U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Report No. 50-445/82-01; 50-446/82-01

Docket No. 50-445; 50-446 Category A2

Licensee: Texas Utilities Generating Company
2001 Bryan Tower
Dallas, Texas 75201

Facility Name: Comanche Peak, Units 1 and 2

Inspection at: Comanche Peak Steam Electric Station

Inspection conducted: January 1982

Inspectors: W A Crossman 2/19/81
for R. G. Taylor, Senior Resident Inspector-Construction Date
Reactor Projects Section 3

Approved: W A Crossman 2/19/81
W. A. Crossman, Chief, Reactor Projects Section 3 Date

Inspection Summary:

Inspection conducted during January 1982 (50-445/82-01; 50-446/82-01)

Areas Inspected: Routine, announced inspection by the Senior Resident Inspector-Construction (SRIC) including general site tours; follow up on previous inspection findings and licensee reported deficiencies; a limited investigation of a reported incident; inspection of piping and support installation; inspection of instrument systems installation; and inspection of installed electrical cable. The inspection involved 62 inspector-hours by the SRIC.

Results: No violations or deviations were identified.

DETAILS

1. Persons Contacted

Principal Licensee Employees

*D. N. Chapman, TUGCO, Quality Assurance Manager
*R. G. Tolson, TUGCO, Site Quality Assurance Supervisor
*J. R. Merritt, TUSI, Engineering and Construction Manager

Other Persons

J. Richardson, Hartford Steam Boiler Inspection and Insurance Co. (Authorized Nuclear Inspector)

The SRIC also interviewed other licensee and Brown & Root employees during the inspection period.

*Denotes those persons who attended management meetings with the SRIC.

2. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (50-445/81-13; 50-446/81-13) Identification of pipe support.

This finding involved an observation by an NRC Inspector of a hanger mark or identification number that was subsequently shown by the Document Control Center to be an obsolete or voided number. Research by the licensee during the inspection revealed that the number had been changed in the seventh digit of a thirteen digit number for reasons not well explained at the time of the inspection. Additional research by the SRIC, along with interviews of cognizant licensee engineering personnel, indicate that while this type of change is inconvenient and may be confusing at times, it was desirable from the licensee's point of view in order to readily identify the engineering agency with design or fabrication responsibility for the support or hanger. Once it is understood that the seventh digit could be a 0, 4, 5, 6, or 7, only a bit of time is required to obtain all of the engineering or quality data on a particular support hanger even though the number stamped on the support is used as a starting point and may not agree fully with the final drawing. Futher, the matter only arises in those relatively few instances where the hanger or support was fabricated and installed prior to the licensee's implementation of his decision to identify design responsibility in this manner. This matter is considered closed.

3. Action on Licensee Identified Design/Construction Deficiencies

(Closed) Seismic Instrument Tubing Support.

This item was initially reported to the SRIC verbally on June 4, 1981, and involved the discovery by a licensee vendor that design work

accomplished by the vendor had utilized load data based on the Operating Basis Earthquake rather than the required Safe Shutdown Earthquake. The licensee followed up this verbal notification with a letter dated July 1, 1981, which provided the information required by 10 CFR 50.55(e). The corrective actions indicated in the letter involved a substantial reinspection and engineering analysis of already installed instrument tubing runs with attendant specific corrections on a case basis, all of which the SRIC has followed during routine inspection.

During the inspection period, a Region IV Vendor Programs Branch (VPB) inspector audited the activities of the vendor involved with a focus on the circumstances surrounding this event. 1/ That inspector found that a contributing factor causing the event was that the licensee had not properly specified the scope nor provided an adequate basis for the engineering work that the vendor was to accomplish. The VPB inspector found that the vendor had undertaken the work on verbal orders from the licensee under an existing contract for supply of personal services rather than engineering services, had stipulated that the work involved non-safety applications, and had not invoked either Appendix B or Part 21 of Title 10 until after the vendor recognized that errors had been made and informed the licensee.

Based on this information, the SRIC obtained key documents and interviewed licensee personnel cognizant of the events surrounding the matter. The SRIC found that the licensee engineering personnel responsible for design of instrument tubing supports had indeed verbally requested the vendor to perform the work necessary to develop guideline criteria that the licensee's personnel could then translate into specific design criteria. At the time that the request was made, either late 1978 or early 1979, the engineers were apparently uncertain as to what criteria should be applied on an overall basis to the broad design scope involved considering that there are several hunderd instrument channels, most of which have no safety relationship. Many of the instrument channels are, however, very important to safe operation or shutdown of the reactor, and yet others are moderately important. At that time, the licensee's engineering personnel selected the lowest quality level since it represented the majority situation without due regard for appropriate technical or regulatory requirements.

Both the licensee auditors and the VPB inspector found that the vendor had voluntarily applied his QA program to the design work from inception of his work scope. Available documentation indicated that the licensee's engineering personnel took the required actions to rectify the problem from a technical standpoint soon after receiving the information from the vendor that the technical basis for their work was inadequate. Interviews with cognizant personnel have led the SRIC to the conclusion that a staff assistant to the licensee's Engineering Manager first became aware of the reportability of the matter during collection of various memoranda. It appears that he informed his management who, in

1/ See Vendor Programs Branch Report No. 99900528/82-01

turn, informed the Quality Assurance Division which resulted in the notification to the SRIC on June 4, 1981. Subsequent to that time, the licensee has defined the contract requirements, has applied Appendix B to the order, and has performed a formal QA audit of the vendor activities. The licensee's Quality Assurance Division has also performed an on-site audit of all procurement activities, including those involving personal services, and has found no situations comparable to that which took place in this instance. Interviews of selected individuals within the licensee's engineering groups by the SRIC revealed a lack of proper awareness of the requirements of 10 CFR 50.55(e) which has been corrected by clarification of appropriate procedures, and by an indoctrination program for the involved personnel. The SRIC's review of the licensee's actions in regard to both the technical aspects of the specific event and the programmatic ramifications revealed by the event indicate that the actions taken have been adequate to prevent repetition.

This matter is therefore considered closed.

4. Investigative Activities

The licensee informed the SRIC that an incident involving forgery of QC inspection records had occurred. The incident involved an accusation by a QC inspector indicating that a craft labor foreman had forged his, the inspector's, initials on an "Operational Traveler" documenting the installation and inspection of two different conduit supports. The licensee related that the craft foreman had admitted the forgery to QC supervision and to his own supervision. The foreman was stated to have denied having done such a thing before and that he could not explain whey he did it in this instance. The licensee's QA management personnel stated that they had audited a selection of similar records where the particular foreman had some involvement and had not detected any other indication of forgery. The SRIC was provided with copies of the two forged records and noted that the forged entries were the only QC entries on the records, although several such entries would eventually be required. Based upon direction from Region IV management, SRIC undertook the following limited investigation of the matter. The SRIC interviewed the QC inspector that made the accusation, his immediate supervisor, and three other QC inspectors who were identified by the supervisor as being familiar with the craft foreman. The accusing inspector stated that he had been involved in the inspection of several conduit supports, each with its own "Operational Traveler." During the inspection he encountered a support type with which he was not familiar and left the area to review the drawing of the support and to discuss the details with his supervisor.

Several "Operational Travelers" were left in the possession of the craft foreman during the time the inspector was absent, since he had entries to make in another column on the form. When the inspector returned, he noted that his initials were in the QC column denoting his acceptance

of the size and length of two studs welded to each support plate He stated to the SRIC that he had not made such an inspection, and, in fact, had gone to his supervisor to find out what entries he was to make and what inspection he was to perform. He further noted that the initials did not look exactly like his own writing and asked the foreman what had happened. The foreman was said to have attempted to avoid answering the questions, but then admitted to having made the entry and attempted to convince the inspector that he should not report the matter. The inspector stated that he became incensed and promptly reported the matter to his supervisor and was accompanied by the foreman who again admitted his action. The matter was reported through proper levels of QA supervision. The QC inspector stated to the SRIC that he had very little previous experience with the foreman and little knowledge of his character, and therefore, was not in a position to have an opinion on whether the foreman had previously forged other records. The other inspectors and their supervisor were somewhat more familiar with the foreman and said they were of the opinion that he had probably not forged any records previously, and further that the foreman had been a foreman for only one to two months, so his opportunities were somewhat limited.

The SRIC obtained a random selection of Operation Travelers from the permanent plant records vault and noted that the initials of some QC inspectors would be relatively easy to forge where others would be difficult, although by no means impossible. The licensee has since determined that full signatures are desirable on the inspection records as a means of reducing the possibility of future forgeries and has issued instructions to implement the decision. In this specific instance, had the forged entries gone undetected, they would have had essentially no effect on safety, since they indicated acceptance of the least essential product quality characteristic of a relatively unimportant component. The licensee also informed the SRIC that the foreman involved has been assigned other duties that will not involve safety-related work.

The investigation of this matter is considered completed and the item closed.

5. Instrumentation Installation Activities

The SRIC reviewed the following engineering specifications pertaining to the installation and testing of instruments and connecting tubing systems to the process being monitored:

a. 2323-MS-625, Revision 3, Instrument Tubing and Fittings

b. 2323-MS-625A, Revision 0, Field Instrument Relocation Criteria

c. 2323-I-001, dated 8/21/79, Seismic Tubing Support Package

d. 2323-I-002, dated 11/1/79, Criteria for Seismic Tubing Support Placement.

The SRIC also reviewed the following installation and quality control procedures to evaluate the implementation of the above specification documents:

a. 35-1195-ICP-4, Revision 5, Instrument and Tubing Installation and Inspection.

b. CP-QP-11.8, Revision 2, Instrumentation and Control Inspection Activities.

c. QI-QP-11.8-2, Revision 7, Inspection of Instrumentation Supports and Rack Assembly.

d. QI-QP-11.8-5, Revision 1, Inspection of Instrument Tubing Fabrication

e. QI-QP-11.8, Revision 7, Inspection of Instrumentation Tubing Installation.

f. QI-QP-11.8-8, Revision 0, Inspection of Permanent Instrument Installation

The SRIC noted that there appeared to be an inconsistency between the requirements of the above referenced specifications and the commitments contained in Chapter 17A of the FSAR. Page 36 of Table 17A-1 indicates that I & C Impulse Tubing and Fittings would be in accordance with ASME Section III, with several noted clarifications which indicate that the QA program would be in accordance with the Brown & Root ASME Manual, and that full ASME compliance would be achieved except that the tubing supports would be seismic Category 1 but not in accordance with ASME Section III, Subsection NF. Specification MS-625 contains statements in paragraph 4.0 that generally agree with the FSAR, with the additional exception that Code paragraphs NA-5000 and 8000 also do not apply. This has the effect of deleting the ASME third party inspection and certification by the Authorized Nuclear Inspector, a fact confirmed during discussions between the ANI personnel and the SRIC.

The SRIC also noted during the review of the referenced procedures that those involving inspection activities were on the licensee (TUGCO) format rather than the Brown & Root format indicating that the inspection activity was not being accomplished under the B&R ASME Quality Assurance Manual. ICP-4 states that all welding of instrument lines will be accomplished utilizing Brown & Root ASME welding Procedures and ASME qualified welders. The welding and inspection of tubing supports, where required, will be accomplished utilizing American Welding Society (AWS) requirements. The SRIC determined that the major impact of the inconsistencies was the deletion of the third party Code inspection, not the actual installed quality of the tubing systems. The matter was brought to the licensee's attention by the SRIC.

The licensee prepared a clarification of the FSAR which was informally transmitted to NRR for preliminary concurrence. The SRIC discussed the matter with the NRR Licensing Program Manager who indicated that the technical reviewers were in general agreement with the licensee's request but would not make a final decision until a formal submittal with full clarification was received. This matter will be considered unresolved until such time as the formal FSAR change is submitted and accepted.

During the review of the referenced QL inspection procedures, the SRIC noted that the procedures were lacking in instructional detail in certain aspects. These matters were also brought to the licensee's attention who informally committed to the SRIC that the procedures would be revised to consolidate and elaborate on the inspection requirements. This matter will also be considered an unresolved matter until these procedures are published and reviewed.

The SRIC also observed field installation activities involving the installation of tubing and fittings for the reactor flow measurement system. This installation involves the use of welded type tube fittings within the steam generator compartments and the use of either welded or compression type fittings outside the compartments. The welding observed was being performed utilizing the Brown & Root weld procedures, ASME qualified welder, and the documentation prescribed to control this activity.

No violations or deviations were identified.

6. Piping System and Supports Installation Activities

During the inspection period, the SRIC reviewed the extensively revised Brown and Root ASME Quality Assurance Manual and a substantial number of the supporting Quality Assurance Procedures and Instructions. The revisions were made as a result of the findings from a routine ASME N stamp survey conducted on October 12-14, 1981 and preparatory to the second ASME recertification survey which took place during the week ending January 22, 1982. The above Quality Assurance Manual revisions provided greater detail about quality operations as described in subordinate procedures rather than being substantive changes in the existing quality program. The increased detail in the primary manual has the long term effect of making it more difficult for Brown & Root to make program changes without the prior knowledge and concurrence of the Authorized Inspection Agency, as was the case prior to the recertification survey.

The SRIC's basis for the review was Appendix B and Chapter 17 of the FSAR which are the licensee's committments covering the same area of work activity, whereas Brown & Root's effective committment is to NA-4000 of ASME Section III as interpreted by the Brown & Root Quality Assurance Manual. The routine survey of October 1982, was performed due to forthcoming expiration of Brown & Root's NA and NPT stamps on January 8, 1982. Findings that resulted were corrected prior to the follow up survey performed January 18-20, 1982. At the conclusion of the follow up ASME survey, the survey group stated that they would recommend that Brown & Root's ASME Certificates authorizing NA and NPT level work be renewed for a new three-year period, subject to certain identified corrective actions made necessary by observations of the group during the implementation aspects of the survey. The specific actions required have been documented as required by the nonconformance reporting system with action completion scheduled prior to February 20, 1982.

ASME work has continued since the expiration date of January 8, 1982, by documented concurrence with the Authorized Inspection Agency. The continuance of work is allowed by the ASME Code but no stamping or data report signing is allowable.

No violations or deviations were identified during the above programmatic review.

The SRIC also observed welder AWT during the performance of a limited amount of welding on joint FW-2 as identified on isometric drawing RC-2-RB-061.

The SRIC reviewed the weld documentation in the possession of the welder and found it to be consistent with procedural requirements. Following the completion of welding, the SRIC observed the Code required liquid penetrant examination of the weld. This examination was accomplished in accordance with standard liquid penetrant procedures as contained in the Brown & Root procedural system. The examination resulted in rejection of the weld for a linear indication in the adjacent pipe base metal, although the weld itself would have otherwise been acceptable. Welder AWT was well known to the SRIC as a qualified and competent welder and no documentation review was made as to his ASME certification.

No violations or deviations were identified in this area.

7. Site Tours

The SRIC toured the most active areas of the facility during the period to observe the status of construction and the practices utilized by the craft personnel, as well as to observe the activities of the quality control personnel. During one such tour made in conjunction with the Senior Resident Inspector for Operations, it was noted that in a few instances electrical cables in high routing density areas were being pressed against the edges of cable trays and in one instance a cable had been

forced into a relatively sharp bend as evidenced by wrinkles in the cable jacket. Having observed cable installation for well over two years and being familiar with the licensee's inspection procedures for cable installation, the SRIC judged that the on-going installation effort, which is nearing completion, has probably caused cables installed months ago to become unacceptable due to the increasing cable density. In most instances, it did not appear that the cable had as yet been damaged, and that the situation could easily be corrected if detected in a timely manner. The matter was brought to the licensee's attention. The licensee stated that a final condition inspection program was under development that would be applicable to piping, piping support, electrical cable installations, and to instrument installation activities to detect damage and other conditions which develop as a consequence of the on-going activities affecting earlier accepted work. The SRIC's experience indicates that such final inspections are usually necessary in long term, complex construction activities. The licensee indicated that the necessary implementation procedures are under development, along with the manning requirements for the effort. This matter will remain unresolved until such time as the procedures have been published and reviewed by NRC inspectors.

8. Unresolved Items

Unresolved Items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. Two such unresolved items are discussed in paragraph 5, and one in paragraph 7. For the purposes of identification in future inspection reports, these items are assigned the following designation:

82-01/5.1: FSAR Revision Relating to Instrumentation Tubing

82-01/5.2: Clarification of Instrument Tubing Inspection Procedures

82-01/7: Procedures for Final Condition Inspection.

9. Management Interviews

The SRIC met with one or more of the persons identified in paragraph 1 on January 7, 12, 14, 15, 25, 26, and 28, 1982, to discuss inspection findings and the licensee's actions and positions.

NRC FORM 766
(11-81)
IE MC 0536

U.S. NUCLEAR REGULATORY COMMISSION

INSPECTOR'S REPORT

Office of Inspection and Enforcement

PRINCIPAL INSPECTOR (Name, last, first, and middle initial): Taylor, Robert G.

REVIEWER: Crossman W.A.

INSPECTOR(S): R.G. Taylor

LICENSEE/VENDOR	TRANSACTION TYPE	DOCKET NO. (8 digits) OR LICENSE NO. (BY PRODUCT) (13 digits)	REPORT NO.	REPORT SEQ.	NEXT INSPEC. DATE MO.	NEXT INSPEC. DATE YR.
Texas Utilities Generating Co.	X I – INSERT	0500044 5	820 1	A		
	M – MODIFY	0500044 6	820 1	B		
	D – DELETE			C		
	R – REPLACE			D		

PERIOD OF INVESTIGATION/INSPECTION FROM MO.	FROM DAY	FROM YR.	TO MO.	TO DAY	TO YR.	INSPECTION PERFORMED BY	ORGANIZATION CODE OF REGION/HQ CONDUCTING ACTIVITY (See IEMC 0530 "Manpower Reporting—Weekly Manpower Reporting" for code.) REGION	DIVISION	BRANCH
01	01	82	01	31	82	1 – REGIONAL OFFICE STAFF; X 2 – RESIDENT INSPECTOR; 3 – PERFORMANCE APPRAISAL TEAM; OTHER	4	B	A

REGIONAL ACTION (Check one box only): 1 – NRC FORM 591; X 2 – REGIONAL OFFICE LETTER

TYPE OF ACTIVITY CONDUCTED (Check one box only): X 02 – SAFETY; 03 – INCIDENT; 04 – ENFORCEMENT; 05 – MGMT. AUDIT; 06 – MGMT. VISIT; 07 – SPECIAL; 08 – VENDOR; 09 – MAT. ACCT.; 10 – PLANT SEC.; 11 – INVENT. VER.; 12 – SHIPMENT/EXPORT; 13 – IMPORT; 14 – INQUIRY; 15 – INVESTIGATION

INSPECTION/INVESTIGATION FINDINGS (Check one box only): A X, B X, C, D; 1 – CLEAR; 2 – VIOLATION; 3 – DEVIATION; 4 – VIOLATION & DEVIATION

TOTAL NUMBER OF VIOLATIONS AND DEVIATIONS: A 0 B 0 C D

ENFORCEMENT CONFERENCE HELD: A B C D; 1 – YES

REPORT CONTAIN 2.790 INFORMATION: A B C D; 1 – YES

LETTER OR REPORT TRANSMITTAL DATE: NRC FORM 591 OR REG. LETTER ISSUED MO. 03 DAY 08 YR. 82; REPORT SENT TO HQ. FOR ACTION MO. DAY YR.

MODULE INFORMATION

REC. ORD. TYPE	MODULE NUMBER INSP. NUMBER	PHASE	MANUAL CHAPTER	PROCEDURE NUMBER	LEVEL	* SEQ.	PRIORITY	DIRECT INSPECTION EFFORT IN STAFF HOURS EXPENDED THIS INSPECTION	PERCENTAGE COMPLETED TO DATE	STATUS	MODULE REQ. FOLLOWUP PHASE	MANUAL CHAPTER	PROCEDURE NUMBER	LEVEL
B	1	2	55	083	C	A	3	007	090					
						B								
						C								
						D								
B	1	2	92	700	B	A	1	005						
						B								
						C								
						D								
B	1	2	30	703	C	A	1	009						
						B	1	000						
						C								
						D								
B	1	2	92	706	B	A	1	011						
						B	1	002						
						C								
						D								

MODULE INFORMATION

REC. ORD. TYPE	MODULE NUMBER INSP. NUMBER	PHASE	MANUAL CHAPTER	PROCEDURE NUMBER	LEVEL	* SEQ.	PRIORITY	DIRECT INSPECTION EFFORT IN STAFF HOURS EXPENDED THIS INSPECTION	PERCENTAGE COMPLETED TO DATE	STATUS	MODULE REQ. FOLLOWUP PHASE	MANUAL CHAPTER	PROCEDURE NUMBER	LEVEL
B	1	2	51	153	C	A	3	023	050					
						B								
						C								
						D								
B	1	2	55	073	C	A								
						B	3	010	020					
						C								
						D								
B	1	0	99	014	B	A		004						
						B								
						C								
						D								
B						A								
						B								
						C								
						D								

* CIRCLE SEQUENCE IF VIOLATION OR DEVIATION