

6/6/83

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
TEXAS UTILITIES GENERATING)	Docket Nos. 50-445
COMPANY, <u>et al.</u>)	50-446
)	
(Comanche Peak Steam Electric)	(Application for
Station, Units 1 and 2))	Operating Licenses)

TESTIMONY OF C. THOMAS BRANDT,
RONALD G. TOLSON AND ANTONIO VEGA
REGARDING NRC CONSTRUCTION APPRAISAL TEAM REPORT

Q1. Mr. Tolson, please state your full name, residence, job title, and educational and professional qualifications.

A1. (Tolson) My name is Ronald G. Tolson. I reside in DeSoto, Texas. I am the Site QA Supervisor for Comanche Peak. My educational and professional qualifications were received into evidence as Applicants' Exhibit 20.

Q2. Mr. Brandt, please state your full name, residence, job title, and educational and professional qualifications.

A2. (Brandt) My name is Charles Thomas Brandt. I reside in Fort Worth, Texas. I am the Non-ASME QA/QC Supervisor at Comanche Peak. A statement of my educational and professional qualifications was received into evidence as Applicants' Exhibit 141A.

Q3. Mr. Vega, please state your full name, residence, job title, and educational and professional qualifications.

A3. (Vega) My name is Antonio Vega. I reside in Garland, Texas. I am the Supervisor of Quality Assurance Services for Texas Utilities Generating Company ("TUGCO"). A statement of my educational and professional qualifications was received into evidence at Transcript page 511.

Q4. What is the purpose of your testimony?

A4. (Brandt, Tolson and Vega) The purpose of this testimony is to respond to the principal issues in the NRC Construction Appraisal Team ("CAT") Report, summarized in Appendix B of the Report as "potential enforcement" items. Our response to each of these items is set forth below.

Electrical and Instrumentation Construction

Q5. Mr. Brandt, what is Applicants' response to the following statement in the CAT Report:

Contrary to 10 C.F.R. 50, Appendix B, Criterion X and FSAR Section 17.1.10, certain inspection activities were not executed to verify installation conformance with procedures including cable spacing in trays, cable bend radii, cable fill, cable supports and tray installation hardware (Sections II.B.1.a, b, d, and II.B.4.b(1)).

A5. (Brandt) We recognized several years ago that construction activity could render the validity of original inspections indeterminate, particularly in the electrical area. Due to this concern, TUGCO Quality Instruction QI-QP-11.3-40 "Class 1E Electrical Post Construction Verification" was prepared, defining additional inspections which are programmatically required to ensure that construction activity has not invalidated original inspections. Because the CAT Inspection was conducted prior to performance of any inspections required by this instruction, the results of the CAT Inspection were based upon a "snap shot" of the construction and QA process, rather than taking into account the full scope and purpose of that process.

Regarding cable spacing in tray (item 1.a at p. II-2), three of the eight tray numbers have Design Change Authorizations authorizing random lay of cable. The other trays had not yet received a post-construction verification inspection required by QI-QP-11.3-40. Noted violations would have been documented by QC as a result of that inspection.

Regarding cable bend radius (item 1.b at pp. II-2 to II-3), three of the five cables noted have a bend radius which is greater than the allowable minimum bend radius. The remaining two conditions would have been identified in the post-construction verification inspection required by QI-QP-11.3-40.

Regarding cable tray fill (item 1.c at p. II-3), as to the two cable tray numbers referenced, one of the trays has only four cables in the tray (none of which is over the side rails). In the other tray, the cables are bundled in the center of the tray, which causes them to extend above the side rails. In neither case had QC completed the QI-QP-11.3-40 inspection

Regarding cable tray attachments (item 4.b(1) at p. II-11), post-construction verification inspection required by QI-QP-11.3-40 had not been completed for any of the cable trays referenced in the CAT Report. Deficiencies would have been identified by QC at that point.

Q6. Mr. Brandt, what is Applicants' response to the following statement in the CAT Report?

Contrary to 10 C.F.R. 50, Appendix B, Criterion XVI and FSAR Section 17.1.16, the established inspection program did not provide adequate controls to assure that deviations from electrical and electrical/mechanical separation criteria as defined in the FSAR were promptly identified and corrected (Sections II.B.1.f, II.B.4.a., and II.B.4.b.(2)).

A6. (Brandt) Regarding electrical separation (item 1.f at pp. II-4 to II-5), barriers other than Service Air Flex have been approved by the equipment manufacturer and Gibbs & Hill Engineering. Some of the barriers were installed and inspected by the manufacturer (Reliance) for human factors engineering modifications. Other barriers in the main control boards have been added by DCA's issued by TUSI Engineering. In any event, separation and training of cable within equipment is reverified in the post-construction verification inspection conducted pursuant to QI-QP-11.3-40. This inspection had not been conducted when the CAT Report

was issued, and the CAT Report did not reflect or account for it. Compliance with separation criteria is a principal focus of the QI-QP-11.3-40 inspection.

Regarding electrical conduit separation (item 4.a. at pp. II-10 to II-11), these conditions were in process of being inspected by QC and were entered on the Separation Punchlist in accordance with QI-QP-11.3-29.

Regarding cable tray separation (item 4.b(2) at pp. II-11 to II-13), these items would have been detected and reported by QC as a result of the QI-QP-11.3-29 inspection.

Q7. Mr. Brandt, what is Applicants' response to the following statement in the CAT Report:

Contrary to 10 C.F.R. 50, Appendix B, Criterion V, FSAR Section 17.1.5, and IEEE Standard 450, procedures to implement inspection activities relative to certain aspects of battery maintenance have not been developed or implemented (Section II.B.3.e).

A7. (Brandt) Regarding the maintenance of station batteries (item 3.e. at pp. II-8 to II-9), the CAT Report cited IEEE 450-1975 (and the Comanche Peak FSAR and Regulatory Guide 1.129 which endorse the IEEE Standard) and concluded that these documents apply during the construction period. In

fact, these references address battery maintenance after the batteries have been placed into permanent service (e.g., after construction activities cease). The batteries have not been put into permanent service by TUGCO, and maintenance in accordance with IEEE 450-1975 is therefore not required.

Mechanical Construction

Q8. Mr. Brandt, what is Applicants' response to the following statement in the CAT Report?

Contrary to 10 C.F.R. 50, Appendix B, Criterion V, FSAR Section 17.1.5, and QI-QAP-11.1-28, certain QC accepted ASME pipe supports/restraints are not installed in accordance with the design document to which the pipe supports/restraints were inspected (Section III.B.2).

A8. (Brandt) Regarding pipe supports (item B.2 at pp. III-3 to III-9), the inspection procedure in effect at the time of the CAT Inspection required QC to inspect those items on the vendor certified drawing which had been revised during the design review process, all skewed fillet welds, and for obvious missing parts. However, in view of the results of QC inspections under this procedure, as the CAT Report identified, it was determined that more thorough inspections were warranted. Accordingly, the procedure was revised to require that all accessible items will be

reinspected to revalidate original inspections and to assure final conformance in the event that unauthorized work has occurred after initial QC acceptance (e.g., grinding of welds by painters prior to coating).

In response to the discussion in the CAT Report regarding the inspection activities of the Authorized Nuclear Inspector (ANI) (at p. III-6), while approximately 10% of the original 665 vendor-certified supports were returned to Brown & Root, not all of the "deficiencies" involved hardware. Many were merely questions or clarifications requested by the ANI regarding documentation packages.

Q9. Mr. Brandt, what is Applicants' response to the following statement in the CAT Report:

Contrary to 10 C.F.R. 50, Appendix B, Criteria X and XVII, and FSAR Sections 17.1.10 and 17.1.17 an inspection program has not been established to verify and document installation conformance to drawing requirements in regard to pipe supports/restraints and mechanical equipment installations (Section III.B.2 and 3).

A9. (Brandt) This matter was due to the lack of incorporation of Westinghouse (vendor) requirements into the installation document by TUSI Engineering. Applicants are reverifying that installation of mechanical equipment is in accordance with vendor installation requirements.

Q10. Mr. Vega, what is Applicants' response to the following statement in the CAT Report:

Contrary to 10 C.F.R. 50, Appendix B, Criteria V and X, and FSAR Sections 17.1.5 and 17.1.10, installed and QC accepted heating ventilation and air conditioning (HVAC) duct, supports and equipment do not conform to design requirements. In addition, inspection procedures have not been established or executed to verify conformance of HVAC supports to design drawings (Section III.B.4).

A10. (Vega) In regard to HVAC duct, craftsmen and inspectors have undergone a retraining and requalification program. In addition, applicable inspection procedures have been revised to provide a more detailed checklist and to provide for better documentation, reinspection and closeout of observed deficiencies. These procedures are being used to implement a reinspection program to determine the acceptability of existing duct work.

It should be noted that the CAT Report states that 495 joints and approximately 200 support locations were inspected and signed off in one day. In fact, the inspection was a walkdown of a duct run inspected and documented over a period of three days, with the summary cover sheet being signed off on the last day. No inspection of supports was included in this walkdown inspection.

In regard to HVAC supports, a Task Force was established to perform a reinspection program to define the extent of the hanger configuration problem. The results of this inspection were forwarded to the HVAC support designer, Corporate Consulting and Development Co., Ltd., (CCL). The engineering analysis by CCL was performed assuming all hangers were in worst-case condition as identified by the reinspection task force I mentioned earlier. CCL has concluded that all HVAC hangers meet functional design requirements without modification.

We determined that the missing and loose hardware resulted from the interface relationship between Bahnson's construction activities and our Startup and testing activities. As I testified previously (Applicants' Exhibit 155 at 2 (following Tr. 6304); Tr. 6320-21), interfaces have been established to assure that any system that is opened during startup testing is returned to Bahnson for restoration and reinspection.

In addition to upgrading the inspection procedures for ductwork, the inspection procedure for duct supports has been upgraded. This procedure requires QC inspection and verification of as-builts, including hanger location,

configuration, and member size and length. Inspectors have been reindoctrinated on the requirements of this procedure. The effectiveness of the inspection function under this procedure has been assessed by audit and found to be acceptable. This procedure was used in the reinspection program to determine the acceptability of existing work.

Welding and Nondestructive Examination

Q11. Mr. Vega, what is Applicants' response to the following Statement in the CAT Report:

Contrary to 10 C.F.R. 50, Appendix B, Criterion IX and FSAR Section 17.1.9, certain special processes relative to the HVAC system were not adequately controlled, including improperly qualified procedures; improperly qualified inspectors; improper certification of NDE personnel (Section IV.B.3).

A11. (Vega) In regard to the procedure qualification, the engineering design document governing the HVAC work is Gibbs & Hill Specification 2323-MS-85. It specifies that welding procedures and welders may be qualified in accordance with AWS D1.1 or with ASME Section IX.

In compliance with Specification 2323-MS-85, Bahnson's procedures have been qualified in accordance with ASME Section IX. The weld procedures and qualification records

had been reviewed by Engineering and evaluated for compliance with ASME Section IX requirements, and found acceptable.

Since the CAT audit, these procedures have been re-examined by Engineering personnel and found to be in compliance with the requirements of ASME Section IX. Thus, there were not "improperly qualified procedures."

In regard to improperly qualified inspectors, the Bahnson QC Program has been re-evaluated and revised to include improved QC inspection procedures which provide Bahnson inspection personnel with more technical training. The inspection procedures have been upgraded, and the inspection personnel have been retrained with emphasis on proficient use of inspection tools such as weld fillet gauges.

Increased emphasis is being placed on assuring inspector proficiency through our audits. The present level of inspector proficiency is acceptable.

To provide stronger management and supervision, a Bahnson site QA Manager has been assigned the responsibility for administration of the Bahnson QA Program at CPSES, replacing

the QA engineer. In addition, a Level III QA Lead Inspector was assigned to the Bahnson QA organization to provide day to day supervision of the inspection force.

Civil and Structural Construction

Q12. Mr. Tolson, what is Applicants' response to the following statement in the CAT Report:

Contrary to 10 C.F.R. 50, Appendix B, Criterion V and FSAR Section 15.1.5, civil construction test procedures were inadequate to ensure that mixer uniformity tests as required by the ASME-ACI-359 Code were performed at the prescribed frequency (Section V.B.2).

A12. (Tolson) The version of ASME-ACI-359 to which Comanche Peak is committed does not contain the requirement cited by the CAT Report. Comanche Peak is committed to the Trial Use and Comment Version of ASME-ACI-359 (FSAR §3.8.1.2.1). The CAT Report referred to the formal version of ASME-ACI-359, which has no applicability at Comanche Peak. Further, the CAT Report states (at p. V-3) that tests to verify proper operation of concrete mixers were not performed during concrete construction. In fact, tests on the mixers were performed in accordance with the provisions of ASTM C-94 in 1976, 1977 and 1979, all with satisfactory results. This timing coincides with the schedule for major concrete placement activities on Comanche Peak.

Procurement, Storage and Material Traceability

Q13. Mr. Tolson, what is Applicants' response to the following statement in the CAT Report:

Contrary to 10 C.F.R. 50, Appendix B, Criterion XIII, FSAR Section 17.1.13, CP-QAP-8.1, Rev. 5, CP-CPM-8.1, Rev. 1, and MCP-10, Rev. 7, storage of certain safety-related equipment in outside lay-down areas and installed in the plant was not properly controlled (Section VI.B.2).

A13. (Tolson) With regard to the components with dry and dirty bearings and rusty bolts and pins identified in the CAT Report (at pp. VI-2 to VI-3), these conditions would be identified and resolved by QC prior to final acceptance and use of the material. Following such inspection, dirt and rust would be removed and protective coatings applied. Dry bearings would be lubricated.

The "corroded" strainers identified by the CAT Report (item C.3 at p. IV-3) were deleted from the Comanche Peak design in January 1980. Although the strainers have been stored in an outside "quality" lay-down area, the strainers are being monitored only for commercial resale purposes. No safety or quality issues are involved.

The valve identified (item d.1 at p. VI-3) was in the process of having conduit connected in early March 1983. We attribute the removed cover to construction preparation. The cover has been properly installed and the valve returned to its proper condition.

With regard to the pump and motor (item d.2 at p. VI-3), the ongoing housekeeping program is intended to remove debris and maintain a clean project. We believe the CAT Inspection preceded the normal housekeeping cycle. The uncovered pump was identified and documented on NCR-M-5089 on January 21, 1983, before the CAT visited the site. The NCR has been properly dispositioned, and the pump openings have been secured. The filters on the CCW motors observed (item d.3 at p. VI-3) are currently covered with temporary material to trap construction dirt and dust. The temporary material traps finer particles than that which will be used during plant operation and therefore collects surface dust and appears dirty after a short period of operation. Further, as an additional safeguard against overheating, the motor is equipped with 3 RTD's (temperature detectors). Should the motor temperature increase to an abnormal level due to clogged filters or any other condition, the operator would be alerted to implement appropriate action.

Item d.4 (at p. VI-3) identifies construction material on and oil drips from the RHR Pump Motors. The construction material was temporary material being used as part of an engineering evaluation to (1) determine if supports on the motor would alter the resonant frequency of the pump-motor combination, and (2) correct an identified vibration problem. The oil leak was first documented by Westinghouse on November 19, 1982. The source of the leak has been determined, and modifications are under way to correct it. One motor has been modified and returned to service. A second is expected to be returned to the site shortly. Unit 2 motors will be modified following the return of the remaining Unit 1 motor.

With regard to the discussion of maintenance (item e at p. VI-4 to VI-5), the corrosion noted inside the Unit 1 Containment Spray Heat Exchanger is not considered extensive or abnormal. All uncoated steel surfaces will develop "rust blush" when exposed to water and air. The heat exchanger was opened for modifications and repair during the CAT Inspection. The shell side is normally filled with water treated with a corrosion inhibitor. No additional protection is required.

In late 1980 and early 1981, TUSI Engineering performed an evaluation to determine and prescribe necessary nitrogen protection for Unit 1 and Common heat exchangers following piping installation. A permanent nitrogen supply was installed to purge the feedwater heater as a result of this study. The same determinations will be applied to Unit 2.

Quality Control Inspector Effectiveness

Q14. Mr. Tolson, what is Applicants' response to the following statements in the CAT Report

Contrary to 10 CFR 50, Appendix B, Criterion II and FSAR Section 3.8, individuals were certified to levels of capability without the requisite experience described in Regulatory Guide 1.58 (Section VII.B.2.a.(2)).

Contrary to 10 CFR 50, Appendix B, Criterion X and FSAR Section 3.8, inspection records were prepared and accepted by L-1 inspectors as the "inspector of record" rather than the required L-11 "inspector of record" required by ANSI N45.2.6 (Section VII.B.2.b(1)).

A14. (Tolson) Both statements are derived from an extremely narrow interpretation of the requirements set forth in Regulatory Guide 1.58 and ANSI N45.2.6. While a strictly literal interpretation of these requirements might lead to the conclusion in the CAT Report, the Comanche Peak QA Program has focused more on the abilities of the individual

QC inspector, as assured by training and demonstrated by written examination administered at the Comanche Peak site, than on claims of experience on documents from other jobs. We have developed comprehensive training and examination procedures coupled with detailed "cook book" inspection instructions to assure attainment of the QA Program objectives.

Quality Assurance

Q15. Mr. Vega, what is Applicant's response to the following statement in the CAT report?

Contrary to 10 CFR 50, Appendix B, Criterion XVIII and FSAR Section 17.1.18, QA audits have not been conducted at a frequency or at sufficient depth to identify and correct significant problems in various areas of construction; i.e., HVAC and electrical separation (Section VIII.B.2.b.(5)(c)).

A15. (Vega) We concur with the finding as it relates to HVAC, and discuss below our proposed corrective and preventive actions. Otherwise, our audit program has been effective. This conclusion is supported by the results of the CAT inspection. Out of the large sample of activities reviewed there were no other similar breakdowns identified.