U. S. NUCLEAR REGULATORY COMMISSION

OFFICE OF SPECIAL PROJECTS

NRC Inspection Report: 50-445/88-18
50-446/88-15

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: March 2 through April 5, 1988

Inspector: C J Hale 4/11/88
C. J. Hale, Reactor Inspector Date

Consultant: V. Wenczel, EG&G (paragraphs 3.b, 4, and 6.)

Reviewed by: RF Warnick for 4/11/88
H. H. Livermore, Lead Senior Inspector Date

Inspection Summary:

Inspection Conducted: March 2 through April 5, 1988 (Report 50-445/88-18; 50-446/88-15)

Areas Inspected: Unannounced, resident safety inspection of applicant's actions on previous inspection findings, follow-up on violations/deviations, processing NRC Information Notices, assessment of allegations, 10 CFR Part 21, and general plant areas (tours).

Results: Within the areas inspected, no violations or deviations were identified. No significant strengths or weaknesses were identified during this inspection.

DETAILS

1. Persons Contacted

F. W. Bauer, QC Engineer, Brand Industrial Services, Inc.
W. Candle, Project Manager, Fluor Daniel
M. Mallory, Program Assurance Engineer, Engineering Planning and Management, Inc.
D. Palmer, Supervisor, Performance Assessment, TU Electric
G. M Parker, QA/QC Manager, Grinnell
L. D. Platt, Monitor Team Supervisor, TU Electric
M J. Riggs, Plant Evaluation Manager, TU Electric

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

2. Applicant Action on Previous Inspection Findings (92701)

a. (Closed) Open Item (445/8716-0-09; 446/8713-0-08): The NRC inspector requested for further inspection the QC inspection records for the replacement jackshafts in the 6.9 kV circuit breakers and for the actual jackshafts used by Brown Boveri, Inc., (BBC) in their 10,000 cycle endurance test of these circuit breakers.

In a previous inspection report (50-445/87-16; 50-446/87-13) the NRC inspector stated that the nonconforming jackshafts were returned to BBC for weld repair. This was incorrect; replacement jackshafts were obtained from BBC and the nonconforming jackshafts being removed will be returned to BBC when all circuit breakers have been repaired. The NRC inspector obtained and inspected the QC inspection records for the replacement jackshafts. The results of that inspection are provided in paragraph 3.a.

BBC subjected one pair of the removed jackshafts to a 10,000 cycle endurance test. The tested pair was represented by BBC as being typical of the worst case of the nonconforming jackshafts being removed. The jackshafts successfully completed the endurance test. The NRC inspector reviewed the BBC test program and the test results. The tested jackshafts were inspected by welding specialists from BBC, Stone and Webster Engineering Corporation (SWEC), and Comanche Peak Engineering (CPE). Each organization concluded that the replacement jackshafts, using revised welding criteria, would perform to their original design.

The NRC inspector requested that the tested jackshafts and the failed jackshaft be made available for further inspection. TU Electric was able to obtain only one of

the tested jackshaft pair (right hand) and photographs of the failed jackshaft and the other half (left hand) of the tested pair. The NRC inspection of the photographs and the returned jackshaft found the following: (1) the weld quality of the replacement jackshafts is significantly better than the welds on the jackshafts used in the endurance test; (2) the weld quality on the tested jackshafts appear better than the welds on the failed jackshaft; and (3) the weld quality on the tested jackshafts appear better than the welds on many of the jackshafts being removed and awaiting return to BBC. (These observations by the NRC inspector are based also on inspections of the replacement jackshafts and the jackshafts awaiting return to BBC.)

Based on the foregoing document reviews and hardware inspections, the NRC inspector concludes that the replacement jackshafts will perform their intended design function satisfactorily; accordingly, this open item is being closed. Based on observations (2) and (3) above, the NRC inspector believes further NRC evaluation of the BBC jackshafts is indicated relative to uses at other nuclear facilities. Information obtained during this inspection is being forwarded to NRC headquarters for their consideration.

b. (Closed) Open Item (445/8718-0-07; 446/8714-0-06): The process used in dispositioning invalid and use-as-is nonconformance reports (NCRs) is similar in many respects; however, only invalid NCRs were returned to the originator. The potential existed for the nonconforming condition observed by the NCR originator not being found or understood by the individual processing the NCR as use-as-is.

TU Electric has recognized this potential weakness and has taken prompt and effective action. On October 5, 1987, Revision 0 of Procedure NQA 3.05, "Reporting and Control of Nonconformances," was issued. Section 6.5 of this procedure, "NCR Post Review," requires the Manager, Quality Control (QC), or designee, to sign and date Block 22 (the last block on the NCR form) to indicate completion and final approval or verification of the NCR. One of the steps in this final review and approval is paragraph 6.5.5, which states, "For NCR's dispositioned 'use-as-is' and designated 'this is not a nonconforming condition' the Manager, Quality Control, or designee, shall forward a copy to the initiator." This action will provide the initator an opportunity to review the justification why the item identified was deemed not a nonconforming condition. If concerns or questions arise, the

initiator can take further action; for example, initiate another NCR.

The NRC inspector discussed this process with the supervisor of the NCR group, and verified that these type NCRs were being returned to the initiators. Three-part memorandums are used to return these NCRs to the initiators with a return receipt requested. Until about March 1, 1988, these receipt acknowledgements were being discarded, but now they are being retained as evidence of procedure compliance. By verifying the receipt acknowledgements, the NRC inspector found three-part memorandums dating back to January 1988 as evidence these NCRs were being returned.

The actions taken by TU Electric (procedural requirement and its implementation) satisfies the concern identified by the NRC inspector and this item is being closed.

3. Follow-up on Violations/Deviations (92702)

a. (Closed) Violation (445/8716-V-10; 446/8713-V-09): NRC inspection identified a jackshaft (a component in 6.9 kV circuit breakers) with a nonconforming weld that had been QC inspected and accepted as conforming.

Because of a failed jackshaft in a BBC 6.9 kV circuit breaker, all jackshafts (a total of 264) in the 132 BBC circuit breakers on site were replaced. Based in part on a 10,000 cycle endurance test performed by BBC on a pair of the removed jackshafts, new welding acceptance criteria were established that the replacement jackshafts were required to meet. The replacement jackshafts were source inspected by TU Electric prior to shipment to the site using the new weld acceptance criteria. It was one of these replacement jackshafts that the NRC inspector found in noncompliance with the new welding criteria; specifically, that for any circumferential weld length the cumulative total of fillet weld size less than 1/8" will not exceed 5/8" in length. The nonconforming jackshaft had a fillet weld less than 1/8" over a length of 9/16".

As a result of this finding, TU Electric issued nonconformance report (NCR) PE-87-00608 requiring a detailed reinspection of all jackshafts for weld size only. A stopwork order was issued on jackshaft replacement and an NCR (PE-87-00619) was issued to remove and reinspect those jackshafts already installed. Reinspection for weld size only was based on an analysis by BBC which compared the weld quality of the replacement jackshafts to that of jackshafts which successfully completed the

endurance test. The conclusion of the BBC analysis was that "the replacement assemblies exhibit exceptionally good weld fusion that is superior in strength characteristics than those of the 'tested' assemblies." Based on a review of the endurance test report, physical inspection of one of the tested jackshafts, and physical inspection of a large sample of the replacement jackshafts, the NRC inspector agrees with this conclusion.

TU Electric has completed the reinspection of the replacement jackshafts, including those jackshafts that had been reinstalled when the NCR was issued. While some of the jackshafts had weld segments less than 1/8" all were within the 5/8" acceptance length criteria, except for the jackshaft identified by the NRC inspector. The one nonconforming jackshaft had weld quality that was better than the tested jackshafts and was; therefore, used in a circuit breaker in a nonsafety-related application.

Disposition of NCRs PE-87-00608 and PE-87-00619 have been completed. The NRC inspector reviewed all the detailed reinspection records. The NRC inspector also performed inspections of a sample of the replacement jackshafts and the results compared favorably with the TU Electric inspection results.

Based on the results of the reinspection, TU Electric concluded that this error was an isolated occurrence of source inspector oversight. The source inspector was informed of this error and the results of the reinspection. Two different TU Electric QC inspectors performed the reinspection.

Based on the foregoing actions taken by TU Electric and the NRC inspector's verification of these actions, this item is being closed.

b. (Closed) Violation (EA 86-09, Appendix A, Item II.a.1): This item refers to an NRC Technical Review Team (TRT) finding that design documentation packages in Satellite 307 contained superseded design documents which were not marked or stamped "void." In addition, drawings used for construction were not properly stamped "this document affected by design changes." The TRT determined these conditions to be a violation of site Procedure DCP-3, Revision 18, "CPSES Document Control."

TU Electric's response to the violation was that the cited examples represented failure to fully implement the requirements of DCP-3. Corrective steps were: (1) correcting the errors and (2) monitoring of Satellite 307

performance. In addition, TU Electric used the Institute of Nuclear Power Operation (INPO) to further assess the effectiveness of the document control program. To assess the impact of historical problems with document control in construction and inspection, the applicant established an Issue-Specific Action Plan (ISAP) VII.a.3, "Document Control," that was implemented by an independent group, the Comanche Peak Response Team.

The NRC inspector reviewed monitoring team reports from April 1984 to February 1988. The review was to determine if monitoring of Satellite 307 did occur as committed; further, if the document control error rate was improving. The inspector determined that monitoring efforts began for all satellites in March 1984 and continues today. In March 1984, the Satellite 307 error rate was 10 percent. By June 1984, the error rate had dropped to 1 percent. In November 1984, the error rate was reduced to less than 0.2 percent. Monitoring of Satellite 307 continued until June 1986 when Satellite 307 merged with Satellite 308. The NRC inspection verified by reviewing monitoring reports that monitoring activities were performed as committed; also, the document control error rate was reduced to essentially zero. A previous NRC inspection of the CPSES monitoring activities was reported in NUREG-0797, Supplement No. 11, page 0-47.

The NRC inspector reviewed the results of the INPO evaluation of CPSES document control program dated August 1985. INPO did not identify any program deficiencies and the program for document control received a "Good Practice" rating.

To verify that the document control program was assessed in ISAP VII.a.3, the NRC has reviewed the ISAP's purpose, scope, and results. Addressed by the ISAP was the applicant's current program, and the history of recurring document control deficiencies prior to July 1984 was evaluated for impact on the quality of construction. Based on construction reinspections and documentation reviews performed, ISAP VII.a.3 concluded the controls and operation of the Document Control Center (DCC), including satellites, for the distribution of drawing and drawing changes was satisfactory. The assessment of past documentation problems concluded that there were no adverse hardware conditions in the plant resulting from past problems with the operation of the DCC.

Based on the NRC inspector's review of (1) the completion of actions committed by the applicant, (2) the satisfactory findings in the reports by the two independent review groups; and (3) the reports of the monitoring team

attesting to the control of documents that now exists, this violation is closed.

c. (Closed) Violation (445/8732-V-01; 446/8724-V-01): The cause or causes of deficiencies documented on four deficiency reports (DRs) were not clearly established; therefore, the action to prevent recurrence was indeterminate.

TU Electric reassessed the identified DRs and found that appropriate preventive action had been taken even though the causes were not clearly established. As action to prevent recurrence, the QC Services Supervisor issued a memorandum (with a copy of this violation attached) to his personnel impressing on them the importance of assuring the cause or causes of DRs are fully described. These personnel are responsible for QA concurrence with the cause and disposition and for QA/QC verification review of DRs attesting that the DR disposition was appropriate.

The NRC inspector reviewed the reassessment of the four identified DRs and agrees with the conclusions reached by TU Electric. The memorandum issued by the QC Services Supervisor (TUQ-6232 dated February 23, 1988), was discussed with this supervisor and four of his personnel. This supervisor also issued a memorandum to the organizations responsible for establishing the cause and disposition of DRs (TUQ-6241, dated February 26, 1988) and another memorandum to the ASME group responsible for QA concurrence and QA/QC verification reviews of DRs (TUQ-6313, dated March 31, 1988).

The NRC inspector reviewed several DRs that had been processed following the preventive actions taken by TU Electric. While it is early for the full effect of the preventive actions, a significant improvement was noted in the DRs reviewed. The NRC inspector also reviewed several DRs that were returned to the responsible organization because the cause had not been clearly established.

On May 2, 1988, a revision of Procedure NEO 3.06, "Reporting and Control of Deficiencies," will become effective which will modify the DR processing. Only the deficient condition and actions taken to correct the condition will be documented on the DR. The Corrective Action Group in the operations QA organization will evaluate every DR to determine if it represents a significant condition adverse to quality. Identification of cause and preventive action will only result from DRs when it is found that a significant condition adverse to

quality is identified. This condition will then be documented and tracked in a corrective action report. This revised process will be inspected by the NRC when it is fully implemented.

Based on the NRC inspector's review of the corrective and preventive actions taken and their apparent effectiveness, and the procedural revision which will delete the procedural requirement violated, this item is being closed.

4. Inspection of Information Notice (IN) Process (35061)

INs are issued by the NRC to the licensees and applicants to provide information that may be relevant to safety, safeguards, or environmental issues. The event, condition, or problem identified by the IN may be generic in nature; however, no response to the NRC is required. The purpose of this inspection was to assure that INs were distributed to the appropriate personnel, reviewed for applicability, and corrective actions identified, scheduled, and taken, when appropriate. The following is a summary of TU Electric's IN review process, the method used by the NRC to inspect the process, and the inspection results.

Nuclear Operation Plant Evaluation Manual Procedure NOS-103, "Review and Assessment of Industry Operating Experiences," documents TU Electric's program for review and assessment of INs. This procedure also addresses NRC circulars, industry operating experience reports received from the Institute of Nuclear Power Operations, and vendor reports and technical bulletins. Procedure NOS-103 requires that INs be assessed for applicability to CPSES. Assessments of INs are to consider: (1) does CPSES have similar equipment, features, programs, operations, or tests; (2) does CPSES have any existing equipment, features or programs that are addressed by the concern or issue raised by the report; and (3) is there any benefit to be gained or lessons learned that could be applied to CPSES. Results of the assessment are documented on a worksheet and supporting documentation is attached to the worksheet. For those INs which are determined to be applicable, a distribution package is assembled by the reviewer. The package contains: (1) a brief summary of the IN, (2) a description of how or why the IN applies to CPSES, and (3) recommended actions necessary to address concerns or problems identified by the IN. In addition, the date by which recipients should respond is noted. Recipients are required to identify an action plan to resolve the concern/problem and a completion date for the action plan. If no actions are planned, the recipient is required to provide justification. Upon receipt of the response, it is reviewed for adequacy by operations plant evaluations section. A mechanism is provided

to resolve the responses determined to be inadequate. To monitor the status of, or verify the implementation of the recipient's action plan, follow-up assignments are initiated and tracked.

Closure of an IN assessment occurs when it has been determined that no further consideration is deemed necessary, or that follow-up activities have provided assurance the action plans developed by recipients have been or will be implemented as planned.

To verify that INs were reviewed for applicability and that required actions were scheduled and taken, the NRC inspector examined 18 of 177 INs processed during calendar years 1986 and 1987. Nine of the 18 INs were determined not applicable to CPSES, 6 were applicable and actions required, and 3 were still inprocess.

For the nine determined not applicable to CPSES, each file contained assessment forms and supporting documentation that substantiated the determination. For the six INs determined to be applicable with required actions completed, the supporting documentation: (1) identified how and why the INs were applicable; (2) cover letters were written to the responsible recipients for recommended actions to be taken; and (3) actions were monitored to completion. The three assessments in process were determined to be applicable and follow up was being monitored as required. Status was current and being tracked in the Industrial Operating Experience Report. This report is issued monthly to project managers, including the operations and construction managers. The report identifies actions and recommendations outstanding for more than six months.

The IN assessment program has been inplace since 1982 and all INs issued between 1979 and 1982 have been reviewed by TU Electric for applicability and action required. The NRC inspector found that the applicant has established a strong program to review IN applicability. The program is controlled by a well-defined procedure. Methods are in place to review INs for applicability, actions deemed necessary, and follow-up on open actions to completion. To assure timely completion of scheduled open items, a periodic status report of open IN actions and recommendations is issued to TU Electric management. No violations or deviations were identified.

5. Assessment of Allegations (99014)

(Closed) Allegation (OSP-88-A-0022): It was alleged that a site QC inspector was afraid to bring concerns to the NRC because of intimidation by management.

Concern Specifics

The alleger tried unsuccessfully to obtain a QC inspector job at the site. This individual claimed being black-balled by current site management because of prior contact with the NRC at another nuclear job site. The individual claimed this could be confirmed by individuals currently employed onsite and identified one QC inspector that had concerns, but was reluctant to contact the NRC because of job jeopardy.

Assessment

The NRC inspector interviewed the QC inspector alleged to have been intimidated. The QC inspector assured the NRC inspector that no intimidation had or was occurring. The QC inspector further stated any concerns not handled properly would be taken to the SAFETEAM or the NRC. The NRC inspector also interviewed the individual the alleger identified as having knowledge of the reasons why the alleger was not hired. The individual stated that the decision to not hire the alleger was not based on the alleger's prior contact with the NRC.

Conclusion

The allegation was not substantiated, based on interviews conducted by the NRC of personnel identified by the alleger. The NRC plans no further action on this item at the present time and considers this allegation closed.

6. 10 CFR Part 21 (36100)

Compliance with 10 CFR Part 21 (Part 21) requirements have been inspected by the NRC and documented in the following NRC Inspection Reports:

50-445/78-07; 50-446/78-07	Total scope related to TU Electric and Brown and Root
50-445/84-22	TU Electric only
50-445/86-25; 50-446/86-21	Site posting requirements only.

During this inspection the NRC inspected the principal onsite subcontractors for compliance with Part 21 requirements. Subcontractors previously inspected by the NRC were not included in this inspection. These subcontractors, and the respective NRC Inspection Reports, were as follows:

99900509/79-03	Stone and Webster Engineering Corporation
99900505/86-01	Ebasco
99900528/81-01	Impell (formerly EDS)

The subcontractors considered during this inspection were Fluor Daniel; Grinnell; Brand Industrial Services, Inc. (Bisco); and Engineering Planning and Management, Inc. (EPM). None of these groups are involved in the direct procurement of items for the project, rather they are providing construction/erection and/or management services. In each case, TU Electric imposed the requirements of Part 21 on these subcontractors through the respective purchase order or contract. With the exception of EPM, the procured services from these subcontractors were all performed onsite. The following provides a summary of the NRC inspection results of these four organizations.

Fluor Daniel provides construction services for the heating, ventilation, and air condition systems. In accomplishing these tasks, Fluor Daniel uses TU Electric procedures, including those for reporting nonconforming conditions. The Fluor Daniel Project Manager stated that their corporate procedures included Part 21 reporting; however, the NRC did not attempt to review those procedures. The Fluor Daniel site personnel have been trained to the TU Electric procedures for nonconformance reporting and 10 CFR Part 50.55(e) and Part 21 reporting. This training is documented and retained in training files, which the NRC inspector reviewed. TU Electric had the Part 21 posting on a bulletin board just outside the building used by Fluor Daniel personnel.

Grinnell provides services in support of the design, fabrication, and installation of the fire protection systems. As in the case with Fluor Daniel, Grinnell uses the TU Electric procedures in lieu of their own procedures to satisfy their reporting requirements. Procedural training for their personnel was verified by the NRC inspector.

BISCO provides installation services for penetration seals. The sealing material is procured by BISCO using procurement documents approved by TU Electric prior to issue. The NRC inspector reviewed BISCO procedure GP-901, "10 CFR Part 21 Reporting of Defects and Noncompliance." As in the case of Fluor Daniel and Grinnell, BISCO site personnel had been trained to the site procedures for nonconformance and Part 21 reporting and were using the site procedures for documenting nonconforming conditions. Procedural training of the BISCO personnel was verified by the NRC inspector.

EPM provides the analysis required by 10 CFR Part 50, Appendix R, that assures safe plant shutdown in the event of a fire. EPM's task does not require any procurement, but their work is conducted onsite and at their corporate offices. The NRC inspector reviewed EPM QA Manual Sections 16.1, "Reporting of Significant Deficiencies to Client," and 19.0, "Part 21 Reporting." These procedures provide the required guidance for reporting noncompliances to both the NRC and TU Electric. The NRC inspector also inspected the EPM bulletin board for the proper Part 21 posting. The EPM Program Assurance Manager stated that no Part 21 reports had been generated. He further stated that the established site procedures for reporting nonconforming conditions is the process being used by EPM personnel when such is required.

Since each of these site subcontractors use the TU Electric process for documenting and reporting items of noncompliance, the NRC inspector reviewed the Part 21 posting on four official site bulletin boards. The location of the four bulletin boards were outside the construction lunchroom, inside the QC building, outside the Paper Flow Group building, and outside the Fluor Daniel building. Each bulletin board contained the required postings: Section 206 of the Energy Reorganization Act of 1974, a description of the regulation and procedure and where they may be examined, and the individual to whom reports should be made.

In summary, TU Electric and the principal site subcontrators subject to Part 21 have established and are implementing procedures and controls to assure the reporting of defects and noncompliances. In general, the site subcontrators use the procedures established by TU Electric which provide involvement and an additional measure of control to the applicant. No deviations or violations were identified.

7. Plant Tours (92700)

The NRC inspectors made frequent tours of Unit 1, Unit 2, and common areas of the facility to observe items such as housekeeping, equipment protection, and in-process work activities. No violations or deviations were identified and no items of significance were observed.

8. Exit Meeting (30703)

An exit meeting was conducted April 5, 1988, with the applicant's representatives. 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 inspectors summarized the scope and findings of the inspection.