FINAL REPORT

REVIEW OF THE QUALITY ASSURANCE PROGRAM FOR THE DESIGN AND CONSTRUCTION OF THE COMANCHE PEAK STEAM ELECTRIC STATION

Prepared
for the
Texas Utilities Generating Company
by

F.B. Lobbin
Consulting Engineer

R-82-01

February 4, 1982

Columbia, Maryland

ACKNOWLEDGEMENT

The author wishes to acknowledge the cooperation and candor of the TUGCO Quality Assurance Department staff during this review of the QA program. It was evident that all members of the staff who were interviewed had a sincere interest in improving the quality assurance program. Individuals were forthright in their discussions of problems which were already known to them and helpful in providing the author with documents and other information necessary for the conduct of this evaluation.

A special thanks is extended to Mr. Tony Vega for his suggestions and observations and his aid in introducing the author to members of the CPSES project staff.

SUMMARY

At the request of the TUGCO Vice President, Nuclear, the author performed an evaluation of the TUGCO/TUSI quality assurance program for the design and construction of the CPSES. The duration and scope of the evaluation was limited on the recommendation of the author. The primary objective of the evaluation was to provide the management of TUGCO an independent assessment of the QA program and, in particular, to identify areas which could be improved and which should receive management's attention.

The scope of the evaluation focused on the responsibilities and activities of the TUGCO QA organization. The scope did not specifically include an evaluation of the programs or procedures of TUGCO's prime contractors, TUSI or suppliers.

The evaluation involved the review of QA program descriptions and procedures, audit reports, personnel training records, and other similar documents. The evaluation also included interviews with members of the TUGCO QA staff and the NRC's Resident Inspector.

Although areas of concern were identified, it is the opinion of the author that none of these concerns represents a significant breakdown in any portion of the QA program for design and construction of the CPSES.

The major findings, described in more detail in subsequent sections of this report, are as follows:

(1) The level of experience within the TUGCO QA organization, in particular commercial nuclear plant design and construction QA experience, is low and is the prime contributing factor to other areas of concern identified during this evaluation.

(2) Staffing of the audit and surveillance functions should be increased.

(3) The number and scope of audits should be increased, especially audits of site engineering and construction activities. The author could find no

direct evidence that quality program requirements are not being met in these areas. However, the lack of clear evidence, obtainable through audits, which indicates the program is effective and being fully implemented, erodes one's confidence that quality has and is being ensured.

(4) QA management has not defined clearly the objectives for the surveillance program resulting in a program which, in the author's opinion, is presently ineffective.

On the positive side the author found the vendor audit and compliance program to be well conceived and carried out.

Last but not least, the author noted a sincere interest at all levels of TUGCO management in the identification and resolution of problems with the QA program.

INTRODUCTION AND APPROACH

This report includes a description of the findings of an independent review of the QA program for design and construction of the CPSES. This review was commissioned by the TUGCO Vice President, Nuclear, and performed by the author over a two week period during the months of December, 1981 and January, 1982. The major findings of this review were presented to the Vice President, Nuclear, during an exit interview held on January 8, 1982. Also present was the TUGCO Executive Vice President, the TUGCO QA Manager, and the Supervisor, Quality Assurance Services.

The scope of this review was limited to a review of the program and activities of the TUGCO QA organization. No effort was made to evaluate directly the effectiveness and implementation of the QA programs of TUGCO's prime contractors and vendors or of TUSI. A major element of the review, however, was the evaluation of the actions which have been taken by TUGCO QA to ensure that those QA programs are effective and are being carried out. These actions consist primarily of audits of vendors and audits of design and construction activities, both offsite and onsite. It is for this reason that most of the findings are concentrated in the area of the TUGCO QA audit program.

The review focused on the following five areas:

Quality Assurance Program Plan
Audit Program
Vendor Compliance Program
Surveillance Program
Inspection Program

The review included interviews with TUGCO QA personnel and review of program documentation and records. A listing of the individuals contacted and the documents reviewed is included as Exhibit 1.

The important findings of this review are described in the following five sections of this report. The author has attempted to point out certain

positive aspects of the QA program as well as those areas which, in the author's opinion, should be improved. It should be noted, however, that most of the author's attention was focused on perceived weaknesses in the TUGCO QA program. It should also be noted that this review was not exhaustive and the author makes no pretense of having identified all the areas or elements of the TUGCO QA program which could be improved.

GENERAL

The review of the TUGCO quality assurance program plan focused on the description provided in Section 17.1 of the FSAR and on the procedures and instructions for the control of TUGCO QA activities. Specific findings are described below.

QUALITY ASSURANCE PROGRAM PLAN FINDINGS

Finding #1

The TUGCO/TUSI Corporate Quality Assurance Program description identifies the requirement for a "Quality Assurance Plan for Design and Construction." Apparently no such plan exists other than the description of the QA program included in Section 17.1 of the CPSES FSAR.

Finding #2

The description of the QA program included in Section 17.1 of the FSAR is very general and especially lacking in detail regarding organizational and individual responsibilities and interfaces. The necessary detail which, in the opinion of the author, is lacking in the FSAR is precisely what one should expect to find in the "Quality Assurance Plan for Design and Construction" which apparently has never been developed.

The author believes that this lack of specificity regarding the design and construction QA program requirements should be of concern because of the relatively complex project organization which has been established for the CPSES coupled with the low level of commercial nuclear power plant design, construction and QA experience of some of the prime contractors for the project.

Finding #3

A definitive written policy with regard to TUGCO's responsibilities for the independent review, audit and surveillance of the ASME program, including interface control with Brown & Root, is lacking. It is the author's opinion based on a review of audits related to ASME program activities and discussions with members of the QA staff that TUGCO QA may be acting in too restrained a manner with regard to the exercise of its authority, as the owner, over ASME related activities.

Finding #4

The author observed that the procedures (CQPs) and instructions (CQIs) included in the TUGCO Corporate Quality Procedures/Instructions Manual are generally well writen and address most of the important activities of the TUGCO QA Department. One notable exception, however, involves the detailed planning and scheduling of design and construction audits. This issue is addressed in more detail in the next section of this report.

Finding #5

The procedures (CPs) and instructions (QIs) included in the various manuals utilized by the TUGCO Construction Quality Assurance organization address in some detail the wide variety of QA/QC activities performed by this organization. The procedures and instructions are particularly useful for QC inspectors who may not have had significant prior construction QC experience.

GENERAL

The evaluation of the audit program was divided into two parts; namely, the vendor audit program and the design and construction audit program. Findings in each of these areas are presented below along with recommendations where believed warranted.

It should be pointed out that the author's review of the audit program was more critical than of other QA program areas. The simple reason is that given the general complexity of the project organizational interfaces and the inexperience of some of the prime contractors an effective audit program is very important to the assurance of quality.

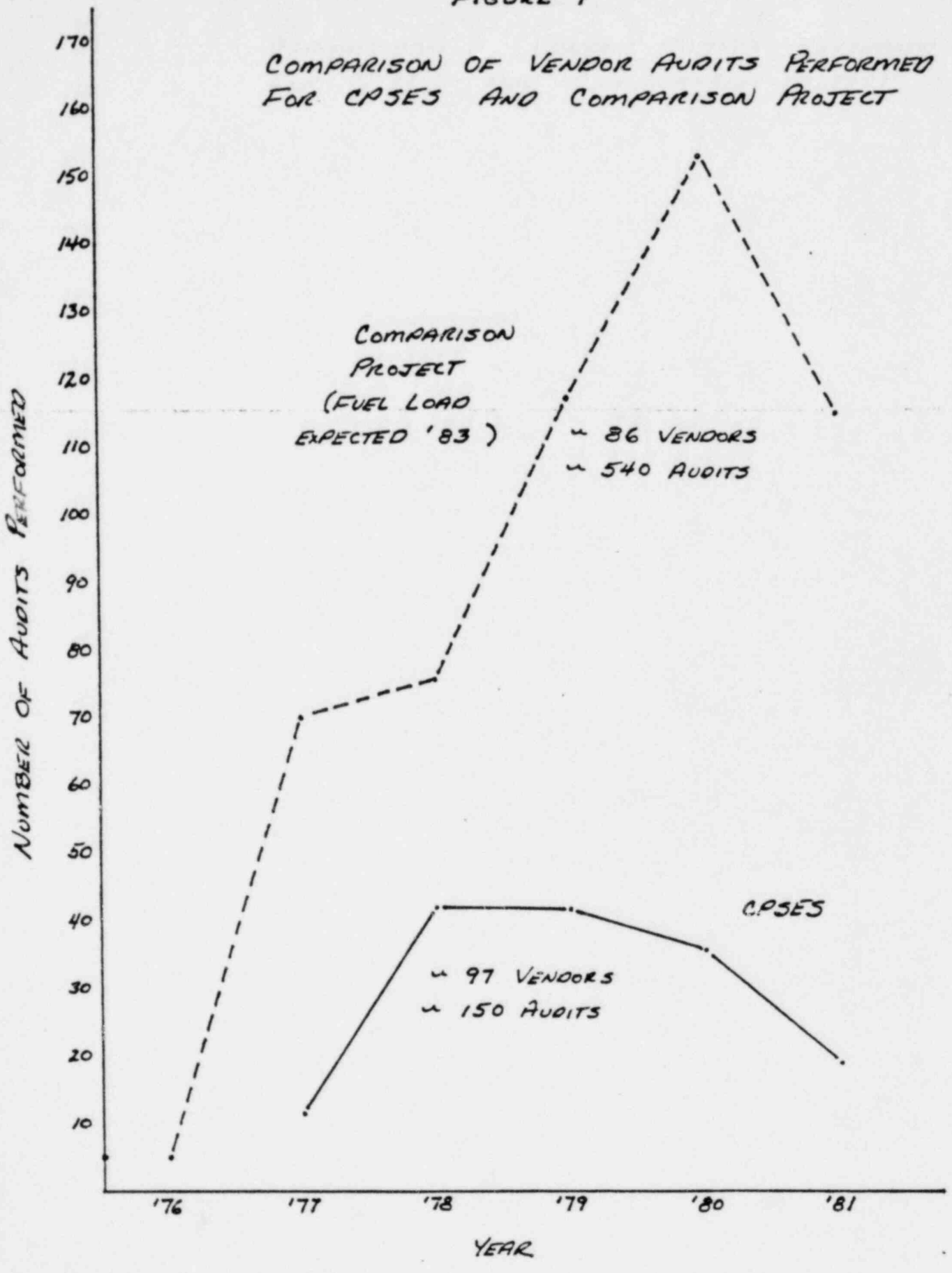
VENDOR AUDIT PROGRAM FINDINGS

The vendor audit program seems well designed and implemented. What appears at first to be a relatively low level of audit activity compared to other nuclear plant projects familiar to the author (see Figure 1) becomes more reasonable when one examines the close interaction between the vendor audit program and the vendor compliance program which is highly regarded by the author. The combination of vendor preaward surveys, audits, and acceptance inspections seems to be conceived and carried out in a very efficient and effective manner.

The author observed a degree of pride on the part of the TUGCO QA staff in the vendor audit program and confidence that the program was effective. A vendor rating system has been developed which the staff considers unique to the nuclear industry. In part the staff's pride and confidence is a reflection of the fact that the staff has found it easier, given its small size and inexperience with nuclear plant design and construction project activities, to carry out the vendor audit program than to carry out the design and construction audit program.

FIGURE 1

COMPARISON OF VENDOR AUDITS PERFORMED FOR CPSES AND COMPARISON PROJECT



In summary, the author has no negative findings with regard to the vendor audit program and offers a compliment to the QA staff for what it has done with its limited resources.

DESIGN AND CONSTRUCTION AUDIT PROGRAM FINDINGS

The design and construction audit program is an area which, in the opinion of the author, requires considerable attention and improvement. Simply stated, the author believes that more audits of a broader range of quality related activities need to be planned and conducted. In addition, the focus of the audit program should be shifted somewhat from verifying compliance with procedures and instructions for the control of quality related activities to verifying that plant structures, systems and components have been designed and constructed in accordance with the design and quality assurance criteria and commitments established for the CPSES. This shift in focus is recommended in part to compensate for the relatively low level of audit activity over past years.

Specific findings are as follows:

Finding #1

The number and scope of design and construction audits conducted by TUGCO QA to date has been limited. The evidence for this conclusion is illustrated in Figures 2 and 3. Figure 2 illustrates the number and scope of audits conducted over the years of Gibbs & Hill. Figure 3 shows a similar breakdown for site construction audits since 1978. These audits include Brown & Root, TUSI and the site construction quality assurance organization within TUGCO QA.

Examination of Figures 2 and 3 reveals that although most important activities have been audited, audits of certain activities have not been performed on a regular basis. A review of the reports of these audits also suggests that these audits were often of limited scope.

FIGURE 2

SUMMARY OF GIBBS & HILL AUDITS BY TUGCO QA

PRIMARY FOCUS/SUBJECT OF AUDIT	YEAR							
	'74	'75	'76	'77	'78	'79	'80	'81
QA PROGRAM - GENERAL	(1) (2)		(3) (4)	(5)				
DALLAS OFFICE				(6)	(7)	(11)		
DESIGN / DESIGN CHANGE CONTROL					(8) (9)	(12)	(15)	
FOLLOWUP ON PRIOR AUDITS						(10) (11)		
IEEE QUALIFICATION							(13) (16)	(17)
DAMAGE STUDY							(14) (16)	
QA ORGANIZATION								(17)
IE BULLETINS								(17)
DRAWING CONTROL								(17)

NOTE: NUMBER IN PARENTHESES REFERS TO AUDIT NUMBER (i.e., TGH - XX)

FIGURE 3

SUMMARY OF SITE CONSTRUCTION AUDITS BY TUGCO QA

	PRIMARY FOCUS / SUBJECT OF AUDIT	YEAR			
		'78	'79	'80	'81
MECHANICAL	BROWN & ROOT ASME MANUAL	(1)			
MECHANICAL	PIPE & PIPE SUPPORT			(6)(13)	(13)
MECHANICAL	DAMAGE STUDY			(14)(17)	(22)
MECHANICAL	RCS PIPING SYSTEM			(10)	
MECHANICAL	CCW SYSTEM (AUDIT TO FSAR COMMITMENTS)			(16) POSTPONED	
CIVIL	WELDING, CADWELDING, CONCRETE TESTING, CONCRETE PLACEMENTS, ETC.	(3)		(15)	(19)
ELECTRICAL	ELECTRICAL CONSTRUCTION		(5)	(12)	(12)(29)
ELECTRICAL	IEEE QUALIFICATION			(8)	
ELECTRICAL	FIRE HAZARDS ANALYSIS PROGRAM			(11)	(27)
I&C	I&C INSTALLATION				(21)
	DESIGN REVIEW / DESIGN CHANGE CONTROL		(4)	(18)	
	DOCUMENT CONTROL				(23)
	RECORDS MANAGEMENT				(26)
	MATERIAL CONTROL (EMPHASIS ON MAINT. IN STORAGE)	(2)	(5)	(9)	(25)
	IE BULLETINS				(20)
	SITE QC		(7)		
	NONCONFORMANCE ADMIN.				(28)

NOTE: NUMBER IN PARENTHESES REFERS TO AUDIT NUMBER (i.e., TCP-xx)

The author compared the number of audits performed by TUGCO QA with another nuclear project the author has been closely associated with for several years. This comparison project is slightly ahead of the CPSES in construction. For the comparison project the owner's QA staff has conducted an average of 15 design office audits a year for the past six years. This compares with a total of 17 audits of Gibbs & Hill conducted by TUGCO QA over the past eight years. It should be noted that for the comparison project the designer's QA organization performs about 30 audits and 25 surveillances per year of design activities. This is in addition to the owner's audit program.

With regard to site construction audits the AE/Constructor's QA organization for the comparison project has conducted over the past four years about 75 audits per year of construction site activities. The owner has performed, on average, 25 additional audits per year of site construction activities. This compares with a total of fewer than 35 audits of CPSES site activities by TUGCO QA.

It should be pointed out that there may be a number of reasons for a difference in the number of audits performed for one project versus another. Be that as it may it should be evident that the difference between the levels of audit activity for the CPSES and the comparison project should represent an area of concern.

The author believes that the low level of design and construction audit activity is a direct result of the inexperience of the TUGCO QA staff. This inexperience has led in the past to an underestimation of the number and scope of audits which should be performed. As a consequence, the audit staff is presently too small to carry out an appropriate audit program. It should be mentioned that TUGCO QA recognized this problem before the performance of this independent evaluation and is actively recruiting qualified audit personnel for its staff. In addition to increasing the audit staff the author recommends that TUGCO QA consider the following:

(a) A detailed written plan should be developed which identifies all areas

and elements of the design and construction program and the startup program which should be audited. This plan should be developed without consideration of the availability of personnel to perform audits. The input from key project personnel should be solicited. In particular, an attempt should be made to assign priorities to audit plan elements. The audit plan should be used as the basis for an audit schedule which will reflect the availability of audit personnel.

(b) The author recommends that the focus of the audit program begin to shift from process and procedure audits to audits of plant structures, systems and components. The objective of such audits should be to verify that the design and construction of the plant complies with requirements, in particular QA requirements, set forth in the SAR and other design criteria documents.

(c) The author recommends that individuals within TUGCO QA responsible for audit planning and scheduling be provided an opportunity to visit with their counterparts at other nuclear projects for the purpose of obtaining information which will help them anticipate the present and future needs of the audit program.

(d) Efforts should continue to hire additional qualified and experienced auditors.

The following additional concerns regarding the audit program are stated without much elaboration, since in many respects they are related to the first finding stated above.

Finding #2

Only one audit (TCP-1) of the ASME program was identified by the author. TUGCO QA must become more actively involved in the independent review, audit and surveillance of ASME program activities.

Finding #3

Section 17.1.18 of the FSAR requires that planned and periodic audits be performed to verify compliance with all aspects of the QA program and to determine the effectiveness of the program. Based on reviews of TUGCO audit reports it was observed that the audit program is almost entirely focused on determining compliance. Relatively little attention has been paid to evaluating (e.g., by technical reviews of procedures, nonconformance reports, prime contractor audit reports) the overall effectiveness of the controls established by TUSI and by TUGCO's prime contractors.

Finding #4

The TUGCO audit staff is too small and inexperienced to carry out effectively a full scope audit program. For example, the comparison project referenced in Finding #1 has 6 auditors located at the construction site performing audits of construction and startup activities. This is in addition to the headquarters staff of 5 individuals who also audit both the AE/Constructor's design office and the construction site. These individuals have little responsibility for vendor audits, since the owner has delegated responsibility for vendor audits and compliance to the AE/Constructor.

Finding #5

A review of TUGCO audit reports revealed that emphasis has been placed on both the correction of identified problems and preventive measures to preclude repetition. However, neither TUGCO QA nor the audited organization appears to evaluate on a regular basis the impact of identified deficiencies on past activities. In the opinion of the author more emphasis should be placed on such evaluations.

Finding #6

The author did not find a consistent use of detailed audit checklists for the planning and conduct of audits by TUGCO QA. In addition, audit reports generally do not include a description of the scope of the audit or an evaluation in broad terms of the impact and significance of the audit findings. Recent audit reports, however, show an improvement in this regard.

Finding #7

Section 17.1.18 of the FSAR states that "TUGCO verifies conformance of the regulatory audit requirements," in part through "review of documentation of the audit report performed by...contractors." The author could find little evidence that this review is regularly performed.

Finding #8

It should be mentioned that the author observed a strong commitment on the part of TUGCO QA to the improvement of the design and construction audit program. Additional personal are actively being sought. It is also clear that the audit program has resulted in the identification of significant problems, in particular in areas related to design and design change control, and has contributed to the improvement in the quality of the CPSES project. All the more reason, in the author's opinion, to expand the program, since the point of diminishing returns has certainly not been reached.

VENDOR COMPLIANCE PROGRAM

GENERAL

The vendor compliance program compliments the vendor audit program, and together these two activities serve to ensure that the safety related materials and equipment for the CPSES are provided by capable suppliers and are in compliance with the requirements of procurement specifications.

VENDOR COMPLIANCE PROGRAM FINDINGS

The author's findings with regard to the vendor compliance program were all positive and are summarized below.

Finding #1

The objective of the vendor compliance program is to verify through inspections of materials and equipment at vendor shops prior to shipment that the items conform in all respects to the requirements of specifications. The significant aspect of the TUGCO program is that the specification is actually used as the basis for inspection and release. As obvious as this sounds it is not common practice throughout the nuclear industry.

Finding #2

The author examined the Vendor Compliance group's files, procedures, checklists and other related documentation and found them to be in order.

Finding #3

Vendor Compliance receives feedback data from the CPSES site receiving inspection personnel regarding the quality of received materials and equipment. This information is necessary to close the vendor compliance loop and is used in the rating of both vendors and Vendor Compliance's inspection personnel.

Finding #4

The author reviewed the qualifications of Vendor Compliance personnel and found them to be satisfactory.

Finding #5

The activity level of Vendor Compliance is high with inspection personnel spending a large fraction of their time at vendor facilities. This contributes to the experience of inspection personnel. The motivation of the staff also appears high in spite of a heavy travel schedule.

Finding #6

Vendor Compliance has developed a vendor rating system. It's principal benefit seems, at least to the author, to be that it encourages the staff to review continuously the general performance of individual vendors which in turn increases their awareness of potential problems and trends.

In summary, the author found no deficiencies with the vendor compliance function and extends a compliment to the staff on its achievements and performance.

SURVEILLANCE PROGRAM

GENERAL

10CFR50, Appendix B includes specific requirements for the regular audit of all aspects of the QA program and for the independent inspection of critical activities and operations. Both the audit and inspection programs tend to be formalized and must be carried out in accordance with specific requirements set forth in various regulations, codes and standards.

Although there is no specific requirement to do so, many projects have found it beneficial to establish, in addition to the audit and inspection programs, a program for the surveillance or monitoring of important activities, in particular, construction and startup testing activities. The surveillance program should by design be less formal than the audit and inspection programs, especially with regard to paperwork. The primary objectives of surveillance, in the author's opinion, should be to identify problems which could have a significant impact on both the quality and progress of the project and to ensure (providing assistance when appropriate) that those problems are resolved. The surveillance program should compliment both the audit and inspection programs.

It should be obvious that the impact and effectiveness of a surveillance program tends to be proportional to the experience and political skills of the individuals assigned surveillance responsibilities. These individuals must have the respect of organizations they are monitoring. They must know where to look for problems and must avoid the trivial. They must also be able and willing to help with the resolution of problems identified by them.

The above is the view of the author based on observations of both effective and ineffective surveillance programs at nuclear plants under construction. It is against this background that the findings described below should be considered.

SURVEILLANCE PROGRAM FINDINGS

Finding #1

The author could discern no clear management philosophy with regard to the objectives, design, or scope of the site surveillance program for CPSES. The surveillance function is not specifically addressed in the FSAR. Responsibility for surveillance seems to have been assumed in an ad hoc fashion by both the Quality Assurance Services and the Construction Quality Assurance groups within TUGCO QA. Specifically, Quality Assurance Services has established two surveillance groups for the apparent purpose of supporting the site audit program. Construction Quality Assurance seems, on the other hand, to be assuming responsibility for monitoring ASME activities in support of the inspection program.

It is the view of the author that the surveillance function should be independent of both the audit and inspection programs and should enjoy visibility at the highest levels of project and quality program management. The author recognizes, however, that it is not within the purview of this review to suggest organizational changes. The author does recommend, however, that a concerted effort be made to involve key QA staff members in a review of the needs for surveillance and in the development of a set of specific objectives and guidelines for the surveillance program.

The following additional observations are provided even though they are, in effect, directly related to Finding #1.

Finding #2

The Construction Surveillance staff (within Quality Assurance Services) has very little commercial nuclear plant design and construction experience. As stated earlier, the author believes that the surveillance staff should be among the highest qualified and experienced individuals within any QA/QC organization.

Finding #3

A review of Site Surveillance Reports (SSRs) reveals that the deficiencies being identified by the surveillance staff are not significant. As a result the group apparently has not been able to gain the respect of the project organization and is considered by some to be of little benefit to the project.

It should be noted that this finding is not a result of a lack of effort on the part of the Construction Surveillance staff. Rather it reflects their lack of experience. The author found the staff to have a strong desire to make a real contribution.

GENERAL

The Construction Quality Assurance department within TUGCO QA has responsibility for the inspection of quality related construction activities at the CPSES. The author's review of the inspection program focused on the staffing and procedures/instructions for inspection. Findings are presented in the following section. It should be noted that although the author's review was inconclusive with regard to the overall effectiveness and implementation of the inspection program, the author has no reason to believe that the program is not being carried out in accordance with the requirements of the TUGCO QA Program.

INSPECTION PROGRAM FINDINGS

Finding #1

Interviews with various individuals at the CPSES revealed a concern with regard to the level of experience of inspection personnel, including individuals who perform ASME inspections. An audit has apparently not been performed of inspector qualifications, and training remains an open question. Such an audit is highly recommended.

Finding #2

A review of the index of inspection procedures and instructions and of selected procedures by the author indicates that a comprehensive system of procedural controls has been developed. Use of these procedures and instructions would be of great benefit to individuals whose qualifications and experience may be less than desired.

Finding #3

The number of inspection personnel seems adequate. The comparison project referenced earlier has approximately 100 QC inspectors.

Finding #4

The Quality Engineering group within Construction Quality Assurance has initiated a small program for the trending of noncomformance reports. Based on a review of the trend reports prepared so far, it appears that the program is still in a development stage.

EXHIBIT 1

Interviews with the following individuals were conducted during the review of the QA program:

D. Chapman
A. Vega
A. Boren
R. Tolson
D. Anderson
S. Spencer
R. Scott
G. Parry
C. Manning
D. Schmidt
M. Bever
R. Taylor-NRC Resident Inspector

The following documents were reviewed as part of the evaluation:

Corporate Quality Assurance Program Manual
FSAR, Section 17.0
Audit Reports:
- Selected vendor audits
- All Gibbs & Hill audits (TGH)
- All site construction audits (TCP)
- Selected Westinghouse audits

Corporate Quality Procedures/Instructions Manual
Construction Quality Assurance procedures (CPs/QIs)
Vendor Compliance records (selected)
QA personal qualification and training records
Construction site surveillance schedule and manpower memo, dated 10/1/81
Site Surveillance Reports ('81)
QE Corrective Action Reports

CBC-18

TEXAS UTILITIES GENERATING COMPANY

OFFICE MEMORANDUM

To B. R. Clements Dallas, Texas February 23, 1982

Subject RESPONSE TO F. B. LOBBIN REPORT R-82-01

Attached is our response to Mr. Frederick B. Lobbin's Report R-82-01 dated February 4, 1982. To aid in evaluating our response, we have restated the comment or finding which we are addressing.

We believe we had addressed each finding in a responsive manner.

If you have any questions on our response, please advise.

D N Chapman

D. N. Chapman
Manager, Quality Assurance

DNC/AV:med

Attachment

TUGCO QA RESPONSE TO

F. B. LOBBIN REPORT R-82-01

SUMMARY

Finding:

The report summary page two states, in part, "The major findings, described in more detail in subsequent sections of this report, are as follows:

(1) The level of experience within the TUGCO QA organization, in particular commercial nuclear plant design and construction QA experience, is low and is the prime contributing factor to other areas of concern identified during this evaluation.

(2) Staffing of the audit and surveillance functions should be increased.

(3) The number and scope of audits should be increased, especially audits of site engineering and construction activities. The author could find no direct evidence that quality program requirements are not being met in these areas. However, the lack of clear evidence, obtainable through audits, which indicates the program is effective and being fully implemented, erodes one's confidence that quality has and is being ensured.

(4) QA management has not defined clearly the objectives for the surveillance program resulting in a program which, in the author's opinion, is presently ineffective."

Response:

(1) and (2)

We acknowledge that the level of experience within the TUGCO QA organization in commercial nuclear plant design and construction QA experience is low. The staff does, however, include personnel with extensive non-nuclear power plant design and construction experience. Recognizing the need for more nuclear experience, we have supplemented the existing non-nuclear background of our people with personnel from outside the TUGCO organization who do have nuclear backgrounds. This was our plan from the start. Additionally, we have been and continue to be actively recruiting nuclear-experienced individuals with not only design and construction but also startup and operating backgrounds. This intensified recruiting effort has resulted in the hiring during the past two months of four auditors with a combined total of 62 years of nuclear experience.

(3) We concur that the number and scope of site audits should be increased. The audit schedule for calendar year 1982, finalized prior to the Lobbin evaluation, called for 46 site audits. This is a 119% increase over 1981.

(4) The site construction surveillance group has functioned as an extension of the audit group. It has been utilized in helping to effectively manage auditor personnel resources. Construction surveillances have been used as a preliminary evaluation tool to identify areas that may require full audit emphasis.

The role of construction surveillance has been reevaluated in light of recent and planned future increases in audit personnel. Recently, QA management has made the decision to have the construction surveillance group report to the CPSES Site QA supervisor rather than the QA Services Supervisor. This move will enable the construction surveillance effort to be directed to areas of immediate concern by supervisors located at the jobsite. The Dallas QA effort in construction will concentrate on an increased level of audit activity.

QUALITY ASSURANCE PROGRAM PLAN FINDINGS

Finding No. 1:

The TUGCO/TUSI Corporate Quality Assurance Program description identifies the requirement for a "Quality Assurance Plan for Design and Construction." Apparently no such plan exists other than the description of the QA program included in Section 17.1 of the CPSES FSAR.

Response:

A CPSES Quality Assurance Plan (Red Book) does exist. This document is the basis for the TUSI/TUGCO ASME Owner's Certificate of Authorization. The description of the QA program to be implemented during design and construction is, as referenced in Section 3.0 of the TUGCO/TUSI Corporate Quality Assurance Program, described in Chapter 17 of the Preliminary Safety Analysis Report (PSAR) and Section 17.1 of the Final Safety Analysis Report (FSAR).

Finding No. 2:

The description of the QA program included in Section 17.1 of the FSAR is very general and especially lacking in detail regarding organizational and individual responsibilities and interfaces. The necessary detail which, in the opinion of the author, is lacking in the FSAR is precisely what one should expect to find in the "Quality Assurance Plan for Design and Construction" which apparently has never been developed.

The author believes that this lack of specificity regarding the design and construction QA program requirements should be of concern because of the relatively complex project organization which has been established for the CPSES coupled with the low level of commercial nuclear power plant design, construction and QA experience of some of the prime contractors for the project.

Response:

The description in Chapter 17.1 of the FSAR is in sufficient detail to describe to the Nuclear Regulatory Commission (NRC) reviewers the essential elements of the QA program for design and construction. This includes corporate organizations, upper and middle management duties and responsibilities, internal and external interfaces and controls on safety-related activities. Manuals generated at mid-management levels provide the continuity between the SAR program descriptions and the detailed procedures and instructions which define the day-to-day work activities at the working levels.

In fact, an all inclusive, Quality Assurance Plan for Design and Construction was developed at the beginning of the project. However, as the project evolved it became apparent that the many small changes made in lower-tier QA documents were requiring an unnecessarily burdensome number of revisions in the QA Manual. We therefore made the decision to minimize the amount of detail in corporate documents, their purpose being to define QA policy and management responsibility. Details are included in lower-tier documents such as work procedures and instructions, which are reviewed to assure that they are consistent with corporate policies and regulatory commitments.

Finding No. 3:

A definitive written policy with regard to TUGCO's responsibilities for the independent review, audit and surveillance of the ASME program, including interface control with Brown & Root, is lacking. It is the author's opinion based on a review of audits related to ASME program activities and discussions with members of the QA staff that TUGCO QA may be acting in too restrained a manner with regard to the exercise of its authority, as the owner, over ASME related activities.

Response:

TUGCO QA is responsible for the independent review, audit and surveillance of all safety-related activities related to CPSES. This includes activities done by Brown & Root under their ASME stamp. Audits and surveillances of safety-related activities at the CPSES site have included work performed by Brown & Root under their ASME certificate. However, we do recognize the need to increase the number and scope of site audits, particularly in activities performed under the contractor's ASME program.

Finding No. 4:

The author observed that the procedures (CQPs) and instructions (CQIs) included in the TUGCO Corporate Quality Procedures/Instructions Manual are generally well written and address most of the important activities of the TUGCO QA Department. One notable exception, however, involves the detailed planning and scheduling of design and construction audits. This issue is addressed in more detail in the next section of this report.

Response:

The method by which audits of design and construction are scheduled is under reevaluation. We are reviewing our current practices in comparison with other audit planning and scheduling methods utilized in the industry.

Upon completion of our review, we will determine whether any improvements to our current methods are needed and will incorporate them into our audit planning procedure accordingly.

We expect our evaluation to be completed by March 25, 1982 and a procedure issued by March 31, 1982 to clearly define the audit planning function.

Finding No. 5:

The procedures (CPs) and instructions (QIs) included in the various manuals utilized by the TUGCO Construction Quality Assurance organization address in some detail the wide variety of QA/QC activities performed by this organization. The procedures and instructions are particularly useful for QC inspectors who may not have had significant prior construction QC experience.

Response:

None required.

AUDIT PROGRAM

VENDOR AUDIT PROGRAM FINDINGS

All findings are positive. No response required.

AUDIT PROGRAM

DESIGN & CONSTRUCTION AUDIT PROGRAM FINDINGS

Finding No. 1:

The number and scope of design and construction audits conducted by TUGCO QA to date has been limited. The evidence for this conclusion is illustrated in Figures 2 and 3. Figure 2 illustrates the number and scope of audits conducted over the years of Gibbs & Hill. Figure 3 shows a similar breakdown for site construction audits since 1978. These audits include Brown & Root, TUSI and the site construction quality assurance organization within TUGCO QA.

Examination of Figures 2 and 3 reveals that although most important activities have been audited, audits of certain activities have not been performed on a regular basis. A review of the reports of these audits also suggests that these audits were often of limited scope.

The author compared the number of audits performed by TUGCO QA with another nuclear project the author has been closely associated with for several years. This comparison project is slightly ahead of the CPSES in construction. For the comparison project the owner's QA staff has conducted an average of 15 design office audits a year for the past six years. This compares with a total of 17 audits of Gibbs & Hill conducted by TUGCO QA over the past eight years. It should be noted that for the comparison project the designer's QA organization performs about 30 audits and 25 surveillances per year of design activities. This is in addition to the owner's audit program.

With regard to site construction audits the AE/Constructor's QA organization for the comparison project has conducted over the past four years about 75 audits per year of construction site activities. The owner has performed, on average, 25 additional audits per year of site construction activities. This compares with a total of fewer than 35 audits of CPSES site activities by TUGCO QA.

It should be pointed out that there may be a number of reasons for a difference in the number of audits performed for one project versus another. Be that as it may it should be evident that the difference between the levels of audit activity for the CPSES and the comparison project should represent an area of concern.

The author believes that the low level of design and construction audit activities is a direct result of the inexperience of the TUGCO QA staff. This inexperience has led in the past to an underestimation of the number and scope of audits which should be performed. As a consequence, the audit staff is presently too small to carry out an appropriate audit program. It

should be mentioned that TUGCO QA recognized this problem before the performance of this independent evaluation and is actively recruiting qualified audit personnel for its staff. In addition to increasing the audit staff the author recommends that TUGCO QA consider the following:

(a) A detailed written plan should be developed which identifies all areas and elements of the design and construction program and the startup program which should be audited. This plan should be developed without consideration of the availability of personnel to perform audits. The input from key project personnel should be solicited. In particular, an attempt should be made to assign priorities to audit plan elements. The audit plan should be used as the basis for an audit schedule which will reflect the availability of audit personnel.

(b) The author recommends that the focus of the audit program begin to shift from process and procedure audits to audits of plant structures, systems and components. The objective of such audits should be to verify that the design and construction of the plant complies with requirements, in particular QA requirements, set forth in the SAR and other design criteria documents.

(c) The author recommends that individuals within TUGCO QA responsible for audit planning and scheduling be provided an opportunity to visit with their counterparts at other nuclear projects for the purpose of obtaining information which will help them anticipate the present and future needs of the audit program.

(d) Efforts should continue to hire additional qualified and experienced auditors.

Response:

We concur that an increased audit activity is necessary. The audit schedule which had been generated prior to Mr. Lobbin's evaluation called for forty-six (46) site audits during 1982, up from the twenty-one (21) performed in 1981. In addition, the size of the audit staff increased from an authorized manpower number of nine (9) on 12/31/81 to nineteen (19) by the end of 1982.

The numbers in Figures 2 and 3 require a closer examination. These figures are merely tabulations of audit titles and can lead to erroneous conclusions. For example:

a. Figure 1 shows that seventeen (17) TUGCO QA audits have been performed on Gibbs & Hill. This number does not include the 243 audits and 168 surveillances performed on design activities by Gibbs & Hill Quality Assurance. To conclude that Figure 1 represents most or all the audits of design is incorrect. The great majority of component support design originates at the CPSES site, and in the last few years represents a majority portion of

design activities on the project. During 1980 and 1981, twelve (12) audits at the site were engineering related. Some, such as TCP-6 had several follow-up audits under the same number. TCP-6 had four (4) follow-ups and represents approximately 300 man days of auditing. This is shown in Figure 3 as one audit.

b. Figure 3 is a tabulation of site audits by titles. Any time an audit of a safety-related activity is conducted it must, by necessity, include other areas. For example, audit of a construction activity such as welding, must include evaluations of document control to assure work is being done per latest design documents. It must also include audits of instructions, procedures and drawings by which activities are being performed. It also evaluates resolution of nonconformances on a day-to-day basis, design change control, QA records and other activities not included in the audit report title.

As mentioned on page 13 of the report, TUGCO recognized the need to increase its audit staff. We acknowledge the author's recommendations in Finding No. 1 and have taken the following actions:

a. TUGCO QA has identified areas and elements of the design and construction program and startup program that must be audited, without consideration of resources. The audit plan is then utilized in the preparation of the audit schedule on a monthly basis. We do assign priorities in our monthly scheduling process. An increased emphasis has been placed on documenting these described activities.

b. TUGCO QA concurs that the focus of the audit function should be placed on product audits. The audit program will continue to keep as its end objective safety-related product reliability.

c. We have begun an evaluation of our level of audit activity against industry standards. We do recognize the need to increase our audit activity in some areas. Based on the information we have learned thus far, we do not believe that our level of audit activity is so far out of line with the rest of the industry as the numbers in Figures 1, 2, and 3 would indicate.

d. Continued emphasis in hiring qualified and experienced auditors will assure that the necessary manpower is available to implement audit schedules.

Finding No. 2:

Only one audit (TCP-1) of the ASME program was identified by the author. TUGCO QA must become more actively involved in the independent review, audit and surveillance of ASME program activities.

Response:

Eight (8) audits have been performed of Brown & Root's corporate activities in addition to the one (TCP-1) identified in the report which was performed in 1978. Since that time, the concept of an integrated project effort was implemented at the CPSES. Audits performed at the site on safety-related construction activities have included work performed by B&R under their ASME Stamp. The audit reports have not always identified ASME-related functions as such, but will do so in the future. We will, however, increase the number and scope of TUGCO QA audits of the ASME activities in the future.

Finding No. 3:

Section 17.1.18 of the FSAR requires that planned and periodic audits be performed to verify compliance with all aspects of the QA program and to determine the effectiveness of the program. Based on review of TUGCO audit reports it was observed that the audit program is almost entirely focused on determining compliance. Relatively little attention has been paid to evaluating (e.g., by technical reviews of procedures, nonconformance reports, prime contractor audit reports) the overall effectiveness of the controls established by TUSI and by TUGCO's prime contractors.

Response:

It is our experience that the majority of audit findings are a failure to follow procedures. Consequently, the majority of audit findings appear to be a result of simply comparing procedural requirements of work activities. However, when a problem is found to be caused by an inadequate procedure (effectiveness of controls), the deficiency is written against a regulation or standard, such as 10CFR50 Appendix B, ANSI N 45.2 Series standards, IEEE standards .... The fact that TUGCO QA audits are much more than compliance audits is demonstrated by the magnitude of corrective actions resulting from such audits.

We agree that there has been some inconsistency in our audit reporting of program effectiveness to date. To provide additional emphasis in this area, a memo will be issued to all personnel involved in audit performance to stress the importance that the required evaluations be performed and documented. This memo will be issued by March 15, 1982.

Finding No. 4:

The TUGCO audit staff is too small and inexperienced to carry out effectively a full scope audit program. For example, the comparison project referenced in Finding #1 has 6 auditors located at the construction site performing audits of construction and startup activities. This is in addition to the headquarters staff of 5 individuals who also audit both the AE/Constructor's design office and the construction site. These individuals have little responsibility for vendor audits, since the owner has delegated responsibility for vendor audits and compliance to the AE/Constructor.

Response:

TUGCO has recognized that more experienced auditors are necessary.

DESIGN & CONSTRUCTION AUDIT PROGRAM FINDINGS

Finding No. 5:

A review of TUGCO audit reports revealed that emphasis has been placed on both the correction of identified problems and preventive measures to preclude repetition. However, neither TUGCO QA nor the audited organization appears to evaluate on a regular basis the impact of identified deficiencies on past activities. In the opinion of the author more emphasis should be placed on such evaluations.

Response:

TUGCO QA has in fact made determinations of generic effect as a result of audit findings. We agree; however, that such evaluations should be on a "regular basis", both by TUGCO QA and by the audited organization. We will place more emphasis on this in future audit reports.

Finding No. 6:

The author did not find a consistent use of detailed audit checklists for the planning and conduct of audits by TUGCO QA. In addition, audit reports generally do not include a description of the scope of the audit or an evaluation in broad terms of the impact and significance of the audit findings. Recent audit reports, however, show an improvement in this regard.

Response:

Since 1973, TUGCO QA has used a variety of checklist formats depending on the nature of an audit. Some checklists are based on regulatory or industry standards, some extract procedure requirements and still others may be based on an inspection report or commitment document. For example, when an audit is done as a result of a poor vendor rating, the inspection report might form part of the checklist, supplemented by pertinent questions.

Our recent move toward a standardized format, as noted in the finding, will continue.

Finding No. 7:

Section 17.1.18 of the FSAR states that "TUGCO verifies conformance of the regulatory audit requirements," in part through "review of documentation of the audit report performed by ...contractors." The author could find little evidence that this review is regularly performed.

Response:

When TUGCO QA performs pre-award surveys of potential contractors, the audit team assures that the contractor has a QA program that complies with the applicable portions of 10CFR50 Appendix B and the ANSI N45.2 series documents. These require that contractors themselves have an audit program.

When TUGCO QA performs audits of its contractors, it verifies that the contractor is implementing his audit program. This includes examination of audit schedules, reports, and evidence of audit finding follow-up and closeout. The quoted statement does not require that contractor audit reports be submitted to TUGCO QA and reviewed and filed in the corporate offices.

Finding No. 8:

It should be mentioned that the author observed a strong commitment on the part of TUGCO QA to the improvement of the design and construction audit program. Additional personal (sic) are actively being sought. It is also clear that the audit program has resulted in the identification of significant problems, in particular in areas related to design and design change control and has contributed to the improvement in the quality of the CPSES project. All the more reason, in the author's opinion, to expand the program, since the point of diminishing returns has certainly not been reached.

Response:

This is a positive finding which is acknowledged without response.

VENDOR COMPLIANCE PROGRAM FINDINGS

Finding No. 1:

The objective of the vendor compliance program is to verify through inspections of materials and equipment at vendor shops prior to shipment that the items conform in all respects to the requirements of specifications. The significant aspect of the TUGCO program is that the specification is actually used as a basis for inspection and release. As obvious as this sounds it is not common practice throughout the nuclear industry.

Response:

This is a positive finding which is acknowledged without response.

VENDOR COMPLIANCE PROGRAM FINDINGS

Finding No. 2:

The author examined the Vendor Compliance group's files, procedures, checklists and other related documentation and found them to be in order.

Response:

This is a positive finding which is acknowledged without response.

Finding No. 3:

Vendor Compliance receives feedback data from the CPSES site receiving inspection personnel regarding the quality of received materials and equipment. This information is necessary to close the vendor compliance loop and is used in the rating of both vendors and Vendor Compliance's inspection personnel.

Response:

This is a positive finding which is acknowledged without response.

VENDOR COMPLIANCE PROGRAM FINDINGS

Finding No. 4:

The author reviewed the qualifications of Vendor Compliance personnel and found them to be satisfactory.

Response:

This is a positive finding which is acknowledged without response.

Finding No. 5:

The activity level of Vendor Compliance is high with inspection personnel spending a large fraction of their time at vendor facilities. This contributes to the experience of inspection personnel. The motivation of the staff also appears high in spite of a heavy travel schedule.

Response:

This is a positive finding which is acknowledged without response.

VENDOR COMPLIANCE PROGRAM FINDINGS

Finding No. 6:

Vendor Compliance has developed a vendor rating system. It's principal benefit seems, at least to the author, to be that it encourages the staff to review continuously the general performance of individual vendors which in turn increases their awareness of potential problems and trends.

In summary, the author found no deficiencies with the vendor compliance function and extends a compliment to the staff on its achievements and performance.

Response:

This is a positive finding that is acknowledged without response.

SURVEILLANCE PROGRAM FINDINGS

Finding No. 1:

The author could discern no clear management philosophy with regard to the objectives, design, or scope of the site surveillance program for CPSES. The surveillance function is not specifically addressed in the FSAR. Responsibility for surveillance seems to have been assumed in an ad hoc fashion by both the Quality Assurance Services and the Construction Quality Assurance groups within TUGCO QA. Specifically, Quality Assurance Services has established two surveillance groups for the apparent purpose of supporting the site audit program. Construction Quality Assurance seems, on the other hand, to be assuming responsibility for monitoring ASME activities in support of the inspection program.

It is the view of the author that the surveillance function should be independent of both the audit and inspection programs and should enjoy visibility at the highest levels of project and quality program management. The author recognizes, however, that it is not within the purview of this review to suggest organizational changes. The author does recommend, however, that a concerted effort be made to involve key QA staff members in a review of the needs for surveillance and in the development of a set of specific objectives and guidelines for the surveillance program.

The following additional observations are provided even though they are, in effect, directly related to Finding #1.

Response:

Please refer to the response to Finding No. 4 in the SUMMARY Section, Page 1.

Finding No. 2:

The Construction Surveillance staff (within Quality Assurance Services) has very little commercial nuclear plant design and construction experience. As stated earlier, the author believes that the surveillance staff should be among the highest qualified and experienced individuals within any QA/QC organization.

Response:

It would be desirable to have a highly qualified and experienced construction surveillance staff. We have experienced difficulty in hiring surveillance personnel with extensive design and construction experience. The QA emphasis in construction will, therefore, concentrate on an increased level of audit activity.

Finding No. 3:

A review of Site Surveillance Reports (SSRs) reveals that the deficiencies being identified by the surveillance staff are not significant. As a result the group apparently has not been able to gain the respect of the project organization and is considered by some to be of little benefit to the project.

It should be noted that this finding is not a result of a lack of effort on the part of the Construction Surveillance staff. Rather it reflects their lack of experience. The author found the staff to have a strong desire to make a real contribution.

Response

We recognize that some of the findings identified by construction surveillance are not significant. (Not significant in that they do not adversly affect safety related equipment and services.) Although these type problems do not individually constitute a basis for concern, an excessive number collectively may be indicative of a lack of discipline and lack of attention to detail. We intend to continue identifying problems when in TUGCO QA's opinion, it is necessary to do so to maintain an attitude of strict compliance with regulatory requirements.

INSPECTION PROGRAM FINDINGS

Finding No. 1:

Interviews with various individuals at the CPSES revealed a concern with regard to the level of experience of inspection personnel, including individuals who perform ASME inspections. An audit has apparently not been performed of inspector qualifications, and training remains an open question. Such an audit is highly recommended.

Response:

Inspection personnel are qualified as appropriate to industry standards such as SNT-TC-1A and ANSI N45.2.6. Personnel qualifications are routinely examined incidental to audits of safety related activities. However, an audit of inspection personnel training and certification has been scheduled for March 1982.

Finding No. 2:

A review of the index of inspection procedures and instructions and of selected procedures by the author indicates that a comprehensive system of procedural controls has been developed. Use of these procedures and instructions would be of great benefit to individuals whose qualifications and experience may be less than desired.

Response:

This is a positive finding which is acknowledged without response.

Finding No. 3:

The number of inspection personnel seems adequate. The comparison project referenced earlier has approximately 100 QC inspectors.

Response:

This is a positive finding which is acknowledged without response.

Finding No. 4

The Quality Engineering group within Construction Quality Assurance has initiated a small program for the trending of nonconformance reports. Based on a review of the trend reports prepared so far, it appears that the program is still in a development stage.

Response:

This is a positive finding which is acknowledged without response.

TEXAS UTILITIES GENERATING COMPANY

OFFICE MEMORANDUM

To D. N. Chapman Dallas, Texas March 26, 1982

Subject QUARTERLY PROGRESS REPORTS
ON RESOLUTION OF F. B. LOBBIN
AUDIT OF DESIGN AND CONSTRUCTION
QUALITY ASSURANCE FOR CPSES

I have reviewed your response logged QBC-18, dated February 23, 1982, to the subject audit.

Please submit to me a progress report every three (3) months starting June 1, 1982, on the progress leading to closeout.

This report should include a status of hiring efforts, experience levels, audit schedule implementation, and include copies of action memos and procedures issued to address the deficiencies identified.

BR Clements

B. R. Clements
Vice President, Nuclear

BRC:pko

cc: M. D. Spence
R. J. Gary

QBC-25

TEXAS UTILITIES GENERATING COMPANY

OFFICE MEMORANDUM

To B. R. Clements Dallas, Texas May 24, 1982

Subject: QUARTERLY PROGRESS REPORT NO. 1
ON RESOLUTION OF F. B. LOBBIN
AUDIT OF DESIGN & CONSTRUCTION
QUALITY ASSURANCE FOR CPSES

In accordance with your directive dated March 26, 1982, we are transmitting the subject Report No. 1 due to you on June 1, 1982. If you have any questions on this report please contact Tony Vega at extension 4895 or myself.

D. N. Chapman
Manager, Quality Assurance

DNC/AV:med

QUARTERLY PROGRESS REPORT NO. 1 ON
RESOLUTION OF F. B. LOBBIN AUDIT OF
DESIGN & CONSTRUCTION
QUALITY ASSURANCE FOR CPSES

Recruiting Program

Since the audit was performed, four (4) Senior Q.A. Auditors have been hired.

1) Mr. Larry J. Rillera, started February 1, 1982.
2) Mr. Ron Cote', started March 1, 1982.
3) Mr. Tilton B. Cook, scheduled to start June 1, 1982.
4) Mr. David Z. Hathcock, scheduled to start June 14, 1982.

The above four auditors collectively add forty-seven (47) years of nuclear power and Quality Assurance experience to our audit staff. Our recruiting efforts are continuing.

Audit Schedule

The 1982 Audit Schedule for Internal and Prime Contractor audits was issued November 30, 1981. A copy of this schedule is enclosed as Attachment A. Also included as Attachment B is an audit status report for the first quarter of 1982. This reflects audits performed, added and postponed.

Attachment C is the results of the survey conducted to determine how the number of audits performed for CPSES design and construction compare with other plants. The plants selected are all two unit plants with work progress generally comparable to CPSES. The results show that the audit activity on this project is as high or higher than the industry average.

The prime audit procedure CQP-CS-4 has been revised (Revision 4 dated 3/31/82) to require the following:

1. The preparation of a yearly audit plan identifying all areas and elements which should be audited and requiring input from key project personnel. This is to be developed without considering available resources.

2. The audit plan is to be broken up into quarterly schedules.

3. From the quarterly schedules, a monthly schedule will be generated which reflects priorities based on significance of activities, activity level, actual work schedules, and auditor resources. Audits may be added or postponed based on current site activities.

This revised procedure is included as Attachment D.

Audit Program

In regard to re-emphasizing the requirement for a statement of program effectiveness evaluation in audit reports, a memo logged QTO-116 was issued on March 3, 1982. A copy of this memo is included as Attachment E.

Inspection Personnel Qualification

An audit of inspection personnel qualifications was conducted on March 8-12, 1982. A copy of this audit report, designated TCP-36 is included as Attachment F.

Summary

In summary, all items identified in the Lobbin report have been addressed. With the exception of hiring additional auditors and implementing our audit schedule, all items are considered closed. We will file our second quarterly report on or before September 1, 1982 on the progress in these two areas.

Antonio Vega
Quality Assurance
Services Supervisor

AV:med

Attachment A

TEXAS UTILITIES GENERATING COMPANY

OFFICE MEMORANDUM

To A. Vega AV 11/30/81 Dallas, Texas November 30, 1981

Subject PROPOSED AUDIT SCHEDULE 1982
INTERNAL & PRIME SUBCONTRACTOR

Attached is the proposed Internal/Prime Subcontractor Audit Schedule for 1982. The schedule is subject to change depending on the level of activity, new activities, manpower availability, and vendor audit requirements.

Please review the proposed schedule for any priority changes, additions or deletions you wish to implement.

Based on our current manpower and anticipated level of vendor audits during 1982, we will not be able to meet the proposed schedule. On a monthly basis, I will consult with you on priorities and schedule audits accordingly.

D. L. Anderson

D. L. Anderson
Auditor

DLA:med

Attachment

1ST QUARTER AUDIT SCHEDULE - 1982

"INTERNAL/PRIME SUBCONTRACTOR" * **

*BAHNSON will be audited jointly with B&R
**W audits will be scheduled upon receipt of the 1982 T.V.A. schedule

JANUARY		FEBRUARY		MARCH	
4-8	Construction/QC - Civil	1-5	Operations - Maint/M&TE	1-5	Engineering - I&C
11-15	Construction/QC - Protective Coatings	7-12	Engineering - Mechanical	8-12	QA/QE - Training and Miscellaneous
18-22	Gibbs & Hill	15-26	B&R - ASME	15-19	Startup - Administration
29	Engineering - IEEE Qualification			22-26	Construction/QC - I&C
				29-4/2	Construction/QC - Electrical

2ND QUARTER AUDIT SCHEDULE - 1982

"INTERNAL/PRIME SUBCONTRACTOR"

APRIL		MAY		JUNE	
5-8	Operations - Engineering Health Physics	3-7	Grinnell Fire Protection	1-4	Construction/QC - Electrica'
12-16	Engineering - Civil	10-14	Operations - Procurement/QA Warehouse/Training	7-11	Gibbs & Hill
19-23	Construction/QC - Mechanical	17-21	Construction/QC - Civil	14-18	Engineering - Procurement/ Technical Support
26-30	Engineering - PSDG	24-28	Startup - Test Activities	21-25	Operations - Station Administrat Activities
				28-7/2	QA Records

3RD QUARTER AUDIT SCHEDULE - 1982
"INTERNAL/PRIME SUBCONTRACTOR"

JULY	AUGUST	SEPTEMBER
6-9 Engineering - Licensing	2-6 Engineering - Electrical	7-10 QA - Nonconformance
6-9 Engineering - Damage Study	9-13 Construction/QC - Protective Coatings	13-17 Construction/QC - Receiving/ Maint/Storage
12-16 Startup - Administration	16-20 Engineering - Mechanical	20-24 Operations - Maint/M&TE
19-30 B&R ASME	23-27 QA/QE - Training & Misc.	27-10/1 Construction/QC-Mechanical
	30-9/3 Construction/QC - I&C	

4TH QUARTER AUDIT SCHEDULE - 1982
"INTERNAL/PRIME SUBCONTRACTOR"

OCTOBER	NOVEMBER	DECEMBER
4-8 Engineering - PSDG	1-5 Operations - Station Administration	6-10 Gibbs & Hill
11-15 Startup - Test Program	8-12 Grinnell Fire Protection	13-17 Operations - Procurement/ WHS/QA/Training
18-22 Construction/QC - Electrical	15-19 Engineering - Mechanical	
25-29 Engineering - Damage Study	29-12/3 Construction/QC - Class V	
25-29 Construction/QC - DCC		

QXX-123

TEXAS UTILITIES GENERATING COMPANY

Schedule File.

OFFICE MEMORANDUM

Attachment B:

To A. Vega AV 4/1/82

Dallas, Texas April 1, 1982

Subject 1st QUARTER 1982 AUDIT SCHEDULE
INTERNAL/PRIME SUBCONTRACTOR

Attached is the status of the 1st Quarter Audit Schedule for internal/prime subcontractors. Below each initially scheduled audit, I have included the actual status (i.e. performed, postponed). Also included are the audits which were added.

Should you have any questions, please contact me.

D. L. Anderson

D. L. Anderson

DLA:med

Attachment

cc: D. N. Chapman

STATUS

1ST QUARTER AUDIT SCHEDULE - 1982

"INTERNAL/PRIME SUBCONTRACTOR"

JANUARY		FEBRUARY		MARCH	
8	Construction/QC - Civil: Postponed to March	1-5 22-26	Operations - Maint/M&TE: Performed TUG-8	1-5	Engineering - I&C: Postponed to May
-1 -29	Construction/QC - Protective Coatings: Performed TCP-30	7-12 8-12	Engineering - Mechanical: Performed TCP-32	8-12	QA/QE - Training and Miscellaneous: Performed TCP-36
		15-26	B&R - ASME: Postponed based on ASME resurvey	15-19 22-26	Startup - Administration: Performed TUG-9
-22	Gibbs & Hill: Postponed to February			22-26 8-12	Construction/QC - I&C: Performed TCP-35
-29	Engineering - IEEE Qualification: Performed TCP-31	ADDED:		29-4/2	Construction/QC - Electrical: Postponed to May
		1-5	Gibbs & Hill: Performed TGH-18		
DED:		10-17	Engineering - TSG: Performed TCP-33	ADDED:	
-22	Engineering/Construction: Procurement - TCP-34			15-19	Construction/QC - Civil/Struct.: Performed TCP-37
				30-4/2	W-Pensacola - on-site Rx internals activity: Performed TWH-23

Audit Survey.

Attachment C:

Audits/yr.

Company	Person Contacted	Plant	Units Constr. & % Complete		Design by Util	Design by A/E	Construction by Util	Construction by Contractor
Cleveland Elec. Illum. Co.	Lou Farrell	Perry 1 & 2	1 65%	2 50%	3-4	?	30-40	0
Commonwealth Edison	Walt Skowski	LaSalle Co. 1 & 2	1 99%	2 85%	4	2	2	No Single Contractor
		Byron 1 & 2	1 75%	2 60%	4	2	2	No Single Contractor
		Braidwood 1 & 2	1 60%	2 50%	4	2	2	No Single Contractor
Duke Power	Geo Greer	McGuire 1 & 2	1 99%	2 86%	8	UTILITY -N/A	12	UTILITY -N/A
		Catawba 1 & 2	1 75%	2 15%	8	UTILITY -N/A	12	UTILITY -N/A
Illinois Power Co	Glenn Bell	Clinton 1 & 2	1 75%	2 5%	6-8	?	6	20-25
			Cum.		38.5	6	71	INDETERMINATE
			Ave		5.5	1.2	5.8	

TEXAS UTILITIES GENERATING Co.	PROCEDURE/ INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	CQP-CS-4	4	3/31/82	1 of 4

Procedure to Establish and Apply a System of Pre-Award Evaluations, Audits and Surveillances

PREPARED BY: D. L. Anderson 3/31/82 DATE

APPROVED BY: Rustom Hoyt 3/31/82 DATE

INFORMATION ONLY

1.0 INTRODUCTION

1.1 Purpose

The purpose of this procedure is to establish the system of pre-award evaluations, audits, and surveillances that TUGCO will perform.

1.2 Scope

The system of pre-award evaluations, audits, and surveillances shall be carried out by TUGCO QA to verify compliance with the quality assurance programs of its Architect-Engineer, NSSS Supplier, Constructor, vendors, sub-contractors, pre-operational/startup organization, plant operations and segments of the TUSI internal organization as applicable.

1.3 Definitions

1.3.1 Pre-Award Evaluation - An evaluation performed to determine a vendor's capability to supply his equipment or service in compliance with necessary quality assurance requirements. This may involve review of a vendor's history and/or experience or performance of a survey at the vendor's facility.

1.4 References

1.4.1 CQI-QA-2.1 "Qualification of Audit Personnel"

2.0 RESPONSIBILITIES

2.1 Manager, Quality Assurance has developed an overall system for the various types of organizations performing nuclear safety-related work for TUGCO/TUSI. The system is consistent with the requirements established in the TUGCO/TUSI CPSES Quality Assurance program. The Manager, Quality Assurance may delegate any of his responsibilities.

2.2 Manager, Quality Assurance shall establish audit personnel qualifications and is responsible for assuring that personnel obtain a level of auditing experience or training which assures that their qualifications are commensurate with the complexity or special nature of the activities to be audited. The Manager, Quality Assurance may delegate any of his responsibilities. Audit personnel will be trained in accordance with Reference 1.4.1.

3.0 PROCEDURE

3.1 The system of pre-award evaluations, audits and surveillances shall be performed in accordance with written procedures or checklists by appropriately trained personnel having no direct responsibilities in the areas being audited. Deficiencies identified are resolved so as to assure compliance with all applicable regulatory commitments. Regulatory requirements include 10 CFR 50, Appendix B and other recognized codes and standards if applicable.

3.1.1 Pre-award evaluations will be conducted to evaluate a suppliers' QA program and to determine its degree of compliance with regulatory requirements. Upon successful completion of the evaluation, the vendor will be approved and placed on the TUGCo Approved Vendor's List. Any holds or restrictions will be noted at that time.

3.1.2 Audits will be conducted to verify compliance with the requirements of the applicable organization's quality assurance program, contracts and regulatory requirements.

3.1.3 Surveillances will be conducted when in the judgment of the Manager, Quality Assurance, there is a need to perform an evaluation of limited scope.

3.2 Pre-award evaluations and surveillances will be conducted when necessary. Audits should be scheduled on the basis of the importance, complexity and status of the production activities to assure the adequacy of, and conformance with, the Quality Assurance program.

3.2.1 The following organizations will be audited on a regularly scheduled basis, but in accordance with Regulatory Guide 1.33, Rev. 2, 1/78, Regulatory Position 4:

a. Architect - Engineer
b. NSSS Supplier
c. Constructor
d. TUSI Internal
e. Pre-operational/Startup
f. Plant Operations
g. Sub-contractors

On a yearly basis the Coordinator Vendor Evaluations/Audits will prepare an audit plan identifying all areas and elements which should be audited. Input from key project personnel will be solicited. This audit plan is to be developed without considering available resources and shall be broken up into quarterly schedules. From this plan a monthly schedule will be generated. Changes to site procedures will be reviewed on an ongoing basis and utilized as input into this audit schedule. The schedule will also reflect priority based on significance of activities, activity level, actual work schedule, and auditor resources. Audits may be added or postponed based on current site activities.

3.2.2 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 to determine if they indicate an adverse trend. If an adverse trend is evident, an audit will be scheduled.

b. For those vendors who cannot be evaluated based on vendor ratings (i.e. services, bulk shipments not source inspected) regularly scheduled audits will be performed based on level of activity.

3.2.3 Audits may also be scheduled for one or more of the following conditions:

a. When, after award of a contract, sufficient time has elapsed for implementing the quality assurance program and it is appropriate to determine that the organization is adequately performing the functions as defined in the quality assurance program description, codes, standards, and other contract documents.

b. When significant changes are made in functional areas of the quality assurance program such as significant reorganization or procedure revisions.

c. When it is suspected that the quality of the item is in jeopardy due to deficiencies in the quality assurance program.

d. When it is considered necessary to verify implementation of required corrective actions.

3.2.4 If the manufacturing of components are such that a vendor manufactures for stock within an approved QA program, and the specific material for TUGCO is not readily identifiable during production, TUGCO QA may elect to verify adequacy by review of objective evidence at release inspection or receipt inspection in lieu of audits during production or fabrication.

3.2.5 Pre-award evaluations, audits and surveillances will be uniquely identified.

a. Pre-award evaluations will be identified as to vendor and facility location.

b. Audits will be identified by an alphanumeric audit serial numbering system. The alphanumeric designation will consist of at least three characters. The first character will indicate that the audit was performed by TUGCO. The following characters will designate the contractor or supplier audited. The numeric designation appearing as a suffix will enumerate the audits performed on a specific contractor or supplier. Example: TGH-1 is the first Audit performed on Gibbs & Hill.

c. Surveillances will be identified by a numerical prefix denoting numerical order and a suffix denoting the year during which the surveillance was performed. Example: 01-81 is the first Surveillance of 1981.

CTG-11E

TEXAS UTILITIES GENERATING COMPANY

Attachment E:

OFFICE MEMORANDUM

To Distribution

Dallas, Texas March 3, 1982

Subject REEMPHASIS ON SELECTED AUDIT ACTIVITIES

The audit conducted by Mr. Frederick B. Lobbin over a two week period during the months of December, 1981 and January, 1982, indicate a need to reemphasize several audit requirements.

Accordingly, I wish to reemphasize the following:

1. Our audit procedure CQI-CS-4.6, Revision 2, dated 2/15/82 Section 3.4.3.a.4 requires we include in the audit summary, an evaluation of the effectiveness of the QA program elements audited.

2. Our audit procedure CQI-CS-4.6, Revision 2, dated 2/15/82 Section 3.3.3 requires that, when an auditor identifies a deficiency, the auditor shall conduct further investigation in an effort to identify the cause and effect of the deficiency.

   In this regard, the auditor should determine if the problem has generic implications. If it does, this should be identified in the post-audit meeting and reflected in the audit report. The audit report should include a recommendation that the audited organization evaluate and address the generic impact of identified deficiencies on past activities. On evaluating audit responses, we must assure and document consideration of generic impact of identified deficiencies on past activities.

Thank you for your attention to the above requirements.

Antonio Vega
Supervisor,
Quality Assurance Services

AV:med

Distribution:

B. R. Clements (For Information Only)
D. N. Chapman (For Information Only)
L. M. Bielfeldt
J. A. Valdez
D. L. Paris
R. A. Hoelscher
S. L. Spencer ✓
D. L. Anderson
B. Campbell
S. Davis
A. Kesler
L. Rillera
R. Shoemake
R. Cote (3/8/82)

QTQ-120

TEXAS UTILITIES GENERATING COMPANY

Attachment F:

OFFICE MEMORANDUM

To R. G. Tolson

Dallas, Texas April 12, 1982

Subject COMANCHE PEAK STEAM ELECTRIC STATION
TUGCO QA AUDIT TCP-36
SITE QA/QC PERSONNEL TRAINING
QA AUDIT FILE: TCP-36

Attached is TUGCO QA Audit Report TCP-36, which describes the results of our audit of Site QA/QC Personnel Training performed on March 8-12, 1982. The audit was conducted by Debra Anderson (Team Leader), Al'An Kesler, and Larry Rillera.

Attachment A contains an audit summary including attendees of the pre- and post-audit meetings and personnel contacted during the audit. Attachment B contains deficiencies, concerns, and comments identified. Please respond to Concern No. 1 by May 14, 1982.

By copy of this letter to G. R. Purdy, we request that you respond to Deficiency Nos. 1 and 2 by May 14, 1982. In your response please provide the following information for each deficiency:

1. Describe what corrective action has or will be taken for each deficiency.

2. Describe your preventive action to prevent recurrence of the deficiency.

3. Indicate the date your corrective action, as described in Item 1 above, will be implemented.

Should you have any questions, please contact Debra Anderson at 214/653-4882.

D. N. Chapman
Manager, Quality Assurance

DNC/AV/DLA/LJR:med

Attachment

cc: B. R. Clements
J. T. Merritt
G. R. Purdy

Attachment A

Audit Summary

TCP-36

Attendance - Pre Audit Meeting
QA Audit No. TCP-36
Date MAR 8, 1982

Name	Title	Name	Title
LARRY RILLERA	AUDITOR, TUGCO		
Debra Anderson	TUGCO QA		
[illegible] Schmidt	Training Coordinator		
Jerry C. Walker	Q.E - Tugco		
[illegible]	TUGCO QA		
W. L. [illegible]	B&R Q.E. Supers.		
Pat Ashcraft	Training Coordinator		
~~Ronald C. Washington~~	~~B&R Mech Level III~~		

Attendance - Post Audit Meeting
Date MAR 12, 1982

Name	Title	Name	Title
[illegible]	TUGCO Auditor		
Pat Ashcraft	QA Training Coordinator		
Jerry C. Walker	Tugco Q.E.		
B. C. Scott	TUGCO QA		
LARRY RILLERA	AUDITOR TUGCO QA		
Ronald C. Washington	B&R Mech. level III		

Audit Summary

Audit Team:

Debra Anderson - Team Leader
Al'An Kesler
Larry Rillera

Personnel Contacted:

F. Schmidt
J. Walker
T. Brandt
D. Sanders
P. Ashcroft
B. Scott
R. Washington

Audit Scope:

The audit was conducted to verify that the Site QA/QC personnel training activities for both ASME and Non-ASME personnel were being implemented in accordance with the appropriate quality requirements.

The following standards, procedures, and instructions covering training, qualification and certification of QA/QC personnel were utilized by the auditors:

1. ANSI N45.2.6 - "Qualification - Personnel"
2. ANSI N45.2.9 - "Records"
3. SNT-TC-1A - "NDE Qualification Personnel"
4. CP-QAP-0.7 - "ASME QA/QC Personnel Training Manual"
5. CP-QP-0.12 - "Non-ASME QA/QC Personnel Training Manual"

The auditors reviewed the following:

1. Document Control
2. General Training/Qualification
3. Records
4. ASME Level III's, Instructors and Lead Persons
5. Non-ASME Level III's, Instructors and Lead Persons
6. Specific Personnel Reviews

The training manuals, procedures, and instructions were reviewed for availability, control numbers, latest revision, and completion. Both training coordinators for the ASME and Non-ASME activities maintained satisfactory control of the above mentioned documents.

The auditors reviewed the general training program of each entity (ASME and Non-ASME) as to organization, training coordinator interface, maintenance of files, notification for re-evaluation, certification expirations, and instructor designation.

The training/qualification records were maintained in the Vault section of the complex. It was observed that these files were stored in a manner to prevent deterioration. Authorized accessibility to these files is strictly enforced by Vault personnel. The records and storage control for training is satisfactory.

Approximately 20% of the personnel certifications were reviewed to verify compliance as to proper certification dates; education and employment requirements and verifications; reading, training and indoctrination; written and practical tests; and physical examinations. As a result of this audit, two deficiencies, one concern, and two comments were identified. See Attachment B for details.

Summary:

Based on the sample of the certifications reviewed, and the number of observations made, the auditors feel that the training programs of both the ASME and the Non-ASME activities are being satisfactorily implemented with the exceptions noted on Attachment B.

D. L. Anderson

D. L. Anderson
Team Leader

Attachment B

Deficiencies and Comments

TCP-36

TCP-36

Deficiency No. 1

"ASME"

Requirement:

QI-QAP-2.1-5, Rev. 0; 1/14/82 Training and Certification of Inspection Personnel.

1. Paragraph 3.4.1, Training "To be qualified ... shall complete a required Reading List, ..."

2. Paragraph 3.4.2, Examination "Min. No. of Questions ... General-50, Specific - 150 ...."

Finding:

During the course of our review, auditors identified an ASME Inspector Certification for a Mechanical Level III with the following inconsistencies:

1. No documentation of the required reading as required in QI-QAP-2.1.5, paragraph 3.4.1 "Training."

2. Examination requirements as specified by QI-QAP-2.1.5, paragraph 3.4.2 for a Mechanical Level III were not met.

3. Under the heading "Remarks" on the certification the words "Certified for Training Only" had been "whited out" on the certification on file in the vault.

Note: Auditors understand that this Level III was issued in intent to certify instructor qualifications only. Please verify no Level III work was done under this certification and that this was an isolated case.

AEK

TCP-36

Deficiency No. 2

"ASME"

Requirement:

QI-QAP-2.1-5, Rev. 0, 1/14/82, Training and Certification of Inspection Personnel, paragraph 3.2.3.c.... The minimum number of questions in each examination shall be as follows:

.... c. Practical - 20

Finding:

Contrary to the above, Examination MI-II-P-04 has only 15 questions.

At least one Level II certification of a Mechanical Inspector/Fabrication Inspection was made using this exam.

In addition, the requirement for 20 questions has been in effect since at least 2/13/81 and this test was written in 1980. Auditors were unable to verify that a requirement for 15 questions had previously been in effect.

DLA

TCP-36

Concern No. 1

As a result of the audit of the Non-ASME QC inspection certification program, the audit team felt there is a need to provide additional clarification on actual practices and the requirements set forth in CP-QP-2.1, "Training of Inspection Personnel."

As a result of further conversations subsequent to the audit, it is now our understanding that the CPSES QC inspection organization is as follows concerning required certification levels, functional responsibilities, and technical direction:

(1)

Title	Level of Certification	Functions
QC Inspector	Level I or Level II	1) Perform inspections
QC Lead Inspectors	Level I or Level II	1) Same as above Miscellaneous administrative duties, such as: a. make personnel assignments b. approve time sheets, etc.

(2) Technical direction to the above personnel is provided by a Certified Level III or Quality Engineer in cases where discipline supervisors are not certified to the appropriate level.

The audit team feels the above operating practice should be clearly reflected in an appropriate procedure or supporting instruction. Please confirm that the above understanding is correct.

TCP-36

Comment No. 1

"ASME"

During the review of the ASME Inspector files, auditors noted that verifications for employment and education have still not been obtained for all of the inspectors.

TCP-36

Comment No. 2

"ASME"

The QA/QC Personnel Training History Form is not being consistently updated. The majority of the files reviewed did not have an up-to-date form.