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May 29, 1985

Peter B. Bloch, Chairman
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. Walter H. Jordan
Administrative Judge
881 W. Outer Drive
Oak Ridge, Tennessee 37830

Dr. Kenneth A. McCollom
Administrative Judge
Dean, Division of Engineering,
Architecture and Technology
Oklahoma State University
Stillwater, Oklahoma 74078

Re: In the Matter of Texas Utilities Electric Company, et al
(Comanche Peak Steam Electric Station, Units 1 and 2)
Docket Nos. 50-445-1 and 50-446-1
Supplementation of Applicants' Response to CASE's Request for Production

Dear Administrative Judges:

This is to notify you and all parties to the above dockets that Applicants have identified a document which we believe to be within the scope of Item 10 of CASE's Interrogatories and Requests to Produce dated July 7, 1980, as clarified on August 4, 1980. Applicants submitted their response to Item 10 on September 8, 1980 and supplemented their response by letters dated December 22, 1980, March 5, 1982, and April 19, 1982. The document, a copy of which is enclosed with this letter, is a report prepared in May of 1978 by Management Analysis Company (MAC) following a management review and audit of the quality assurance program of the Comanche Peak Project.

ADD: R Denise Region IV

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Recently, in gathering data for a prudence audit being performed for TUEC, a search was made by TUGCO personnel of inactive and closed corporate files located in TUGCO's Dallas office. In the course of such search, the enclosed report was found. A memorandum dated July 11, 1978, which details TUGCO resolutions to the findings and recommendations made by MAC, is also enclosed.

TUGCO management is evaluating the failure to produce this document at an earlier time and will advise the Board and parties of the results of this evaluation in the near future.

Respectfully submitted,

Robert A. Wooldridge
Counsel for Applicants

RAW/klw

Enclosures

cc: Service List

Management Analysis Company
11100 Roselle St., San Diego, CA 92121
714/452-1391

May 17, 1978

MAC-JPJ-471

Mr. Perry Brittain
President
Texas Utilities Generating Company
2001 Bryan Tower
Dallas, TX 75201

Dear Mr. Brittain:

Enclosed is the report of the Management Quality Assurance Audit conducted for Texas Utilities Generating Company.

The audit disclosed that, in general, the Quality Assurance activities were effective, that there is good team spirit between TUGCO/TUSI personnel and the Architect/Engineer and the Constructor. The audit resulted in the identification of some failures to comply with regulatory requirements, the Quality Assurance Plan or the PSAR. These deficiencies are identified in an Audit Report as Appendix A. The audit also identified areas of potentially improved practice. These are identified as Observations and Recommendations and Appendix B to this letter. As you know, MAC participated in an audit of the Comanche Peak site and significant improvement is noted since that audit.

Management Analysis Company received full cooperation from all personnel contacted during the audit, TUGCO/TUSI, Brown & Root, and Gibbs & Hill. The general openness of personnel and their frank discussion not only enhanced the conduct of the audit, but exemplifies an attitude conducive to correction of any deficiencies.

We appreciate the opportunity to be of service to Texas Utilities Generating Company and Texas Utilities Services, Inc. and hope to do so in the future. If there are any comments or questions regarding this work, please contact Mr. J. M. Norris or me at (714) 452-1391.

Sincerely,

John P. Jackson
Principal Partner

JPJ:bew
Enclosures: Appendix A
Appendix B

APPENDIX A

TEXAS UTILITIES GENERATING COMPANY
AUDIT REPORT

AUDIT REPORT

Subject: Audit of Texas Utilities Generating Company, Dallas Offices and Comanche Peak Steam Electric Station Construction Site

Date of Audit: May 1-12, 1978

Audit Scope: A management audit was conducted of the Quality Assurance Program of Texas Utilities Generating Company during the weeks of May 1 and May 8, 1978. The purpose of the audit was to determine the adequacy of the Quality Assurance Program as related to Nuclear Regulatory Commission requirements and the effectiveness of implementation to meet program requirements and authority delegations. Activities were audited at both the TUGCO offices in Dallas and at the Comanche Peak construction site. Activities of the Architect/Engineer and Constructor were audited only at the construction site. The scope of the audit included commitments made in the PSAR, the Corporate Quality Assurance Manual, the Comanche Peak Quality Assurance Plan, the Project Procedures Manual and the Brown & Root Quality Assurance Manuals and Procedures related to the Comanche Peak site.

Auditors:

Dallas office, May 1-3, 1978

J. P. Jackson, MAC Audit Team Leader

J. M. Norris, MAC Auditor

Comanche Peak Construction Site, May 4 & 5, May 8-12, 1978

J. P. Jackson, MAC Audit Team Leader

J. M. Norris, MAC Auditor

J. A. Hendron, MAC Auditor (May 8-12 only)

Personnel Contacted or Interviewed:

NAME	COMPANY	TITLE
D. N. Chapman	TUGCO	QA Manager, *-1-2
R. G. Tolson	TUGCO	Mgr. Site Surveillance, *-1-2
R. V. Fleck	TUGCO/G&H	Civ. Inspec. Supv., *-1
J. V. Hawkins	TUGCO/G&H	Prod. Assurance (QA), *-1

mac

Personnel Contacted or Interviewed:

NAME	COMPANY	TITLE
J. B. George	TUSI	Proj. General Mgr., *-1-2
J. T. Merrit	TUSI	Resident Manager, *-1
E. G. Gibson	TUSI	Project Engineer, *-1-2
B. J. Murray	TUSI	Engineering Supv., *-1
J. J. Moorhead	G&H	Resident Engineer, *-1-2
B. C. Scott	B&R	Site QA Manager, *-1
J. P. Clarke	B&R	Site QC Manager, *-1
R. Mann	B&R	QA Records Coordinator, *
H. O. Kirkland	B&R	Proj. General Mgr, *-1
W. D. Douglas	B&R	Project Manager, *-1
D. C. Frankum	B&R	Asst. Project Mgr., *-1
P. Foscolo	B&R	Proj. Chief Engineer, *-1
L. Hancock	B&R	Mat'l Procurement, Construction Branch, *-1
A. Boren	TUGCO	Vendor Compliance, *
A. Vega	TUGCO	QA Central Staff Function, *-1-
C. Beggs	TUGCO	Systems Compliance, *-1-2
R. Gary	TUGCO	V.P., Operations, *-1
L. Fiker	TUSI	V.P., Design & Procurement, *-1
P. Brittain	TUGCO/TUSI	President, 1

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* Interview

1 Pre-audit meeting

2 Post audit meeting

Audit Method: The audit was conducted through a series of interviews with responsible management and supervision and examination of Quality Assurance manuals, procedures, records and work operations both at the Dallas headquarters of Texas Utilities Generating Company and Texas Utilities Services, Incorporated and at the Comanche Peak construction site.

Summary: The audit disclosed that recent changes in authority delegations had been generally well accepted and that morale

Summary (Cont'd): and team spirit were good. However, the changes had not yet been formalized in revisions to the PSAR and the Comanche Peak Quality Assurance Plan. The audit also disclosed that present practices in the control of design changes and of certain nonconformances do not provide the requisite level of review by the original designer. In other instances it was evident that design changes were being used in lieu of nonconformance reports. Except for the areas noted herein and below, there was generally good adherence to existing procedures.

Findings:

1. The current activities of TUGCO Quality Assurance personnel are not consistent with the authority delegations to Brown & Root and to Gibbs & Hill as defined in the PSAR and Comanche Peak Quality Assurance Plan.

   Similarly, the Quality Assurance Plan and Procedures are not consistent with current and planned revisions in authority delegations to the Architect/Engineer and the Constructor, and is not complete in addressing all eighteen criteria of 10CFR50 Appendix B. The lack of a well identified plan of reorganization and responsibility causes uncertainty in carrying out some activities. There needs to be a plan for revising the Quality Assurance Program; such a plan should include the establishment of an architecture of procedures to show how other TUSI/TUGCO and contractor manuals inter-relate with the Quality Assurance Manual. The TUGCO QA Manager should establish a schedule and assign responsibilities for completion of the necessary procedures. The schedule should be supplemented with a management effort to monitor adherence to the plan and achievement of the schedule.

2. The current site DC DDA system of after the fact coordination of design changes with the original designer

Findings:
(Cont'd)

provides a significant risk of design error and does not meet the requirements of 10CFR50 Appendix B, nor of ANSI N45.2.11, "Quality Assurance Requirements for the Design of Nuclear Power Plants".

A system for expediting and documenting Gibbs & Hill home office approvals should be established using telephone, telecopier or telex as a means of speeding communication.

3. The Comanche Peak Quality Assurance Plan does not provide for a Quality Assurance review of procurement documents and changes thereto prior to purchase order placement, except for site originated procurements. Such a review is identified in 10CFR50 Appendix B, Criterion IV and is a requirement of ANSI N45.2.13. It should be required on all safety related procurements.

4. The current combination of Chapter 17 of the PSAR, the TUGCO Corporate Quality Assurance Manual, the Comanche Peak Quality Assurance Plan, Project Procedures and Brown & Root Manuals and Procedures provides a complex array of procedures which is difficult to maintain current and consistent.

5. The current system of providing inspection instructions or checklists to inspectors is too generic, placing an undue burden on the inspector in attempting to determine applicable drawings and specifications and applicable revisions thereto. A review of records of concrete pours incidates that configuration reflecting the as-poured condition is not clearly defined. Applicable DC DDAs are not noted in inspection documentation. Configuration needs to be clearly identified to inspectors on a current basis, including all applicable

Findings:
(Cont'd)

DC DDAs and completed documentation must reflect the status of the applicable changes.

6. Special processing markings for later in-service inspections are carelessly applied. The circle and arrow used for such marking is sometimes incomplete and not recognizable for its intended purpose. In one instance only a portion of the circle resembling the letter "C" was discernible. Failure to properly mark these locators now will cause delay and possible error when in-service inspections are made in highly irradiated areas.

7. Disposition of nonconforming items does not always achieve the requisite review by appropriately qualified design personnel. A procedure, limited to defects in concrete, was recently issued which bypasses the established nonconformance control system and, thus, violates regulatory requirements in this regard. In other instances, the DC DDA program has been used to bypass the nonconformance reporting system. The nonconformance control system should be the means for maintaining inspector integrity, identifying problem areas and provide a driving force for their correction.

8. The records storage facility does not currently have any means of internal fire protection during hours it is unmanned, although it is understood some method is planned. Quality Assurance records, such as personnel qualifications, are not maintained in the Records Center, but are maintained in fireproof file cabinets in a trailer under the cognizance of Brown & Root training coordinator.

9. Approximately twenty-four percent of Central Staff audits have not been conducted as scheduled. Combining Central Staff audits, site audits and site surveillance activities

Findings:
(Cont'd)

by TUGCO and by Brown & Root into a single, cohesive program would provide improved visibility to the overall audit and surveillance effort and permit evaluation and ajustment to the audit schedule to attainable and yet effective frequencies.

APPENDIX B

TEXAS UTILITIES GENERATING COMPANY
OBSERVATIONS AND RECOMMENDATIONS

TUGCO AUDIT

OBSERVATIONS AND RECOMMENDATIONS

I. ORGANIZATION

A. General

TUGCO Quality Assurance has undergone considerable reorganization in the past year. The general thrust of this effort has been the assumption of greater direct involvement in the management and supervision of the Comanche Peak Quality Assurance Program. It is to be noted that important shifts in responsibility were being made at the time of MAC's review.

As a part of this assessment, MAC evaluated the reactions of key managers, supervisors and inspectors to the overall changes that have taken place to date.

It was generally observed that those interviewed thought that with few exceptions the changes were for the better. There appeared to be a team effort on the part of QA and Construction with excellent TUSI executive management and project management support of the QA program. There was no noticeable problem with organizational prejudice brought about by the organizational intermixing of TUSI, Brown & Root or Gibbs & Hill work forces and supervision.

B. Organization

During the course of the audit MAC discussed the value of a revised organizational structure with the TUGCO Quality Assurance Manager and the Manager, Site Surveillance.

It is recommended that TUGCO adopt an organizational realignment of activities as set forth in Exhibit 1, whereby Quality Engineering and Inspection report to the Site QA Supervisor as two separate sub-organizational entities with responsibilities as defined in Exhibit 1. Such an organization will better supplement the existing Construction organization and will permit better organization for handling day-to-day site problems as well as implementing recommendations of this report. This is particularly so in the area of inspection planning.

C. Quality Surveillance Committee

ATT minutes of meetings of the QSC since its inception were reviewed. It is noted that the QSC was established as a mechanism for providing top TUGCO management with a periodic update on such matters as "schedules and milestones" or "audits and corrective actions".

It was noted that recent meetings dealt with tracking on the status of action items as set forth in the Outstanding Surevillance Report Items or the Quality Assurance Items of Concern Report. In such instances it appeared the Quality Surveillance Committee was taking on the role of a task force or problem solving group. The problem that exists if the QSC assumes such a role is that problems would tend to await the three month meeting cycle before the necessary management attention is effected.

It is recommended that TUGCO re-evaluate the charter of the QSC and serious consideration given as to its value to the project recognizing that:

1. ATT action to resolve problems should be handled on a day-to-day basis through the functioning organization, and

2. The primary objective of maintaining management awareness of Quality Assurance status might be accomplished more efficiently, effectively and on a more timely basis through a monthly Quality Assurance progress report distributed to the TUGCO/TUSI executives.

D. Qualification of Personnel

MAC reviewed the qualifications of all TUGCO/TUSI and Gibbs & Hill Quality Assurance personnel and many of the Brown & Root personnel. It was observed that most of the TUGCO/TUSI Quality Assurance personnel have gained their Quality Assurance experience through Comanche Peak activities only. Although the project has provided valuable experience, it is recommended that any future assignments in Quality Assurance be filled with quality engineers hired from outside the company with broad nuclear experience, preferably in construction. Such experience added to the existing staff will serve TUGCO/TUSI well in accomplishing the important

piping, electrical and startup activities ahead.

MAC had occasion throughout the audit to assess the qualifications and experience of 20-30 inspectors throughout the construction site. These observations are worth mentioning:

1. The inspectors are generally young and inexperienced with many having as little as six months experience in inspection.

2. There was an obvious need for more seasoned inspectors to work with the novice inspectors on a day-to-day basis.

3. Too much responsibility is placed on the inspectors with respect to preparation of inspection planning, resolution of site problems and determination of the design configuration base for performance of inspections.

II. QUALITY ASSURANCE PROGRAM

The Quality Assurance Program is defined in three basic documents:

The Corporate Quality Assurance Manual
Chapter 17 of the PSAR
The Comanche Peak Quality Assurance Plan

These documents are not in total agreement with one another. Since there is no other nuclear plant currently planned and since the authority delegations identified in the Corporate Manual are not in consonance with practices on Comanche Peak, TUGCO should consider discontinuance of the Corporate Manual unless there are other projects to which it is to be applied. If a Corporate Manual is required at a later date, a new one could be prepared based on Comanche Peak experience and the requirements of any new projects to which it would be applied.

The Comanche Peak Quality Assurance Plan addresses only the following criteria of the eighteen identified in 10CFR50 Appendix B.

Organization
Design Control
Procurement Administration
Inspection
Nonconformance Control
Document Control
Records
Audits

With the expanded responsibilities of the TUGCO Quality Assurance Department, the plan needs to be expanded to address all eighteen criteria to reflect the creation and functions of the Procurement Department and to be consistent with the authority delegations and functions still resting with Gibbs & Hill and with Brown & Root.

There needs to be a plan for procedural identification and development and a schedule and assigned responsibilities for their completion, including a complete architecture of Quality Assurance procedures, project procedures and interfacing procedures of the Architect/Engineer and Constructor. The effort should be to minimize the number of procedures required and to eliminate duplicating or overlapping procedures through consolidation of detail and joint approvals of the organizations involved. It is recommended that the Quality Assurance Manager use his organization as the driving force to achieve required procedural coverage on schedule.

It was noted that TUGCO is planning on obtaining its own Code manual. The stated reason for this was the fear that Brown & Root would not achieve Code acceptance. The auditors feel that the Brown & Root manual would be acceptable to the Code Survey Team and that its weld practices as exemplified in the Weld Shop are very acceptable. The auditors are of the opinion that obtaining a Code Stamp will be difficult where all the work of implementing the program is performed by others.

III. DESIGN CONTROL

The present system of expediting field changes by referring design changes to the original design organization for approval after the fact does not

meet the intent of 10CFR50 Appendix B nor of ANSI N45.2.11, which require that field changes be subject to design controls commensurate with those exercised on the original design. TUGCO audits have already disclosed that the Architect/Engineer has not been reviewing field originated changes on a concurrent basis, thus the design engineer's comments may be received after the specific construction work is complete resulting in possible loss of design integrity, undue pressure on the designer to justify what has been done, loss of designer responsibility or possible extensive repairs. It is recommended that a system for expediting review and approval by the original designer be established on all safety related changes using telephone, telecopier or telex as necessary to coordinate and document change approvals.

IV. PROCUREMENT DOCUMENT CONTROL

Except for site procurements, the Comanche Peak Quality Assurance Plan does not provide for a review of procurement documents and their changes prior to placing a purchase order. This is contrary to requirements of 10CFR50 Appendix B, Criterion IV and ANSI N45.2.13, "Quality Assurance Requirements for Control of Procurement.....". There is a review of procurement documents by Quality Assurance during Design Review, but is was ascertained that this was a review of the drawings and specifications and not the purchase order or contract.

Procurement document review by Quality Assurance should assure that all necessary requirements for access to the supplier's facilities are provided and that necessary controls and documentation have been specified and that the appropriate configuration has been defined. The review should also assure that requirements imposed are appropriate to the procurement and that there are no excessive requirements for quality program development or for the delivery of unnecessary documentation. Some of the procurement packages reviewed appeared to have both blanket requirements for Quality Assurance programs and excessive requirements for documentation.

V. INSTRUCTIONS

A. Inspection Planning

The current system of providing inspection instructions or checklists to the inspectors is too generic in nature. In the case of concrete inspection planning the inspector fills out a simple pour card with an attached Concrete Placement Checklist, a Reinforcing Steel, Electrical, Mechanical and Embedded Item Placement Checklist and a Stainless Steel Liner Checklist, the combination of which:

1. Provides no information with respect to unique, embedments or penetrations to be incorporated in the pour.

2. Places an undue burden on the inspector in attempting to determine applicable drawings, specifications, applicable revisions and applicable DC DDA's. Much of this input should be provided by clerical support under the direction and subsequent approval of a quality engineer.

Agreed will be corrected

Inspectors estimated that 45-70% of their time is spent on documentation rather than physical inspection activity. Well thought out planning could do much to alleviate this situation.

Traceability

It was observed that Comanche Peak has established a program of unnecessary material traceability which, based on one estimate, consumes at least a three-man level of effort and perhaps as high as a six man level of effort if one considers all the support functions required to implement the program. All anchor bolts and B series cadwelds are fully traceable to heat numbers such that through an elaborate and extensive system of mapping all installations, the capability exists of identifying each embedded anchor bolt, B series cadwelds and other standard embeds to its heat number. There exists no such NRC or industry requirement for this degree of traceability. It is interesting to note that rebar does not require traceability on Comanche Peak (and shouldn't). MAC knows of no other project that imposes this require-

ment and could not identify a Comanche Peak specification or procedure requiring it. Accordingly, it is recommended that this practice be dropped immediately. Such a move would enhance inspector morale as those involved are aware that the practice serves no useful purpose.

C. Procedure Simplification

Newly established procedural systems are such that Construction and Quality Assurance issue procedures on similar subject matter jointly; for example, the recently issued procedure on shop travelers was jointly prepared by Construction and Quality Assurance. It is recommended that important procedures such as those related to concrete be revised and issued as a single procedure approved by Construction and Quality Assurance. Similarly, those procedures related to piping and electrical should be revised and jointly issued as a single Comanche Peak procedure.

D. Procedures Independent of Houston

The present system of obtaining Brown & Root, Houston office approval on construction procedures should be modified. Guidelines should be worked out with the Houston office whereby they approve only top level procedures, permitting the site full flexibility in revising detailed site procedures. Perhaps the Brown & Root, Houston office could retain approval authority on those top level documents that establish Brown & Root policy, control the necessary type of forms, etc. However, detailed operating procedures should be changed with site approval only. Perhaps the Houston office would agree to a retroactive review procedure.

E. Configuration Control

A review of records for completed concrete pours indicates that the configuration reflecting the as-poured condition is not properly defined. It was noted that the inspectors record the particular drawing number and revision letter, however, all applicable DC DDAs are not noted anywhere in the inspection supporting documentation.

F. Preplanning of Construction Work

In discussions with construction management personnel it was indicated that a new scheme of construction planning is being developed. This new scheme provides for a detailed material takeoff on all Gibbs & Hill drawings which provides detailed instructions to the crafts as to the civil, mechanical and electrical items to be included in each segment of work. This formalized approach of taking material takeoffs in the office and providing this information to the field forces on an approved material takeoff list will do much to improve the quality of the work. Since the material takeoff is a formal process accomplished by construction engineers well in advance of the work, it provides a significant measure of preplanning, including the processing of necessary design changes to accomplish the work. Such an effort will do much to minimize field errors with respect to left out embedments or inability to complete work as a result of design errors. It is recommended, however that this effort be formalized into a Comanche Peak site procedure. As such, it will be recognized as part of the system and will do much to assure that Gibbs & Hill drawings are forwarded to the site on a timely basis to accomplish this preplanning effort.

VI. DOCUMENT CONTROL

While there appeared to be some problems with bringing the Automatic Records Management System on line, the manual system backing it up appeared to be functioning satisfactorily. The auditors found no deficiencies in document control.

VII. CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

The Quality Assurance Plan is not up to date in regard to TUGCO's responsibilities for procurement, source evaluation and source surveillance. TUGCO has developed a program for rating supplier performance and shows evidence of actions when reatings are unsatisfactory.

The list of suppliers requiring evaluation and source surveillance is not kept up to date by the Architect/Engineer. The list in use is over

four months old, but is maintained manually by the TUGCO Supervisor of Supplier Compliance.

There does not appear to be any method of assuring that the latest configuration is supplied to the personnel performing source inspection prior to shipment of procured items. The source inspector appears to be at the mercy of the supplier in determining what changes have been identified and incorporated. Thus, it is conceivable that items will be shipped to the site that do not meet the desired configuration even though requirements of the purchasing document have been met. Such receipts can cause delays and unwarranted costs in meeting the proper configuration.

It is recommended that a practice be established of identifying and confirming required configuration prior to procurement and prior to shipment of purchased materials and components.

VIII. IDENTIFICATION AND CONTROL OF MATERIALS, PARTS AND COMPONENTS

No deficiency noted. Material reviewed in the warehouse, in open storage and in the weld shop appeared to be adequately identified.

IX. SPECIAL PROCESSES

A. Radiography

Iridium 192 is being used as the radiation source for all radiography at the site. This isotope has its optimum capability at about 1.5 inch thickness of steel and is not recommended by the Code below .75 inches. It is permitted for lesser thicknesses when the use of other radiation sources is not practical and when resolution of the outline and 4T hole size of the penetrameter can be demonstrated. The energy levels of iridium isotopes are higher than optimum for materials .375 inches or thinner, resulting in a flat image and lack of contrast. Because exposure time relates to distance, the isotope is normally placed against the pipe opposite the film. With a .100 inch source size, this causes blurring of the image. Lack of contrast and a blurred image makes it unlikely

that hairline cracks will be seen and difficult to accurately define large indications. The use of iridium 192 meets the minimum requirements of the Code, but by not providing optimum identification of observed anomolies it does three undesirable things. First it causes unnecessary removal and repair of indications that can be seen but not properly identified; secondly, it masks narrow cracks, tight lack of weld penetration and non-fusion which can be detrimental to service life; thirdly, it does not provide an adequate base line for in-service inspections performed after the plant has gone into operation. Failure to have clear identification of the original indications at that point can cause delays, the cost of which greatly exceeds the cost of providing better identification and necessary repair of defects found in the construction phase.

Recommendation - It is recommended that TUGCO require x-ray for shop welds, and consider its use where practical for construction welds. X-ray machines in the range of thirty pounds of weight are available and are nearly as portable as the isotope. Because of its smaller focal spot size and variable voltage, x-ray can give superior radiography. The feedback of information to welders can improve the quality of welds and minimize the potential for defects. The ability to discriminate between indications having roundness or sharpness at the ends can eliminate repair. The ability to positively identify in the construction phase those indications which have a potential for growth and failure can permit economical repair without radiation hazards that are inherent if found later in the operating phase.

B. Welding

No causes for concern and no procedural noncompliances were found in review of the weld shop. There seemed to be a general opinion that after radiography repairs are being required that are acceptable within the Code. A review of a small quantity of rejected film indicates this generalization may be valid. It was disclosed during the audit that radiographs may be reviewed by as many as five individuals. Such excessive review leads to supercritical evaluation of film and to excessive repair. As previously stated, better radiography permits better

Wrong

identification of conditions acceptable within the Code. Unnecessary repairs increase cost and reduce pipe reliability.

Recommendations - Have radiographs which have been rejected for defects reviewed by TUGCO Level III radiographer. If a reasonable statistical sample shows that excessive repair of welds has been required, establish the policy that Code acceptable indications shall remain untouched, but shall be recorded on the reports.

As an economy, consider reducing the number of persons performing sequential review of radiographs.

C. NDE Qualifications

The site NDE Level III situation is unclear. Only Level II certification by Brown & Root was available for the NDE Supervisor; however, it is understood that TUGCO has issued a letter identifying him as Level III.

Recommendation - Clarify the authority and responsibility of the NDE supervisor in administering tests and evaluating and certifying personnel. This is very important as related to Code work, since the Level III will be working under the authority of the holder of the Code stamp.

X. INSPECTION

There were no deficiencies noted relative to inspection; however, it was noted that a large number of inspection personnel are receiving their first nuclear construction experience on the Comanche Peak site. As a consequence, it is necessary to improve the quality of inspection planning and to increase the level of supervision and quality engineering support. Inspection planning should identify the required configuration including applicable DC DDAs, the features to be verified, the inspection method and acceptance criteria in order to minimize possible confusion and error.

XI. TEST CONTROL

A review was made of the TUGCO startup administrative procedures, with the following observations.

1. The procedures appear to be written around the old organization; that is, in several instances they refer to the Brown & Root QA/QC input required in the preparation of "startup work requests".

2. It was noted that an unique system is being established to handle nonconformances during the startup phase. It is recommended that wherever possible existing schemes utilized in construction be used during the startup process. This is important since most personnel involved in dispositioning such items as nonconformances and design changes will be the same persons involved in construction.

XII. CONTROL OF MEASURING & TEST EQUIPMENT

It was observed that out of 24 instruments sampled which are utilized in civil, structural, mechanical and electrical work, approximately 50 percent had not been withdrawn from the calibration laboratory since its last calibration date. This is particularly significant when it is recognized that the present system is such that if a calibration date becomes due, the instrument is recalibrated whether or not it has been issued for use. It is recommended that consideration be given to simply changing the calibration date rather than going through a calibration cycle if the tool has not been used.

It was noted that many construction tools are calibrated. It is important to note that calibration of construction tools is not necessary with respect to 10CFR50 Appendix B. Although calibration and maintenance is extremely important on construction tools, it may be that frequencies may be relaxed.

XIII. INSPECTION, TEST AND OPERATING STATUS

No deficiencies were noted in this area. Material and equipment observed in receiving inspection, in the warehouse and outside storage

area appeared to be adequately identified. No tests were observed.

XIV. HANDLING, STORAGE AND SHIPPING

Exterior storage practices should be reviewed. The protective coverings of many items are damaged; some reported on monthly surveillance reports have not been corrected. Large temporary structures, such as those over the emergency diesel engines, require wind bracing to prevent further damage. Because of soil chemistry, rain and humidity, the current practice of allowing large stainless steel piping to remain uncovered should be reviewed. Sensitized stainless is extremely sensitive to chloride, fluoride and sulphide contamination which with water as a couplant can cause intergranular corrosion and premature failure.

XV. CONTROL OF NONCONFORMANCES

There appears to be an effort to reduce the number of documented nonconformances.

#1

It was noted that DC DDAs were being utilized for nonconformance reports. Although this was observed on a small percentage of DC DDAs issued during the month of April, it is recommended that this practice be stopped immediately. The TUGCO system is correctly established whereby nonconformances are written after the fact and DC DDAs are reserved for design changes before the fact. It is important that this practice be enforced since DC DDAs prepared after the fact necessitate that workers be directed verbally to violate the drawing since the deviation will be handled after the fact with DC DDAs. This is a poor Quality Assurance practice.

Procedure CPQI-AB, Rev. 0, dated 5-5-78 was issued for the purpose of providing expedient disposition of concrete discrepancies. The procedure infers that discrepancies of 72°F versus 70°F or 6.2% air content versus 6.0% maximum is perfectly acceptable when it is signed off by the field engineer. Such a system shortcuts the established nonconforming material control system as defined in Brown & Root and TUGCO procedures and should

be discontinued. If tolerances are unrealistic such that the 72°F is acceptable, then the design specification should be changed to so indicate.

It is recommended that good inspection planning be provided inspectors, identifying the characteristics to be inspected, the method of inspection and acceptance criteria and that inspectors identify nonconformances to such criteria. This will maintain the integrity of inspectors and provides identification of problem areas and provides a means for their correction.

It is reasonable to assume that on a project as large as Comanche Peak there will be several thousand nonconformance reports. The number does not reflect adversely on the quality of construction, but the failure to identify nonconformances does reflect adversely on the integrity of inspectors and leaves unknown the quality of the plant.

XVI. CORRECTIVE ACTION

There were no deficiencies noted relative to corrective action on hardware. The Supplier Compliance Supervisor has established a method of tracking vendor performance and shows positive results from actions taken to correct supplier quality problems. A review of reports of site surveillance conducted by TUGCO showed corrective action responses were being promptly received. A review of reports of surveillance actions by Brown & Root showed generally adequate response and resolution of corrective action except for a period of four months when surveillance personnel were assigned to other tasks.

In general, corrective action appears to be adequate and timely on vendor and site related problems, but some deficiencies identified in audits of major contractors still persist. Some of the changes in authority delegation to major contractors appears to be action taken to correct inadequate or untimely response by those organizations; however, other actions taken, such as handling of field changes and nonconformances, appear to be those of circumventing the problem rather than correcting it.

XVII. RECORDS

Except for lack of internal fire protection, the quality records area is considered to be satisfactory. Some Quality Assurance records, such as personnel qualifications, are not stored in the records center but are maintained separately by the Brown & Root training coordinator. There is not currently a catalog or listing of required records although it is being prepared. A review of a selection of Quality Assurance records showed the documents in them to have been properly completed and in the correct order.

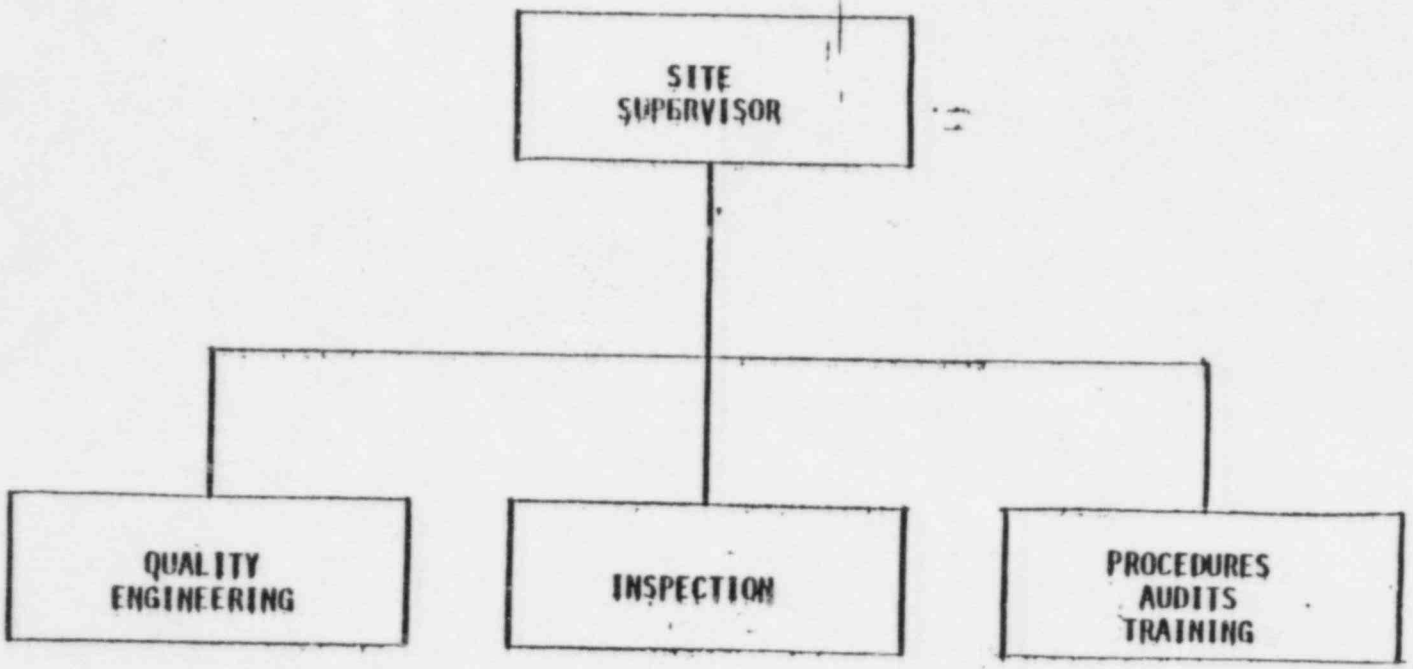
Recommendation - The installation of an inert gas fire extinguishing system or the identification of geographically separate duplicate records should be expedited. TUGCO should review the fire protection capabilities of storage facilities in the training supervisor's trailer and consider a duplicate set of such records to be maintained in the records center.

XVIII. AUDITS

There are several audit and surveillance programs in effect. Audits by the Quality Assurance Department Central Staff are performed on site activities, major contractors and suppliers. Site surveillance actions are performed under the direction of the TUGCO QA Site Supervisor. Similar surveillance activities are carried out under the direction of the Brown & Root Site Quality Assurance Manager. While called surveillance actions, the surveillance programs are formally planned and scheduled, utilize checklists to guide the activity and record results, and issue reports of deficiencies and require correction. Except for formal and documented pre-audit and post-audit meetings, all the elements of an audit program are in place. It was reported that the reason for calling the activity "surveillance" was to avoid outside auditors finding the program deficient because it did not include the documented pre- and post-audit meetings, yet the auditors found that such meetings were conducted, but on an informal basis.

Recommendation - The auditors consider the present program to be an effective tool which could be further improved. TUGCO should consider

combining the audit and surveillance activities into a single, cohesive effort. Such an integrated effort could cover required areas more efficiently, without duplication and at a frequency that can be maintained. Such an audit program should be described in written procedures and include a description of both the formal audit and the continuous audit plan (surveillance) and the method of conducting pre- and post-audit meetings should be described to preclude later criticisms by outside organizations. The resulting audit program should be a superior tool for management assessment of program implementation and effectiveness.



DESIGN REVIEW
PROC. DOC'T. REV.
INSPECTION PLAN'G.
INSP. METHODS
QUALITY STDS.
NONCONFORMANCE
DISPOSITION
CORRECTIVE ACTION

QUALITY VERIFICATION
NONCONFORMANCE
IDENT. & CONT'L.

SITE PROCEDURES
SURVEILLANCE/
AUDITS
INDOCTRINATION
TRAINING
QUALITY RECORDS

EXHIBIT 1

TEXAS UTILITIES GENERATING COMPANY

OFFICE MEMORANDUM

To Perry G. Brittain

Dallas, Texas July 11, 1978

Subject Management Quality Assurance Audit

RECEIVED

JUL 12 1978

P. G. BRITTAIN

Attached are our resolutions to the findings and recommendations made by Management Analysis Company as a result of their audit in May. Our analysis of the audit results has been discussed in general terms with John Jackson, and we see no need to respond formally to this audit.

R. D. Gary

L. F. Fikar

FINDINGS (APPENDIX A)

1. Finding Summary: Our QA Plan and Procedures do not reflect current authority delegations to B&R and to G&H.

   Response: At the time of the audit we were operating under properly approved deviations. These deviations were incorporated into a permanent QA Plan Manual revision on July 1, 1978.

2. Finding Summary: The current practice of after-the-fact design change review provides significant risk of error and is in noncompliance with 10 CFR 50 Appendix B.

   Response: We disagree on both counts. The G&H Resident Engineer has exercised extremely good judgment in implementing the authority delegated to him. Of the approximately 2000 changes/deviations/clarifications issued under the system, we are aware of none that have provided exposure to a significant risk of error. To provide greater visibility of the design change function, a system was implemented on May 25, 1978 that provides an analysis of all changes and permits continuing evaluation of the field efforts. This system is current for ongoing activities at the present time and will be completed for past activities on or before July 15, 1978. Our belief that we are in fact in compliance with 10 CFR 50, Appendix B is supported by internal audits by TUGCO QA personnel and fndependent audits by two separate NRC Inspectors. We propose to Teave the design change system as is.

3. Finding Summary: TUGCO QA does not review all procurement documents and changes thereto prior to release.

   Response: We disagree that this is a requirement. A separate QA requirement section, approved by TUGCO QA, is included with each purchase order and is applicable to all supplements. Changes to these requirements are authorized only by Quality Assurance.

4. Finding Summary: The current array of QA manuals and procedures is complex and difficult to maintain.

   Response: We agree. The new Plan manual was issued July 1, 1978. The corporate QA Program Manual is currently under study with the goal of streamlining it.

5. Finding Summary: Records do not reflect the as-poured configuration clearly.

   Response: Configuration has always been made visible to inspectors,

and steps have been taken to improve the visibility for the record.

6. Finding Summary: Markings for in-service NDE inspections were not always distinct.

Response: We agree that such markings should be legible. QC will inspect special process ISI markings prior to turnover.

7. Finding Summary: We are using the DC/DDA (design change) program to bypass the nonconformance system.

Response: This is not true. If construction identifies and corrects a defect or obtains an approved engineering change prior to QC inspection, no NCR is required.

8. Finding Summary: The records storage facility does not have internal fire protection during off-duty hours.

Response: An inert gas fire protection system is on order by TUSI. Target date for installation is August 1, 1978.

9. Finding Summary: Approximately 24% of audits scheduled by Dallas staff have not been conducted. Audits by TUGCO and B&R should be combined in one overall effort.

Response: Our audit schedule is constantly being revised to reflect changing manufacturing status and to allow us to use audits to investigate problem areas of the most immediate concern as they arise. We believe we can defend our audit program, and are leaving it as it is.

OBSERVATIONS AND RECOMMENDATIONS (APPENDIX B)

I Organization

Recommendation: Separate inspection from Quality Engineering (planning).

Response: We had begun work on this before the audit. Our product assurance group has taken responsibility for Quality Engineering.

Recommendation: Re-evaluate the charter of the Quality Surveillance Committee.

Response: We have decided to discontinue the Quality Surveillance Committee. Instead, TUGCO QA Manager will issue a report quarterly to keep top management apprised of the status of QA matters, including quality trends. The first such report will be issued by August 15, 1978.

Recommendation: Hire more seasoned inspectors. Hire any future engineers from outside the company with experience in nuclear plant construction.

Response: We are on the lookout for well qualified personnel and continue to review applicants from outside the company. The relatively young inspectors will be strengthened best and quickest by taking from them the responsibility for inspection planning and providing them with adequate, but concise instructions and checklists. This has been done and is effective.

II Quality Assurance Program

Recommendation: Revamp our present QA manual system.

Response: We agree. TUGCO QA issued a revised QA Manual on July 1, 1978.

Opinion: Obtaining our ASME Code stamp will be difficult if all the work is done by others.

Response: We know it will be difficult, but it can be done. The report does not accurately record our stated reason for obtaining an N-stamp.

III Design Control

Recommendation: Abandon our present system of expediting field

changes.

Response: We will leave it as it is.

IV Procurement Document Control

Recommendation: All procurement documents should be reviewed by QA.

Response: We disagree for reasons stated on Page 1.

V Instructions

Recommendation: Streamline inspection planning and checklist preparation.

Response: We agree, and have been active in this effort since January.

Recommendation: Discontinue mapping individual standard imbeds.

Response: Mapping has been discontinued, but we have retained a reasonable degree of traceability on embedded items.

Recommendation: Combine construction and QA procedures.

Response: Since January we have been doing this for new procedures and when revising old procedures.

Recommendtion: Discontinue requiring B&R Houston approval of procedures.

Response: All procedures except those involving ASME Code work are now approved at the site.

Observation: All applicable DC/DDA's are not included in supporting documentation.

Response: Refer to Page I, Appendix A, Item 5.

Recommendation: Establish a formal site procedure for planning construction work.

Response: This planning is being done. We don't intend to create a formal procedure for it.

VI Document Control

Observation: The ARMS system should be backed up by a manual system (stated verbally in exit management interview).

Response: The auditors' lack of confidence in ARMS was the result of insufficient familiarization with the system on their part.

VII Control of Purchased Material, Equipment, and Services

Observation: The QA Plan is not up to date in this area.

Response: Manual revision was completed on July 1.

Statement: Source inspectors (TUGCO QA) appear to be at the mercy of the supplier in determining what changes have been incorporated.

Response: This is not true. We (TUGCO QA) prepare our own checklists after searching the appropriate files. We agree with the auditors' (verbal) comments that this method places an additional burden on ourselves; however, the original (and logical) approach of depending upon G&H to prepare the checklists did not work.

VIII Identification and Control of Materials, Parts, and Components

No observations

IX Special Processes

Recommendation: The use of Iridium 192 should be replaced by x-ray for all shop welds and for field welds where practical.

Response: Brown & Root is studying this recommendation, and is committed to have a report for TUGCO/TUSI by July 15.

Recommendation: Reduce the number of individuals reviewing radiographs and establish the policy that Code-acceptable indications be recorded but not repaired.

Response: This had been accomplished prior to the audit, but apparently the auditor talked with someone who wasn't aware of it.

Recommendation: Clarify the responsibility of the NDE supervisor relative to code work.

Response: The auditors were confused in this area. Our only Level III at the site is in civil work, not ASME Sec. III Div. 1 work.

X Inspection

Included here was a re-statement of observations covered elsewhere in the report.

XI Test Control

Recommendation: Existing nonconformance control systems should be used during startup.

Response: The new QA Manual, with input from TUGCO Operations, will address nonconformance control systems.

XII Control of Measuring and Test Equipment

Recommendation: Equipment should not be recalibrated on the due date if it has not been used.

Response: The recommendation has been adopted for items whose calibration is not subject to change while not in use. Implementation date was July 1.

XIII Inspection, Test and Operating Status

No observations

XIV Handling, Storage and Shipping

Recommendation: Exterior storage & protection practices should be reviewed.

Response: We had previously reviewed the storage practices and have no reason to believe that a problem exists. Various NRC inspectors have also inspected this activity. However, Westinghouse is reviewing this, and their metallurgist will report by July 15.

XV Control of Nonconformances

Observation: This is a restatement of concern over nonconformance control.

Response: We reject the inference that problems are circumvented rather than corrected at CPSES.

specific findings.

XVII Records

Recommendation: This section restated the need for fire protection system.

Response: The inert gas system will be installed by August 1, 1978.

XVIII Audits

Recommendation: The audit (Dallas) and surveillance (site) activities should be combined.

Response: We intend to leave our audit progam separate from site surveillance.

C Haughney

Eisenhut

P. 433

P.C. for VH 2/25

Noonan

P. 234

In Reply Refer To:
Dockets: 50-445/84-32
50-446/84-11

FEB 15 1985

Does They saw lights. Working / Evidence used to [illegible]

Texas Utilities Electric Company
ATTN: M. D. Spence, President, TUGCO
Skyway Tower
400 North Olive Street
Lock Box 81
Dallas, Texas 75201

Gentlemen:

This refers to the inspection conducted under the Resident Inspection Program by Mr. H. S. Phillips of this office and NRC contract personnel during the period August 20, 1984, through September 20, 1984, of activities authorized by NRC Construction Permits CPPR-126 and CPPR-127 for the Comanche Peak facility, Units 1 and 2, and to the discussion of our findings with Mr. D. Chapman and other members of your staff at the conclusion of the inspection.

Areas examined during the inspection included a review and evaluation of how effectively Texas Utilities Electric Company management has implemented the corporate quality assurance (QA) program for design, procurement, and construction activities. Special emphasis was placed on evaluating the management of the audit program; management's action to regularly review the status and adequacy of the QA program; and followup on findings pertinent to program management identified by previous NRC and consultant inspection teams. Within these areas, the inspection consisted of selective examination of procedures and representative records, interviews with personnel, and observations by the inspectors. These findings are documented in the enclosed inspection report.

During this inspection, it was found that certain of your activities were in violation of NRC requirements. Consequently, you are required to respond to this violation, in writing, in accordance with the provisions of Section 2.201 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Your response should be based on the specifics contained in the Notice of Violation enclosed with this letter.

These violations may be related to findings identified by the NRC Technical Review Team (TRT). If the issues are considered to be similar, you may respond to the items separately or as part of the Comanche Peak Response Team Action Plan.

RRI	TL/TF	D/DRS&S	C/RPB2	D/DRS&P	NRR
SPhillips/lt	DHunnicutt	RBangart	DHunter	RDenise	Noonan
2/12/85	2/12/85	/84	2/12/85	2/ /84	12/26/84

slow

for

IE01

DRF 8502200325

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

"Original Signed by:
D. M. HUNNICUTT"

D. R. Hunter, Chief
Reactor Project Branch 2

Enclosure:
1. Appendix A - Notice of Violation
2. Appendix B - NRC Inspection Report
   50-445/84-32
   50-446/84-11

cc w/enclosure:

Texas Utilities Electric Company
ATTN: B. R. Clements, Vice
President, Nuclear
Skyway Tower
400 North Olive Street
Lock Box 81
Dallas, Texas 75201

Texas Utilities Electric Company
ATTN: J. W. Beck, Manager
Nuclear Services
Skyway Tower
400 North Olive Street
Lock Box 81
Dallas, Texas 75201

bcc to DMB (IE01)

bcc distrib. by RIV:
RPB1
RPB2
EP&RPB
R. Martin, RA
C. Wisner, PAO
R. Denise, DRSP
RIV File
MIS System
RRI-OPS
RRI-CONST.
R. Bangart
J. Gagliardo
D. Hunnicutt
TRT (CPSES) (2)
S. Treby, ELD
D. Eisenhut, NRR
TX State Dept. Health
Juanita Ellis
Renea Hicks
Billie Pirner Garde
S. Phillips

APPENDIX A

NOTICE OF VIOLATION

Texas Utilities Electric Company
Comanche Peak Steam Electric Station, Units 1 and 2

Dockets: 50-445/84-32
50-446/84-11

Construction Permits: CPPR-126
CPPR-127

Based on the results of an NRC inspection conducted during the period of August 20, 1984, through September 20, 1984, and in accordance with the NRC Enforcement Policy (10 CFR Part 2, Appendix C), 49 FR 8583, dated March 8, 1984, the following violations were identified:

1. Failure to Regularly Review the Status and Adequacy of the QA Program

Criterion II of Appendix B to 10 CFR 50, as implemented by the Preliminary Safety Analysis Report (PSAR) and the Final Safety Analysis Report (FSAR), Section 17.1, "Quality Assurance Program," and ANSI N45.2-1971, requires that the quality assurance program shall provide for the regular review by the management participating in the program, of the status and adequacy of the part of the quality assurance program for which they have designated responsibility.

Contrary to the above, the applicant did not establish quality assurance procedures to regularly review the status and adequacy of the construction quality assurance program; nor did the applicant appear to have reviewed the status and adequacy of the construction quality assurance program.

This is a Severity Level IV Violation. (Supplement II) (445/8432-02; 446/8411-02)

2. Failure to Establish and Implement a Comprehensive System of Planned and Periodic Audits

Criterion XVIII of Appendix B to 10 CFR 50, states, in part, "A comprehensive system of planned and periodic audits shall be carried out to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program." The requirements are addressed in the PSAR and FSAR, Section 17.1, "Quality Assurance Program," which references Regulatory Guide 1.28 (ANSI N45.2) and ANSI N45.2.12 (Draft 3, Revision 4). Those commitments require that a comprehensive system of planned audits be performed on an annual frequency.

Contrary to the above, the following examples were identified which demonstrate the failure to establish and implement a comprehensive system of planned and periodic audits of safety-related activities as required, as noted below:

a. Annual audits were not adequately addressed by the audit implementation procedures.

- TUGCO Procedure DQP-CS-4, Revision 0, dated August 9, 1978, only required two audits of vendors fabricating reactor coolant pressure boundary components, parts, and equipment; one audit of vendors fabricating engineered safeguards components, parts, and equipment; and audits of balance of plant (safety-related) as required by the quality assurance manager.

- TUGCO Procedure DQP-CS-4, Revision 2, dated April 16, 1981, required only that organizations will be audited on a regularly scheduled basis.

- TUGCO Procedure DQP-CS-4, Revisions 2 and 10, did not specify auditing frequencies for design, procurement, construction, and operations activities.

- TUGCO Procedure DQP-CS-4, Revision 10, based audit requirements on Regulatory Guide 1.33, Revision 2, February 1978. This commitment did not fully address the requirements of the construction quality assurance program.

The above procedure and subsequent revisions failed to describe and require annual audits in accordance with commitments and requirements. Earlier audit procedures were not available to determine if they met requirements.

b. Planning and staffing to perform 1983 audits was inadequate to assure that a comprehensive system of audits was established and implemented to verify compliance with all aspects of the quality assurance program, in that, of 656 safety-related procedures (which control safety-related activities) the NRC review revealed that the applicant sampled only 165, or 25 percent, during the 1983 audit program. Consequently, significant aspects of the safety-related activities were not adequately audited.

c. The Westinghouse site organization, established in 1977 to perform Nuclear Steam System Supply (NSSS) engineering services, was not audited by TUGCO during the years of 1977, 1978, 1979, 1980, and 1981.

d. Audits of vendors that manufacture or fabricate parts, components, and equipment for reactor coolant pressure boundary and engineered safeguards systems have not been conducted annually dating back to August 9, 1978.

This is a Severity Level IV Violation. (Supplement II) (445/8432-03; 446/8411-03)

3. Failure to Properly Certify a Vendor Compliance Inspector

Criterion V of 10 CFR 50, Appendix B, states, in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings."

TUGCO Procedure DQP-VC-4, Revision 6, dated January 5, 1984, requires that Level II inspectors (Corporate QA) shall attend and satisfactorily complete nondestructive testing courses including eddy current testing.

Contrary to the above, one of six inspector's files had no documentation to show that the inspector had attended and completed an eddy current testing course. Subsequent, discussions revealed that he had been certified without meeting this requirement. The vendor compliance supervisor stated that this inspection skill is not needed since there is no present vendor work activity which would require this skill; therefore, this procedure was revised and the requirement omitted during this inspection.

This is a Severity Level V Violation. (Supplement II) (445/8432-05; 446/8411-05)

Pursuant to the provisions of 10 CFR 2.201, Texas Utilities Electric Company is hereby required to submit to this office, within 30 days of the date of this Notice, a written statement or explanation in reply, including: (1) the corrective steps which have been taken and the results achieved; (2) corrective steps which will be taken to avoid further violations; and (3) the date when full compliance will be achieved. Consideration may be given to extending your response time for good cause shown.

Dated: _____

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 1/11/85
H. S. Phillips, Senior Resident Reactor Inspector Construction — 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 11/23/84
D. M. Hunnicutt, Team Leader Region IV Task Force — 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:

Audits of Procedures	Total Procedures	Procedures Audited/Referenced	% Audited in 1983
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)	189	28	15
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 Westinghous (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 External Procedures	Total Procedures	Procedures Audited/Referenced	% Audited in 1983
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 1982. 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 ahd (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.