

APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-445/90-37
50-446/90-37

Operating License: NPF-87
Construction Permit: CPPF-127

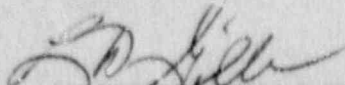
Documents: 50-445
50-446

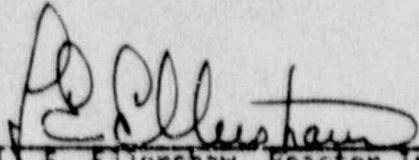
Licensee: TU Electric
400 North Olive Street, L.B. 81
Dallas, Texas 75201

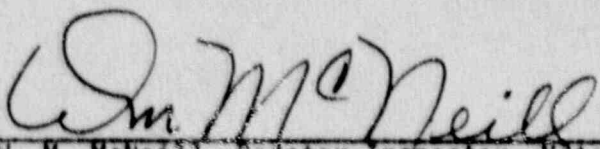
Facility Name: Comanche Peak Steam Electric Station (CPSSES)


Inspector At: CPSSES, Glen Rose, Texas

Inspection Conducted: August 27-31, 1990

Inspectors:  9/18/90
L. D. Gilbert, Reactor Inspector, Materials
and Quality Programs Section, Division of
Reactor Safety Date

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L. E. Ellershaw, Reactor Inspector, Materials
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Approved:  9/19/90
Ian Barnes, Chief, Materials and Quality
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Inspection Summary

Inspection Conducted August 27-31, 1990 (Report 50-445/90-37; 50-446/90-37)

Areas Inspected: Routine, unannounced inspection of inservice testing (IST) of pumps and valves and the quality assurance program.

Results: The Unit 1 IST Program appeared to be adequately defined and, in general, effectively implemented. However, a violation (paragraph 2.3) was identified for failure to perform a pump test within the required increased frequency. The QA program appeared to be adequately defined and requirements were satisfactorily identified in lower tier procedures for Unit 1. In review of the QA program, which encompasses both units, some records could not be found for Unit 2 activities. The records missing were the licensee's review and comment on Brown & Root USA, Inc. (B&R) procedures. This problem was identified as a noncited violation.

DETAILS

1. PERSONS CONTACTED

1.1 TU ELECTRIC

- J. M. Ayers, Quality Program Manager
- *O. Bhatti, Issue Interface Coordinator
- *J. Billerbeck, Inservice Testing Coordinator
- R. C. Byrd, Manager, Operations Quality Control (QC)
- *W. J. Cahill, Jr., Executive Vice President
- *C. B. Hogg, Chief Engineer
- T. A. Hope, Site Licensing
- C. W. Killough, Procurement Quality Assurance (QA) Manager
- *D. M. McAfee, Manager, QA
- *S. Palmer, Stipulation Manager
- J. L. Patton, Quality Program Supervisor
- D. L. Ranstrow, Quality Engineering (QE) Supervisor
- A. H. Saunders, Quality Technical Support Manager
- *A. B. Scott, Vice President, Nuclear Operations
- *C. L. Terry, Director, QA
- *D. Walling, Technical Programs Manager
- J. E. Wren, Quality Construction Manager

1.2 Stone & Webster Engineering Corporation (S&W)

- G. H. Bryant, QE Supervisor
- E. J. McGilley, Senior QC Supervisor Quality Support
- R. L. Spence, Manager, Construction QC

1.3 Brown & Root U.S.A., Inc. (B&R)

- G. N. Fanning, Unit 2, QE Supervisor
- G. R. Purdy, American Society of Mechanical Engineers (ASME)

1.4 Ebasco Services Inc. (ESI)

- R. A. Cummings, Project QA Program Manager (Code Control Group)

1.5 NRC

- *R. M. Latta, Senior Resident Inspector
- *D. N. Grave, Resident Inspector

*Denotes those attending the exit interview conducted on August 31, 1990.

The NRC inspectors also interviewed other licensee employees during the inspection.

2. INSERVICE TESTING OF PUMPS AND VALVES (73756)

The purpose of this inspection was to assess the licensee's inservice testing (IST) program for pumps and valves, including implementation, with respect to the requirements of Technical Specification (TS) 4.0.5, Section XI of the ASME Code, and the positions contained in Generic Letter 89-04, "Guidance On Developing Acceptable Inservice Testing Programs."

2.1 Program and Procedures

The CPSES Unit 1 IST program for the first 10-year interval consisted of the "Inservice Testing Program Plan For Pumps And Valves," Revision 3, and Interim Change Requests IST-R3-001 and IST-R3-002 which has received an interim approval from the Office of Nuclear Reactor Regulation (NRR) in Supplemental Safety Evaluation Report No. 23 of NUREG-0797, dated February 1990. The program is based on the requirements of the 1986 Edition of Section XI of the ASME Code (Code), the guidance of Generic Letter 89-04, and relief requests for pumps and valves. The responsibility for implementing the program is delineated in Procedure STA-711. Other documents reviewed during this inspection are listed in Attachment 1.

The documentation associated with performing IST consists of the Surveillance Work Order (SWO) and the operations testing procedure, including the appropriate data sheets necessary to record the test data. The SWO provides instructions regarding the specific equipment to be tested and the operations testing procedure to be used. It also includes special instructions and makes provisions for the recording of approvals and authorizations, acceptance of final surveillance results, and a final documentation review of the completed package. The operations testing procedures provide specific information such as required test equipment, prerequisites, and the sequential step-by-step actions required to accomplish the test activity. The operations testing procedure is divided into sections, some being generic while others are applicable to specific equipment and/or tests within the designated system. Corresponding forms or data sheets, which are used to record specific information, constitute a part of the procedure and relate directly to the particular section of the procedure being used. In general, the IST program and procedures appeared to be adequate.

2.2 Witnessing of Tests

The inspectors reviewed the status of the IST program with the IST coordinator with respect to testing scheduled during this inspection period. From the systems scheduled for testing, the inspectors selected the tests listed in Attachment 2 for witnessing.

The inspectors witnessed testing of a centrifugal charging pump, a boric acid transfer pump, and 10 valves in the auxiliary feedwater system. The centrifugal charging pump TBX-CSAPCH-02, for the Train B charging system, was tested using Section 9.2 of Procedure OPT-201A as directed by SWO S900001743. This test was performed to verify that the pump would meet the required differential pressure

and vibration criteria established in accordance with the Code and Relief Request P-10. The boric acid transfer pump TBX-CSAPBA-02, for the Train B boration system, was tested using Section 9.2 of Procedure OPT-202A as directed by SWO S900001779. This test was performed to verify that the pump would meet the required differential pressure and vibration criteria established in accordance with the Code and Relief Request P-10. The 10 valves in Train B of the auxiliary feedwater system were tested using Section 9.2 of Procedure OPT-206A as directed by SWO S900001828. This test was performed to verify operability of check valves 1AF-0219, 1AF-0220, 1AF-0221, and 1AF-0222; and to verify the limiting value of full-stroke time for power operated valves 1HV-2485, 1HV-2493A, 1HV-2494A, 1FV-2457, 1PV-2454A, and 1PV-2454B. The full-stroke time measured met the limiting value established for each of the valves in accordance with the Code and Relief Request V-2. The testing of the two pumps and 10 valves was satisfactorily performed in accordance with the SWO and operations testing procedure and within the quarterly frequency required by the Code, IST Plan, and TS.

During the witnessing activities, anomalies were observed in certain operations testing procedures which, while not impacting the performance of the test, indicated a certain laxity regarding review and adherence to procedures. For example, Step 9.2.11E in Operations Testing Procedure OPT-201A and the corresponding data sheet requires that the differential pressure of the centrifugal charging pumps be calculated by subtracting the discharge pressure from the suction pressure which would incorrectly result in a negative value; and Step 9.2.31 in Operations Testing Procedure OPT-206A and the corresponding Data Sheet contained different instructions. The IST coordinator was informed of these conditions and initiated action to correct the procedures. In general, requirements of the IST program appeared to be effectively implemented.

2.3 Review of IST Record

The inspectors requested the IST records applicable to the pump and valves for Train A of the safety injection system between the refueling water storage tank (RWST) and the reactor vessel for review. This review was conducted to verify that the pump and valve tests required by the IST Plan were accomplished within the frequency specified in the IST Plan and TS. The pump and valves included in the IST Plan for Train A consisted of Centrifugal Charging Pump TBX-CSAPCH-01 and Valves 1-LCV-0112D, 1-LCV-0112E, 1-8546, 1CS-8480A, 1-8481A, 1-8497, 1-8106, 1-8105, 1-8481B, 1CS-8480B, 1-8010, 1-8011, 1-3801A, 1-8801B, 1-8815, 1SI-8900A, 1SI-8900B, 1SI-8900C, and 1SI-8900D.

The pump maintenance and testing history for the centrifugal charging pump was reviewed to verify that the IST pump testing included the establishment of new reference values upon completion of post-work activities which may have affected previous reference values. The records indicated that the pump reference values should not have been affected by any maintenance performed to date. The IST records indicated that the quarterly testing specified in the IST Plan had been performed in accordance with Operations Testing Procedure OPT-201A and met the criteria for an acceptable test.

The inspectors verified that the IST valve testing specified in the IST Plan had been accomplished at the frequency required by the Code and TS. This verification was accomplished by reviewing the completed SWO and corresponding operations testing procedure which supported the IST required tests for each of the 19 valves listed above for Train A of the safety injection system. The test records indicated that each of the subject valves, required to be tested quarterly by the IST Plan, had been tested in its safety function positions and met the criteria for an acceptable test. Since some of the tests were only required to be performed at a cold shut down or a refueling outage, the inspectors verified that the base line testing had been established for each of the subject valves.

During review of the internal QA audit of the IST program, Audit Report QAA-90-033, the inspectors noted that two components had been identified which fell into the alert range: residual heat removal pump TBX-RHAPRH-01 and auxiliary feedwater pump recirculating valve 1-FV-2456. The inspectors requested the test records for these components in order to verify that testing at the increased frequency had been established and performed. The inspectors noted that the increased frequency had not been clearly established for the residual heat removal pump. Operations Testing Procedure OPT-203A, which was invoked by SWO S900000905, identified that the measured pump differential pressure (172.9 PSID) had fallen into the low alert range (171.63-177.34 PSID). The surveillance acceptance block on the SWO was signed and dated by the shift supervisor on June 15, 1990, signifying satisfactory completion of the surveillance test in accordance with Procedure STA-702. On July 2, 1990, the IST coordinator notified the operations surveillance coordinator that the subject pump was in an alert status and that the pump test frequency was to be increased to once per 46 days until further notice. It also stated that the next test was due on July 31, 1990. However, the next surveillance test was completed on August 14, 1990, as documented on SWO S900001832, which exceeds the specified surveillance interval and the 25 percent maximum time extension allowed by TSs 4.0.5 and 4.0.2. This is an apparent violation of TS requirements. (445/9037-01)

3. QA PROGRAM ANNUAL REVIEW (35701)

3.1 Objectives

The objectives of this inspection were to ensure that the licensee is implementing a QA program that is in conformance with the TSs, regulatory requirements, commitments, industry guides and standards.

3.2 Program

The current QA program was found to be described in Chapter 17 of the Final Safety Analysis (Amendment 79, dated July 31, 1990). The last approval by the NRC of the QA program description was found in Safety Evaluation Report No. 22 which approved Amendment 77, dated September 8, 1989, and an advance copy of Amendment 78, dated January 15, 1990. The changes found in Amendment 79 were organizational in nature. The previous QA department had two sections (QA and QC) and one subunit (procurement QA) reporting to the QA Director. The current

organization was found to have three sections (QA, Operations QC, and Construction QC) and one subunit (procurement QA) reporting to the QA Director. The QA section was realigned from three subunits to four subunits (Operations, Program, Construction, and Technical Support). The QC section was realigned from two sections (Units 1 and 2) into one new section dedicated to construction, with four subunits (Inspection, Support, Programs, and ASME III) and another section dedicated to Operations QC, with two subunits (Mechanical and Electrical). This functional reorganization was performed to support the restart of Unit 2 construction activities.

The QA program description in Chapter 17 was implemented by 19 Nuclear Engineering and Operations Policy Statements, 22 Nuclear Engineering and Operations Procedures, 10 "Site-Wide" Procedures and a CPSES QA Manual. The QA department's activities were further implemented in lower tier documents by a Nuclear QA (NQA) Procedures Manual with 92 procedures and Nuclear Quality Instruction (NQI) Procedures Manual with 6 procedures. The Construction QC section was found to be staffed by S&W which worked to the CPSES QA program and was in the process of developing its own procedures (CQPs). Two construction quality procedures have been issued to date and some 33 more are planned. These procedures will replace some NQAs and NQIs for the Construction QC section.

Within the Construction QC section, a B&R group was matrixed which worked to its own QA program. This program was described by a QA Manual as well as 23 administrative (AAPs), 16 construction (ACPs), and 22 quality procedures (AQPs) for ASME Section III activities.

Within the Quality Construction Subunit of the QA Section, an ESI group was matrixed which worked to its own program. This program was described by a QA Manual and 8 implementing procedures (CCGs). This group was known as the code control group.

3.3 Implementation

The inspectors verified that QA requirements were adequately described, incorporated into lower tier procedures and personnel were qualified appropriately. Observations by the inspectors were as follows:

- ° The CPSES QA Manual was found in need of updating in that the organization description and the program/procedure matrix did not have current information. It was reported to the inspectors that this manual will be updated by the end of September 1990.

- ° QA surveillances, as identified in Section 20.0 of the QA Manual, of the Dallas office engineering activities (defined in RXE series procedures) have not been accomplished. It was reported to the inspectors that this is under consideration to be done in the near future.

- ° The inspectors found that the records of the licensee's review and comment of certain B&R procedures could not be found. A sample of 37 current revisions and applicable DCNs of the 61 AAP, ACP, and AQP type procedures found that 9

were missing records. The records that could not be found were for Procedures AAP-2.2, AAP-3.1, AAP-6.1, AAP-7.1, AAP-16.1, ACP-10.0, AQP-10.9, AQP-11.5, and AQP-12.1. It was reported that this may have occurred in part because of a purge performed to remove old, unnecessary records from the files. There was some evidence to suggest that the problem was more than simply missing records. Review of records for Procedures AQP-11.5 and AAP-2.2 could not be found although the procedures had been revised and issued recently on March 9, 1990, and August 26, 1990, respectively. These dates are after the purge of the records and therefore records should have been on file. These procedures had been used for Unit 1 and were to be used for Unit 2. Subsequent to the inspectors identification of this problem, the licensee identified this problem on TUEVALUATION FORM No. 90-22. The licensee has indicated that part of the planned corrective action will be a surveillance to address the effectiveness of controls by the licensee of contractors such as B&R. It was a contract requirement for the licensee to review and comment on B&R procedures before their use. The missing records were identified as a noncited violation of the B&R Procedure AAP-6.1, paragraph 6.9. A Notice of Violation is not being issued because the criteria of Section V.A. of the NRC's Enforcement Policy have been met.

- ° The ESI QA Manual (Revision 3) and procedures were found to have been approved by the licensee. The B&R QA manual (Revision 44) was also found to be approved by the licensee.
- ° A review of the qualification records of management and supervisory personnel found that such were qualified appropriately to national standards.
- ° The inspectors found that the Senior Management QA Overview Committee was performing assessments of the QA program.

4. EXIT INTERVIEW

An exit interview was conducted on August 31, 1990, with those personnel denoted in paragraph 1 in which the inspection findings were summarized. No information was presented to the inspectors that was identified by the licensee as proprietary.

ATTACHMENT 1

DOCUMENTS REVIEWED

Audit Report QAA-90-033, "ASME Section XI In-Service Inspection and Testing," performed during the period July 23 through August 3, 1990

Master Surveillance Test List, Revision 16

Procedure STA-711, "ASME Section XI Pump and Valve Inservice Testing," Revision 3 and Procedure Change STA-711-R3-1

Procedure STA-608, "Control of Measuring and Test Equipment," Revision 14 and Procedure Changes through STA-608-R14-6

Procedure STA-679, "Predictive Maintenance Program," Revision 0 and Procedure Changes through STA-679-R0-3

Procedure STA-623, "Post Work Test Program," Revision 5 and Procedure Change STA-623-R5-1

Procedure STA-421, "Operations Notification and Evaluation (ONE) Form," Revision 0

Procedure STA-702, "Surveillance Test Program" Revision 8

Procedure OPT-201A, "Charging System Operability Verification," Revision 4

Procedure OPT-202A, "Boration System Operability Verification," Revision 2

Procedure OPT-206A, "Auxiliary Feedwater System Operability Test," Revision 4

Procedure OPT-510A, "Section XI Testing of Safety Injection System Valves," Revision 2

ATTACHMENT 2

SURVEILLANCE WORK ORDERS (SWOs) WITNESSED

SWO S900001743 using Section 9.2 of Procedure OPT-201A for testing the Train B Centrifugal Charging Pump TBX-CSAPCH-02

SWO S900001779 using Section 9.2 of Procedure OPT-202A for testing the Train B Boric Acid Transfer Pump TBX-CSAPBA-02

SWO S900001828 using Section 9.2 of Procedure OPT-206A for testing the valves in Train B of the Auxiliary Feedwater System