

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-445/84-32
50-446/84-11

Construction Permit: CPPR-126
CPPR-127

Dockets: 50-445
50-446

Category: A2

Licensee: Texas Utilities Electric Company
Skyway Tower
400 North Olive Street
Lock Box 81
Dallas, Texas 75201

Facility Name: Comanche Peak Steam Electric Station (CPSES), Units 1 and 2

Inspection At: Dallas Corporate Office, Dallas, Texas

Inspection Conducted: August 20, 1984 through September 20, 1984

Inspector:

H. S. Phillips

H. S. Phillips, Senior Resident Reactor
Inspector Construction

1/11/85
Date

NRC Contract Personnel:

B. Freed, Senior Project Engineer, EG&G Idaho, Inc.
G. Thomas, Quality Engineer, EG&G Idaho, Inc.

Approved:

D. M. Hunnicutt

D. M. Hunnicutt, Team Leader
Region IV Task Force

11/23/84
Date

Inspection Summary

Inspection Conducted August 20 through September 20, 1984 (Report 50-445/84-32;
50-446/84-11)

Areas Inspected: Routine, announced inspection to determine how effectively corporate management has implemented the QA program for controlling design, procurement, and construction activities; and to determine how site management interfaces with corporate management. The inspection involved 74 inspector-hours by one NRC inspector and 176 inspector-hours by two NRC contract personnel at the corporate office and the site.

Results: Within the two areas inspected, three violations were identified (failure to regularly review the status and adequacy of the QA program - paragraph 2b.; failure to establish/implement a comprehensive system of planned and periodic audits - paragraphs 2c.(1) and 2d.(3)(a); and failure to properly certify a Level II vendor compliance inspector, - paragraph 2d.(3)(f).

DETAILS

1. Persons Contacted

- W. Clements, Vice President Nuclear Operations, Texas Utilities
Generating Company (TUGCO)
- *D. M. Chapman, Manager, Quality Assurance (QA), TUGCO
- *R. G. Spangler, Supervisor, QA Services, TUGCO
- *D. L. Anderson, Supervisor, QA Audits, TUGCO
- A. H. Boren, Supervisor, Vendor Compliance, TUGCO
- *S. L. Spencer, QA Auditor, TUGCO
- D. Z. Hathcock, QA Auditor, TUGCO
- H. R. Napper, QA Auditor, TUGCO
- A. Vega, Site QA Manager, TUGCO
- L. M. Bielfeldt, Supervisor, Quality Engineering, TUGCO
- C. Welch, Supervisor, QA, TUGCO
- J. H. Roberts, Supervisor, Construction/Startup, TUGCO
- J. T. Merritt, Assistant Manager, Engineering and Construction, TUGCO
- R. Gentry, Manager, Project Support Services, TUGCO
- F. Peyton, Supervisor, Purchasing, TUGCO
- M. Strange, Supervisor, Engineering Support, TUGCO
- R. Baker, Staff Engineer, TUGCO
- H. Harrison, Supervisor, Technical Services, TUGCO
- G. Krishnan, Supervisor Stress Analysis Group, TUGCO
- R. Williams, Drafting Supervisor, TUGCO
- G. Purdy, Site QA Manager, Brown & Root Inc. (B&R)
- R. L. Moller, Site Manager, Westinghouse

*Denotes those attending one or more exit interviews.

2. Texas Utilities Management of QA Activities

a. Introduction

The objective of this inspection was to determine the status of the construction QA program and the effectiveness of implementation of the corporate QA program for ongoing design, procurement, and construction activities.

The NRC inspectors reviewed the QA commitments described in Section 17.1, "Quality Assurance During Design and Construction." Texas Utilities Electric Company (TUEC), as the applicant, has delegated to Texas Utilities Generating Company (TUGCO) the responsibility and authority for engineering, design, procurement, construction, operation, and QA activities at Comanche Peak Steam Electrical Station (CPSES). Gibbs & Hill Inc. (G&H), is the Architect-Engineer (AE) and provides TUGCO with design, engineering, and procurement services as requested. Westinghouse (W) is the Nuclear Steam Supply System (NSSS) supplier and provides TUGCO with the design, engineering, procurement and fabrication services for the NSSS and the initial supply of nuclear fuel. Brown and Root, Inc.

(B&R) is the Construction Manager/Constructor and provides construction services at the site, including the QA program for ASME Division 1 Code work.

b. Organization

The TUGCO corporate management structure and responsibilities were described in the Final Safety Analysis Report (FSAR); and the various TUGCO QA manuals and procedures described how FSAR requirements were implemented to control design, procurement, and construction activities. Recent organizational changes pertaining to the QA program were described in FSAR figures 17.1-1, 17.1-2, 17.1-3, 17.1-4, and 17.1-5 which were included in Amendment 50 dated July 13, 1984.

Recently, there have been three important QA personnel changes. A new site QA manager reported in March 1984, a new site quality engineering supervisor reported in August 1984, and a new vendor compliance supervisor was recently selected. These organizational changes were made to replace individuals who were reassigned or promoted to other positions, and these changes were reported to the NRC. The independence and effectiveness of the QA effort do not appear to be adversely affected by these changes.

The assistant project general (APG) manager reports to both the VP of engineering and construction and to the TUGCO Executive VP of operations. Discussions with the APG manager confirmed this and that he was supervised by both. This management practice is questionable. The CPSES QA Plan Section 1.2, paragraph 1.2.1, does not describe the APG manager's interface with or the responsibility to the VP nuclear operations. Subsequent discussions with TUGCO QA personnel revealed that this position was discussed in the startup QA manual. This item is considered unresolved pending clarification of the QA plan and further review during a subsequent inspection. (445/8432-01; 446/8411-01)

c. QA Program

TUGCO QA Program Plan and subtier procedures for design, construction, engineering, and procurement described the control of all related project and quality activities. A sample of these procedures were reviewed and documented in NRC Inspection Report No. 50-445/84-22; 50-446/84-07.

The Quality Assurance Program (described in the FSAR) provided the delegation of design, engineering, construction, and procurement functions to prime contractors, subcontractors, and vendors. It stated that the TUGCO audit program assured that these organizations had adequate QA programs and verified implementation of the overall QA program within TUGCO.

The inspectors reviewed the QA program procedures and any objective evidence to determine if the applicant regularly reviewed the status and adequacy of the QA program as required by Criterion II of Appendix B to 10 CFR 50, the PSAR and FSAR, and ANSI N45.2-1971. Reviews and discussions revealed no documented requirements or evidence that the QA program status and adequacy had been reviewed by the applicant. In order to determine if the QA program had been assessed, the inspectors reviewed additional information. In late 1981 and 1982 audits were performed by a consultant (Fred Lobbin), by Sargent and Lundy (using INPO criteria), and by TUGCO (using INPO criteria). Each of these audits evaluated limited aspects of the QA program. In 1983 Cygna evaluated the design program.

The Lobbin Report (February 4, 1982) R-82-01, contained four major findings:

- level of experience within the TUGCO QA organization is low; i.e., commercial nuclear plant design and construction QA experience;
- staffing for the audit and surveillance functions is inadequate;
- the number and scope of design and construction audits conducted by TUGCO QA to date has been limited; and
- QA management has not defined clearly the objectives for the surveillance program resulting in a program which, in the author's (Lobbin) opinion "is presently ineffective."

The TUGCO QA manager responded to these findings in an office memorandum (QBC-18), dated February 23, 1982. This response basically concurred with these findings.

The response committed to recruit nuclear experienced individuals, to increase the number and scope of site audits, and to more effectively use the surveillance program. Two program reports (QBC-25 and 29) regarding these matters were issued from the QA manager to the VP nuclear operations on May 21 and August 31, 1982, respectively.

Following the Lobbin Report, the NRC performed a CAT inspection (IR 445/83-18; 446/83-12 dated April 11, 1983) and included a review of the TUGCO audit program at the corporate offices. The inspection included a review of 18 audits (conducted between 1978 and early 1983), auditor qualifications, audit planning and scheduling, audit reporting and followup, and audit program effectiveness. The report concluded that weaknesses existed in the established QA audit program and included the scheduling and frequency of audits, the lack of effective monitoring of the construction program, and the lack of effective resolution of certain audit findings. The inspection also indicated that the QA program should have been more effective.

Based on the findings in the Lobbin report, and the findings in the NRC CAT report, the QA program continues to exhibit weaknesses. The continuing weaknesses in the QA program over a significant period of time reinforce the need for the applicant to routinely assess the status and adequacy of the QA program routinely to ensure that the areas are identified and adequate and timely corrective action is taken to correct the QA program weaknesses.

The failure to regularly review the status and adequacy of the QA program as required is a violation of Criterion II of Appendix B to 10 CFR 50. (445/8432-02; 446/8411-02)

d. Management of the TUGCO Audit Program

(1) Program Requirements

FSAR Subsections 17.1.2, "QA Program," and 17.1.18, "Audits," require internal audits of (TUGCO corporate and site activities) and external audits (prime contractors, subcontractors and vendors) to evaluate the effectiveness of the QA program by verifying conformance with design requirements; compliance with established requirements, methods and procedures; and implementation of corrective action. These commitments require the establishment and implementation of a comprehensive system of planned and periodic audits of all aspects of the QA program.

The TUGCO audit program consisted of internal and external audits of design, construction, engineering, and procurement activities. TUGCO also retained responsibility for the external audits that were usually delegated to the AE and NSSS organizations; i.e., audit of vendors. In addition to construction and vendor audits, the TUGCO audit group was also responsible for performing preoperational/startup and plant operation audits.

TUGCO committed to the audit requirements of ANSI N45.2.12-1973, Draft 3, Revision 0, Section 3, "Audit System," and these program management objectives are:

- to determine that a QA program has been developed and documented in accordance with applicable requirements;
- to verify that the program has been implemented,
- to assess program effectiveness;
- to identify program nonconformance; and
- to verify program correction where appropriate.

This section also stated that to achieve these ANSI standard objectives full management backing, manpower, funding, and facilities shall be available to implement the system of audits.

(2) NRC Evaluation of Planning/Implementation of Program

The NRC inspector reviewed and evaluated the applicant's plans, procedures, and number of audits performed (see paragraph 2e below) and determined that planning was inadequate. This audit effort was too large for the four available TUGCO auditors in 1981, even though additional specialists were utilized to assist with the audit activities.

- (a) The inspector reviewed and evaluated planning documents (formal and informal) used by the TUGCO QA manager, supervisor QA services, and supervisor QA audits. The review and discussions with these individuals revealed that annual audit plans were based on the audit of organizations rather than activities. TUGCO Audit Procedure DQP-CS-4, Revision 0, dated August 9, 1978 required:

- semiannual internal audits,
- semiannual construction audits,
- annual AE audits,
- annual NSSS audits, and
- annual plant operation audits.

However, for vendor audits the procedure required:

- first audit at 15 percent; and second audit at 60 percent "item completion" by reactor coolant pressure boundary vendors;
- one audit of engineered safeguards vendors at 25 percent item completion; and
- audit of balance of plant (other safety-related) vendors as determined by the manager QA.

This does not meet the requirements of paragraphs 3.4.1 and 3.4.2 "Scheduling," of ANSI N45.2.12 which requires, "Auditing be initiated as early in the life of the activity as practicable . . . applicable elements of the QA program shall be audited at least annually or at least once within the life of the activity whichever is shorter."

Furthermore, Audit Procedure DQP-CS-4, Revision 2, April 16, 1981, and Revision 10, June 4, 1984, have further reduced the (scheduling) frequency of audits. Revision 10 now states, in part, "3.2.1, The following organizations will be audited on a regularly scheduled basis but in accordance with Regulatory Guide (RG) 1.33, Revision 2, January 1978, Regulatory Position 4: a. AE; b. NSSS; c. constructor; d. TUGCO Internal; e. Preoperational/Startup; f. Plant Operations; g. Subcontractor. . . 3.2.1 In lieu of regularly scheduled audits of vendors TUGCO QA will perform the following: a. Monitor the individual vendor ratings which are based on vendor performance . . . b. for those vendors who cannot be evaluated based on vendor ratings . . . regularly scheduled audits will be performed based on level of activity." The NRC inspector discussed with TUGCO management the fact that RG 1.33 is for operations and does not fully address the requirements of the construction QA program.

This failure to develop audit program procedures which adequately address and describe QA program requirements and commitments is a violation of Appendix B, 10 CFR Part 50, Criterion XVIII (445/8432-03a; 446/8411-03a).

- (b) In addition to evaluating to determine if annual audits were planned, the NRC inspector requested objective evidence which would demonstrate that planning for audits for calendar years 1983 and 1984 included a method to verify compliance with all aspects of the QA program and to determine the effectiveness of the QA program. The review of the objective evidence revealed that the planning was not adequate, particularly regarding the audit basis, status, and tracking. The only objective evidence available consisted of a listing of planned audits of internal organizations and contractors each year and a summary of 1983 audit results and criteria audited; however, this data in many cases did not list the criteria audited and while reviewing older audits it was noted that an "after the fact" review resulted in identifying the applicable criteria covered for various organizations.

The inspector requested a listing of selected site procedures which were in effect in 1983 that were representative of site safety-related activities and subject to audit by TUGCO corporate QA. The review of the listings provided and the 1983 audits revealed the following information:

<u>Audits of Procedures</u>	<u>Total Procedures</u>	<u>Procedures Audited/Referenced</u>	<u>% Audited in 1983</u>
TUGCO Quality Documents Index (December 20, 1983)	295	71	24
TUSI Engineering Instruction Index (December 2, 1983)	65	16	25
TUSI Nuclear Engineering Procedures/Instructions Index (September 26, 1983)	26	18	69
TUSI Engineering Procedures Index (November 4, 1983)	30	12	40
B&R Quality Document Index (November 22, 1983)	51	20	39
B&R Construction Procedures Index (June 20, 1983)	<u>189</u>	<u>28</u>	<u>15</u>
Total	656	165	25

Only 25 percent of the procedures (specific safety-related activities) were audited in 1983. Although audits on a sampling basis are acceptable, there was no evidence that all safety-related areas were audited. The audits did not encompass all aspects of the QA program in order to determine effectiveness.

The failure to properly plan or produce evidence of adequate planning for a comprehensive audit program to verify compliance with all aspects of the QA program resulted in the failure to audit significant parts of the QA program is a violation of Criterion XVIII of Appendix B to 10 CFR 50 (445/8432-03b; 446/8411-03b).

The NRC inspector contacted the Westinghouse (W) site manager to review the procedure listing for safety-related activities which TUGCO had audited. As indicated below, no audits of NSSS site activities were performed in 1983. Discussions with the (W) site manager revealed that no audits had been performed by TUGCO QA in 1977, 1978, 1979, 1980, or 1981. This was discussed with the TUGCO audit staff and QA manager who did not disagree with the stated audit frequency.

(W) Site Organization

<u>External Procedures</u>	<u>Total Procedures</u>	<u>Procedures Audited/Referenced</u>	<u>% Audited in 1983</u>
Westinghouse (W) Site Applicable Procedure, QA Manual, May 1983	18	-0-	-0-
PPD Procedures	14	-0-	-0-
Installation Procedures	29	-0-	-0-

The failure to audit (W) procedures (safety-related activities) annually as required by ANSI N45.2.12, Draft 3, Revision 0, of the QA program is a violation of Criterion XVIII of Appendix B to 10 CFR Part 50, (445/8432-03c; 446/8411-03c).

- (c) The NRC inspector discussed the staffing of the Audit Program with TUGCO QA management the findings of the Lobbin Report and the NRC CAT Team Report regarding the staffing of the audit functions. The discussions revealed that the TUGCO audit staff had been increased from 4 to the present number of 12 between 1982 and 1984, and TUGCO management has been looking for 3 or 4 additional nuclear experienced auditors to further increase the audit staff. However, it was also revealed that management had not determined the total audits required nor the manpower needed to accomplish the audits.

This matter is an unresolved item pending the determination of the number of audits and auditors that will be needed to effectively implement the audit program (445/8432-04; 446/8411-04).

- (d) The NRC inspector determined through review of charts and procedures that current organization provided organizational freedom from cost and schedule.
- (e) The NRC inspector evaluated audit personnel qualifications by reviewing 14 personnel files of lead auditors and auditors. This included presently employed and formerly employed auditors. These personnel were qualified as required by TUGCO Procedure DQI-QA-2.1, Revision 7, and ANSI N45.2.23-1978, "Qualification of Quality Program Audit Personnel for Nuclear Power Plants."
- (f) The NRC inspectors reviewed TUGCO Audit Procedures DQP-CS-4, Revision 10 (June 4, 1984), and DQI-CS-4.6, Revision 7 (April 13, 1984). As previously discussed in paragraph 2.C(1), DQP-CS-4 does not include adequate commitments to perform annual audits and failed to address both design and construction and plant operations audit requirements.

e. Implementation of the TUGCO Audit Program

The NRC inspectors selected three areas of the audit program to review and evaluate implementation. Results of this evaluation are discussed in the following paragraphs.

- (1) Internal Audits of Site Activities - The NRC inspector reviewed the index which showed all site audits and found that Audits TCP-1 through TCP-112 had been performed between March 1978 and August 1984. The number per year are: (1) 4 in 1978; (2) 3 in 1979; (3) 10 in 1980; (4) 11 in 1981; (5) 30 in 1982; (6) 29 in 1983; and (7) 22 during the first 8 months of 1984. After the audit program was found inadequate in the consultant's report (Lobbin), the number of audits increased from less than 1.0 per month in 1982 to 2.5 per month in 1983. After the NRC CAT inspection report in 1983 this number increased to 2.7 per month for the first 8 months of 1984. This indicates that positive action concerning these reported weaknesses was taken; however, as previously discussed objective evidence was not available that the required number of audits and auditors has been identified. This item was previously identified above as unresolved.

The 1983 and 1984 audit schedule included each audit scheduled, cancelled, and any additional audits planned or performed. Where audits were cancelled, they were rescheduled and other audits were added and performed. This effort was well documented.

In 1983 the TUGCO audit group performed 158 audits. Sixty-five internal audits of site activities are as follows:

- construction/QC/ engineering - 33 audits;
- startup - 5 audits; and
- operations - 27 audits.

The NRC inspector selected and reviewed 31 TCP 1983 audits of site activities. The audit files included notification to the organization audited, an audit plan, checklists, an audit report, audit response, and evaluation/closeout of findings. Audit reports reflected good preparation and execution. Substantial findings generally resulted and were resolved.

Several lead auditors were interviewed concerning the management of the TUGCO audit program. They stated that the audit program had weaknesses or deficiencies in 1978 but they had witnessed dramatic improvements and were confident that the audit program was currently working well.

- (2) Assurance of Design Control - TUGCO management verified that design was controlled in accordance with the QA program requirements and procedures through administering an effective audit program. The design control functions were delegated to the AE and (W); however, TUGCO was designated the engineering organization responsibility for plant design.

The NRC inspector reviewed and evaluated the results documented in 15 TUGCO internal and external audit reports which specifically relate to Criterion III of 10 CFR Part 50, Appendix B, design and applicable procedures. These represent all audits design and consisted of 8 audits of TUGCO, 3 of (W), and 4 of G&H, engineering organizations. All audit findings, concerns, and deficiencies were closed through correspondence and were later verified through subsequent audits. Management involvement was evident as the VP nuclear operations was on concurrence and was furnished status reports by the QA manager.

In October 1982, TUGCO initiated a special audit effort to review design using the Institute of Nuclear Power Operations (INPO) performance objectives and criteria. Sargent & Lundy personnel were used to perform this audit. This audit identified 13 findings and TUGCO audit No. TNO-2, dated June 1983, verified corrective action.

- (3) Assurance Control of Procurement Activities - TUGCO management elected to retain procurement responsibilities except for certain functions delegated to the AE and NSSS. The NRC inspector selected several functions retained by TUGCO to determine if their audit program effectively monitored or verified that procurement activities were accomplished in accordance with the QA program and applicable procurement procedures. Management involvement with procurement documents, bid/source evaluation, and specific QA inputs were reviewed by the inspector. The vendor audits and evaluation of vendors were a large work effort. The following are the results of this review and evaluation.

The NRC Comanche Peak Special Review Team Report dated July 13, 1984, at the site identified a potential violation, i.e., failure to perform annual audits of vendors. The report documented an inspection of the procurement effort at site and part of this inspection included determining the frequency of vendor audits. As a result of the special inspection, the TUGCO QA manager approved an FSAR change request, dated August 3, 1984, which asked that TUGCO be allowed to adopt NRC RG 1.144 audit requirements in lieu of ANSI N45.2.12, Draft 3, Revision 0, for construction and ANSI N45.2.12, Draft 4, Revision 2 for operations. This requested change would not change the requirement to perform internal audits annually but

would reduce the requirement to perform annual audits of suppliers. Considering this requested QA program change which had not been approved by the NRC, the following are the inspection results:

- (a) The NRC inspector reviewed the TUGCO vendor audit program for 1983 to determine compliance with commitments (FSAR Section 17, paragraph 17.1.18), ANSI N45.2.12 and TUGCO procedures DQP-CS-4 and DQI-CS-4.5.

The annual audit schedule revealed that 60 vendor audits were scheduled during 1983. Audit TCLC-2 was cancelled (lack of activity with Purchase Order CPC-307) and audit TBS-3 was rescheduled (delayed by 1 week) as a result of NRC CAT Team inspection findings. The NRC inspector selected 3 vendor audit files, TVO-1, TMM-3, and TBF-2, for review to determine the extent of the audits as applicable to the audit plan checklist, noted deficiencies, concerns, and comments. Also included in this review were the corrective actions and/or preventive action documented in writing by the vendor in response to the applicable audit findings. Documents in file closed the audit findings and indicated that followup on corrective action would be verified during the next audit.

The NRC inspector reviewed the vendor audit frequency to determine if TUGCO established a schedule to annually audit vendors. The licensee commitment to ANSI N45.2.12, Draft 3, Revision 0, requires annual audits or at least once within the life of the activity. Neither procedural requirements were established, nor were vendors audited annually.

The failure to establish procedural requirements and to perform annual vendor audits is a violation of Criterion XVIII of 10 CFR Part 50, Appendix B and ANSI N45.2.12, Draft 3, Revision 0 (445/8432-03d; 446/8411-03d).

- (b) The NRC inspector reviewed the approved vendors list (AVL) program for 1983 to verify that methods used by TUGCO to qualify vendors to supply safety-related materials, parts, and services were consistent with the QA plan, procedural requirements, and commitments described in ANSI N45.2.13-1976. A review of supplemental memos and preaward survey files and revisions 9 through 12 of the AVL verified that the AVL was current. This review showed 33 additions, 40 status changes, and 1 deletion to the AVL for the period January 24, 1983, through December 20, 1983. The preaward survey files reviewed were consistent with

Procedures DQP-CS-4, Revision 10, and DQI-CS-4.2, Revision 3, December 1, 1982. During the review of preaward survey files, the inspector confirmed that formal identification letters, the survey date, and the scope of the survey (checklist) were consistent with the vendor QA program. Also, the corrective action responses by the supplier concerning noted deficiencies, concerns, and comments were reviewed, and followup action verified in a subsequent audit.

- (c) The NRC inspector reviewed the vendor performance evaluation (VPE) system to determine compliance with commitment and procedural requirements. TUGCO Procedure DQP-CS-4.3, paragraph 1.1 stated that the purpose of the evaluation was to establish a comprehensive method of identifying system weaknesses in vendor QA programs through acceptable/unacceptable hardware information generated as a result of vendor release inspections. The VPE files included release inspection trip report cover sheets, vendor rating sheets, releases, and the inspection checklists as required by TUGCO Procedure DQI-CS-4.3, Revision 4, paragraph 3.1.

The NRC inspector reviewed 3 VPE packages to determine that the quality assurance services (QAS) group's review was consistent with procedural requirements. One vendor file (Paul Monroe Hydraulic) was still active pending engineering review and evaluation on the O-ring discrepancy identified during release inspection at Remo Hydraulics (Purchase Order CPF-11436-S issued to Paul Monroe Hydraulics) for 20 hydraulic snubber assemblies. As required by DQP-VC-3, one vendor package (Meddco Metals) was being held on a yellow flag sheet to alert TUGCO auditors of next request for release so that TUGCO auditors could accompany the TUGCO vendor compliance inspector to resurvey the vendor. One other vendor (Volumetrics) performance evaluation record was reviewed and it showed a vendor rating of greater than 90. The NRC inspector interviewed the QA audit supervisor to determine what objective evidence (as required by referenced TUGCO Procedure DQI-CS-4.3, paragraph 3.2) was used to perform the vendor evaluation and support vendor ratings. Preaward surveys, previous audits, and receiving inspection reports were used as objective evidence to give the rating.

The NRC inspector reviewed the receiving inspection activity for previous release inspection shipments relative to the aforementioned vendors. Receipt inspection consisted of shipping damage inspection, receipt of documentation, identification, and quality assurance release.

- (d) The NRC inspector reviewed the method by which the licensee performed source selection to determine that procedural requirements were met. QA plan Section 4.0, Revision 4, July 31, 1984, required that a purchase order for safety-related items not be issued to a vendor unless TUGCO QA had reviewed and accepted the purchase order; i.e., QA determines whether QA provisions are adequate and determines that a preaward evaluation recommends selection of the vendor.

When procurement solicited bids outside the AVL, TUGCO QA requested that an uncontrolled copy of the vendors quality assurance manual be sent with the bid response. In the event of a positive bid response from the unapproved supplier, the TUGCO procurement group forwards the QAM and a request for QA program evaluation, Form QA-VE, to the TUGCO QA audit group supervisor to initiate a preaward survey per QA Procedure DQT-CS-4.4, paragraph 3.1. However, until the preaward survey is completed and a supplemental memo has been issued by the audit group supervisor, no further procurement action was taken.

The NRC inspector reviewed the actions taken when an acceptable bidder takes exceptions to the purchase order or subcontract. Upon receipt of the exception, procurement filled out an expediting request, assigns a procurement log number, and forwarded this request to the field requisition originator for engineering review and evaluation. Should the engineering group allow the exception, the necessary actions; i.e., design changes, were initiated. The expediting request was returned to procurement accompanied by a field requisition documenting the change with the approval signatures of engineering and QA.

- (e) The NRC inspector reviewed the method by which TUGCO performed vendor item acceptance of safety-related materials, parts, and components. TUGCO Procedure DQP-VC-1, Revision 8, June 4, 1984, paragraph 1.1, specified that the purpose was to establish guidelines for performing final inspection and release of TUGCO purchased equipment and applies to both safety-related and nonsafety-related equipment. This procedure allowed for a waiver, in which case the inspection checklist applicable to the procurement specification became the responsibility of CPSES receiving inspection as described in B&R CPSES Procedure CP-QAP-8.1, Revision 8, June 11, 1984, paragraph 3.4.1
- (f) The NRC inspector reviewed six vendor compliance inspector's files to determine if training/certification

records met the requirements of ANSI N45.2.6-1978 and TUGCO Procedure DQP-VC-4, "Guidelines for Certifying Vendor Compliance Personnel." Section 3.2.2 states that a Level II inspector shall attend and satisfactorily complete the nondestructive examination (NDE) courses. One inspector had not completed all of the NDE courses but had been certified. This finding was discussed with the vendor compliance supervisor who stated that there is no real need for certification in eddy current testing since inspectors do not utilize this NDE technique and the requirements would therefore be deleted from the procedure. The NRC inspector verified the deletion of this requirement and procedural revision during this inspection.

The failure to certify the inspector in accordance with the procedure is a violation of Criterion V of Appendix B to 10 CFR 50 (445/8432-05; 446/8411-05).

No other violations or deviations were identified.

3. TUGCO Corporate QA - Site QA Activities Interface

Appendix B to 10 CFR Part 50 requires TUGCO to establish proper organizational and management interfaces, and procedures must describe how various organizations coordinate and communicate design, procurement, engineering, construction, and QA/control activities and information. The following paragraphs describe inspection of this requirement.

a. Site Organization

TUGCO Procedure CP-QP-3.0, Revision 15, July 30, 1984, described the site QA organization for design and construction. This organization consisted of a site QA manager, QA supervisor, and a QC supervisor. The site group performed no audit function, however, they did perform QA surveillances. The site group consisted of 13 QA/QC managers and more than 150 lead/QC inspectors and quality engineers. These personnel inspected non-ASME work.

B&R QA manual and implementing Procedure CP-QAP-03.01, Revision 6, described their responsibilities for QA/QC and construction activities pertaining to ASME work. This organization consisted of a QA manager, QE supervisor, and a QC supervisor. The total QA/QC work force involved with design/construction activities was approximately 100.

Several other site subcontractors such as Bahnson, Brand Industrial Services, Inc., and Chicago Bridge and Iron, have small QA groups on site and, as is the case with B&R, these organizations were audited by their respective corporate offices.

The NRC inspector interviewed the TUGCO site QA manager to determine how the site QA group interfaced with the corporate QA office. He stated that daily conversations occur between managers of these organizations, however, he did not make written summary reports. Quarterly trending reports which analyze reported nonconformances and deficiencies are sent to the corporate QA manager.

b. Site Surveillances

The NRC inspector noted that surveillances were briefly mentioned in TUGCO Procedure DQP-CS-4, Revision 10; however, there was no mention of how or if the surveillances would be used to complement the audit program. During discussions with the QA manager and other personnel, it was revealed that procedures were not tracked to assure that all were audited. The present audit staff could not audit all site procedures annually. The NRC inspector pointed out that the surveillance function may complement and be used to (1) check that all procedures are implemented; (2) identify nonconforming trends; and (3) to feed potentially deficient or weak areas to the audit group which could, in turn, factor this information into the audit program. Audit priorities could then be established and the audit personnel could be more effectively used.

TUGCO Surveillance Procedures CP-QP-11.2, 19.3, 19.4, 19.5, 19.6, 19.7, 20.0, and 27.0 described the surveillances of specific activities; however, no general procedure which describes the overall surveillance program was provided. The present program did not appear to have sufficient purpose, direction, coordination, and feedback in relationship with the overall QA program. Furthermore, the inspection revealed that the surveillance staff had been reduced from a supervisor and eight technical personnel to four technical personnel. Considering the Lobbin Report this reduction of surveillance effort may not be a prudent action.

As noted in the findings in the Lobbin Report; i.e., QA management had not clearly defined the objectives and scope of the surveillance program, it appeared that TUGCO needed to strengthen the surveillance program. The TUGCO management decision to commit to a surveillance program was a strength, but this lack of purpose and direction and support was a program weakness.

Additionally, the surveillance group was no longer observing work in Unit 1 but will now place most of their effort on Unit 2 construction activities.

This matter is considered unresolved pending clarification of the audit and surveillance program effort and further review during a subsequent inspection (445/8432-06; 446/8411-06).

The NRC inspector randomly selected and reviewed 28 surveillances performed in 1982, 1983, and 1984. Findings and resolutions of these findings were reviewed and in each case, written responses and corrective action were adequate.

c. Site Design Activities

The NRC inspector reviewed and evaluated selected site activities pertaining to design verifications, design changes, design inputs, and control of vendor drawings as follows:

- (1) Design Verification - The NRC inspector interviewed the TUGCO supervisor of engineering, support, and other engineering personnel to determine how design verifications were performed, and examined the related procedures, logs, and design verification packages. Authorized design verifiers were maintained on lists and an automated tracking system was in place to assure that all design changes, i.e., design change authorizations/component modification cards (DCA/CMC) were verified. Three design verification reports were reviewed to assure that the design verifier was on the authorized list. Design verifiers were not to be involved in the original design review to assure an independence. It was noted that each DCA/CMC was being reviewed for verification. If there was no authorized signoff, then the design was verified.

Audit TGH-23, conducted during August 1984, concentrated on Unit 1 quality related activities for which onsite G&H design review team had responsibility. The audit involved evaluation of the program established and implemented for site review and processing of changes (CMA and DCC) associated calculations and 287 design review packages were reviewed. No major technical problems were identified during this audit.

- (2) Design Changes - The NRC inspector interviewed engineers and draftsmen in TUGCO engineering to determine how design changes were processed and examined the related procedures, files, reports, and tracking systems. A master list was maintained identifying those individuals who were authorized to approve design changes and G&H updates this list by memo. The NRC review of three design review files verified that the reviewers were on the authorized list.

The NRC inspector also reviewed the method used to incorporate field changes (DCA/CMC) into related drawings and the subsequent review, approval, and incorporation of changes into as-built drawings. One observation required additional discussions. The drafting supervisor's (piping support) authority to incorporate a change into a drawing was transmitted and signed by a clerk. This was clarified as being acceptable by management because it

was in accordance with established procedure (CP-EI 4.6-8, paragraph 3.3) and also, as a final control, the as-built drawing was reviewed and approved by an authorized project engineer prior to release.

The NRC inspector examined how the TUGCO administrative services group handled NRC IE Bulletins, Circulars, and Information Notices. These documents were coordinated by the operations support department and were distributed to the appropriate TUGCO engineering group for action. Design changes resulting from these inputs were processed in accordance with established design control procedures. Responses from personnel receiving these reports were reviewed to verify that the reports were adequately addressed. Summary reports and log sheets are used to keep management current as to the status of the responses.

An INPO audit of the operating experience review program in 1982 noted the following good practice, "The procedures for handling industry experience are excellent and are expected to provide a firm base for developing an effective industry experience program."

TUGCO QA audit Report TUG-41 was conducted in December 1983 to review implementation of the operations support program for evaluating and responding to NRC IE Bulletins, IE Notices, IE Circulars, and generic letters. The auditors found the program in compliance with procedural requirements and the overall effectiveness of the program appeared to be adequate.

- (3) Design Document Control - Two packages were reviewed and these contained evidence of vendor data checklists, indexes, approval letters, and the vendor stamp on drawings was observed.

d. Site Procurement Activities

The NRC inspector determined that the TUGCO procurement function was delegated to the TUGCO site organization. The major procurements occurred several years ago; however, present procurement activities associated with items procured offsite for installation were performed by TUGCO or were contracted to G&H, (W), or B&R who were evaluated and qualified by TUGCO QA. Procurement documents were reviewed, approved, and controlled; and receipt inspection of safety-related items on site was performed in accordance with written procedures and checklists.

The NRC inspector selected two procurement actions for review:

- P.O. CPF-1233-S issued to Combustion-Engineering for the procurement of a heated junction thermocouple system.
- CPF-10469-S issued to Paul Monroe Hydraulics to refurbish four Rockwell International actuators.

Both the procurement actions were reviewed to determine that technical requirements were commensurate with the scope of the procurement and was authenticated by engineering review in accordance with TUGCO engineering division Procedure CP-EP-3.0, Section 2.0(d). Both procurement actions reflected the necessary QA review signatures, as required by TUGCO engineering division Procedure CP-EP-5.0, paragraph 3.1.2; QA Procedure DQP-CS-2, paragraph 3.1.8; and instruction QI-QP 5.0.1. All field requisitions initiated to generate a supplement to the aforementioned purchase orders were reviewed and documented as required by Procedure CP-EP-5.0. Reporting requirements set forth by 10 CFR Part 21 were included in the purchase order. The NRC inspector reviewed and verified that both purchase orders specified that the supplier shall establish provisions for imposing similar QA requirements on applicable subtier vendors.

No violations or deviations were identified.

4. Unresolved Items

Unresolved items are matters about which more information is required in order to determine whether they are acceptable items, items of noncompliance, or deviations. Unresolved items are identified in this report in paragraphs 2.a, 2.c.(2) and 3.b.

5. Exit Interview

The NRC inspector met with members of the TUGCO staff (denoted in paragraph 1) at various times during the course of the inspection. The scope and findings of the inspection were discussed.