

U. S. NUCLEAR REGULATORY COMMISSION

OFFICE OF SPECIAL PROJECTS

NRC Inspection Report: 50-445/88-09  
50-446/88-07

Permits: CPPR-126  
CPPR-127

Dockets: 50-445  
50-446

Category: A2

Construction Permit  
Expiration Dates:  
Unit 1: August 1, 1988  
Unit 2: Extension request  
submitted.

Applicant: TU Electric  
Skyway Tower  
400 North Olive Street  
Lock Box 81  
Dallas, Texas 75201

Facility Name: Comanche Peak Steam Electric Station (CPSES),  
Units 1 & 2

Inspection At: Comanche Peak Site, Glen Rose, Texas

Inspection Conducted: February 3 through March 1, 1988

P. C. Wagner 3/11/88  
P. C. Wagner, Reactor Inspector Date

Reviewed by: H. H. Livermore 3-11-88  
H. H. Livermore, Lead Senior Inspector Date

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PDR ADOCK 05000445  
Q PDR

Inspection Summary:

Inspection Conducted: February 3 through March 1, 1988  
(Report 50-445/88-09; 50-446/88-07)

Areas Inspected: Unannounced, resident, safety inspection of applicant's actions on previous inspection findings, the Corrective Action Program, revisions to the FSAR, and general plant areas (tours).

Results: Within the areas inspected, no specific strengths or weaknesses in the applicant's program were identified. During the inspection, no significant safety matters violations or deviations were identified. A meeting with applicant personnel was held to obtain clarification to details in the Instrument and Controls Project Status Report.

DETAILS1. Persons Contacted

- \*R. P. Baker, EA Regulatory Compliance Manager, TU Electric
- \*J. L. Barker, Manager, EA, TU Electric
- \*D. N. Bize, EA Regulatory Compliance Supervisor, TU Electric
- \*M. R. Blevins, Manager, Technical Support, TU Electric
- \*J. L. Brackney, Project Manager, Records, TU Electric
- \*R. D. Calder, Manager Engineering Projects, TU Electric
- \*J. T. Conly, Lead Licensing Engineer, SWEC
- \*W. G. Council, Executive Vice President, TU Electric
- \*G. G. Davis, Nuclear Operations Inspection Report Item Coordinator, TU Electric
- \*R. D. Delano, Licensing Engineer, TU Electric
- \*D. E. Deviney, Manager, Operations QA, TU Electric
- \*D. P. Hall, Vice President, Illinois Power Company
- \*T. L. Heatherly, EA Regulatory Compliance Engineer, TU Electric
- \*J. J. Kelley, Manager, Plant Operations, TU Electric
- \*F. W. Madden, Mechanical Engineering Manager, TU Electric
- \*D. M. McAfee, Manager, Quality Assurance (QA) TU Electric
- \*J. W. Muffett, Manager of Civil Engineering, TU Electric
- \*L. D. Nace, Vice President, Engineering & Construction, TU Electric
- \*D. E. Noss, QA Issue Interface Coordinator, TU Electric
- \*D. M. Reynerson, Director of Construction, TU Electric
- \*M. J. Riggs, Plant Evaluation Manager, Operations, TU Electric
- \*A. B. Scott, Vice President, Nuclear Operations, TU Electric
- \*C. E. Scott, Manager, Startup, TU Electric
- \*J. C. Smith, Plant Operations Staff, TU Electric
- \*M. R. Steelman, CPRT, TU Electric
- \*P. B. Stevens, Manager, Electrical Engineering, TU Electric
- \*J. F. Streeter, Director, QA, TU Electric
- \*R. O. Taylor, Nuclear Records and Computer Services Manager TU Electric
- \*C. L. Terry, Unit 1 Project Manager, TU Electric
- \*T. G. Tyler, Director of Projects, TU Electric
- \*R. D. Woodlan, Supervisor, Docket Licensing, TU Electric
- \*L. G. Yeager, Engineering Support Manager, TU Electric

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

\*Denotes personnel present at the March 1, 1988, exit meeting.

2. Applicant Action on Previous Inspection Findings (92701)

- a. (Closed) Open Items (445/8704-0-01 through -06, and -08 through -26): Safety Significance Evaluation (SSE)

review findings. The Comanche Peak Response Team (CPRT) performed a SSE on each of the deviating conditions disclosed during the third party inspections in order to establish the safety significance of the finding. The NRC inspectors reviewed a sampling of the SSEs (approximately 550) and determined that additional information was needed on 26 issues which were designated to be Open Items. In response to the request contained in the transmittal letter for the inspection report, the applicant provided additional information to those Open Items in letters dated December 18, 1987, and January 29, 1988. The NRC approval of the additional information was contained in our letter dated February 11, 1988, from R. Warnick to W. Council.

The final item (445/8704-0-07) will remain open pending our review of the recommendations resulting from Issue Specific Action Plan (ISAP) VII.a.9, which was referenced in the responses to this item.

- b. (Closed) Open Item (445/8730-0-05; 446/8722-0-05): Leak testing of valve isolation tanks' electrical penetration assemblies (EPAs). The inspector, during a review of the design changes to the electrical erection specification, observed that the leakage rate testing requirements for the subject EPAs had been deleted. Further review showed that the applicant had earlier amended the FSAR (Amendment 38) to remove the valve isolation tanks and the associated guard pipes as part of the containment pressure boundary. The NRC technical staff agreed with the applicant's position on deleting the EPA leak testing requirements in the approval of the FSAR change and by rereview of the applicant's position to present requirements.

3. Corrective Action Program (CAP)

Instrumentation and Controls (I & C) (52051)

The inspector reviewed the I & C Project Status Report (PSR) which was submitted to the NRC by TU Electric letter dated February 1, 1988. The review was conducted in order to determine the breadth of the physical reinspection efforts to be conducted as part of the Post Construction Hardware Validation Program (PCHVP). The PSR presented the results of the design validation and the actions required to ensure that the validated design, as presented in the Design Basis Documents (DBDs), was appropriately implemented. The PSR stated that the I & C portion of the CAP implemented for Unit 1 and Common safety-related instrumentation and controls (including the post accident monitoring instrumentation) included validation of the following systems:

Containment Spray  
 Auxiliary Feedwater  
 Component Cooling Water  
 Service Water  
 Safety Chilled Water  
 Reactor Vessel Head Vent  
 Containment Isolation  
 Combustible Gas Control  
 Radiation Monitoring  
 Emergency Diesel Generator  
 Diesel Generator Fuel Oil  
 Main Steam/Steam Dump  
 Feedwater  
 Fuel Pool Cooling and Purification  
 Demineralized/Reactor Water Makeup  
 Primary Sampling  
 Containment HVAC  
 Containment Air Cleanup  
 Safeguards Building Supply and Exhaust  
 Diesel Generator Building Ventilation  
 Electrical Area HVAC  
 Main Steam and Feedwater Area Ventilation  
 Auxiliary Building HVAC  
 Fuel Handling Building Ventilation  
 Control Room Air Conditioning  
 Uncontrolled Access Area Ventilation  
 Primary Plant Ventilation  
 Service Water Intake Structure Ventilation  
 Uninterruptible Power Supply Area Air Conditioning  
 6.9 kV Electrical Power System  
 480 V and 120 V Electrical Power Systems  
 Uninterruptible Power Supply System  
 DC System  
 Reactor Coolant<sup>1</sup>  
 Safety Injection<sup>1</sup>  
 Chemical and Volume Control<sup>1</sup>  
 Residual Heat Removal<sup>1</sup>  
 Boron Recycle<sup>1</sup>  
 Liquid Waste<sup>1</sup>  
 Gaseous Waste<sup>1</sup>  
 Reactor Trip<sup>1</sup>  
 Engineered Safety Features Actuation<sup>2</sup>

<sup>1</sup>This is an NSSS designed system. SWEC instrumentation and controls has validated the design interface and is validating the as-built configuration of instrumentation and controls as part of the PCHVP.

<sup>2</sup>This is an NSSS designed and supplied system. The I & C portion of the CAP has validated the design interfaces.

The PSR contained a discussion of the resolution of specific issues related to I & C. The CPRT identified issues were described in Appendix A and the external source issues were described in Appendix B. There were 10 issues in Appendix A listed as Subappendix A1 through A10 and 13 issues in Appendix B listed as Subappendix B1 through B13.

The inspector also reviewed the following documents which were referenced in the PSR, to gain an understanding of the requirements being implemented:

- . Specification CPES-I-1018, Installation of Piping/Tubing and Instrumentation, Revision 1, dated October 19, 1987, as amended by Design Change Authorization (DCA) 63,665, Revision 2, dated January 24, 1988.
- . Field Verification Method, Safety/Non-Safety-Related Instrumentation and Tubing Connected to ASME III Fluid Systems and ANSI Safety Class Installation, CPE-SWEC-FVM-IC-069, Revision 2, as amended by Interim Change Notice (ICN) -01, dated December 7, 1987.
- . CPSES Installation Procedure ICP-4, Installation and Inspection of Instrumentation and Associated Tubing/Piping, Revision 9, dated August 13, 1987.
- . SWEC Letter SWTU-5177, dated December 10, 1987, Unidentified Sealant on NPT Threaded Joints in Instrumentation Systems

Since the inspector was concerned whether the subjects of Subappendix A4, "Instrument Equipment Installation," were being adequately resolved, a meeting with applicant personnel was requested. The Subappendix A4 addressed the issues of Teflon tape and Rectorseal thread sealants and flexible metal instrument hose assemblies. The PSR stated the following resolutions for these issues:

(1) Teflon Tape

SWEC determined that the two instruments with Teflon tape are not safety-related and that the Teflon tape on these instruments was applied by the same vendor prior to shipment. There is a diaphragm seal between the instrument and the pipe. The failure of the Teflon tape will not cause failure of the diaphragm seal, thus the pressure boundary will be maintained. During the PCHVP, engineering walkdowns are being performed in accordance with FVM-IC-069 for safety-related systems to identify and evaluate the use of Teflon tape in instrumentation installations.

(2) Rectorseal

An evaluation was performed (SWEC letter SWTU-5177) of chemicals contained in Rectorseal No. 5. This evaluation determined that the previous use of Rectorseal No. 5 is acceptable.

(3) Flexible Metal Instrument Hose Assemblies

SWEC, with vendor concurrence, has developed acceptance criteria for the installation of flexible metal instrument hose assemblies which are not based on anti-torque markings but rather on more reliable criteria which consider physical dimensions of the installation configuration. The instrumentation installation specification and installation drawings have been revised to reflect these installation acceptance criteria. FVM-IC-069 has been developed to identify, during the PCHVP, installed flexible metal instrument hose assemblies that do not meet requirements of the instrumentation installation specification. Those identified flexible metal instrument hose assemblies are being replaced.

The inspector asked for clarification of these resolutions during the meeting with applicant personnel which was held on February 24, 1988. Applicant personnel provided the following explanations:

- . If Teflon tape was visible on threaded connections, the walkdown engineer would note its existence on the walkdown checklist, the provision on the checklist to justify the acceptability of the Teflon tape would be handled through the NCR process. The engineer would insert the NCR number on the checklist blank for disposition.
- . The SWEC letter justifying the existence of Rectorseal on fittings that had previously been installed was meant to be a consolidation of other, referenced evaluations and not a stand-alone document. The applicant personnel agreed to consolidate the necessary information for future NRC review. NRC review of this information will be conducted as part of the ongoing I & C CAP inspection/review.
- . The revised flexible metal instrument hose acceptance criteria, which was incorporated into the specifications and drawings, was provided in the vendor's revised installation manual. The inspector's concern about the ease of evaluating

compliance with the new criteria will be addressed during future NRC inspection activities.

No Violations or deviations were identified.

4. Final Safety Analysis Report (FSAR) Review (37301)

The inspector reviewed Amendment 66 to the applicant's FSAR which was submitted to the NRC by letter dated January 15, 1988. The areas of interest included changes to the methods of compliance with Regulatory Guides related to radiation control, fuel storage, reactor coolant leakage, electrical separation, electrical cable and splices qualification, and emergency diesel generator fuel oil requirements. The inspector referred questions and comments developed as a result of his review to the NRC technical review staff for their consideration.

No violations or deviations were identified.

5. Plant Tours

At various times during this report period, the NRC inspector conducted inspections of the Unit 1 and 2 reactor, safeguards emergency diesel generator, auxiliary, and electrical/control buildings. These inspections were conducted to observe work in progress, equipment protection and storage, and general housekeeping activities. Specific observations are discussed below.

a. Fire Seal Material Replacement (51063)

On February 3, 1988, the inspector witnessed the removal of the fire sealant material (Bisco Seal) from the inside of three 4" conduits which penetrated the Unit 1 safeguards building wall on the 832' elevation. The conduits (C11G04779, C11G04780 and C11G04781) each contained three, Train B, 250 MCM cables. The existing sealant was being removed by using wooden dowel sticks in order to protect the workers and the cable. The removal was required because adequate documentation did not exist to verify the acceptability of installation. Upon completion of the removal operation, new Bisco seal material was to be installed to ensure a full 9" seal. The inspector found the work activities and supervision to be acceptable; no violations or deviations were identified.

b. Electrical Termination Activities (51063)

The inspector observed a number of termination activities in the Unit 1 cable spreading room on February 3, 1988.



The two observed activities were:

- (1) The inspector observed conductor splice replacements inside Termination Cabinet (TC) 41 in accordance with Startup Work Authorization (SWA) 42815. The installed Amp Preinsulated Environmental Sealed (PIES) splices were replaced in accordance with the disposition of Nonconformance Report (NCR) CE87-2398. The replacement was called for because the splices did not have documentation to verify that their installation had been witnessed by a QC inspector. The NRC and QC inspectors verified that the replacement splices were properly installed by witnessing correct conductor insulation strip length, proper insertion into the splice barrel and crimping with a calibrated tool. The two splices (the red and green conductors of cable E0138498) were then covered by acceptable lengths of heat shrinkable insulation tubing which was properly installed. (There is a facility hold-work on the installation of PIES splices at this time.) The NRC and QC inspectors then verified the proper termination of the ends of the extended conductors. The termination lugs were properly installed with the same checks as used for the splice connections. The lugged ends were connected to terminal board (TB) 2, points 43 and 44, as shown on drawing 2323-E1-0172, Sheet 41, Revision CP-5. The inspectors also witnessed the continuity checks which were performed prior to termination lug installation and tywrapping the cable bundle for support upon completion of the installation. The inspector found these activities to be in accordance with requirements and to have been completed and inspected in a professional manner.
- (2) Additional field wiring modifications were witnessed in 1TC-14. These wiring changes were being implemented by two craft personnel as specified in SWA 44815. The SWA required QC to inspect the completed modification in accordance with procedure NQA 3.09-3.05. A review of the documentation package disclosed that DCA 19271 required rerouting a number of cables to accommodate the replacement of some valves and to exclude extraneous cable tray node routings of those cables. The rerouted cables were being reconnected as shown on the revised drawings. The NRC inspector found these connection activities to be acceptably implemented.

No violations or deviations were identified during the observations of these termination activities.

- c. During a tour of the 790' elevation of the Unit 1 Reactor Building on February 10, 1988, the inspector noted that the top covers on two Westinghouse differential pressure transmitters (1FT-414 and 416) were not tightly screwed to the assembly. Upon questioning, the applicant personnel informed the inspector that these covers do not perform an environmental sealing function and do not require a specific torque tightness. The instruction manual and calibration procedure only require the replacement of the cover, if removed for calibration setpoint adjustments. The NRC inspector had no further questions on this subject; no violations or deviations were identified.
- d. During the tour of the Unit 1 Reactor Building on February 10, 1988, the NRC inspector also observed that many of the 120 VAC convenience receptacles and their associated junction boxes were opened with the wires disconnected and hanging free. Although, the lighting circuits had all been downgraded, in accordance with DCA 51,871, to be non-Class 1E, the inspector remained concerned because of personnel safety considerations. Applicant personnel informed the inspector that the lighting circuits he observed were being reworked in accordance with Corrective Action Request (CAR) 70X. The inspector reviewed CAR-70X and related correspondence and found that the personnel safety concerns should be satisfied through the applicant's reinspection and, as necessary, rework of the lighting circuits. The acceptability of the downgrading of the lighting circuits to non-Class 1E will be evaluated by the NRC technical staff in response to the FSAR changes reflecting the downgrading.

No violations or deviations were identified.

6. Exit Meeting 30703

On February 29, 1988, R. F. Warnick, H. H. Livermore, and J. S. Wiebe met with L. D. Nace and A. B. Scott to discuss February inspection findings and other matters of interest.

An exit meeting was conducted on March 1, 1988, with the applicant's representatives identified in paragraph 1 of this report. No written material was provided to the applicant by the inspectors during this reporting period. The applicant did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection. During this meeting, the NRC lead senior inspector summarized the scope and findings of the inspection. The applicant acknowledged the findings.