

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION IV

Report No. 50-445/80-18; 50-446/80-18

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, Glen Rose, Texas

Inspection Conducted: August 1980

Inspectors:

JGT *R. G. Taylor* 9/18/80
R. G. Taylor, Resident Reactor Inspector
Projects Section Date

L. D. Gilbert 9/18/80
L. D. Gilbert, Reactor Inspector, Engineering Support
Section (paragraph 2.e.) (August 27, 1980 only) Date

Approved:

JGT *W. D. Crossman* 9/18/80
W. D. Crossman, Chief, Projects Section Date

R. E. Hall 9/18/80
R. E. Hall, Chief, Engineering Support Section Date

Inspections Summary:

Inspection During August 1980 (Report No. 50-445/80-18; 50-446/80-18)

Areas Inspected: Routine, announced inspection by the Resident Reactor Inspector (RRI) with support by a Regional IE Inspector including general site tours; follow up on previous inspection findings and significant construction deficiencies; electrical installation activities; protection of installed equipment; piping installation activities; and instrument installation activities. The inspection involved one hundred-four inspector-hours by the RRI and three inspector-hours by an Engineering Support inspector.

Results: No items of noncompliance or deviations were identified in five of the areas. One item of noncompliance was identified in the sixth area (deficiency - failure to report a significant construction deficiency - paragraph 6).

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DETAILS

1. Persons Contacted

Principal Licensee Employees

- *B. R. Clements, TUGCO, Vice-President, Nuclear Operations
- *D. N. Chapman, TUGCO, Quality Assurance Manager
- *R. G. Tolson, TUGCO, Site Quality Assurance Supervisor
- *J. R. Ainsworth, TUGCO, Quality Engineering Supervisor
- *A. Vega, TUGCO, Lead Engineer, QA Central Staff

Other Persons

- J. V. Hawkins, Brown & Root, Acting Project Quality Assurance Manager
- F. W. Gettler, Gibbs & Hill, Vice-President for Power Engineering

The RRI also interviewed other licensee and Brown & Root employees during the inspection period including both craft labor and QA/QC personnel.

*Denotes those persons with whom the RRI held on-site management meetings during the inspection period.

2. Action on Previous Inspection Findings

- a. (Closed) Infraction (50-445/79-27; 50-446/79-26): Failure to Follow Procedures for Hoisting Safety-Related Components. The licensee stated in his letter, dated December 18, 1979, that specific procedures would be revised to provide appropriate instructions to the craft labor for rigging and hoisting of safety-related equipment to the extent that the component manufacturers provided special instructions. The RRI has verified that the indicated procedures have been appropriately revised and that those components requiring special care have been identified and necessary instructions have been prepared.

The RRI had no further questions on this matter.

- b. (Closed) Infraction (50-445/80-13; 50-446/80-13): Failure to Follow Welding Procedures. The licensee notified RIV by letter, dated June 6, 1980, that in their opinion the weld observed being welded out of procedure was technically sound as welded but acknowledged that the welders must better understand the need for strict welding procedure compliance. Toward this end, the licensee committed to a retraining program for both welder supervision and for the welders. The RRI has verified that such retraining has been provided and has observed no further instances where the weld procedures involving different processes have not been followed.

The RRI had no further questions regarding this matter.

- c. (Closed) Infraction (50-445/80-13; 50-446/80-13): Failure to Follow Electrical Inspection Procedures. The licensee committed to a sampling verification program relative to the multi-pin connector installation in his letter to RIV, dated June 6, 1980. The RRI has reviewed inspection records and has interviewed one of the two QC inspectors involved in the reverification which was accomplished on a 100 percent basis rather than by sampling and is satisfied that all installed connectors are properly wired as of this time. The licensee has revised Quality Instruction QI-QP-11.3.28-17, "Verify Prefabricated Cable Crimping and Pin Orientation," to require either a visual or electrical continuity verification that each wire has been installed in the correct position in its connector. This Revision 2 became effective on July 16, 1980.

The RRI had no further questions regarding this matter.

- d. (Closed) Infraction (50-445/80-15;50-446/80-15): Failure to Establish Quality Assurance Program for Class 5 Pipe Support Systems. The licensee's letter to RIV, dated August 18, 1980, committed to appropriate revision of the governing project specification (2323-MS-46B) and to the issuance of quality procedures necessary to carry out a quality assurance program for ongoing fabrication and installation of the Class 5 type pipe supports and to accomplish a back-fit inspection of those already fabricated and installed. To this end, the licensee has issued QI-QP-11.11-1, "Installation Inspections of Class 5 Pipe Supports," as of July 25, 1980. The RRI has interviewed QC personnel assigned to the back-fit inspection effort and is assured that the effort has been initiated and will be ongoing for a sustained period until properly completed. The RRI has reviewed the above indicated procedure and has found it to be consistent with the revised requirements of Project Specification 2323-MS-46B and related standards, primarily those of the American Institute for Steel Construction.

The RRI had no further immediate questions on this matter but will follow the effort through routine inspection.

- e. (Closed) Infraction (50-445/80-17;50-446/80-17): Failure to Follow Drawing for Weld Prep Details. The licensee informed RIV by letter, dated August 29, 1980, that they were of the opinion that the reported condition was not a violation, based primarily on the advice of the NSSS supplier, Westinghouse. The RRI was cognizant of the licensee and Westinghouse position and asked that the RIV Engineering Support inspector that made the finding return to the site to again review the applicable drawings and the actual installed components. This was accomplished on August 27 with the result that it was determined that the drawings had been misinterpreted and that the components were satisfactory.

This matter is considered closed.

- f. (Closed) Deficiency (50-445/80-18;50-446/80-18): Failure to Report Significant Construction Deficiency. This item is considered closed on the basis that corrective action of training nature that should prevent recurrence was initiated and completed during June 1980. The RRI has verified through interviews that the training has taken place and has apparently been effective.

This matter is considered closed.

3. Site Tours

The RRI toured the safety-related plant areas several times weekly during the inspection period to observe the general progress of construction and the practices involved. Six of the tours were accomplished during portions of the second shift where the main activity involves the installation of electrical cables and the application of protective coatings.

No items of noncompliance or deviation were identified.

4. Electrical Installation Activities

The RRI made a number of observations of electrical cable pulling operations during the period. The RRI observed the activities of four of the seven cable pulling crews in order to ascertain whether they were working within the parameters of the site installation procedures and good practices. The RRI also observed the activities of the QA/QC personnel assigned to monitor the pulling crew work. The RRI found both groups (craft and QA/QC) to be working consistently within their respective procedures, EEI-7 and QI-QP-11.3-26. The RRI also inspected randomly selected cable tray segments in the Unit 1 cable spread room and in the Unit 1 Safeguards Building for freedom from cable damaging burrs and excessive debris. These segments were found to be in satisfactory condition for cable pulling activities.

The RRI also conducted a sampling inspection of the extensive steel structure in the Unit 2 cable spread room that will ultimately support the cable tray installation. This structure is defined on drawings 2323-E2-0712-01-S (Revision 4), 2323-E2-0712-02-S (Revision 5) and 2323-S-0922 (Revision 4) and twenty-one subordinate detailed engineered drawings. Due to the complexity of the engineered drawing system, the site engineering force was found to have developed a second set of drawings based upon the above identified drawings which provide a succinct number for each column and beam in the structure. The site originated drawings are FSE-00242 and FSE-00243.

These FSE drawings in turn provide a reference to an entire series of drawings captured under FSE-00159 which provide details of each beam and column for the purposes of fabrication, installation and inspection. The RRI obtained a total of fifteen of the FSE-00159 detail drawings and

determined that each was consistent with the primary engineering drawing and then inspected the selected assembly for compliance. The assembly, which may be initially identified by column location 8317, and the fourteen connecting horizontal beams were found to have been fabricated and installed in accordance with the detail drawings. The RRI noted that beam seat clips welded to the column flanges and web did not have weld returns as would appear to be required by the applicable overall standard, "Specification for Steel Building Construction," published by the American Institute for Steel Construction. This situation is comparable to the unresolved item appearing in paragraph 6 of Inspection Report 50-445/80-15; 50-446/80-15 even though that unresolved item appears in the context of ASME Section III relative to pipe supports rather than electrical cable tray supports. The comparability arises in that the requirements of Section III appear to have been based upon the earlier AISC Specification and appear in essentially the same phraseology and in the same context. Discussions between the RRI and the licensee indicate that the licensee is developing an engineering justification for not providing the weld end returns and that this justification will be provided to the RRI for review.

This matter will be considered an unresolved item pending receipt of the licensee analysis and review by the RRI and other NRC personnel.

On or about July 2, 1980, the licensee notified RIV that a concern had been identified wherein concrete anchor bolts embedded in certain areas of the building floors might not develop design strength values due to having been embedded through an architectural concrete floor topping. Where the floor topping is involved and not accounted for during installation of the anchor bolt, the bolt embedded length might not be adequate to develop the design loads required. The licensee followed up his initial report of the matter in a letter, dated August 8, 1980, wherein he provided the information required by 10 CFR 50.55(e) and also stated the corrective actions being taken. Within the area of the Unit 2 cable spread room which has the floor topping applied, the RRI verified that the anchor bolts attaching column 8317 to the floor have an embedded length adequate to develop the necessary strength even when the two inch thick floor topping is subtracted from the design embedded length. The licensee has identified all areas where floor toppings have been applied and is further identifying all embedded anchor bolts in these areas. Since each bolt is coded with a unique letter which identifies its length, it then becomes possible to determine the actual embedded length in the structural concrete, based on an assumed two inch thick floor topping. The RRI will follow this matter until the entire effort of identification and analysis is complete, expected by the licensee to be early in 1981.

Until completed, this matter will be considered to be an unresolved item.

No items of noncompliance or deviations were identified.

5. Protection of Major Installed Equipment

The RRI observed that the Reactor Pressure Vessels in Units 1 and 2 were covered and protected in the manner recommended by the supplier. The Unit 1 reactor core support structures (internals) remained in their enclosures within the Reactor Containment Building, while those for Unit 2 continue to be protected by outdoor area enclosures. The RRI observed that randomly selected electric prime movers for pumps have their space heaters energized as have the motors associated with motor operated valves. Random visits to the main control room indicated to the RRI that adequate air conditioning was being maintained to protect the installed components.

No items of noncompliance or deviations were identified.

6. Safety-Related Piping System and Hanger Installation.

The RRI made several general observations of the handling practices for piping components during the inspection period both in the on-site fabrication shop and within the main plant buildings. These practices were consistent with the requirements of Construction Procedure 35-1195-CPM 6.9 and good industry practice.

The RRI observed the following welds being made during the inspection period:

<u>Weld No.</u>	<u>Isometric</u>	<u>Filler Ht.</u>	<u>Welder(s)</u>	<u>Process</u>
FW-7	RC-2-520-001	434788	AWT-BDR-BRS	GTAW (machine)
W-41	SI-1-RB-008	946100	AZC	GTAW (manual)
FW-6-1	MS-1-RB-003	A82394	AGL-BBN	SMAW
FW-1	SI-2-SB-01	434788	BBI-AFP	GTAW (machine)

The RRI verified that the weld procedures 99024, 99025 and 99028 for the GTAW (machine) process had been qualified and were being followed by the welders as were procedures 88025 and 11010 for the manual processes. The noted welders were also verified to have been qualified, all in accordance with ASME Section IX.

The weld filler metals were previously determined to satisfy the requirements of ASME Section II.

In addition to the above pipe joint welding, the RRI observed welder BKP during a portion of his work on pipe support CC-1-057-020. The welder was observed to be using E-7018 type rod identified as heat number 643875 under procedure 11032. The RRI subsequently verified from documentation that the welder, weld procedure and weld filler metal were all qualified as required by ASME Section III and other referenced ASME Sections. The RRI also obtained the support drawing (same number as support) and verified

that the welder was providing the weld configuration required for the joint observed and that the support was of the overall configuration required by the designer.

During a review of the documentation in the possession of welder AZC as noted above, the RRI found a reference to Brown & Root Nonconformance Report (NCR) M-2215 and Nondestructive Examination Report (NDER) 3263. Discussions between the welder and the RRI indicated that the NCR documented a substantial number of undersized fillet welds associated with socket type weldments with the NDER capturing only the specific joint. The welder indicated that he had been working for some time adding filler metal or making entire new welds where filler metal could not be added to the initial welds. The welder was not sure just how many joints were involved but that there was a substantial number. The RRI subsequently reviewed the master copy of the NCR and found that the specific joint observed was identified as the one-hundred sixty-first joint involved and that there was an ongoing inspection program of all safety-related socket weld joints to identify those with undersize fillets, all to be reported under NCR M-2215.

The RRI noted, during the review of NCR M-2215 and from discussions with welder AZC, that most of the welds being corrected had been accomplished in the on-site fabrication shop and had been previously inspected and accepted by QA/QC. Further discussions with cognizant QA/QC personnel revealed that the situation had apparently arisen as a result of the inspection and nondestructive examination sequence wherein a typical joint would be visually inspected (including fillet size). And subsequently, which could be up to several days later, another QC inspector would perform the liquid penetrant nondestructive examination of the same joint. The QC examiner might well at that time require that the fillet surface be ground as necessary to provide a smoother surface in order to obtain a more meaningful examination. Provided that the fillet size was essentially at minimum acceptable value initially, the subsequent grinding would reduce the size below the minimum allowable size. The QC examiners had not been instructed to recheck the fillet size after grinding and, therefore, the weldment was fully accepted. It appears that an alert QC inspector in the field installation activity became concerned when he found some previously accepted shop fabricated spools had under-sized welds and brought it to his management's attention within Brown & Root via the referenced NCR. Since an under-size weld must also be considered an under-strength weld and in consideration of the quantity involved, the RRI inquired as to why the item had not been reported as a 10 CFR 50.55(e) item. Subsequent research by the RRI established that the Brown & Root procedures for doing ASME Section III work do not address 50.55(e) although the licensee had issued procedures and instructions incumbent upon Brown & Root which do cover 50.55(e). Review of the licensee QA Site Supervisor's log of "Significant Deficiency Reports" revealed that the item had not been reported to the licensee and had, therefore, never been given the necessary analysis relative to reportability. Discussions with the licensee's Site QA Supervisor indicated that he had become aware that the then Brown & Root Project QA Manager did not have an awareness of and/or an appreciation of the need to communicate significant deficiencies

to the licensee for purposes of satisfying 50.55(e). The licensee manager stated that the already provided instructions were re-emphasized at all supervisory levels within the Brown & Root QA/QC organization during training sessions given in mid-June 1980. The RRI interviewed two key personnel in the supervisory group and established that they had received the necessary instructions and appeared to understand their responsibilities in this area. The RRI also reviewed Brown and Root NCRs issued since early May 1980 (NCR 2250 and up to current date) for evidence of other significant reportable deficiencies within the Brown & Root scope of work. With due consideration to the subjective judgements required by 50.55(e), the RRI concluded that none of the Brown & Root NCRs included within the scope of the review contained reportable deficiencies. A comparable review of the entire forty NCRs that have been filed with the TUGCO scope of QA/QC controlled effort also indicated adequate compliance to 50.55(e) requirements. Based on the complete scope of information related above, the RRI concluded that an item of noncompliance had occurred but also that effective corrective action had been taken by licensee management. Also see paragraph 2 of this report.

During the inspection period, the RRI also examined the radiographs of the below identified pipe weld joints for compliance to ASME Section III for weld quality and to ASME Section V for radiographic quality. No inconsistencies were identified.

<u>Weld No.</u>	<u>Isometric</u>	<u>Line No.</u>
FW-25	BRP-RC-1-RB-033	3-RC-1-158-2501R1
W-3 & W-2	BRP-CS-2-RB-042	3-CS-2-235-2501R1
W-7A	BRP-SI-1-RB-021	3-SI-1-303-2501R1
W-3 & W-2	BRP-RC-2-RB-045	6-RC-2-46-2501R1
FW-12	BRP-SI-1-RB-016	6-SI-1-024-2501R1
W-13	BRP-CS-1-RB-01	2-CS-1-107-2501R1
FW-3	BRP-SI-1-RB-059	10-SI-1-180-2501R1
FW-17A	BRP-SI-2-RB-048	2-SI-2-199-2501R1
W-9,W-6,W-8	BRP-SI-2-RB-019	6-SI-2-101-2501R1
FW-12	BRP-SI-1-RB-027	3-SI-1-057-2501R1
FW-28	BRP-SI-1-RB-025	3-SI-1-039-2501R1

Except as noted above, no items of noncompliance or deviations were identified.

7. Instrument Installation Activities

The RRI observed during the inspection period that various instruments are being placed on their supports throughout the Unit 1 plant areas. The in-place instruments are generally covered and physically protected by wired in-place wooden boxes which prevented the RRI from observing whether the instrument ports were properly plugged, if not connected, and that the proper type of instrument has been installed. These inspection elements will be accomplished at a later stage of construction when the need for strong protective covers is lessened. The RRI also observed that instrument tubing runs are being or have been installed consistent with normal practice. The RRI noted that at the present time the FSAR does not identify specific instrument channels which are safety-related but rather provides only a general system functional analysis. Discussions with cognizant licensee engineering personnel indicated that drawings in the 2323-M1-2500 series provide the identification of those instruments with a safety function and also those with no safety function but are connected via tubing to ASME safety-related piping systems. The RRI reviewed the referenced drawings series and found the identification substantially complete based on his knowledge of reactor systems except that the N-16 and Reactor Excore instrumentation were absent from the tabulation. Further discussions with engineering personnel revealed that this problem had been identified by both the licensee and NRC:NRR in their licensing reviews and would be corrected during future drawing releases and by FSAR amendment. This is not to say that the information does not exist in an engineering sense but rather that the information retrievability is very difficult and not in a concise, easily understood document. As an example, it appears that the only present identification of the manufacturer's brand and model number for a particular instrument is in a purchase order for the instrument. Again, it appears that this type of information will be collated and placed into the FSAR in a future amendment.

This area of concern will be followed closely by the RRI and other assigned IE personnel in future inspections.

No items of noncompliance or deviations were identified.

8. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during the inspection are discussed in paragraph 4 and will, in future inspection reports, be referred to as:

- a. 50-445/80-18; 50-446/80-18 Absence of Weld Returns
- b. 50-445/80-18; 50-446/80-18 Embedment of Anchor Bolts Through Floor Topping

9. Management Interviews

The RRI met with one or more of the persons identified in paragraph 1 on August 6, 8, 11, 18, 20, 21, and 27, 1980, to discuss inspection findings and the licensee's actions and positions.