

AFFIDAVIT OF
ANTONIO VEGA

THE STATE OF TEXAS :
 :
COUNTY OF DALLAS :

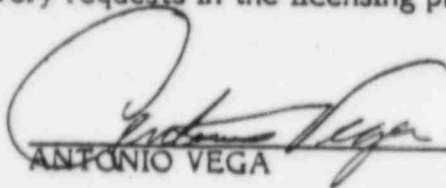
BEFORE ME, the undersigned authority and notary public in and for Dallas County, Texas, on this day personally appeared ANTONIO VEGA, who by me being duly sworn upon his oath deposes and says:

My name is Antonio Vega. I am presently employed by Dallas Power & Light Company, a division of Texas Utilities Electric Company. I am Manager of System Protection and Testing in the Substation and Transmission Department of DP&L. My address is 1506 Commerce Street, Dallas, Texas 75201 and my telephone number is 214/698-7592. In 1978, I officed in Dallas, Texas, working for Texas Utilities Generating Company as either a Senior QA Engineer or as Supervisor of QA Services. I held this position until about March 16, 1984 when I was transferred to the Comanche Peak Steam Electric Station site and served thereafter as Site QA Manager. I moved to my present position on March 1, 1985.

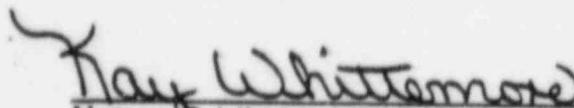
In 1978, I was generally aware that an assessment was being made of the QA organization at Comanche Peak. I do not recall having been interviewed but I may have been. Likewise, I do not recall attending any pre- or post-audit meetings. It is possible that I participated in responses to questions concerning the review but I recall no specifics. I believe that I saw and read the report prepared by Management Analysis Company ("MAC") in connection with their management review but I do not believe that I ever had a copy of it and I do not have one at this time. It may have been that I first read the report in the process of attempting to respond to it in 1978 but I cannot be sure.

I am generally aware that in 1980 CASE, the Intervenor in the Comanche Peak licensing proceedings, requested information from the Applicant in those

proceedings. I was not involved in keeping track of what was being supplied in response to those requests. I was not involved in any discussions concerning the MAC report in 1980 or thereafter nor any discussions of whether or not the MAC report should or should not be produced in response to the discovery requests. Following that time I do not recall hearing anything about the MAC report until May of 1985 at or about the time Mr. Wooldridge sent a copy to the Licensing Board. It was at this time that I first heard of any question concerning the MAC report in connection with CASE's discovery requests in the licensing proceedings.


ANTONIO VEGA

SUBSCRIBED AND SWORN TO before me by the said ANTONIO VEGA on this, the 6TH day of AUGUST, 1985.


Notary Public in and for Dallas
County, Texas

My Commission Expires:

7-1-89

COMANCHE PEAK STEAM ELECTRIC STATION - PLAN FOR INSPECTION OF FILES -

PURPOSE

To reassure Texas Utilities management, the NRC Staff, and the ASLB that documents related to interrogatories from CASE have been identified and provided. Texas Utilities recognizes that discovery is an extremely important and integral part of any hearing or court proceeding and this review should emphasize this commitment.

BACKGROUND

In May 1985, Texas Utilities alerted the ASLB and all parties involved in CPSES Licensing Hearings that they had discovered a report that had not previously been provided to the ASLB even though it fell within the scope of an intervenor discovery request in 1980. Texas Utilities has committed to conduct a thorough review of company files and discovery requests to assure that no other similar documents exist.

METHOD TO RESOLVE CONCERNS

The current situation dictates that a comprehensive review of corporate files relating to CASE interrogatories in ASLB hearings be conducted. New information (if any) identified as responsive to CASE interrogatories will be provided to all parties in the ASLB hearings as soon as possible following discovery. The search and review process will be documented and a brief summary of the results will be prepared following completion of the inspection.

SCOPE OF FILE REVIEW

The review will include project files that could contain documents relating to CASE interrogatories concerning contention 5 (QA/QC), including all Quality Assurance/Quality Control files (Dallas, CPSES), Licensing files (Dallas), Retrospective "prudence" audit files and any other project files maintained by QA/QC management personnel and executives that had ultimate responsibility for CPSES.

WORK PLAN

The following general work plan describes a two-phase process to conduct and document a thorough search of CPSES related files in relation to CASE discovery requests. This plan should be viewed as a "maximum" effort to allay concerns about prior ASLB discovery. The work effort required for Phase II cannot be determined until Phase I has been completed.

PHASE I

- 1) Form "Search Team":
 - Assign a project manager to oversee and manage the conduct of the review.
 - Assign 3 team members to supervise the file search; each would be assigned specific areas:
 - o Executive/Corporate Files (Bryan Tower/Skyway)
 - o Project Files - Dallas (Skyway Tower)
 - o Project Files - Site (CPSES).
 - Indoctrinate/educate Search Team on appropriate legal standards governing discovery, including NRC Rules of Practice and Federal Rules of Civil Procedure.
- 2) Review all CASE discovery requests relating to contention 5 and screen questions (i.e. questions requesting specific documents, questions requiring information to be developed, etc. will not be considered further).
- 3) Summarize discovery requests from above, identifying specifically what the Search Team needs to look for.
- 4) Identify and locate the specific files that are to be examined - this search for files will include:
 - Interviews with appropriate personnel
 - Reviews of historical and current organization charts
 - Files identified by CPSES Retrospective Audit Team
 - Physical search of offices and storage areas (Bryan Tower, Skyway Tower, CPSES).

Document the decision-making process. Appropriately tag files that are reviewed.

PHASE II

- 5) Develop a detailed work plan with procedures to be used as a guide for the conduct of the actual search of files. The plan will contain the following:
 - Purpose and basic methodology for search
 - Specific work steps and schedule
 - Procedures for
 - o conducting search of a file
 - o processing "potential" information for review
 - o processing information for final review
 - Resource needs.
- 6) Conduct kick-off meeting(s) as appropriate for personnel involved in the search of files and explain work plan and procedures.
- 7) Conduct the search of files
 - identify "potential" information
 - track progress of search closely.

- 8) "Search Team" core group (identified in 1) reviews all "potential" information (if any) and prepares a package of information for review by legal counsel and company management.
- 9) Provide any relevant "new" information (if any) to all parties in the ASLB proceedings.
- 10) Complete documentation of the search effort and summarize the review process:
 - purpose and methodology
 - participants
 - work plan and procedures
 - which files searched (magnitude, number, etc.)
 - results.

SCHEDULE

The time to prepare for and conduct the above work plan is roughly estimated at two to three months depending on the number and extent of files searched.

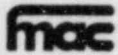
Phase I will require two to three weeks to conduct, at which time a more definite schedule for Phase II can be established.

RESOURCE NEEDS

The following TUEC/TUGCO personnel are possible candidates to conduct Phase I of the inspection:

- o A. Jones - Steps 2 and 3: Lead the effort to review and summarize the applicable CASE discovery requests so they can be used in the search. This would require direct interface with J. Marshall, B. Horin, and S. Palmer.
- o Step 4: Identify and locate specific files to be searched
 - Executive/Management Files: D. Fiorelli
 - Project Files (Dallas): T. Smart and F. Biza
 - Project Files (Site): P. Milam

Determination of resource needs for Phase II should not be made until Phase I is complete.



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

MANAGEMENT ANALYSIS COMPANY

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

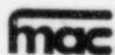
Audit Scope: A management audit was conducted of the Quality Assurance Program of Texas Utilities Generating Company during the weeks of May 1 and May 8, 1978. The purpose of the audit was to determine the adequacy of the Quality Assurance Program as related to Nuclear Regulatory Commission requirements 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:

<u>NAME</u>	<u>COMPANY</u>	<u>TITLE</u>
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



Personnel
Contacted or
Interviewed:

<u>NAME</u>	<u>COMPANY</u>	<u>TITLE</u>
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
U. 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, Con- struction 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

* 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 indicates 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 adjustment to the audit schedule to attainable and yet effective frequencies.

Management Analysis Company

11100 Roselle Street, San Diego, California 92121 (714) 452-1391

APPENDIX B

TEXAS UTILITIES GENERATING COMPANY
OBSERVATIONS AND RECOMMENDATIONS

MANAGEMENT ANALYSIS COMPANY

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

All 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 Surveillance 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. All 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

leave
- leave in
- plant QSC
- keep on subject

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.

*logical
and will
do this
as opportunity
occurs*

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

*Use
by July 1*

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.

*Do not agree -
redouble
efforts
on
follow-up*

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 it was ascertained that this was a review of the drawings and specifications and not the purchase order or contract.

document

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. INSTRUCTIONSA. 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 DCA'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.

agreed

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.

*Under
Administration*

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.

*done by
June 15*

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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. — No

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 ratings 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 penetrometer 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

*Review
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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 anomalies 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 a 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. *Agreed*

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.

To be reviewed

XV. CONTROL OF NONCONFORMANCES

There appears to be an effort to reduce the number of documented non-conformances.

#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 non-conformances 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 CPQ1-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. #8

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. Adv!

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.

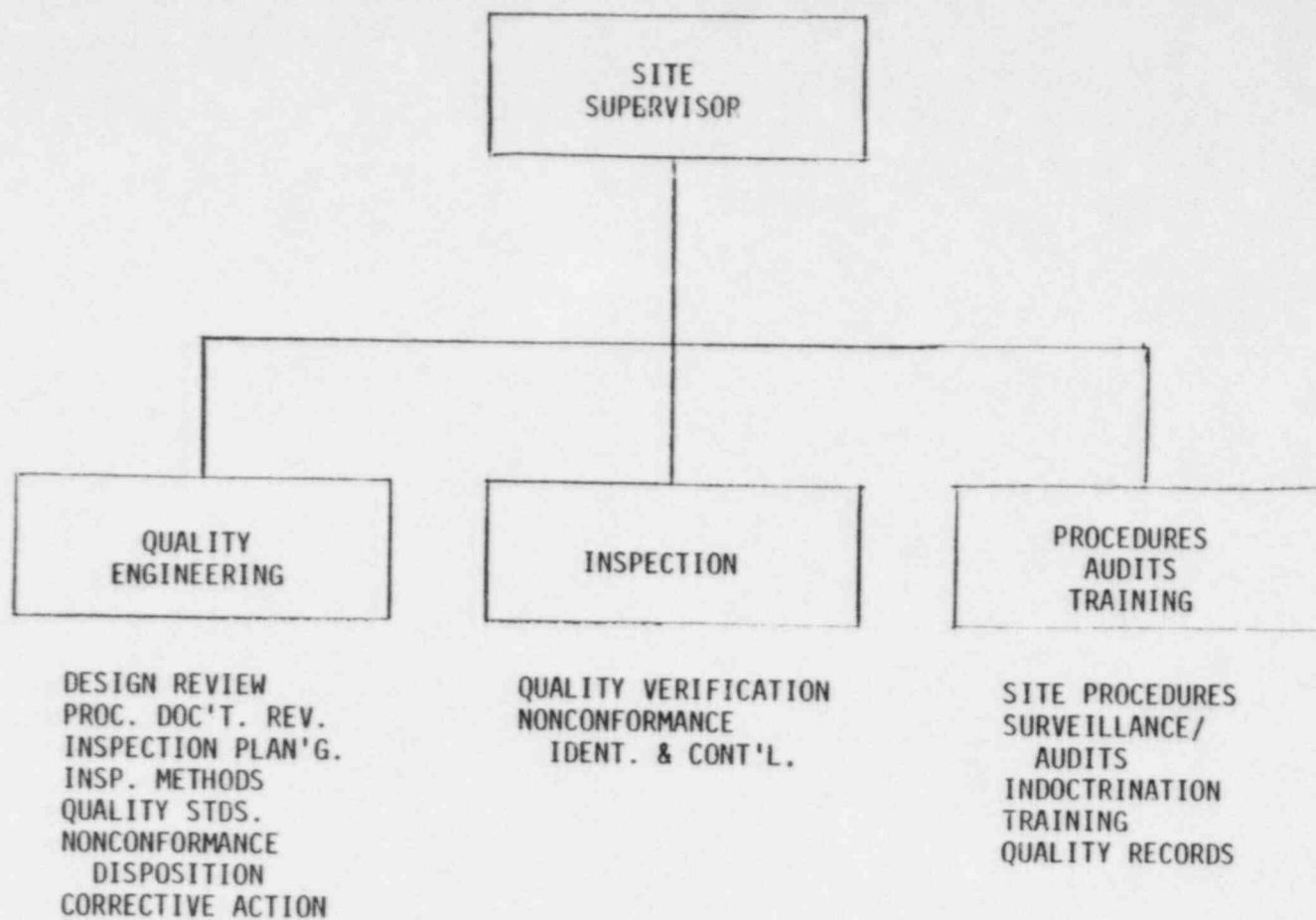


EXHIBIT 1

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