



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

Enclosure

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION

NRC Inspection Report: 50-445/89-13
50-446/89-13

Permits: CPPR-126
CPPR-127

Dockets: 50-445
50-446

Category: A2

Construction Permit
Expiration Dates:
Unit 1: August 1, 1991
Unit 2: August 1, 1992

Applicant: TU Electric
400 North Olive Street, L.B. 81
Dallas, Texas 75201

Facility: Comanche Peak Steam Electric Station (CPSES)
Units 1 and 2

Inspection At: Comanche Peak Site, Glen Rose, TX

Inspection Review Period: December 5, 1988 through January 27, 1990

Inspector: Cordell C. Williams Feb. 2, 1990
Cordell C. Williams, Technical Assistant to the Director
Comanche Peak Project Division
Office of Nuclear Reactor Regulation
Date

Reviewed by: for Christopher I. Grimes 2/2/90
Christopher I. Grimes, Director
Comanche Peak Project Division
Office of Nuclear Reactor Regulation
Date

Inspection Summary:

Inspection conducted intermittently: December 5, 1988 through January 27, 1990
(Report 50-445/89-13; 50-446/89-13)

Areas Inspected: Announced, special inspections on previously identified ASME Code inspection findings, QA/QC program and implementation; Reactor Coolant System Hydrostatic Test issues; ASME Code Section XI, Unit 1 and common system Rerating Program implementation issues; Fastener Material Issues associated with NRC Bulletin No. 87-02; Diesel Starting Air Accumulator Rework; and other construction-related issues.

Results: Within the areas inspected, no violations or deviations were identified. During the course of this inspection, no particularly notable strengths or weaknesses in TU Electric's activities were identified. The inspector observed that the extraordinarily complex and time-consuming implementation of the Unit 1 and common repair and rerating program was executed skillfully and in complete compliance with the ASME Code, engineering, documentation, QA/QC, and record-maintenance requirements.

DETAILS

1. Persons Contacted

W. J. Cahill, Executive Vice President, Nuclear, TU Electric
G. Bynog, Assistant Chief Inspector, Texas Department of Labor and Standards
*B. Gard, Attorney, CASE
*W. G. Guldmond, Manager-Onsite Licensing, TU Electric
*Roger Ferguson, Engineer, TU Electric
*T. Heatherly, Compliance Engineering, TU Electric
*C. B. Hogg, Chief Engineer, TU Electric
*R. T. Jenkins, Manager, Mechanical Engineering, TU Electric
*O. W. Lowe, Director of Engineering, TU Electric
*F. W. Madden, Mechanical Engineering Manager, TU Electric
*S. M. Matthews, Director and Chief Inspector, Texas Department of Labor and Standards
*E. Ottney, Project Manager, CASE
*S. Palmer, Project Manager, TU Electric
#R. Bryan, Inspector, Texas Department of Labor and Standards
*D. A. Ringle, Nuclear Licensing, TU Electric
*J. F. Streeter, QA Manager, TU Electric
*M. Skagg, ASME Code Coordinator, TU Electric
*B. Walker, Inspection Specialist, Texas Department, Labor and Standards
*R. Walker, Manager-Nuclear Licensing, TU Electric
*B. Walker, Senior Inspection Specialist, Texas Department of Labor and Standards

*Denotes personnel present at the August 11, 1989 exit meeting.

#Denotes working meeting conducted at the Texas Department of Licensing and Regulation, office on October 13, 1989.

The NRC inspector and the TDLS Chief Inspector also interviewed other applicant employees during this inspection period. Subsequently, it was determined that this reporting period would end with the completion by TU Electric of the ASME Section XI Unit 1 and Common program and the final report of the Bolting Material Investigation which was reviewed by NRC on January 26, 1990.

2. Action on Previous Inspection Findings (92701)

- A. (Closed) CPRRG items number ID-23 (adequate QC procedures for QA/QC inspectors to witness transfer of material identification during construction activities), and ID-63 (verify adequate material identification and traceability program for earlier work) were examined and verified to have been acceptable during the inspection period documented in NRC Inspection Report No. 50-445/88-61 and 50-446/88-57. However, they were inadvertently omitted from the report. The examination and closeout of these issues by NRC and the Texas Department of Labor and Standards (TDLS) is documented by NRC memorandum dated February 10, 1989 and TDLS Letter Matthews/Cahill, dated February 27, 1989 which are attached hereto as Exhibits Numbers 1 and 2, respectively.
- B. (Closed) Violation (8432-V-02): This violation involved the "regular review of the status of the QA program." It was subsequently addressed in NRC Inspection Report 50-445/86-03; 50-446/86-02. NRC has reviewed TU Electric Response Letter TXX-6144 and the related examinations by CPRT (ISAP VII.a.5 and ISAP VII.a.4). Based on this NRC examination activity, this matter is considered acceptably resolved.
- C. (Closed) violation (8432-V-03): This issue involved "Failure to Establish and Implement a Comprehensive System of Planned and Periodic Audits;" the Inspector has reviewed the substance of this issue as documented in the subject report and NRC Inspection Report 50-445/86-03; 50-446/86-02; and TU Response Letter TXX-6144 dated February 2, 1987. This issue was also evaluated in substance in CPRT ISAP VII.a.4. As a result of this inspector's evaluation, this matter is considered closed.
- D. (Closed) Open Item (445/8903-0-02; 446/8903-0-01): The remaining issue of this matter involves TU Electric Corrective Action Report (CAR) No. 88-035 (fastener materials). The details of TU Electric's activities to comprehensively address this issue and provide further assurance that safety-related fasteners are capable of performing their safety-related function, are outlined in the engineering report referenced by TU Electric Letter TXX-90049, File No. 903.9, dated January 26, 1990. NRC staff has examined this TU Electric Engineering report and concluded that TU Electric has adequately demonstrated that the subject fasteners are acceptable.

As documented in the NRC inspection reports referenced above in TU Electric corrective action report (CAR) Number 88-35 in response to NRC Bulletin 87-02, a significant number of safety-related and non-safety related fasteners of questionable quality and quality documentation were purchased from Aircom Fasteners, Inc. (AIRCOM), a fastener distribution company.

TU Electric tested 96 of the fasteners from AIRCOM which had not been installed in the plant for conformance to specification requirements. As is documented in the TU Electric and NRC documents referenced above, minor deviations from specification requirements for chemical and physical properties were noted and evaluated. TU Electric determined, as reported in the engineering report referenced above, that, based on the testing and engineering evaluation performed, there is "reasonable assurance that AIRCOM fasteners which were installed or intended for installation in a safety-related application will perform their design functions".

TU Electric subsequently selected a "representative" sample of 200 fasteners, which were installed in electrical raceway support systems. TU Electric reported that the selection of these additional bolts was biased to a subset in which the existence of bolts purchased from Aircom Fasteners Inc. was likely to occur. The selection was limited to safety related raceway and control (I&C) support commodities. Based on a review by TU Electric of the intended use specified on Aircom Purchase Orders, these were areas where a majority of the fasteners were installed during the time period of 1979 through 1983. These 200 fasteners were removed and subjected to physical and chemical testing, as were the initial 96 fasteners noted above, to determine if they met the purchase order and specification requirements. As a result of chemical and physical testing of this sample of 200 previously installed fasteners, it has been demonstrated that these fasteners (with very minor exceptions) met the requirements of the specification and are adequate for the intended service. That is, TU Electric determined that the materials, as tested, have been found acceptable for use in their intended function. Deviations from specification as found and documented in the reference engineering report, are well within the bounds of previous test results and have no safety significance and do not impact the bolts' design functional requirements.

Among other activities, as documented by the NRC inspection reports identified above, NRC representatives witnessed the testing of a portion of these additional 200 fasteners at Southwestern Laboratories on October 30 and November 1, 1989 and observed that all testing was in accordance with standard industry practices and procedures.

It is noted that during the installation of Cable Tray and support fasteners, the "turn-of-the-nut" method of fastener tensioning was specified and used. This bolt tensioning methodology is such that

if there were significantly nonconforming fastener materials used during these installations, the fasteners would have most probably failed during tensioning, resulting in their being discarded.

The TU Electric examination of this matter determined that in one very narrow nonsafety-related area, carbon steel fasteners were used where stainless steel fasteners were specified. This appears to have been an error. Additionally, in several very limited applications, AIRCOM fasteners were used in installations governed by the ASME Code. For each of these cases, the corrective action taken by TU Electric required the removal of the AIRCOM fasteners and replacement with fasteners fabricated in accordance with the specified design requirements. Based on the NRC inspector's review of the foregoing, TU Electric has adequately demonstrated that there are no identified construction deficiencies resulting from the issues involving fasteners supplied by AIRCOM. This matter is closed.

- E. (Closed) Issue concerning ASME Section XI VT-2 Hydrostatic Test and Examinations of Unit 1 Reactor Coolant System: On December 5, 1989 the staff conducted a meeting onsite to establish the commitment and criteria for the subject ASME Section XI VT-2 Hydrostatic Test. The commitment and criteria to perform these tests were established by TU Electric Letter Log No. TXX-89007 dated January 11, 1989 and TXX-87150 dated April 10, 1989. This issue is also discussed in TU Electric SDAR-88-03. The hydrostatic test was acceptably completed on May 24, 1989. NRC findings are documented in the NRC response to the dispute between CASE and TU Electric regarding this issue dated August 18, 1989 and NRC Inspection Report No. 50-445/89-22; 50-446/89-22. All areas met the requirements of the ASME Code.

3. ASME Section III and Section XI Certification Activities for Unit 1 and Common Systems

On March 21, 1989, TU Electric established an ASME Code task force agenda to address the ASME Section III and Section XI certification of Unit 1 and common systems. NRC and the representative of the Texas Department of Licensing and Regulation (TDLR) discussed the scope of TU Electric's considerations with the TU Electric ASME Task Manager, Mr. M. Skaggs. No issues of concern were identified. It was noted that comprehensive plans for development of procedures and an adequate organization for their implementation were well under development. The NRC inspector and the TDLR inspectors reviewed and examined the scope and content of the TU Electric "Project NIS-2" presentation of April 27, 1989 and the various documented procedures related to this effort.

As a result of these activities and discussions with TU personnel, NRC and TDLR inspectors concluded that all associated engineering, construction, quality assurance and documentation requirements of 10 CFR Part 50.55.a, Texas Boiler Law, the CPSES FSAR and the CPSES QA Plan were being appropriately addressed in this process. These issues were intermittently examined

by NRC, TDLR and the authorized Nuclear Inspector throughout their development and implementation. No process deficiencies requiring NRC action were noted.

A. NRC and the TDLR inspectors reviewed and examined the following procedures and documents:

- (1) Nuclear Engineering Operations Procedure 2.26 "CPSES ASME Section XI Program."
- (2) "ASME Section XI Repair and Replacement Activities," Procedure ECE 2.26-04, Rev. 1.
- (3) "ASME Section XI Repair and Replacement of Component Supports for Unit 1 and Common," Procedure ECE 2.26-06, Rev. 1.
- (4) Project Procedure No. PP-074, Rev. 1, "Engineering and Design Requirements for ASME Repairs and Replacements."
- (5) ASME NIS-2/N5 (form) Completion Punch List. (Exhibit 3, attached).
- (6) Pipe Support Stress Reconciliation NIS-2 documents dated August 3, 1989.
- (7) "ASME Section XI Rating Activities," Procedure No. ECE 2.26-07, Rev. 0. (Comments by TDLR and NRC, letter Matthews/Cahill dated February 6, 1989).
- (8) "Procurement of N/NV Stamped Components from Sources Other Than Prime Vendors," Procedure ECE 6.02-01 Rev. 1.

NRC and TDLR found these documents to be appropriately comprehensive. Where comments were identified by the inspectors, the applicant resolved each issue satisfactorily.

B. During the period of TU Electric's implementation of these ASME code-related activities, NRC and TDLR regularly reviewed their progress and its adequacy. No substantive discrepancies were noted during any of the detailed reviews and examinations.

Among other TU Electric activities, the NRC Inspector examined:

- (1) NIS-2 status by stress problem completion, intermittently throughout the course of this work. No problems were noted.
- (2) Information for Pipe Stress Analysis (IPSA) for the demineralized and reactor water make-up system and the associated Connectivity Diagrams System No. 1000.

- C. As a result of this effort by TU Electric, the NRC inspector noted that more than 800 Stress Problems were addressed during the implementation of the ASME Section XI NIS-2 and related programs. As of August 11, 1989, approximately 75% of this work was complete and a significant percentage by the "packages" were vaulted (placed in storage). During discussion with the State of Texas (TDLR) Inspectors, they reported that their independent examination of TU Electric's ASME Section XI activity indicated conformance to the requirements of the ASME Code throughout the implementation of this program.
- D. As indicated above no outstanding issues were identified by NRC during these examinations and this matter is considered complete.

4. ASME Code Case Acceptability

TU Electric Letter Log No. TXX-89802 File No. 10010, dated December 15, 1989 addresses issues concerning ASME Code Case acceptability disclosed by the implementation of the CPSES Code Control Program. The issues involve the timing of the inclusion of the subject cases in the ASME Code. NRC staff has reviewed this letter and agrees with the conclusion that invoking the subject Code Cases is acceptable for Units 1 and 2. The Director and Chief Inspector, Texas Department of Labor and Standards has indicated that TDLR concurs in TU Electric's reasoning in this regard. NRC has no further questioning regarding this matter and considers the issue closed.

5. Diesel Generator Air Start Receivers

On March 23, 1989 the staff and TU Electric conducted a meeting to discuss the resolution of weld quality issues involving the Diesel Generator Air Start Receivers. This issue was initiated by Construction Deficiency Report (CDR) 87-6845, which documented missing radiographs for welds J-1 and J-2 on Diesel Generator Starting Air Receiver CPI-MEATR-01. Subsequently, the subject longitudinal weld joints J1 and J2 were radiographed. Coincidentally, the circumferential welds intersecting joints J1 and J2 were noted to contain linear indications of defects. These circumferential welds were not required to be radiographed by the ASME Code during fabrication. Subsequent to the discussions on February 14, 1989, TU Electric committed to radiograph the circumferential welds on all of Diesel Air Start Receivers to verify weld quality and to repair (Rework) all girth welds judged to require repair.

Subsequently, the NRC inspector monitored the rework of each of the Diesel Air Start Receivers. Initially, there were problems noted in the repair welding which were properly addressed by quality and engineering procedures and personnel. The NRC Inspector reviewed the final radiographs of the welds; quality documentation associated with those repairs and observed the final weldments during the August 9 and 10, 1989 portion of this inspection. No nonconformances or open items were identified. TU Electric

evaluated this matter for reportability (SN-443, references: NCRs 88-12640 and 88-12708) and concluded that it was not reportable. The NRC staff has reviewed the applicants evaluation and concludes that this matter is resolved.

6. Exit Meeting..(30703)

During this inspection, several interim "working briefings" were conducted with TU Electric's staff and management. The formal exit was conducted August 11, 1989 with the subsequent understanding that issuance of this report would be postponed pending the substantial completion of the Section XI NIS-2 documentation reconciliation program and completion of TU Electric's Fastener Material assessment commitments. The final TU Electric report involving installed bolting material was received by NRC staff January 26, 1990. TU Electric has not identified as proprietary any of the materials provided to or reviewed by NRC inspectors during this inspection. During these meetings, the NRC inspector summarized the scope and findings of the inspection.

Bucket Nos. 50-445/446

MEMORANDUM FOR: Phillip F. McKee, Deputy Director
Comanche Peak Project Division
Office of Nuclear Reactor Regulation

FROM: Cordell C. Williams, Technical Assistant
Comanche Peak Project Division
Office of Nuclear Reactor Regulation

SUBJECT: STATUS OF CLOSE-OUT OF CPRRG RECOMMENDATIONS

The following CPRRG Recommendations have been examined at the site and closed:

Construction QA Issues

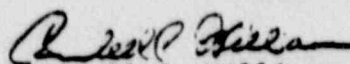
- A. ID Number 23 - Adequate QC procedures for QA/QC inspectors to witness transfer of material identification during construction activities.
- B. ID Number 63 - Verify adequate material identification and traceability program for earlier work.

Spool Piece Components

- C. ID Number 51 - CVCS spool pieces properly identified during construction and currently.
- D. ID Number 62 - Inspect other field fabricated spool pieces.

Items A through D above have all been examined and resolved. Items C and D (ID 51 and 62) were specifically closed in Inspection Report No. 50-445/88-61 and 50-446/88-57. Items A and B (ID 23 and 63) are closed and will be specifically addressed during the next NRC report addressing ASME program issues.

Original Signed by:



Cordell C. Williams, Technical Assistant
Comanche Peak Project Division
Office of Nuclear Reactor Regulation

cc: C. Grimes
R. Warnick



Texas Department of Labor and Standards

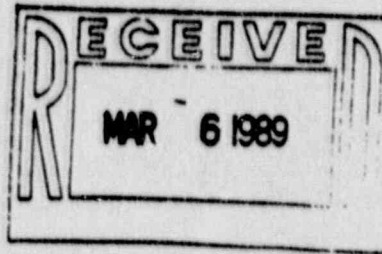
REPORT 89-13
Exhibit-2

E.O. Thompson State Office Building
P.O. Box 12157, Austin, Texas 78711

William P. Clements, Jr.
Governor

Richard L. Morgan
Commissioner

February 27, 1989



W. J. Cahill
Executive Vice President
TU Electric
400 North Olive Street, LB-81
Dallas, Texas 75201

Re: Comanche Peak Steam Electric Station (CPSSES)

Subject: CPRG (NUREG-1257) Issue #1 and #4

Dear Mr. Cahill:

This office has reviewed and evaluated the subject items that are further referenced as recommendation ID 21, 23, 51, 62, & 63. All of these items have been evaluated and are considered closed. Please note that in NRC/TDLS Joint Inspection Report 50-445/88-61, 50-446/88-57 at paragraph 2.e., items identified as 51 and 62 were reported as closed.

If any questions arise pursuant to this item, please advise.

Sincerely,

Steven M. Matthews
Program Manager & Chief Inspector
Boiler Section
(512) 463-2904

SMM:clg

cc: Chris Grimes, NRC/OSP
R. F. Warnick, NRC/Site ✓

Date 4/26/89
Page 1 of 4

Legend: ACD
(ECD)

NIS-2/N-5 COMPLETION PUNCHLIST

System DIESEL GEN. Number Of Stress Problems 41
System No. 2900 System 002 Date 5/31/89

GENERIC WORK ITEMS	Responsible Organization	STRESS PROBLEM NUMBERS													
		1-165A	1-165B	1-165C	1-165D	1-165E	1-165F	1-165G	1-165H	1-165I	1-165J				
1. Complete Construction	Const.	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89
2. 79-14 Walkdown	Engr.	10/7/88	8/26/88	8/26/88	8/26/88	8/26/88	8/26/88	8/26/88	8/26/88	8/26/88	8/26/88	8/26/88	8/26/88	8/26/88	8/26/88
3. Issue Loads/Stress	Engr.	12/22/88	(4/12/89)	(5/12/89)	(5/12/89)	(5/12/89)	(5/12/89)	(5/12/89)	(5/12/89)	(5/12/89)	(5/12/89)	(5/12/89)	(5/12/89)	(5/12/89)	(5/12/89)
4. Equip. Qual/EFLT'S	Engr.														
5. Valve Qual.	Engr.														
6. Support Review "Issue Mods"	Engr.														
7. Complete Post Mod. Construction	Const.														
8. Complete Pressure Testing	Const.	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89	4/14/89
9. QC Documentation Reviews	QC														
10. Confirmation Closure	Engr.														
11. Issue VCD's	Engr.														
12. Mech. Design Reconciliation	Engr.														
13. As-built Confirmation	Engr.	N/A													
14. Issue Stress Reports (Class 1)	Engr.	N/A													
15. Complete Surveillances (n-5 Only)	CCG	N/A													
16. Complete Documentation Reviews (N-5 Only)	CCG	N/A													
17. Maint. Activities Affecting Certification	Maint.														
18. Issue Certification Letter	Engr.														
19. Perform N-5 Walkdown	QC	N/A													
20. Complete Punchlist Items Page(s) 1 thru	AI														
21. Prepare NIS-2	QC/CPE														
22. Prepare N-5	QC	N/A													

See Page(s) thru for status of each Support, DRP and/or Equipment within Stress Problem boundary.

