Metropolitan Planning Agency  
ATTN: Dagnia Prieditis  
7000 West Center Road  
Omaha, Nebraska 68107

Mr. Phillip Harrell, Resident Inspector  
U.S. Nuclear Regulatory Commission  
P. O. Box 309  
Fort Calhoun, Nebraska 68023

Mr. Charles B. Brinkman, Manager  
Washington Nuclear Operations  
C-E Power Systems  
7910 Woodmont Avenue  
Bethesda, Maryland 20814

Regional Administrator, Region IV  
U.S. Nuclear Regulatory Commission  
Office of Executive Director  
for Operations  
611 Ryan Plaza Drive, Suite 1000  
Arlington, Texas 76011

Mr. William C. Jones  
Vice President, Nuclear Production,  
Production Operations, Fuels, and  
Quality Assurance and Regulatory  
Affairs  
Omaha Public Power District  
1623 Harney Street  
Omaha, Nebraska 68102

March 19, 1986

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## APPENDIX

### POTENTIAL ENFORCEMENT ACTIONS

As a result of the NRC Trial Safety Systems Outage Modification Installation and Test Inspections at Fort Calhoun during November 6-8, November 18-22, and December 9-17, 1985, the following items are being referred to Region IV as Potential Enforcement Actions. Section references are to the detailed inspection report.

1. 10 CFR 50.59 requires that safety evaluations be accomplished for temporary or permanent design changes to the facility to determine whether an unreviewed safety question exists or whether a change to the Technical Specifications is involved.

Contrary to the above, the NRC inspectors found that the licensee's procedures for accomplishing engineering safety evaluations were not effectively implemented in that:

- a. No safety evaluations had been accomplished for installation of lead shielding on safety-related piping for at least the last two and one half years (Section 2.2.1).
  - b. No safety evaluation was available for a design change involving a penetration through a fire barrier which had been completed for several years (Section 2.2.2).
  - c. Safety-related electrical jumpers had been installed as long as 18 months without documented safety evaluations (Section 2.2.3).
2. 10 CFR 50, Appendix B, Criterion IX, as implemented by QAM Section 10, requires that measures be established to assure special processes, including, welding and nondestructive testing are accomplished using qualified procedures in accordance with applicable codes, standards, specifications, criteria and other special requirements.

Contrary to the above, the NRC inspectors found the licensee's program for control of welding and nondestructive examination was inadequate in that:

- a. A standard flat plate 90° fillet weld procedure was used to accomplish skewed fillet welds, plug welds, pipe boss attachment welds and seal welds in two modification packages installed during this outage (Section 2.6.2).
- b. An unacceptable crater pit and other surface discontinuities were found in previously accepted welds on SIT relief valve union installations (Sections 2.5.3 and 2.6.1).

- c. A safety-related nonisolable socket weld was accepted by dye penetrant inspection when, in fact, the weld was unacceptable both visually and by subsequent dye penetrant inspection for a modification package installed during this outage (Sections 2.5.1 and 2.6.1).
  - d. Dye penetrant inspections were found to have been accomplished, and accepted, at surface temperatures below the minimum allowed by procedures when, in fact, the welds were unacceptable by reinspection above the minimum temperature for a modification package installed during the outage (Section 2.6.1).
  - e. Welds on seismic conduit supports and installation of the conduits and supports did not conform to the installation procedure design details for a modification package installed during the outage (Section 2.5.5).
3. Fort Calhoun Technical Specifications, Section 2.19(8) requires that a continuous fire watch be posted and backup fire suppression equipment be provided when the Halon fire suppression system is disabled in the switchgear room.

Contrary to the above, the NRC inspectors found this requirement was not implemented by the licensee when no continuous fire watch or backup fire suppression equipment was provided in the switchgear room from December 6-10, 1985 with the Halon fire suppression system disabled (Section 2.4.2).

4. 10 CFR 50, Appendix B, Criterion XIII, as implemented by QAM Section 14, requires that measures be established to control the storage of materials, provide proper protection, and provide correct environmental conditions.

Appendix A to the Fort Calhoun Updated Safety Analysis Report (USAR) commits OPPD to ANSI N45.2.2-1972, "Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plant." ANSI N45.2.2 requires stored materials to be adequately protected, to be located in the correct storage environment according to material quality, and to be properly identified with quality assurance acceptance tags.

Contrary to the above, the NRC inspectors found the licensee's program for control of material in storage to be inadequate in that:

- a. Safety-related cable was found damaged in a temporary safety-related storage area (Section 2.9.1).
- b. Level B safety-related material was found stored in a Level C storage area for up to 19 months (Section 2.9.2).
- c. Safety-related material was found with identification tags that did not agree with material markings or other material documentation (Section 2.9.2).

- d. Material was found in a temporary safety-related storage area without quality assurance acceptance tags (Section 2.9.1).
  - e. Nonsafety-related material was found stored in a safety-related storage area (Section 2.9.1).
  - f. Quality control surveillances of temporary safety-related storage areas were not accomplished on the required monthly basis (Section 2.9.3).
5. 10 CFR 50, Appendix B, Criterion VI, as implemented by QAM, Section 7, requires that measures be established to control issue of procedures and drawings and that changes to these documents be reviewed and approved by authorized personnel and distributed to the location of the prescribed quality activity.

Contrary to the above, the NRC inspectors found that the licensee's document control programs were not effectively implemented in that they:

- a. Failed to adequately control drawings used for construction (Section 2.3.1 and 2.3.6).
  - b. Failed to adequately control field changes to installation procedures (Section 2.3.2).
  - c. Failed to adequately control field changes to calibration procedures (Section 2.3.7).
  - d. Failed to provide the required review of a change to an operating procedure prior to implementation (Section 2.3.3).
  - e. Failed to provide training associated with a procedure change prior to implementing the change (Section 2.3.4).
6. 10 CFR 50, Appendix B, Criterion XVI, as implemented by QAM Section 17, requires that measures be established to assure that identified deficiencies adverse to quality are promptly identified and corrected.

Contrary to the above, the NRC inspectors found that:

- a. An adequate program for control of installation of lead shielding was not implemented after inspections by INPO in 1982 and 1984 that identified deficiencies in the program, and after issue of an IE Information Notice in 1983 addressing the installation of lead shielding (Section 2.10.1).
- b. No program existed for resolution of discrepancies identified by the System Acceptance Committee for those plant modifications accepted for system operation by the committee with outstanding discrepancies (Section 2.10.2).

7. 10 CFR 50, Appendix B, Criterion V, as implemented by QAM Section 6, requires that activities affecting quality be described by documented instructions, procedures or drawings and be accomplished in accordance with these instructions, procedures and drawings.

Fort Calhoun Technical Specifications, Section 5.8.1, requires that written procedures be established that meet or exceed the minimum requirements of ANSI N18.7-1972, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants," Section 5.3. ANSI N18.7, Section 5.3, requires that activities affecting safety be described by written instructions, procedures or drawings, and be accomplished in accordance with these instructions, procedures or drawings.

Contrary to the above, the NRC inspectors found that:

- a. The installation procedure for replacement of a nonisolable safety-related valve did not provide sufficient work step detail to assure adequate conduct of safety-related maintenance activities (Section 2.4.1). Associated problems were identified with completed valve replacement accomplished during this outage (Section 2.5.1).
- b. The installation procedure for installation of safety-related seismic instrumentation tubing did not provide installation criteria for the tubing or seismic supports and did not reference the applicable Stone and Webster guideline for installation of seismic tubing and supports (Section 2.4.1). The support requirements specified in the guideline were violated a number of times for one modification package installed during the outage (Section 2.5.2).
- c. An installation procedure which included makeup of a flanged joint did not provide instructions or provide reference to another instruction for proper makeup of a flanged joint (Section 2.4.1). Discrepancies were identified with the completed flange installation accomplished during this outage (Section 2.5.4).
- d. Safety-related cables were tie-wrapped to nonsafety-related cables in two electrical panels for one modification package installed during the outage (Section 2.5.5).
- e. Procedures did not provide adequate instructions for installation of air accumulator tanks, adequate instructions for protection of SIT relief valve O-rings during welding, adequate inspection requirements for welding of 4160/480 volt transformer bases, adequate criteria for inspection of cable splices, adequate requirements for verifying acceptance during a battery charger load test, or adequate requirements for testing of fuse protection for limit switches (Sections 2.4.1, 2.5.6, 2.8.1 and 2.8.2).

- f. Instances in which procedure requirements were not followed included passing a QC hold point prior to drilling stud holes through the battery room wall, using other than Level III inspectors to review and approve procedures, tagging out breakers without documented shift supervisor review, installing pipe unions incorrectly to SIT relief valves, and incorrectly identifying installed valves (Sections 2.4.2 and 2.5.3).