

APPENDIX D

CONSTRUCTION INSPECTION REPORT

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Reports: 50-445/85-13
50-446/85-09

Permit: CPPR-126
CPPR-127

Dockets: 50-445
50-446

Category: A2

Applicant: Texas Utilities Electric Company (TUEC)
Skyway Tower
400 North Olive Street
Lock Box 81
Dallas, Texas 75201

Facility Name: Comanche Peak Steam Electric Station (CPSES), Unit 1 and 2

Inspection At: Glen Rose, Texas

Inspection Conducted: August 23 through September 30, 1985

Inspectors: *H. S. Phillips* 12/17/85
Date
H. S. Phillips, Senior Resident Reactor
Inspector (SRRI), Construction, Region IV
CPSES Group (paragraphs 1, 2, 3, 4, 5, 6,
and 9)

Dennis L. Kelly 12/16/85
Date
D. L. Kelley, SRRI, Operations, Region IV
CPSES Group (paragraphs 1, 8, and 9)

D. E. Norman 12/17/85
Date
D. E. Norman, Reactor Inspector
Region IV CPSES Group
(paragraphs 1, 2, 4, 5, 6, 7, and 9)

Consultant: Parameter-T. H. Young

Reviewed by: I. Barnes 12/17/85
I. Barnes, Group Leader, Region IV CPSES Group Date

Approved: T. F. Westerman 12/23/85
T. F. Westerman, Chief, Region IV CPSES Group Date

Inspection Summary

Inspection Conducted: August 23 through September 30, 1985
(Report 50-445/85-13)

Areas Inspected: Routine, unannounced inspections of Unit 1 which included a review of plant status and applicant actions on previous NRC inspection findings. The inspection involved 24 inspector-hours onsite by 2 NRC inspectors and one consultant.

Results: Within the two areas inspected, no violations or deviations were identified.

Inspection Conducted: August 23 through September 30, 1985
(Report 50-446/85-09)

Areas Inspected: Routine, announced and unannounced inspections of Unit 2 which included review of plant status; plant tours; installation/storage of reactor pressurizer and piping; structural welding on CRD support platform; review of welding procedures; inspection of welding of safety injection piping; review of electrical/QC procedures and applicant actions on previous NRC inspection findings. The inspection involved 100 inspector-hours onsite by 3 NRC inspectors.

Results: Within the eight areas inspected, two violations (failure to establish procedures which describe control of deleterious materials around stainless steel piping and NSSS equipment, paragraph 4.a; failure to provide protection of equipment stored in place, paragraph 4.b) were identified.

DETAILS1. Persons Contacted

J. Merritt, Assistant Project General Manager, TUGCO
C. Welch, QA Supervisor, TUGCO
L. Smith, Engineer, Brown & Root (B&R)
W. Baker, Engineer, B&R
B. Wright, Engineer, B&R

The NRC inspectors also interviewed other applicant employees during this inspection period.

2. Construction Status

The percentage completion for Unit 1 and 2 is 99% and 77%, respectively. Current work on Unit 1 relates to Comanche Peak Response Team (CPRT) activities. Unit 2 work on large and small bore piping is about 95% complete. Electrical cable trays are 100% complete while seismic conduit and supports are about 97% and 89% complete, respectively. Cable pulling is about 78% complete. The heating and cooling ductwork and supports are about 93% and 60% complete, respectively.

3. Applicant Actions on Previous NRC Inspection Findings

- a. (Open) Unresolved Item (445/8226-06): Excessive deflections in supports.

The NRC inspector reviewed a study entitled "Piping Seismic Analysis - Parametric Study of Support Stiffness" dated March 31, 1983, which addressed stiffness and deflection questions and justified the equipment as designed. This item will remain open pending completion of NRC staff review of CPRT/Stone & Webster (S&W) design activities.

- b. (Open) Unresolved Item (445/8226-07): Stress analysis of pipe support No. CC-1-107-008-E23R.

The NRC inspector reviewed the background of this item on page 41 of NRC Inspection Report 50-445/82-26, 50-446/82-14, which showed the stiffness of the support to be 1/8th of the generic stiffness used in the original calculations. However, an NRC consultant (Dr. Chen) stated (during testimony before the ASLB in May 1983 Questions and Answers 19 and 20) that the value was 1/360th of the generic value. In addition, he stated that the mounting plate was increased to a thickness which increased the stiffness to an acceptable level.

Subsequently, TUGCO requested and made further modifications to mount the pipe support off of square tube steel instead of the stairway platform I beam. The NRC inspector requested the documentation for this modification but it was not immediately available. This item remains open pending a review of this documentation and completion of NRC staff review of CPRT/S&W design activities.

- c. (Open) Unresolved Item (445/8226-05): Moment restraints and local pipe stress due to welded stanchions on pipes.

The NRC inspector reviewed pages 38-40 of NRC Inspection Report 50-445/82-26 and 50-446/82-14 concerning this technical issue. In an affidavit dated October 14, 1983, page 1, Questions and Answers, NRC consultant (Dr. Chen) considered the applicant's work in this area acceptable. This item will remain open pending completion of NRC staff review of CPRT/S&W design activities.

4. Routine Plant Tours (Unit 2)

- a. At various times during the inspection period, the NRC inspectors conducted general tours of the reactor building, safeguards building, and electrical building. During the tours, the NRC inspector observed housekeeping practices, preventive maintenance on installed equipment, ongoing construction work, and discussed various subjects with personnel engaged in work activities.

The NRC inspector observed that the cleanliness controls in the reactor building does not appear to be well defined. For example, during the previous inspection period (June 22 through August 22, 1985), the NRC inspectors found evidence of chewing tobacco and cigarette butts on the 905 feet elevation of the reactor containment building (RCB). This was pointed out to the applicant management at the previous exit interview. During this inspection period, cigarette butts were again found in the area around the pressurizer head on this 905 feet elevation, on the top of the control rod drive seismic support platform, and scattered throughout the RCB. The applicant is not committed, however, to the housekeeping practices defined in ANSI N45.2.3.

Gibbs and Hill Specifications 2323-MS-100 and 2323-MS-101 dated July 5, 1984, address the subject of contamination through use of temperature crayons, machinery lubricants/coolants, instruments containing mercury, temporary plugging with rags, taping and the prohibition of halogens, copper, low melting point metals (lead, zinc, cadmium, tin, antimony, bismuth, sulfur and mischmetals).

The NRC inspector contacted the B&R welding organization to inquire where the control of such materials was discussed (QA or working

procedures). After a brief review they found that one paragraph discussing the subject of mercury had been unintentionally deleted from General Piping Procedure CP-CPM-69, Appendix E.3.2. Personnel in the applicant's site QC department were also contacted to identify procedures which address protection and preservation. B&R Procedure MCP-10, Revision 9, dated July 2, 1985, was identified as the procedure with such controls. These procedures do not adequately address material/personnel control to prevent contamination and also do not reference use of only materials which have been procured in accordance with Gibbs & Hill specification requirements.

This failure to establish such procedures is a violation of Criterion XIII of 10 CFR Part 50, Appendix B (446/8509-V-02).

- b. In reactor building room 16 near the bottom of the pressurizer, the NRC found a wooden two by four which had been laid across 3/4-inch line RC-2-095-2501-R-2 to serve as a step. The wooden step was about one and one half feet from where this line enters the tank. The use of such personnel supports is prohibited without engineering approval, and is a violation of Criterion V of 10 CFR Part 50, Appendix B, and B&R procedure MCP-10 (446/8509-V-03).
- c. Cleanliness in the area of the pressurizer from the 905 to 854 feet elevation was inspected. As discussed previously, tobacco was observed and a sign was also noted in the reactor building elevator which prohibited tobacco or food at the 905 feet elevation. At the bottom of the pressurizer a used grinding wheel and wire brush were found, yet no visible work had recently occurred. Since such uncontrolled or unaccounted for tools could potentially be used interchangeably on stainless and carbon steel, this subject was brought to the applicant's attention. Region IV will continue to monitor the applicant's cleanliness controls.

5. Reactor Pressurizer and Piping, Housekeeping and Welding

The NRC inspector reviewed FSAR Volume VI, Section 5.0, "Reactor Coolant System & Connected Systems", Subsection 5.4.10, which describes the pressurizer system design bases, design analysis and performance characteristics, test, and inspection.

"Flow Diagram Reactor Coolant System Sheet 2 of 2" shown on Drawing No. 2323-M2-0251, Revision CP-1, was used to physically trace all piping entering into the pressurizer dome. Both pressurizer spray lines were traced to the 860 foot elevation and one was traced to the cold leg of Loop 4 of Steam Generator No. 4. All piping was traced up to the inlets of the three safety relief valves (2-8010A, B and C) and two power operated relief valves (2 PCV-455 and 456). Approximately 100 welds within this system were visually inspected for surface condition. No

unacceptable surface conditions were found in this system except as follows:

The NRC inspector determined that welding performed on a hanger base plate located above completed weld No. 42 in 6-inch line RC-2-09b-2501R-1 had caused deposition of carbon steel weld spatter on the surface of the stainless steel piping line. This failure to adequately protect equipment from construction damage is a violation of Criterion V of 10 CFR Part 50, Appendix B, and B&R Procedure MCP-10, Revision 9, dated July 2, 1985, (446/8509-V-03).

6. Structural Steel Welding on Control Rod Drive Seismic Support Platform

The NRC inspector observed structural welding on the platform. Messenger wire posts were installed on top of the platform and NDE personnel were liquid penetrant testing the welds which connected these posts to the top of the platform in accordance with Drawing 2323-S2-0599-19, Revision 0. The drawing symbol showed a 1/4-inch fillet weld all around the post base which connected it to the platform. The liquid penetrant test was accomplished in accordance with B&R Procedure QI-QAP-10.2-1, Revision 3, February 18, 1983. Welding Data Card Serial No. 004167, Traveler MW 85-7330-6802, and Design Control Authorization 23203 R.O. controlled these work activities.

The applicant's inspectors had inspected weld No. 2 for cleanup, fitup, preheat, final ultrasonic testing (IOM 25944), and liquid penetrant testing was in process. Welding was accomplished in accordance with Weld Process Specification 11032.

No violations or deviations were identified.

7. Safety-Related Piping

a. Procedures and Instructions

This inspection was conducted to verify the adequacy of documents used by the site contractor for field welding of safety-related piping. The NRC inspector reviewed QA and other welding related documents to determine whether QA plans, instructions, and procedures had been established and whether procedures had been established for preparing, qualifying, distributing and revising welding procedure specifications (WPSs). Two WPSs and supporting procedure qualification records (PQRs) were reviewed to determine whether stated welding variables and mechanical tests complied with requirements of the applicable editions of Sections III and IX of the ASME Code. The following documents were reviewed during the inspection:

B&R QA Manual, Section 10, October 31, 1984, "Control of Special Processes"; CP-CPM-6.9, Revision 2, November 7, 1980, "General Piping Procedure"; QI-QAP-11.1-26, Revision 17, August 17, 1985, "ASME Pipe Fabrication and Installation Inspections"; WES-030, Revision 2, July 19, 1984, "Specification for Control, Testing and Documentation of Weld Procedures Qualifications"; Index of CPSES Welding Procedures, April 15, 1985; WPS 88012, Revision 7, October 10, 1984 and PQR 0809AB203, Revision 6, March 14, 1980, "Gas Tungsten Arc and Shielded Metal Arc Process"; and WPS 88032, Revision 9, October 22, 1984, and PQR 0808BB112, Revision 4, February 12, 1981, "Shielded Metal Arc Process."

b. Observation of Work

The NRC inspector inspected a 24-inch line at the 815 feet elevation. At this location, the pipe exits the refueling water storage tank and goes down into the pipe tunnel as shown on Drawing 2323-A2-0500. Work had been stopped on SI-2-YD-02.2 because of a mixup on paperwork for welding one 1-inch plate identified as SI-2-0029-412-Y42R. Subsequent followup of this item revealed that Nonconformance Report (NCR) 18651 had been written to correct the paperwork problem.

No violations or deviations were identified.

8. Review of QA Manual - Electrical

The NRC inspector began a review of the applicant's QA/QC program and procedures relating to the installation of electrical components and cables. The areas covered in the review are organizational structure and personnel; audits; quality requirements; work and quality inspection procedures; control of material; control of processes; corrective action; document control; test control and control of test equipment; quality records; and onsite design control.

This portion of the inspection was conducted to identify the QA/QC program specifics and procedures which pertain to the installation of electrical components and cables. The program and procedures were then compared to the commitments contained in Sections 7, 8, and 17 of the FSAR and 10 CFR 50, Appendix B, to determine if the program and procedures adequately addressed the required criteria.

To date, the following have been reviewed; Sections 7, 8, and 17 of the applicant's FSAR; TUGCO/TUSI(now TNE) CPSES QA Plan; B&R Quality Assurance Manual; B&R Quality Assurance Procedures Manual; and implementing Procedures CP-QP-2.0, Revision (R)-1; CP-QP-2.1, R-18; QI-QP-2.1-23, R-0; CP-QP-2.2; R-2, CP-QP-3.0, R-15; CP-QP-6.0, R-8; CP-QP-7.1, R-12; CP-QP-11.3, R-4; QI-QP-11.3-24, R-14; QI-QP-11.3-25, R-23; and QI-QP-11.3-26, R-23, (in part).

One other aspect that will be included in the present and subsequent reviews and inspections will be to determine if the "lessons learned" on Unit No. 1 have been incorporated into the Unit No. 2 QA/QC inspection programs and procedures. Thus far, review has begun in the following areas: organization and structure (personnel is ongoing); quality requirements; work and quality inspection procedures; corrective actions; document control; and quality records. The remaining areas are yet to be started. To date, no problem areas have been encountered.

No violations or deviations were identified.

9. Exit Interview

An exit interview was conducted October 4, 1985, with the applicant representatives identified in paragraph 1 of Appendix E of this report. During this interview, the NRC inspectors summarized the scope and findings of the inspection. The applicant acknowledged the findings.