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William G. Counsil
Executive Vice President

May 2, 1988

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
QUALITY ASSURANCE (QA), CHAPTER 17
ADVANCE COPY OF FSAR CHANGES

Gentlemen:

In order to inform the Staff of CPSES FSAR changes related to the Quality Assurance Program at the earliest possible date and to meet the requirements of 10CFR50.55(f)(1), we have enclosed an advance copy of changes to the CPSES FSAR Sections 17.1 "Quality Assurance During Design and Construction," and 17.2 "Quality Assurance During The Operation Phase." This advance copy of FSAR changes address the following general topics:

- The establishment of the TU Electric Quality Assurance Manual (QA Manual).
- Clarification that B&R provides the QA Program for ASME Section III Code Work only.
- Clarification that requirements of various QA activities pertain to both TU Electric and its contractors/vendors.
- References to Regulatory Guides have been added or deleted to reflect the requirements applicable to the operation phase in Section 17.2.
- Editorial corrections and clarifications have been made which do not change the intent of the applicable sections.

The TU Electric Comanche Peak Steam Electric Station Quality Assurance Program (QA Program) has been revised to reflect the consolidation of the quality assurance programmatic documents into the TU Electric Quality Assurance Manual (QA Manual). The QA Manual has been established and implemented (February 1, 1988) to provide references to the written policies, procedures and instructions used to implement the QA Program.

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This advance copy provides detailed descriptions (justifications) for the clarifications, revisions, corrections and editorial changes made to the affected portions of these sections. Also included is a copy of the marked up SAR (deletions are /'d out and additions are in **BOLD** type) and advanced draft (amended) pages.

The attached changes were reviewed by the Quality Assurance Department and have been determined not to constitute a reduction in commitments made in the QA Program previously accepted by the NRC.

Please note that the enclosed advance copy of FSAR changes should not be inserted into your FSAR. TU Electric plans to formally submit these changes in a future amendment to the FSAR.

Very truly yours,

W. G. Counsil

DAR/grr
Attachment
Enclosure

c - Ms. Melinda Mallov
Mr. R. D. Martin, Region IV
Resident Inspectors, CPSES (3)

CPSES ADVANCED AMENDMENT
DETAILED DESCRIPTION

FSAR Page (as amended)	Description
Sections 17.1 and 17.2	These sections have been revised to reflect the consolidation of the existing Quality Assurance documents into the TU Electric Comanche Peak Steam Electric Station Quality Assurance Manual (QA Manual). This QA Manual has been reviewed by the Quality Assurance Department and the changes have been determined not to constitute a reduction in commitments made in the Quality Assurance Program previously accepted by the NRC. The TU Electric Comanche Peak Steam Electric Station Quality Assurance Program (QA Program) is defined in FSAR Chapter 17. The QA Manual has been established and implemented (February 1, 1988), to provide references to the written policies, procedures and instructions that are used to implement the QA Program. Therefore, all references to the Corporate Quality Assurance Program, the CPSES Quality Assurance Plan, the Startup Quality Assurance Plan and the Operations Administrative Control and Quality Assurance Plan have been deleted. As a result of this change only references to the QA Program and QA Manual are necessary. (88-418.2)
17.1-1	Clarification: Clarifies that the QA Program is Chapter 17 of the FSAR. (88-418.1) Revision: This change reflects the consolidation of the existing Quality Assurance documents into the QA Manual. This QA manual has been established to provide references to the written policies, procedures and instructions that are used to implement the QA Program. As a result of this change, only references to the QA Program and QA Manual are necessary. See General discussion Sections 17.1 and 17.2. (88-418.2)
17.1-2	Clarification: Deletes "Gibbs and Hill" as an Architect-Engineer for CPSES which is consistent with Engineering Services Contractors which are assigned specific scopes of work for design engineering activities. (88-418.1)

FSAR Page (as Amended)	Description
17.1-2	Clarification: Clarifies that Engineering Services Contractors (Architect-Engineers) are assigned work for design engineering in accordance with the requirements of the Nuclear Engineering and Operation organization. This work is conducted in accordance with their TU Electric-approved QA Programs. (88-418.1)
	Clarification: Clarifies that Brown & Root (B&R) provides the QA Program for ASME Section III (ASME NA certificate holder) Code work only. (88-418.1)
17.1-4 and 17.1-5	See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.1-5	Clarification: Clarifies the implementation of the site QA efforts in construction areas excluding ASME Section III Code work. Section 17.1 pertains to design and construction activities only. Replace "all" with "construction." (88-418.1)
17.1-5 and 17.1-7	See Justification for page 17.1-2, Clarification: (ASME Section III Code work). (88-418.1)
17.1-8	Revision: Deleted "warehousing" from Brown & Root (B&R) activities. TU Electric performs warehousing activities in accordance with appropriate QA policies, procedures and instructions. (88-418.3)
	Clarification: Clarifies the implementation of the site QA efforts in construction areas excluding ASME Section III Code work. Section 17.1 pertains to design and construction activities only. (88-418.1)
	See Justification for page 17.1-2, Clarification: (ASME Section III Code work). (88-418.1)
17.1-9	Clarification: Clarifies that Brown & Root (B&R) technical and administrative supervision is for ASME Section III Code work only. (88-418.1)
	Clarification: This change is to clearly differentiate between ASME and non-ASME construction inspection activities. (88-418.1)
17.1-10	Clarification: Clarifies that Brown & Root (B&R) performs periodic audits of their ASME Section III Code Program which are required to maintain their Certificate of Authorization. (88-418.1)

FSAR Page (as Amended)	Description
17.1-10 and 17.1-11	See Justification for page 17.1-2, Clarification: (ASME Section III Code work). (88-418.1) See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.1-12	See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.1-13	Clarification: Clarifies the control of changes to engineering specifications. To be consistent with the wording of paragraph 17.1.3.1, delete the statement "written procedures also document resolution of." Procedures describe the method of documenting the resolution and the required documentation of the reviews. (88-418.1)
17.1-15	Clarification: Clarifies that procurement documents are subjected to the reviews and controls described in this Section 17.1. This change deletes the reference to "17.1.3." (88-418.1)
17.1-16	Clarification: Clarifies that TU Electric or B&R Quality Assurance programs also review purchase orders or contracts to assure that all required quality assurance and quality control information of the purcurement document, including requirements for control, maintenance, and submittal of quality records, is reflected in the purchase order and contract. This is by adding the following wording at the beginning of the paragraph "TU Electric or Brown & Root (ASME Section III Code purchases)." (88-418.1) Clarification: This change is to make clear that the requirements (e.g. utilization of procedures, establishment and implementation of QA programs, division of authority) pertain to both TU Electric and its contractors/vendors. (88-418.1)
17.1-17 and 17.1-18	See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.1-21	See Justification for page 17.1-16, Clarification: (requirements pertain to both TU Electric and its contractors/vendors). (88-418.1) Clarification: A change to clarify that provisions are made for the conditional release of the status of nonconforming items under certain conditions. Replace "temporary waiver" with "conditional release." (88-418.1)

FSAR Page (as Amended)	Description
17.1-22 thru 17.1-27	See Justification for page 17.1-16, Clarification: (requirements pertain to both TU Electric and its contractors/vendors). (88-418.1)
17.1-31	Revision: Required inspections and signoffs, for systems that are transferred to TU Electric, will be obtained not only from startup and test personnel, but also from quality control personnel. (88-418.3)
17.1-32	See Justification for page 17.1-16, Clarification: (requirements pertain to both TU Electric and its contractors/vendors). (88-418.1) Clarification: Clarifies that departures from design specification and drawing requirements that are not dispositioned as "rework" or "scrap" require dispositioning by engineering or its contractors. Replace '"use as is" and "repair"' with '"rework" or "scrap".' (88-418.1)
17.1-34	Revision: The qualifying statement that NCR's are evaluated by Engineering for disposition (... ", and which Engineering evaluates for disposition.") has been deleted since not all NCR's require Engineering evaluation. An NCR initiated by other than Engineering can be dispositioned "rework" or "scrap" without an Engineering evaluation. Those NCR's which do require Engineering evaluation/disposition are described elsewhere in Section 17.1.15 (page 17.1-32). (88-418.3) Revision: Delete "engineering/construction" because other disciplines can also provide disposition for quality items identified on IR's, DR's, or NCR's. (88-418.3)
17.1-35 and 17.1-36	See Justification for page 17.1.1, Revision: (QA Manual). (88-418.2) See Justification for page 17.1-16, Clarification: (requirements pertain to both TU Electric and its contractors/vendors). (88-418.1)
17.1-36	Clarification: Clarifies that it is not always possible to inspect an item to the origianl criteria. If an alternative inspection criteria is justified by engineering the alternative inspection criteria is adequate. Change the wording from "... as originally inspected ..." to "... to specified requirements ..." (88-418.1)

FSAR Page (as Amended)	Description
17.1-38	Revision: Delete the description of the "permanent on-site record storage facility" and add general requirements for the storage and control of records. The facility currently described in the FSAR is the "PPRV" (the construction document storage area located in the Brown & Root Administration building) which is no longer considered a TU permanent records storage facility. Records will be stored in facilities inspected and certified by a Fire Protection Engineer as complying with ANSI N45.2.9. (88-418.3)
17.1-40	Clarification: To be consistent with Section 17.2.18 the conformance to the regulatory audit requirements is verified by three methods. TU Electric performs this verification. (88-418.1)
Table 17.1-2	See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
Figure 17.1-1	Update: This change reflects the current TUEC organization. Replace "Company" with "Division." (88-418.4)
Figure 17.1-5	Update: This change reflects the current Brown & Root (B&R) QA organization. (88-418.4)
Figure 17.1-6	Revision: Revised to be consistent with Figure 17.1-2 and to incorporate title/responsibility changes for the Manager, Startup and Test. (88-418.3) See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.2-2	Revision: The Vice-President, Nuclear Engineering is responsible for development of the CPSES QA Program, which addresses operation phase activities. The Vice-President, Nuclear Operations is responsible for implementation of, and compliance with, the CPSES QA Program within the Nuclear Operations function. (88-418.3) Revision: The CPSES OAC/QAP has been retired. The concurrence and approvals required for the CPSES QA Manual are addressed in Section 17.2.1.1.4 of the FSAR. See Justification for page 17.1-1, Revision: (88-418.3) Revision: This change is for consistency with current organizational responsibilities. Revised to incorporate title/responsibility changes for the Manager, Startup and Test. (88-418.3)

FSAR Page (as Amended)	Description
17.2-3 and 17.2-4	Revision: The overall responsibility for the Initial Startup Test Program rests with the Vice-President, Nuclear Operations. (88-418.3)
17.2-4	Revision: For consistency with current reorganization of responsibilities. The Manager, Plant Operations relinquished chairmanship of the Joint Test Group the Manager, Startup and Test. (88-418.3) See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.2-7	Revision: Effective implementation of the QA Program is the responsibility of the Director, Quality Assurance. The Manager, Operations QA reports directly to the Director, Quality Assurance. (88-418.3) See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.2-9	Revision: Qualification criteria for inspection personnel are reviewed by the Manager, Operations QA as part of the NQA procedures approval process, not part of the Station Operations Review Committee (SORC). (88-418.3)
17.2-10	Editorial: This statement is being moved to Section 17.2.11.1, "Test Program" (page 17.2-29). (88-418.5)
17.2-10 and 17.2-11	See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.2-12	Revision: The Director, Quality Assurance has responsibility for the control and distribution of the QA Manual and revisions thereto. (88-418.3) See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2) Revision: Overall responsibility for the identification, scheduling, assignment, conduct and reporting of the station QA activities assigned to the QA Department is a function of the Director, Quality Assurance. (88-418.3)
17.2-13	See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)

FSAR Page (as Amended)	Description
17.2-14	Revision: Preoperational and startup testing is accomplished in accordance with FSAR, Section 14.2 "Initial Test Program." The QA requirements assure that implementing procedures are prepared prior to commencement of the activities which they are intended to control. (88-418.3) See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2) Clarification: Clarifies that final approval of all station modifications is the responsibility of the SORC, not just the design portion. (88-418.1)
17.2-15	Clarification: Clarifies that design modifications w ll be done by engineering or approved engineering services contractors in all areas except reactor engineering. The Reactor Engineering Department will be responsible for design modifications in the area of reactor engineering. (88-418.1)
17.2-16 and 17.2-17	See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.2-17	Revision: To be consistent with Regulatory Guides and Standards reference to Regulatory Guide 1.33 is added and reference to Regulatory Guide 1.28 is deleted to reflect only the requirements applicable to the operations phase. (88-418.2)
17.2-18 and 17.2-19	See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.2-19	See Justification for page 17.2-17, Revision: (Regulatory Guides 1.33 and 1.28). (88-418.2)
17.2-20	See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.2-21	See Justification for page 17.2-17, Revision: (Regulatory Guides 1.33 and 1.28). (88-418.2) Clarification: Clarifies obsolete or superseded documents are destroyed or identified to prevent their inadvertent use. Delete '...as "SUPERSEDED"...' because documents also may be marked "void." (88-418.1) See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)

FSAR Page (as Amended)	Description
17.2-22 thru 17.2-28	See Justification for page 17.2-17, Revision: (Regulatory Guides 1.33 and 1.28). (88-418.2)
17.2-29	See Justification for page 17.2-10, Editorial. (88-418.5)
17.2-30 thru 17.2-32	See Justification for page 17.2-17, Revision: (Regulatory Guides 1.33 and 1.28). (88-418.2)
	See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.2-33	Revision: Surveillance activities are performed by Quality Assurance personnel. Operations QA does not perform all surveillances. (88-418.3)
17.2-33 and 17.2-35	See Justification for page 17.2-17, Revision: (Regulatory Guides 1.33 and 1.28). (88-418.2)
	See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.2-36	Revision: Records Management responsibilities (for development of procedures and instructions to implement management requirements related to QA records) have been transferred to the Vice-President, Administration. (88-418.3)
	See Justification for page 17.2-17, Revision: (Regulatory Guides 1.33 and 1.28). (88-418.2)
	See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
17.2-38 and 17.2-39	Clarification: Clarifies that contractors and vendors are both subject to audit. (88-418.1)
Table 17.2-1	Revision: This table has been revised to be consistent with Table 17.1-2 "CPSES QA MANUAL COMPLIANCE MATRIX." The information contained within the two tables is the same but the format was different. See Justification for page 17.1-1, Revision: (QA Manual). (88-418.2)
Table 17.2-2	See Justification for page 17.2-17, Revision: (Regulatory Guides 1.33 and 1.28). (88-418.2)
Figure 17.2-1 and Figure 17.2-2	See Justification for Figure 17.1-6, Revision: (Responsibility changes for the Manager, Startup and Test). (88-418.3)

ENCLOSURE TO TXX-88420
May 2, 1988

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17.0 QUALITY ASSURANCE (QA)

Texas Utilities Electric Company (TU Electric) is submitting this application as Licensee for Comanche Peak Steam Electric Station (CPSES). TU Electric acts as owners agent for construction and operation of CPSES and is therefore responsible for the design, engineering, procurement, fabrication, anc construction technical support of CPSES. This delegation of authority has been formally established among the Owners. Texas Utilities Company (TUCO) is the parent company of TU Electric. | 60 | 50

To establish and maintain the high quality level required for all quality-related activities for CPSES, TU Electric has developed a comprehensive Quality Assurance Program **(QA Program) as documented in this chapter of the FSAR**. TU Electric has implemented those portions of the Quality Assurance Program that are commensurate with the quality activities currently being performed. The program requires, as a minimum, that the quality activities performed by TU Electric and its contractors/vendors comply with the NRC criteria established in 10 CFR Part 50, Appendix B, Licensing of Production and Utilization Facilities, "Quality Assurance Criteria for Nuclear Power Plants". Where appropriate, the requirements of regulatory or safety guides have been incorporated into the program. | 60

The TU Electric Quality Assurance Program requires that a Quality Assurance **Manual** ~~Plan~~ be established **to provide references to the written policies, procedures and instructions used to implement the QA Program** for each nuclear power plant project for which it provides service. The combination of the requirements documented in the Quality Assurance Program and the Quality Assurance **Manual** ~~Plan~~ provides TU Electric with the means of fully executing its assignment. | 50

Appendix 17A identifies all safety-related items for CPSES within the scope of the Quality Assurance Program.

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17.1 QUALITY ASSURANCE DURING DESIGN AND CONSTRUCTION

17.1.1 ORGANIZATION

The major organizations involved in the Comanche Peak Steam Electric Station (CPSES) project are:

60 | Texas Utilities Electric Company (TU Electric) - as the Applicant, TU Electric has delegated to the Nuclear Engineering and Operations (NEO) Group within TU Electric the management and the authority for the engineering, design, procurement, construction, operation, and quality assurance activities of CPSES.

60 | The NEO Group has been designated by TU Electric to have the authority for all engineering, design, procurement and construction activities for CPSES. The NEO Group provides the QA program for quality-related activities within its scope of work. The NEO Group may contract with others for specific work tasks.

60 | Engineering Services Contractors - Architect-Engineers such as ~~Gibbs and Hill~~ Stone and Webster, Ebasco and other engineering services contractors, are assigned specific scopes of work for design engineering in accordance with the requirements of the Nuclear Engineering and Operation (NEO) organization ~~by the Vice President, Engineering and Construction~~ and conduct this work in accordance with their TU Electric approved Quality Assurance Programs.

60 | Westinghouse - as the nuclear steam supply system supplier, Westinghouse provides TU Electric with the nuclear steam supply system by conducting engineering, design, procurement, and fabrication services for the NSSS and by providing the initial supply of nuclear fuel. Westinghouse provides the QA program on the NSSS structures, systems and components.

Brown & Root (B&R) - as the Constructor, B&R provides TU Electric with construction services at the site. As the ASME NA certificate holder, Brown & Root provides the QA program for ASME Code Section III work.

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B&R also provides QA functions as requested by the TU Electric Director, Quality Assurance. | 60

Organization charts for TUCO, Westinghouse QA, B&R QA and NEO Group are presented as Figures 17.1-1, 17.1-4, 17.1-5 and 17.1-6, respectively. | 60

17.1.1.1 TU Electric

The TU Electric Quality Assurance Organization was established to provide effective control of quality activities related to its nuclear plants. For CPSES, the provision of this control applies to all organizations performing quality related services during the engineering, design, procurement, and construction phases. The NEO organizations participating in the design and construction phase of CPSES are shown in Figure 17.1-6. This chart illustrates the organizational structure and lines of reporting for each organization. | 60 | 50 | 60

17.1.1.1.1 Quality Assurance Department | 60

The Quality Assurance Department is responsible for the development, implementation, and evaluation of the TU Electric Quality Assurance Program for design and construction. This responsibility extends into all project activities including engineering, design, procurement, and construction. The Quality Assurance Department is headed by the Director, Quality Assurance. | 60 | 25 | 60

The Director, Quality Assurance reports on all technical and administrative matters to the Vice President, Nuclear Engineering. This reporting arrangement provides isolation of cost and scheduling influences from activities performed by the Director, Quality Assurance. | 55 | 60

55 | The Director, Quality Assurance has the duty and authority to identify
| quality-related problems; to initiate, recommend or provide solutions;
60 | and to verify the implementation and effectiveness of solutions. He
| has authority to "Stop Work" in the engineering, design, procurement
| and construction phases. His principal duties and responsibilities
include the following:

60 | 1. Develops an overall TU Electric Quality Assurance Program and
| Individual Quality Assurance Manual Plans.

2. Establishes means for implementing the QA Program and Manual Plans including personnel indoctrination and training, definition of individual's quality assurance responsibilities, and evaluation of modifications to the QA Program and Manual Plan.

59 | 3. Performs audits and surveillances of quality assurance activities
| conducted by TU Electric.

60 | 4. Performs audits and surveillances of quality assurance activities
| conducted by contractors/vendors.

60 | 5. Manages the Quality Assurance Department.

50 | 6. Maintains liaison on quality assurance matters with TU Electric
| senior management.

7. Establishes means to assure that individuals or groups assigned responsibility for checking, inspecting, auditing, or otherwise verifying correct performance of an activity are independent of the group responsible for the performance of that specific activity.

60 | 8. Reviews the performance of the Quality Assurance Program on a
| regular basis (not less than quarterly) with TU Electric senior
| management during meetings of the Senior Management QA Overview
| Committee.

9. Reviews selected engineering and design documents, e.g., procurement specifications, purchase orders, and Chapter 17 of the Final Safety Analysis Report, for conformance to TU Electric quality assurance standards. | 60

In addition, the Director, Quality Assurance supervises the Manager, QC, the Manager, Operations QA and the Manager, QA. The Manager, Quality Control is responsible for implementation of portions of the CPSES QA Program Plan and technical supervision of site QC efforts in construction all areas excluding ASME Section III Code work. The Manager, Operations QA is responsible for implementation of portions of the CPSES QA Program Plan and technical supervision of the training, trending and corrective action reporting efforts. The Manager, QA is responsible for verification of overall conformance to the QA Program and Manual Plan. | 65 | 60 | 65 | 60

The qualification requirements of the TU Electric Director, Quality Assurance are: | 55

1. Minimum of 10 years experience in design, construction, and/or operations of power plants. A maximum of four years of this ten years experience may be fulfilled by related technical or academic training. | 59

2. A bachelors degree from an accredited college, university or other institution. | 59

3. Demonstrated ability to manage people and projects. | 9

4. Knowledge of quality assurance requirements for nuclear plants including a minimum of one year related experience in the implementation of a nuclear quality assurance program. | 59

17.1.1.1.2 Project Management | 37

The Vice President, Engineering and Construction reports to the Executive Vice President, Nuclear Engineering and Operations | 60

60 | and is responsible for the design and construction of CPSES. He has delegated design engineering and technical review of procurement activities for the CPSES project to the Director of Engineering. These activities may be delegated by the Director of Engineering to TU Electric approved engineering contractors/vendors. However, TU Electric retains overall responsibility for these activities. The Vice President, Engineering and Construction retains responsibility for cost and schedule and is charged with ensuring that quality requirements are met during design and construction.

60 | 17.1.1.2 Engineering Services Contractors

60 | Engineering Services Contractors are assigned specific scopes of work by the Vice President, Engineering and Construction through procurement documentation or other procedurally established administrative controls. Prior to award of contract for these services, the contractor's QA Manual will be approved and a pre-award evaluation will be performed by TU Electric Quality Assurance. This review and evaluation is designed to verify the conformance of the Contractor's QA Program to 10CFR50, Appendix B and any additional quality requirements, as specified by the Director of Engineering or the Director, Quality Assurance. Implementation audits are conducted beginning early in the life of the activities to assure adequate implementation of the contractors QA program.

60 | TU Electric, through the Vice President, Engineering and Construction may revoke the delegation and reassume design responsibility or may reassign this responsibility to other organizations. The Director of Engineering is responsible for the technical management of each engineering services contractor. This includes the responsibility to establish an adequate design interface among the various organizations. The Director, Quality Assurance is responsible for assuring that an adequate interface exists through the audit and surveillance programs.

17.1.1.3 Brown & Root

Brown & Root provides the QA program for ASME **Section III** Code construc.ion and other QA functions as requested by the TU Electric Director, QA. B&R has an organization such that those performing the quality assurance functions have the freedom to identify quality problems, to provide means for obtaining solutions to problems, and to verify that solutions have been implemented. This organization has sufficient independence, authority, and technical expertise to carry out the program in an orderly, routine manner. It employs a documentation system which provides necessary record retention and access capability. | 55

Figure 17.1-5 presents the B&R QA Organization for Houston's office and for site activities. | 60

The B&R Quality Assurance (QA) Manager has the follcwing qualifications:

1. College degree in an engineering discipline from an accredited university.

2. Ten years engineering or Quality Control experience.

3. Technical, supervisory and management experience in the field of Quality Assurance and Quality Control.

4. Administrative and managerial effectiveness in implementing a quality assurance program.

Technical support and auditing functions are accomplished under the QA Manager's direction through the B&R QA Department Section Managers. | 12

60 | B&R has been delegated responsibility for site construction
| activities, such as ~~warehousing,~~ erection and installation, as well as
| the formulation, preparation, and issuance of construction procedures
| and documents necessary to accomplish these activities. The B&R
Construction Project Manager is also responsible for compliance with
the B&R QA Manual in the fabrication and installation of ASME Code,
Section III components.

60 | Technical direction of construction ~~All~~ site QC activities other than
| ASME Section III Code work is provided by the TU Electric Manager, QC.
| Assisting him is the B&R Site QA Manager. Differences of opinion
50 | between the B&R Site QA Manager and the TU Electric Manager, QC are
60 | resolved by the TU Electric Director, QA. For technical and
| administrative supervision of ASME Section III Code work and for
| administrative supervision in all other areas, the B&R Site QA Manager
| reports to the B&R QA Manager. These interfaces are defined in
| Figures 17.1-5 and Figure 17.1-6.

60 | QC engineers and inspectors performing ASME Section III, Division 1,
| activities are responsible to the B&R Site QA Manager and are
| authorized to: (1) approve the start of various phases of work after
| inspection has been provided, (2) prohibit the use of materials,
| equipment, or workmanship which do not conform to specifications or
| which will cause improper construction relative to specification, (3)
| stop any work which is not being done in accordance with plans or
| specifications by initiating a nonconformance report and (4) with
| prior approval from the B&R Site QA Manager, require the removal or
| repair of faulty construction or of construction performed without
| inspection and which cannot be inspected in place.

17.1.1.4 Consultants

50 | TU Electric utilizes the services of qualified consultants to assist
| in the performance of quality-related tasks such as audits,
| inspections, interpretations of test results, and review.

17.1.1.5 Organizational Interfaces

TU Electric establishes with each of its principal contractors a division of responsibility covering all phases of the project. This division of responsibility becomes the basis for identifying specific external interfaces to the system, structure, and component level which TU Electric must control. For CPSES, the interrelationships of the participating organizations in the QA Program are summarized as follows:

1. B&R Site QA Manager reports to the B&R QA Manager for technical and administrative supervision of ASME Section III Code work, and for administrative supervision in all other areas. Technical direction of the B&R Site QA Manager in areas other than ASME is provided by the TU Electric Manager, QC.

2. Construction site inspection is performed under the direction of TU Electric Site QC and B&R Site QC (ASME Section III Code work) ~~or by contractor QC~~.

3. Periodic audits and surveillances of site QC and construction activities are performed by TU Electric QA to verify conformance.

4. Vendors are required to provide internal, independent QA Programs to check safety-related design and fabrication work unless working under the TU Electric QA Program.

5. TU Electric QA and/or its consultants or agents perform vendor audits and surveillances to verify vendor performance.

6. Westinghouse is required to provide an internal QA Program for NSSS components.

60 | 7. TU Electric and its design contractors/vendors provide a Design Control Program for design and engineering. TU Electric is responsible for assuring design interfaces.

60 | 8. TU Electric QA periodically audits contractors/vendors, Brown and Root and internal TU Electric safety-related activities.

6 | 9. B&R QA periodically audits the B&R ASME Section III Code Program onsite, as required to maintain the B&R ASME Certificate of Authorization.

17.1.2 QUALITY ASSURANCE PROGRAM

50 | TU Electric's Quality Assurance Program and CPSES Quality Assurance Manual Plan are the primary documents by which TU Electric assures effective control of all project quality-related activities. The other major participating organizations and their functions are identified in Section 17.1.1.

50 | In the development of the CPSES QA Program and Manual Plan, TU Electric has utilized the provisions of Appendix B, 10 CFR Part 50, and certain of the ANSI N45.2 series standards, including N45.2.12, Draft 3, Rev. 0. Table 17.1-2 is a matrix which shows 10 CFR Part
29 | 50, Appendix B criteria versus appropriate sections of the Quality Assurance Manual Plan. This matrix illustrates how the Manual Plan
25 | satisfies the 18 criteria. Revisions to the Program and Manual Plan incorporate the intended objectives of the ANSI standards and draft standards as presented in the NRC text "Guidance on Quality Assurance Requirements During Design and Procurement Phase of Nuclear Plants," dated June 7, 1973. Subsequent comments by the Nuclear Regulatory Commission staff have also been considered in latest revisions to the CPSES QA Program and Manual Plan.

Procedures define the organizational structures within which the programs are implemented and delineates the authority and responsibility of the persons and organizations involved performing

design, engineering, procurement, and construction activities affecting the quality of design. These procedures identify the organization interfaces, both internal and external, between the contributing organizations.

The CPSES QA program is effectively administered and controlled by TU Electric through close association with, and supervision and audit of, the contractors who perform the requirements outlined herein. The QA programs of the contractors are reviewed by TU Electric QA and/or its agents to assure that they contain adequate requirements and procedures to control the quality level. | 60

Authority to implement certain nuclear QA activities included in the TU Electric QA Program during design, procurement and construction has been delegated to approved contractors/vendors. These activities are conducted in accordance with the current revisions of the approved contractors/vendors QA Topicals or QA Plans and Procedures. B&R is delegated the authority for QA functions relating to ASME Section III Code work. Primary authority for the construction site QA and QC programs lies with the TU Electric Director, Quality Assurance. This QA Program is organized to provide an integrated plan under the direct control of the TU Electric Director, QA. | 60

17.1.3 DESIGN CONTROL

The TU Electric Quality Assurance Program Plan provides for several levels of design control. These levels include the design control measures of TU Electric and its approved contractors/vendors. TU Electric is the engineering organization ultimately responsible for plant design. TU Electric has contracted with Westinghouse for the Nuclear Steam Supply System design. TU Electric may contract with approved Architect-Engineers for specific design work tasks. | 50 | 60

60 | TU Electric Regulatory Guide commitments for design activities are
| discussed in, FSAR sections 1A(N) and 1A(B). The TU Electric QA
| Program requires that the engineering services contractors meet
| applicable NRC Regulatory Guides for technical design requirements as
| specified by the Director of Engineering for all safety-related
| activities.

60 | The CPSES QA Program Plan requires verification that applicable NRC
| Regulatory Guides for technical design requirements have been
| incorporated in activities affecting quality by design review, audit,
| and surveillance of engineering services contractors.

This verification assures that applicable regulatory requirements and the design bases as specified in the license application for safety-related structures, systems, and components for CPSES are correctly translated into specifications, drawings, procedures, and
60 | instructions. Audits by TU Electric assures that the engineering
| services contractor organizations' design control measures include a
| clear definition of design interfaces, review and approval of initial
| design including changes or revisions, and that personnel performing
| design reviews are thoroughly familiar with the regulatory
| requirements and design bases described in the PSAR/FSAR and are
| independent of those originating the design.

17.1.3.1 Design Control for Preparation of Drawings

6 | Design drawings are prepared, reviewed, and controlled per applicable
| project procedures. These procedures ensure that design drawings are
| reviewed independently for completeness, accuracy, agreement with
| design concepts, and possible interferences. Further review is
| provided by engineers of related disciplines who review for
| consistency and compatibility with related systems and design
| requirements. Procedures also call for supervisory review for content
| and compliance. Changes to drawings or drawing input are subject to
| the same controls as were applicable to the original.

17.1.3.2 Engineering Specifications

The TU Electric Quality Assurance Program requires that measures be documented for the translation of applicable regulatory requirements and design bases into specifications. Written procedures require that the specification be independently reviewed for technical accuracy, completeness, conformance with applicable regulatory requirements, and overall acceptability. Additional review is provided by related disciplines to ensure coordination and by project management for overall project requirements. ~~Written procedures also document resolution of~~ Changes to engineering specifications are subject to the same controls as were applicable to the original. Written procedures further require documentation of the reviews.

17.1.3.3 Review of Vendor Equipment Drawings, Specifications, and Procedures

Upon receipt from a manufacturer, these documents are routed through the applicable engineering disciplines to check compliance with engineering drawings, and specifications. A controlled interface is maintained with the manufacturer to assure resolution of discrepancies. Interdiscipline and supervisory reviews of this process are performed and documented as well.

17.1.3.4 Engineering Calculations

Measures have been established that control the preparation of calculations. Written procedures outline the method of preparation to ensure uniformity, validity of assumptions and input, as well as accuracy of results. Procedures also require review of calculations by an independent checker. Each review is documented.

17.1.3.5 Design Review and Verification

Safety related design activity is reviewed in accordance with a formalized and documented system. The types of review used are:

8/0

6 | 1. Checks to compare information presented on a drawing or other document with a definite figure, criterion, or design base.

6 | 2. Supervisory reviews of design work, conducted by a superior in a given discipline, of work by a project team member in that discipline.

6 | 3. Interface reviews, by personnel of one discipline, of work performed by another discipline to determine that the reviewer's discipline requirements and commitments are satisfied.

6 | 4. Review by QA to determine that QA requirements are included as appropriate for the item being reviewed.

6 | Design verification to review, confirm or substantiate the design is performed to provide assurance that the design meets the specified inputs. Methods of verification include, but are not limited to, design review, alternate calculations, and qualification testing. Procedures will define the actions necessary to report and resolve deficiences identified during design verification.

50 | Written procedures define the actions necessary to report and resolve deficiencies identified during design verification.

17.1.3.6 Design and Engineering Surveillance

6 | In order to verify that engineering and design of nuclear safety related structures, systems, and components are performed in accordance with applicable procedures these efforts are reviewed by Quality Assurance through surveillance or audit. The scope and frequency of these reviews is commensurate with the complexity of the design and past performance.

The surveillance and audit functions are documented in written procedures.

17.1.3.7 Record Accumulation & Control

Records associated with the design activity are maintained and copies of these records stored as required. These records are audited by TU Electric QA and/or its agents. | 6

17.1.4 PROCUREMENT DOCUMENT CONTROL

Appropriate requirements have been established by the TU Electric Quality Assurance Program to assure that procurement documentation is controlled and accurately reflects applicable regulatory requirements, design bases, and other appropriate requirements, such as industry codes and standards. These requirements are consistent with the provisions of Regulatory Guide 1.28 and Regulatory Guide 1.123 as discussed in Appendix 1A(B) and apply to procurement documents prepared by TU Electric, or their designated agents. | 60 | 59

TU Electric has satisfied these requirements as follows: | 50

Selected review of procurement documentation for materials, equipment, and services listed in Table 17A-1 of FSAR Section 17A is performed. This review is described in 17.1.1.1.1. | 57

Planned, periodic, and documented audits are performed by TU Electric QA personnel or its agents to provide assurance that the procurement activities of TU Electric and contractors/vendors are being carried out in accordance with approved procedures. These audits will be conducted as described in paragraph 17.1.18. | 60

All procurement documents that are prepared by contractors/vendors on behalf of TU Electric are subject to reviews and controls similar to those described in this section 17.1.1.3. Contracts involving equipment, material, or services that are concerned with nuclear or | 60

60 | nuclear safety equipment, systems, or structures require appropriate
| Quality Assurance and Quality Control by the vendor. QA defines the
| requirements of the Vendors' QA Program contents and changes thereto,
| and those requirements will be enumerated in each procurement
| specification.

60 | **TU Electric or Brown and Root (ASME Section III Code Purchases)**
| Quality Assurance also reviews purchase orders or contracts to assure
| that all required quality assurance and quality control information of
| the procurement document, including requirements for control,
| maintenance, and submittal of quality records, is reflected in the
| purchase order and contract.

60 | When required, contracts or purchase orders issued by TU Electric or
| its agents for any component, system, structure, or service,
| classified as being nuclear or nuclear safety-related is referenced to
| the applicable criterion of Appendix B to 10 CFR Part 50 or ASME code
| requirements.

60 | TU Electric and their contractors evaluate vendor Quality Assurance
| Programs prior to award of contracts or issuance of purchase orders as
| discussed in Section 17.1.7.

17.1.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

60 | Appropriate requirements have been established by the TU Electric
| Quality Assurance Program to assure that quality-related activities
| for CPSES are prescribed by documented instructions, procedures, or
| drawings; accomplished in accordance with such documents; and that
| approved acceptance criteria are met. The authority for the
| development of the methods that assure this is delegated to the
| various participating organizations; however, the developed methods
| are subject to TU Electric audit. The TU Electric QA Program
requires that measures be established by **TU Electric and its** ~~the~~

contractors/vendors to assure that approved changes are promptly included into instructions, procedures, and drawings where applicable. The CPSES QA Program Plan requires that changes be reviewed for their effect on present instructions, procedures and/or drawings. | 60 | 50

The TU Electric QA Program requires that an inspection procedure include flow charts, shop travelers or narrative description of the sequence of activities or operation for fabrication, processing, assembly, inspection, and test. Instructions shall indicate the operations or processes to be performed, type of characteristics to be measured or observed, the methods of examination, the applicable acceptance criteria and documentation requirements. The program also requires establishment of those inspection, test, and hold points from raw material through fabrication, processing, and assembly at which conformance of parts, components, and subsystems to requirements are verified. Hold points identify those inspections which are rendered impossible to perform by subsequent operations, and those inspections must be certified as completed before start of the next operation by the use of process sheets (e.g. travelers). Each process sheet shall include the date of completion of operation or test and the signature or stamp of the operator or inspector. TU Electric QA reviews applicable documentation to assure that it adequately reflects applicable quality requirements. In its review activities, TU Electric QA assures that instructions, procedures, and drawings contain appropriate quantitative (such as, dimensions, tolerances, and operating limits) or qualitative (such as workmanship samples) acceptance criteria for determining that important activities have been satisfactorily accomplished. | 60 | 4 | 50 | 57

Through its auditing procedures, as described in 17.1.18, TU Electric determines that quality related activities are accomplished in accordance with those approved instructions, procedures, and drawings.

17.1.6 DOCUMENT CONTROL

50 | TU Electric has established requirements to assure that documents,
| including changes, are reviewed for adequacy and approved for release
60 | by authorized personnel. These requirements provide that
| contractors/vendors include in their internal programs measures to
| assure that changes to documents will be reviewed and approved by the
| same organizations that performed the original review and approval or
| others as designated by TU Electric. TU Electric will verify
| implementation of these requirements through audits of
| contractors/vendors. The CPSES QA Program Plan requires that changes
50 | to documents that have been reviewed and approved by TU Electric
| organizations will be reviewed and approved by those same TU Electric
| organizations that performed the original review and approval unless
60 | TU Electric designates another organization. These requirements also
| provide that the documents are distributed to and used at the location
| where the prescribed activity is performed. The scope of these
| requirements applies to TU Electric as well as to
| contractors/vendors.

50 | TU Electric employs within its own internal organization a control
| system that utilizes registering of documents requiring control,
| distribution, and review and approval procedures. The TU Electric
| Quality Assurance Program requires design engineering and procurement
| documentation for all safety-related equipment which consists of
| specifications, drawings, PSAR/FSAR material and related licensing
| questions and answers, instructions, procedures, reports and changes
| thereto, and manufacturing and construction documents and records
| required for traceability, evidence of quality, and substantiation of
55 | the "as built" configuration, be controlled. Procedures identify
| those individuals or groups responsible for reviewing, approving and
| issuing documents and revisions thereto. Where deemed necessary, TU
| Electric will require that periodic in-place document summary lists
| including revision level be submitted by an organization to verify the
| use of the proper document or change.

The effectiveness of the participants' document control methods will be evaluated by TU Electric through reviews and audits. The reviews verify the review and approval of participating organizations' design and document control, while auditing permits TU Electric to determine the effectiveness of the system.

17.1.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES | 25

Measures to be utilized to control purchased material, equipment, and | 50
services consist of reviews, audits, and inspections. These measures |
are described in the TU Electric Quality Assurance program. |

Measures have been established in procedures which control the | 59
procurement of commercial quality items, 10CFR50, Appendix B items and |
ASME Code items. Vendors who are considered by TU Electric or its |
prime contractors for the supply of 10CFR50, Appendix B and ASME Code |
items are evaluated in advance of placing them on the approved vendors |
list. Evaluation of potential vendors and maintenance of an approved |
vendors list is performed by TU Electric or its prime contractors in
accordance with procedures. The documented evaluation is based on
one or more of the following:

1. A review of the supplier's quality assurance program description | 59
provided with the proposal/bid. |

2. A review of historical evidence of the supplier's performance in | 59
providing similar items or services. |

3. A pre-award survey of the supplier's facilities and QA program. | 59

The vendor to supply the material, equipment and services is selected | 59
from the approved vendors list. |

59 | Audits of vendors will be performed as required by procedures. These | audits will be conducted as described in 17.1.18.

Documented, objective evidence such as certifications, chemical and physical analyses, inspection reports, test results, personnel and process qualification results, code stampings, and non-destructive test reports are required for evaluation by TU Electric and
60 | contractors/vendors. This verification assures conformance to design | drawings, specifications, codes, standards, regulatory requirements, | and other applicable criteria. These documents are a part of the quality verification records retained at the CPSES site in accordance with Section 17.1.17.

60 | Source inspection, when deemed necessary, is required by the | applicable purchasing document. The TU Electric Quality Assurance | Program requires that hold points be determined as necessary for this | activity and vendors are required to give sufficient notice of | approaching hold points to allow scheduling of personnel (Where | required for adequate control, both in process and final source | inspections covering review of the quality verification, documentation | as well as attribute examination, are performed). An inspection document is used to establish the inspection sequence and for recording inspections results. This document also becomes part of the
60 | quality verification records. Provision is made for reporting | deviations and nonconformances if any, for recommending disposition | and corrective action, for re-inspection if required, and for release | for shipment if appropriate.

50 | TU Electric requires that procurement documents specify that suppliers | provide the quality verification package at the CPSES plant site.
60 | During the review and approval of procurement documents, TU Electric | will check to assure that the above requirement is included. Audits | assure that the contractor/vendor is implementing a records-management | system. Equipment received on-site prior to receipt of the quality
25 | verification package is controlled as a non-conforming item.

Uncontrolled installation or use of delivered components does not occur until receipt of objective evidence of the quality verification package. The quality verification package is required to be on-site prior to relying on the related equipment to perform a safety function. | 25

17.1.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS AND COMPONENTS

Appropriate requirements have been established to assure continuous and accurate identification and control of materials, parts, and components so that the use of incorrect or defective materials, parts, or components is prevented.

| Q421.82

TU Electric and its contractors/vendors are required to utilize procedures which establish and document a system or method for identifying the material (e.g., physical marking, tagging, labeling, color code). Upon receipt of Q material, equipment receipt inspections are performed and documented. Items are then entered into the program established by site procedures and instructions for the storage and handling of Q material and equipment. Procedures and instructions require the status of nonconforming items to be maintained as required by Section 17.1.14. Upon request for material and equipment, the status of the item requested is checked, and QC concurrence is required prior to release to construction. Provisions are made for the conditional release ~~temporary waiver~~ of the status of nonconforming items under certain conditions. Procedures outline the required identification, traceability, and controls, including TU Electric QA approval that must be met before a conditional release ~~temporary waiver~~ request can be issued. If granted, the approval provides for further processing on a removal risk basis while the conditional release ~~temporary waiver~~ is in effect. This system provides assurance that only acceptable items are ultimately used. Material traceability is provided as specifically required by | 60 | 13 | 50 | 60 | 13 | 50

50 | applicable codes and procedures. Material identification either on the item, or on records uniquely traceable to the item, will be provided for other components except where specific categories of material are exempted. Where identification marking of an item is employed, the marking is clear, understandable and legible, and applied in such a manner as not to affect the function of the item. The identification and control measures provide for relating the item of production (batch, lot, components, part) at any stage, from materials receipt through fabrication, shipment, and installation, to an applicable drawing, specification, or other technical document.

60 | TU Electric **and** ~~requires~~ its contractors/vendors **are required** to establish and implement a documented program for inspecting, marking, identifying, and documenting the status of material prior to use or storage.

25 | Hold points are required where inspections must be made and certified complete before start of next operation. Inspection of materials includes the following; as applicable:

1. Verification that identification and markings are in accordance with applicable codes, standards, specifications, drawings, and purchase orders.

2. Visual examination of materials and components for physical damage or contamination.

3. Examination of quality verification records to assure that the material received was manufactured, tested and inspected prior to shipment in accordance with applicable requirements.

4. Actual inspection as required of workmanship, configuration, and other characteristics.

B/0

These inspections are documented and verified as appropriate by vendor and TU Electric QA/QC organizations. TU Electric performs surveillance of vendor facilities to assure implementation of the program. | 25

Items shipped to the site are normally identified by nameplate or other identification marking on the item. In those instances when it is not practical to provide identification markings on the individual items, identification information is provided in shipping paperwork that is transmitted with each shipment.

TU Electric and its ~~requires that~~ contractors/vendors are required to establish specific measures to assure compliance with approved procedures for identification and control of materials, parts, and components, including partially fabricated assemblies. TU Electric QA verifies conformance by three methods: | 60

1. Review and approval of contractors'/vendors' quality assurance programs. | 60

2. Surveillance of selected manufacturing, fabrication, construction, and installation activities by quality assurance personnel.

3. Auditing of TU Electric and contractors/vendors implementation of the approved Quality Assurance Program. | 60

17.1.9 CONTROL OF SPECIAL PROCESS

TU Electric and ~~requires of~~ its contractors/vendors are required to establish ~~that~~ written procedures and controls ~~be prepared~~ to assure that special processes including welding, heat treating, casting, coating applications, nondestructive testing, and concrete batching | 60

60 | are accomplished by qualified personnel, using qualified procedures, | in accordance with applicable codes, standards, specifications, | criteria, and other special requirements. These procedures describe the operations performed, the sequence of operations, the characteristics involved (e.g., flow, temperature, fit-up, finish, hardness, and dimensions), the limits of these characteristics, process controls, measuring and testing equipment utilized, and documentation requirements.

56 | Alternative requirements, as provided by ASME Code Cases, are utilized
60 | at CPSES in accordance with 10 CFR Part 50, Section 55a(a)(3). By | reference to ASME Section III requirements in the procurement | specifications, the use of code cases by mechanical equipment vendors | requires mutual consent of TU Electric or his agent and the | manufacturer. The ASME Code Cases which are used for design and
56 | erection at CPSES are identified in the appropriate mechanical design | and erection specifications or the Brown & Root QA Manual; | conditionally-approved Code Cases will show justification for their | use, as required by NRC, in these documents. The application of ASME
60 | Code Cases is documented on the ASME Data Report Forms. For further | discussion, see the text concerning Regulatory Guides 1.84 and 1.85 in | FSAR sections 1A(N) and 1A(B).

Examinations, tests, and inspections are conducted to verify conformance to the specified requirements.

Written procedures also are required to cover training, examination, qualification, certification, and verification of personnel as well as the maintenance of all required personnel records.

60 | Compliance with these procedures is required for **TU Electric and its** | contractors/vendors. Procedures for control of special processes are | subject to review and approval by TU Electric on a case basis.

55 | TU Electric assures conformance with these requirements by:

1. Review of procedures for inclusion of control of special processes where required; proper definition of requirements for operator training, qualification, and certification; conformance to applicable codes, standards, drawing, specifications, or other criteria. | 50

2. Audits to verify the adequacy of selected site and vendor shop activities and the effectiveness of the special process control procedures being implemented. | 60

17.1.10 INSPECTION

TU Electric and establishes with each of its contractors/vendors are required to establish a division of authority which determines the services, structures, systems, components and materials for which each has inspection authority. TU Electric however, reserves the right to review, disapprove and perform surveillance or audits of the inspection procedures utilized by these organizations. | 60 | 50

The review and approval of contractor's/vendor's inspection procedures is accomplished as an integral part of TU Electric's review of the organization's Quality Assurance/Quality Control Programs. TU Electric Quality Assurance uses the following criteria in establishing an inspection program and in evaluating inspection methods proposed by organizations under contract: | 60 | 55

1. Inspection procedures for functional groups such as procurement, project management, construction, and shop inspection are described, including measures to identify inspection and test status.

2. Duties and responsibilities of personnel performing inspection are clearly established.

3. Qualifications of personnel performing inspections are commensurate with their duties and responsibilities.

4. Documentation methods for inspection activities of each group are established (e.g., inspection forms, reports).

50 | 5. Documentation control systems for identifying, distributing, and retaining requisite inspection documents are defined.

6. Review and approval procedures for inspection documentation are provided.

7. Surveillance methods are established to assure proper implementation of inspection procedures.

60 | 8. Planning of inspection sequence activities ~~by the contractors/vendors~~ include the type of characteristics to be measured, the methods of examination, and the criteria.

Inspection planning is utilized to assure conformance to procedures, drawings, specifications, codes, standards and other documented instructions. Inspections are performed by individuals not responsible for the activity being inspected. Sufficient inspections are conducted to verify conformance particularly in areas rendered inaccessible by further processing. Process monitoring is utilized in lieu of inspection in those cases where inspection is impossible, disadvantageous or destructive. When required for adequate control, a combination of inspection and process monitoring is employed. Hold points are established and enforced as required by the supplier and the purchaser. TU Electric and/or its representatives verifies by review of inspection reports, visits to vendor shops, and onsite surveillance, that inspections are being performed and documented by personnel in conformance with approved procedures.

17.1.11 TEST CONTROL

The TU Electric Quality Assurance Program requires that TU Electric and its contractors/vendors designate appropriate tests to be performed at specific stages of manufacturing, fabrication, and construction. Conduct of test is governed by written procedures which incorporate requirements and acceptance limits to assure that the structures, systems, and components tested perform satisfactorily in service. Tests are conducted in accordance with these procedures and are properly documented. | 60

TU Electric and its contractors/vendors are required to assure that all necessary tests are conducted. Such testing is performed in accordance with quality assurance and engineering test procedures which incorporate or reference the test requirements and acceptance limits contained in applicable design documents. Test requirements and acceptance criteria are provided by the organization responsible for the specification of the item under test, unless otherwise designated. The entire test program covers all required testing, including, as appropriate, development testing, prototype qualification testing, performance testing of production equipment, calibration testing of instruments, and hydrostatic testing of pressure boundary components. | 60

Test procedures include:

1. Requirements that prerequisites for the test have been met. Test prerequisites include but are not limited to the following:

    a. Calibrated instrumentation
    b. Adequate and appropriate equipment
    c. Trained, qualified, and, as appropriate, licensed and/or certified personnel

d. Preparation, conditions, and completeness of item to be tested
e. Suitable and, if required, controlled environmental conditions
f. Mandatory inspection hold points where applicable for witness by owner, contractor, or authorized inspector
g. Provisions for data collection and storage
h. Acceptance and rejection criteria
i. Methods of documenting or recording test data results

2. Designation of specific test methods to adequately assess appropriate parameters.

3. Designation of measuring and test equipment to be used.

4. Specific environmental considerations.

5. Measures to prevent damage to the item or system under test.

6. Safety considerations.

7. Documentation requirements.

Test results are evaluated to verify:

1. Proper functioning of the system, structure, or component.

2. Conformance to design specifications.

3. Compliance with stated test requirements.

50 | 4. That test results are within acceptance limits.

5. That recording and documentation is complete and accurate.

Audits, surveillances and witnessing of specified tests by TU Electric personnel serve to assure the functional adequacy of and verify compliance with, the testing program. | 60

17.1.12 CONTROL OF MEASURING AND TEST EQUIPMENT

The TU Electric Quality Assurance Program requires that organizations performing quality related activities involving measuring and test equipment have written procedures to govern these actions. TU Electric requires, therefore, that the standards used for calibration and accuracy verification of measuring and test equipment be traceable to the National Bureau of Standards or other appropriate sources. In addition, only properly calibrated measuring and test equipment are used. A calibration frequency and method system has been established to which the tools, instruments, gages, and other devices conform. Records of calibrations are maintained and the calibration equipment appropriately marked to indicate the date and acceptance of the calibration. | 60 | 66

Calibration curves are retained for each standard. The maximum allowable deviation on a calibration correction curve is the guaranteed accuracy of the instrument. If the instrument's deviation exceeds the guaranteed accuracy, then the instrument is repaired or replaced. Calibration standards, when not limited by the state of the art, have an uncertainty (error) requirement of no more than 1/4th of the required uncertainty of the equipment being calibrated. | 60 | 33

When inspection and testing equipment is found to be out of calibration due to use or damage, or when out of limits at recalibration, all items inspected, tested, or measured with that equipment since the latest valid calibration are evaluated. Upon completion of the evaluation each unacceptable item is treated as a nonconformance. | 55

60 | TU Electric QA personnel engaged in vendor activities monitor vendors' calibration programs, including evidence of calibration status and the use of in-calibration equipment. In addition, TU Electric QA personnel perform periodic audits of the various participants to ensure that approved calibration control procedures are being implemented.

17.1.13 HANDLING, STORAGE, AND SHIPPING

60 | Contractor/vendor procedures for the performance of cleaning, handling, storage, shipping, and preservation of materials and equipment to prevent damage or deterioration are reviewed by TU Electric or the assigned engineering services contractor/vendor. The
25 | approved procedures become a part, either by inclusion or reference, of the purchase documents issued by these organizations. TU Electric verifies that adequate provisions for procedures are included in purchase documents by ongoing review prior to issuance, by surveillance or by audit.

At the site, material and equipment are stored in accordance with approved procedures. TU Electric requires that instructions or guidance for site handling, preservation, storage, and control are prepared and approved prior to arrival of the equipment at the site. These procedures may require that special environmental facilities such as inert gas, humidity controlled, or temperature controlled storage areas are required at the site prior to the receipt of the equipment.

60 | TU Electric performs periodic surveillance and audits of contractors/vendors to assure that the specified and approved procedures are being properly implemented.

17.1.14 INSPECTION, TEST, AND OPERATING STATUS

TU Electric and its construction contractor/vendors have established procedures to identify the inspection, test, and operating status of safety-related structures, systems, and components. The inspection and test status of items are required to be maintained through the use of status indicators such as physical location, tags, markings, shop travelers, stamps, or inspection records. These measures provide for assuring that only items that have received and satisfactorily passed the required inspections and tests are used in manufacturing or are released for shipment. The procedures for control of status indicators, including the authority for application and removal of tags, markings, labels, or stamps, are documented in approved manufacturing or quality assurance procedures. | 60 | 50

System completeness and acceptance prior to fuel load will be determined by: | 33

1. Reviewing quality verification records for adequacy, completeness, and conformance to quality assurance requirements for each system or component being accepted.

2. Visually examining the systems or components in order to verify that they have been correctly installed. | 33

Systems are transferred to TU Electric through procedures that require inspections and signoffs by TU Electric ~~startup personnel~~. Upon completion of the transfer, the Manager, Plant Operations assumes operational and maintenance responsibility for each system. Prerequisite testing and preoperational testing will be conducted. TU Electric QA/QC personnel will assure that outstanding construction, document and test deficiencies will be controlled. Prior to fuel load, all remaining outstanding identified deficiencies will be reviewed to verify that they have no adverse impact on safety. | 50 | 55 | 50

The methods of identifying the status of these systems is through the use of status indicators such as tags, stickers, markings, or status
60 | cards. These indicators are used on valves, switches, meters, or | equipment to indicate their test or operating status. TU Electric QA Site personnel monitor the use of these indicators to assure their proper and effective implementation.

17.1.15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

60 | The TU Electric Quality Assurance Program requires that measures be | documented by TU Electric and its contractors/vendors to control the | identification, documentation, segregation, and disposition of | nonconforming material, parts, or components. These measures prevent | their inadvertent use or installation and are subject to review by TU | Electric QA.

Written procedures require investigation of the nonconforming item, decisions on their disposition, and preparation of adequate reports. Procedures also control further processing, fabrication, delivery, or
60 | installation of items for which disposition is pending. All reports | documenting actions taken on nonconforming items are available to TU | Electric for evaluation.

60 | The TU Electric Quality Assurance Program requires that measures be | established by TU Electric and its construction contractors to assure | that departures from design specifications and drawing requirements | that cannot be are dispositioned "rework use as is" or and "scrap | repair" are formally reported to and dispositioned by affected | organizations and TU Electric Engineering or its contractors. TU | Electric QA audits construction contractors to assure compliance. | The TU Electric QA Manager assures that periodic evaluations of these | reports are forwarded to TU Electric management to show quality | trends.

The effectiveness of nonconformance control procedures may be verified by:

1. Contractor quality assurance and manufacturing, fabrication, or construction personnel involved in processing nonconforming reports.

2. TU Electric participation in dispositions and approvals as well as by the contractor responsible for the specification. | 60

3. Document review at final inspection or shipping release.

4. Audits or surveillances performed by the contractor, vendor, and TU Electric. | 60

Conditions which render the quality of an item or activity unacceptable or indeterminate will be identified, resolved and closed out. Such conditions are documented on inspection reports, deficiency reports, or nonconformance reports in accordance with procedures. | 50

An inspection report (IR) is used to document field inspections performed by Quality Control (QC). Each attribute on the IR is verified to be satisfactory or unsatisfactory. | 50

A deficiency report (DR) is a document used for documenting, controlling and correcting a condition or action which departs from procedures or other specific requirements but does not necessarily render the quality or function of a safety-related item unacceptable or indeterminate. | 61

A nonconformance report (NCR) is a document used for documenting, controlling, and correcting a condition or action which departs from | 61

procedures or other specified requirements and renders the quality or function of a safety-related item unacceptable or indeterminate, ~~and which Engineering evaluates for disposition~~. Nonconformance reports shall be issued for those instances where:

(1) A potentially nonconforming condition is identified and an approved method is not provided in the work, inspection, or test procedures or program to document the condition; or

(2) A potentially nonconforming condition has been identified and documented in accordance with approved procedures or programs and the identified condition cannot be corrected (reworked or scrapped) to comply with existing engineering requirements in accordance with approved procedures.

Disposition of items of unsatisfactory, unacceptable or indeterminate quality identified on IR's, DR's, or NCR's, is determined by appropriate ~~engineering/construction~~ personnel and may result in a design change as discussed in Section 17.1.3 "Design Control". IR's, DR's, and NCR's remain open until the deficiency is satisfactorily resolved and identified corrective action satisfactorily completed. Upon completion of the action required for disposition, repaired or reworked items are reinspected to verify compliance with specified actions and requirements. Independent review of nonconformances, including disposition and closeout, is performed by appropriate Quality Assurance personnel. The status of these items is maintained in accordance with Section 17.1.14, "Inspection and Test Status" and Section 17.1.13, "Handling, Storage and Shipping".

Procedures require trending of deficiencies reported on inspection reports, deficiency reports, and nonconformance reports to identify trends adverse to quality. Trend reports are reviewed quarterly by appropriate levels of management to address areas requiring corrective action. | 50

Nonconformance reports and trend reports are reviewed upon issuance by the appropriate Quality Assurance personnel for significant conditions adverse to quality or chronically repetitive deficiencies. If such conditions exist, procedures require additional action, as appropriate. This may include issuance of corrective action requests as discussed in Section 17.1.16, "Corrective Action", or reports to the Nuclear Regulatory Commission. | 65 | 50

17.1.16 CORRECTIVE ACTION

TU Electric requires that measures be established to assure that conditions adverse to quality are promptly identified, reported, and corrected. Responsibility for performing corrective action is assigned to the responsible TU Electric organization or its contractors/vendors so that each is alert to those conditions adverse to quality within his own area of activity. In the case of significant conditions adverse to quality, measures are taken to assure that the cause of the condition is determined and corrective action is implemented to preclude repetition. Corrective action procedures placed in effect require thorough investigation and documentation of significant conditions adverse to quality. The cause and corrective action is reported in writing to the appropriate levels of contractor/vendor management and to TU Electric in accordance with the purchase document. | 50 | 60 | 60

For CPSES, the Quality Assurance Program Plan requires that procedures and practices be established and documented which provide assurance

that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances, are promptly identified, documented, and corrected as soon as practicable, and that appropriate action be taken to correct the cause of the condition. Corrective action documentation and request forms or formal letters are used to document the corrective
60 | action-related requests, responses, and follow up. The **QA Program** | ~~plan~~ requires that measures be established by **TU Electric and its** | construction contractors/vendors to assure that the acceptability of | rework or repairs is verified by reinspecting the item ~~as originally~~ to specified requirements | ~~inspected~~ and that the reinspection is documented. These measures | are verified by review and approval of the construction | contractors'/vendors' QA Program and by the subsequent audit for | conformance to the approved p· m. Significant conditions adverse to quality are identified (su those which, if they had remained undetected, would have adversely affected safety-related functions), the cause of the condition is determined, and corrective action is taken to preclude repetition. Such significant conditions, their causes, and the corrective action taken are documented and reported to appropriate levels of management through established communication systems. Corrective action followup and close-out procedures provide that corrective action commitments are implemented in a systematic and timely manner and are effective.

The occurrence and magnitude of deficiencies and nonconformances requiring corrective action are evaluated by the purchaser's inspectors during surveillance and at hold point inspection and witnessing. Additionally, these areas are identified for audit purposes.

The effectiveness of the vendor's corrective action program is
60 | assessed during audits by TU Electric. Stop work authority is | exercised as required.

17.1.17 QUALITY ASSURANCE RECORDS

The TU Electric Quality Assurance Program establishes procedures and practices to assure that TU Electric and its contractors/vendors have a quality records system which provides documentary evidence of the performance of activities affecting quality. Procedures assure or shall require: | 60

1. That records that are required to be maintained show evidence of performance of activities affecting quality. Typical records maintained include quality assurance programs and plans, design data and studies, design review reports, specifications, procurement documents, procedures, inspection and test reports, material certifications, personnel certification and test reports, audit reports, reports of nonconformances and corrective actions, as-built drawings, operating logs, calibration records, maintenance data, and failure and incident reports.

2. That inspection and test records, as a minimum, identify the date of the inspection or test, the inspector or data recorder, the type of observation, the results, the acceptability, and the action taken in connection with any deficiencies noted. | 50

3. That records are protected against deterioration and damage.

4. The criteria for determining the classification of the record as well as the length of the retention period.

5. The method of identification and indexing of records for ease of retrievability.

6. Responsibility for record keeping during design, fabrication, construction, preoperational testing and commercial operation.

7. The method of transfer of records between organizations.

60 | TU Electric verifies conformance to the record requirements by
| reviewing contractors'/vendors' quality assurance methods for record
| keeping, by auditing contractors'/vendors' systems when functional,
| and by selective review of quality records for completeness and
| accuracy.

The permanent onsite record storage facility is constructed of reinforced concrete, concrete block, masonry, or equal construction. A concrete floor and roof with sufficient slope for drainage is
80 | provided. A sealant is applied to walls, floor, and foundation. All
| entrance and exit doors are fire retardant type. A closed loop forced air circulation system to control temperature and humidity is provided. Dry chemical or gas fire extinguishers are provided.

Standard steel cabinets and metal shelving are used inside the storage facility to contain records and files. Access to the records facility is kept controlled so that only authorized personnel have access to the records area.
Records will be stored in specially constructed storage facilities at CPSES to prevent their destruction, deterioration or theft. Access to the records facility is controlled so that only authorized personnel will have access to the records area. As an alternative to the utilization of the storage facility, maintenance of duplicate records stored in a remote location is acceptable.

17.1.18 AUDITS

TU Electric requires that planned and periodic audits be performed to verify compliance with all aspects of the quality assurance program
60 | and to determine the effectiveness of the program. TU Electric QA
| performs such audits on TU Electric and its contractors/vendors to
| provide an objective evaluation of the effectiveness of their
| programs; to determine that their programs are in compliance with
| established requirement, methods, and procedures; to determine quality
| progress; and to verify implementation of recommended corrective
| action. TU Electric audits, both internal and external, are conducted primarily by members of the Quality Assurance staff. Consultants will be utilized by TU Electric on audits as required.

As part of the Quality Assurance program TU Electric QA: | 29

1. Utilizes an audit planning document which defines the organizations and activities to be audited and the frequency of the audits.

2. Requires auditors be familiar with the type of activities to be audited and have no direct responsibilities in the area being audited.

3. Provides auditing checklists or other objective guidelines to identify those activities which will be examined. | 25

4. Requires examination of the essential characteristics of the quality related activity examined. | 50

5. Requires an audit report be prepared and that it notes the extent of examination and deficiencies found. | 55

6. Requires the audit report be sent to management responsible for the area audited for review and corrective action for deficiencies.

7. Requires corrective action taken as result of the audit be reported.

8. Requires reauditing of deficient areas when it is considered necessary to verify implementation of required corrective actions.

Documentation of audits performed by contractors/vendors are made available to TU Electric for evaluation. | 60

60 | TU Electric verifies conformance ~~to~~ of the regulatory audit
| requirements by ~~three~~ two methods:

60 | 1. Review of contractors'/vendors' quality assurance methods for
| auditing.

60 | ~~2. Internal and external audits, which include a review of~~
~~documentation, are performed by members of the TU Electric~~
~~Quality Assurance staff.~~

2. Review of documentation of the audit report performed by those contractors/vendors.

3. Internal and external audits performed by members of the Quality Assurance staff.

B/O

FSAR

TABLE 17.1-2

(Sheet 1 of 2)

CPSES QA MANUAL PLAN COMPLIANCE MATRIX

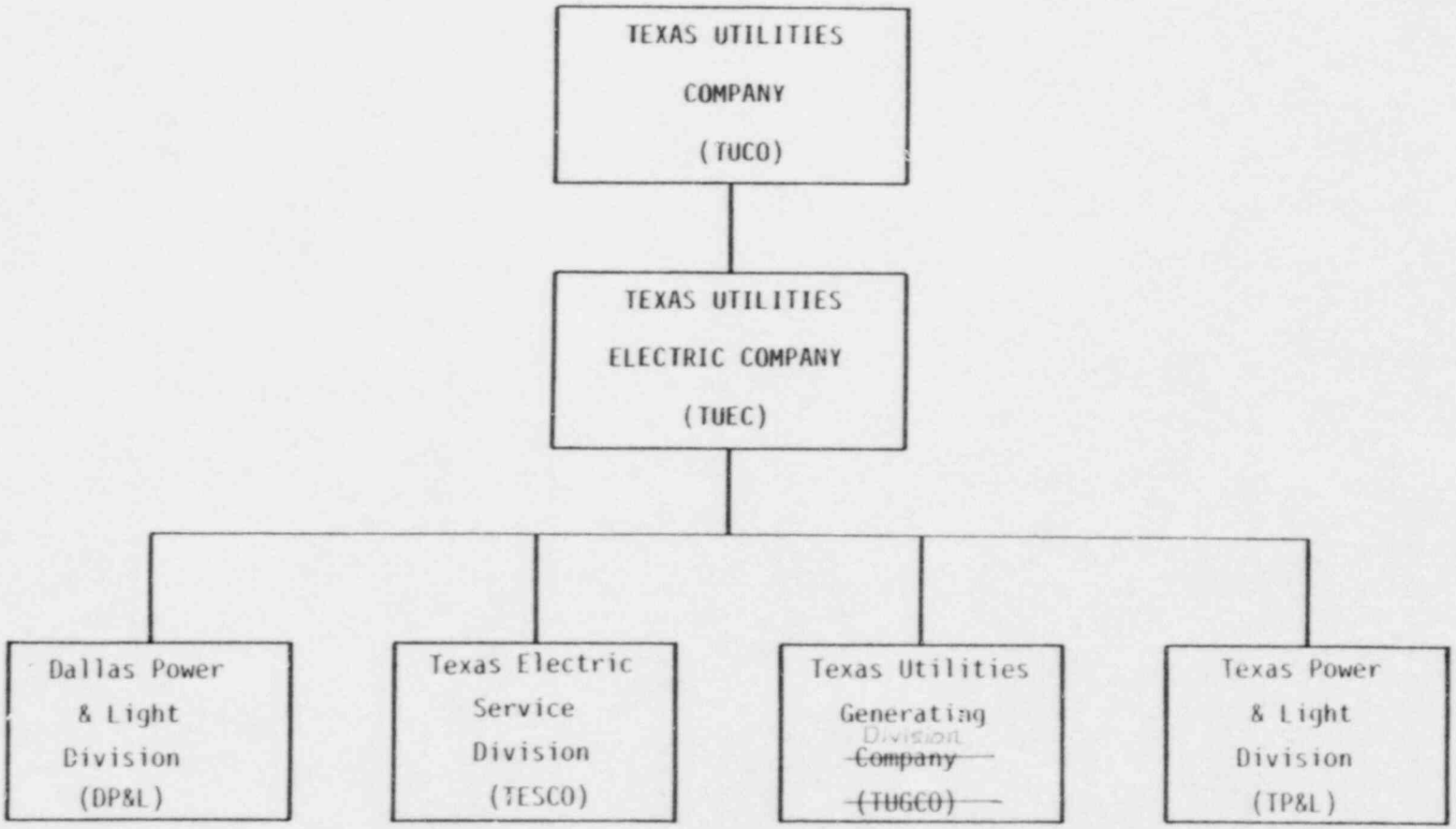
COMANCHE PEAK QUALITY ASSURANCE MANUAL PLAN	APPENDIX B QUALITY ASSURANCE CRITERIA																	
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII
1.0 Organization	X																	
1.1 Quality Assurance Department	X																	
1.2 Project Management	X																	
2.0 Quality Assurance Plan		X																
2.1 Control of the QA Plan		X																
3.0 Design Control			X															
4.0 Procurement Document Control				X														
5.0 Inatructions, Procedures and Drawings					X													
6.0 Document Control						X												
7.0 Control of Purchased Items and Services							X											
8.0 Identification and Control Items								X										
9.0 Control of Construction Processes									X									
10.0 Examinations, Tests and Inspections										X								
11.0 Test Control											X							
12.0 Control of Measuring and Test Equipment												X						
13.0 Handling, Storage, and ,ervation													X					
14.0 Examination or Test Status														X				

TABLE 17.1-7

(Sheet 2)

CPSES QA PLAN COMPLIANCE MATRIX

COMANCHE PEAK QUALITY ASSURANCE MANUAL PLAN	APPENDIX B QUALITY ASSURANCE CRITERIA																	
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII
15.0 Nonconforming Items															X			
16.0 Corrective Action																X		
17.0 Quality Assurance Records																	X	
17.1 Site Construction Quality Control Records																	X	
17.2 Record Retention and Storage																	X	
18.0 Audits																		X
19.0 Authorized Nuclear Inspector																		
20.0 Preservice Inspection Program	X	X		X	X	X	X	X	X		X	X		X	X	X	X	X
21.0 ASME Section XI Repair and Replacement Program	X	X		X	X	X	X	X	X		X	X		X	X	X	X	X



COMANCHE PEAK S.E.S.
FINAL SAFETY ANALYSIS REPORT
UNITS 1 and 2

TEXAS UTILITIES COMPANY
ORGANIZATION

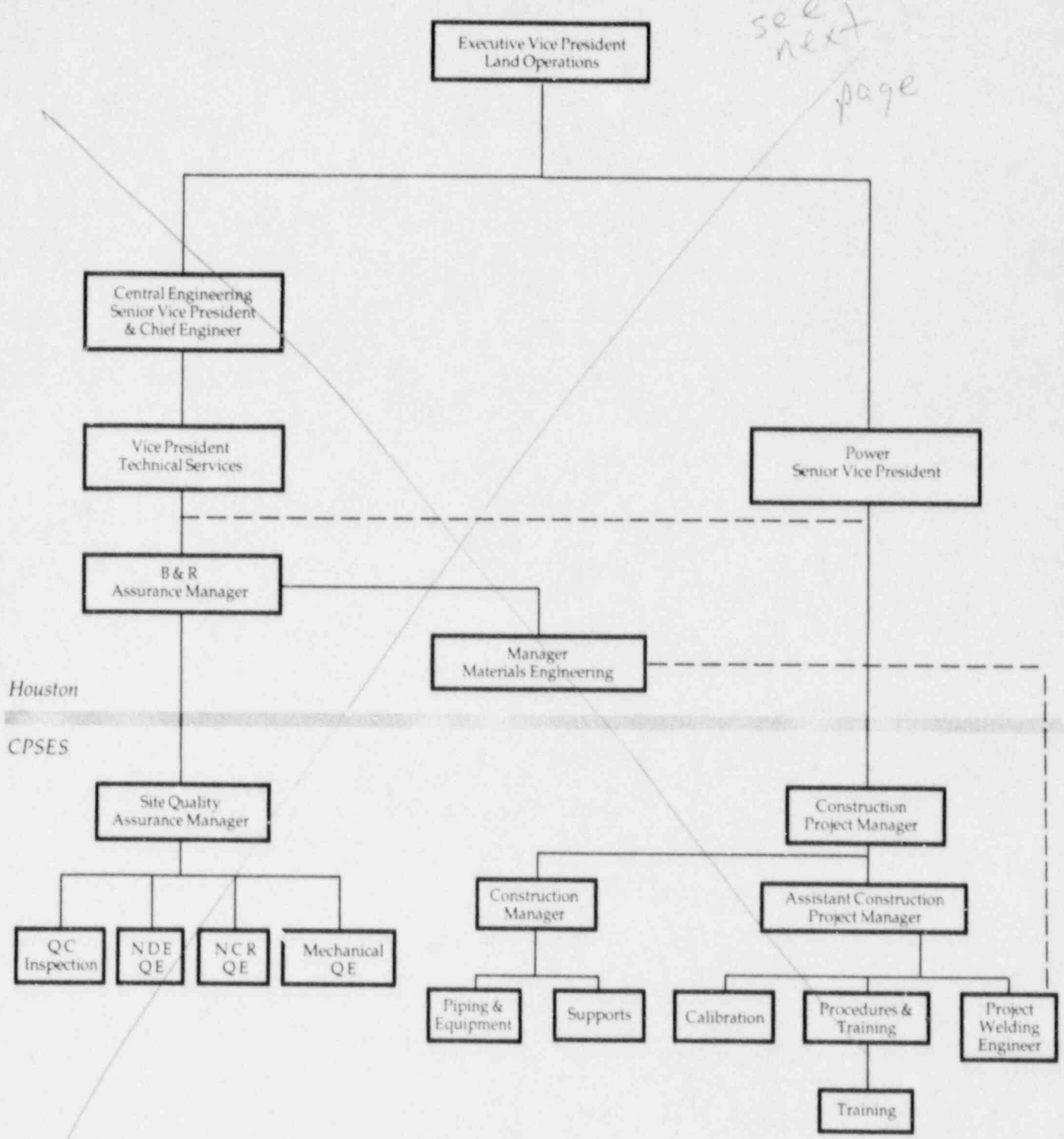
FIGURE 17.1-1

FIGURES 17.1-2

THIS FIGURE HAS BEEN DELETED
SEE FIGURE 17.1-6, TUGCO NUCLEAR
ADMINISTRATION ORGANIZATION

AMENDMENT 60
NOVEMBER 3, 1986

COMANCHE PEAK S.E.S. FINAL SAFETY ANALYSIS REPORT UNITS 1 and 2
PROJECT QA ORGANIZATION
FIGURE 17.1-2



LEGEND

FUNCTIONAL DIRECTION ————————

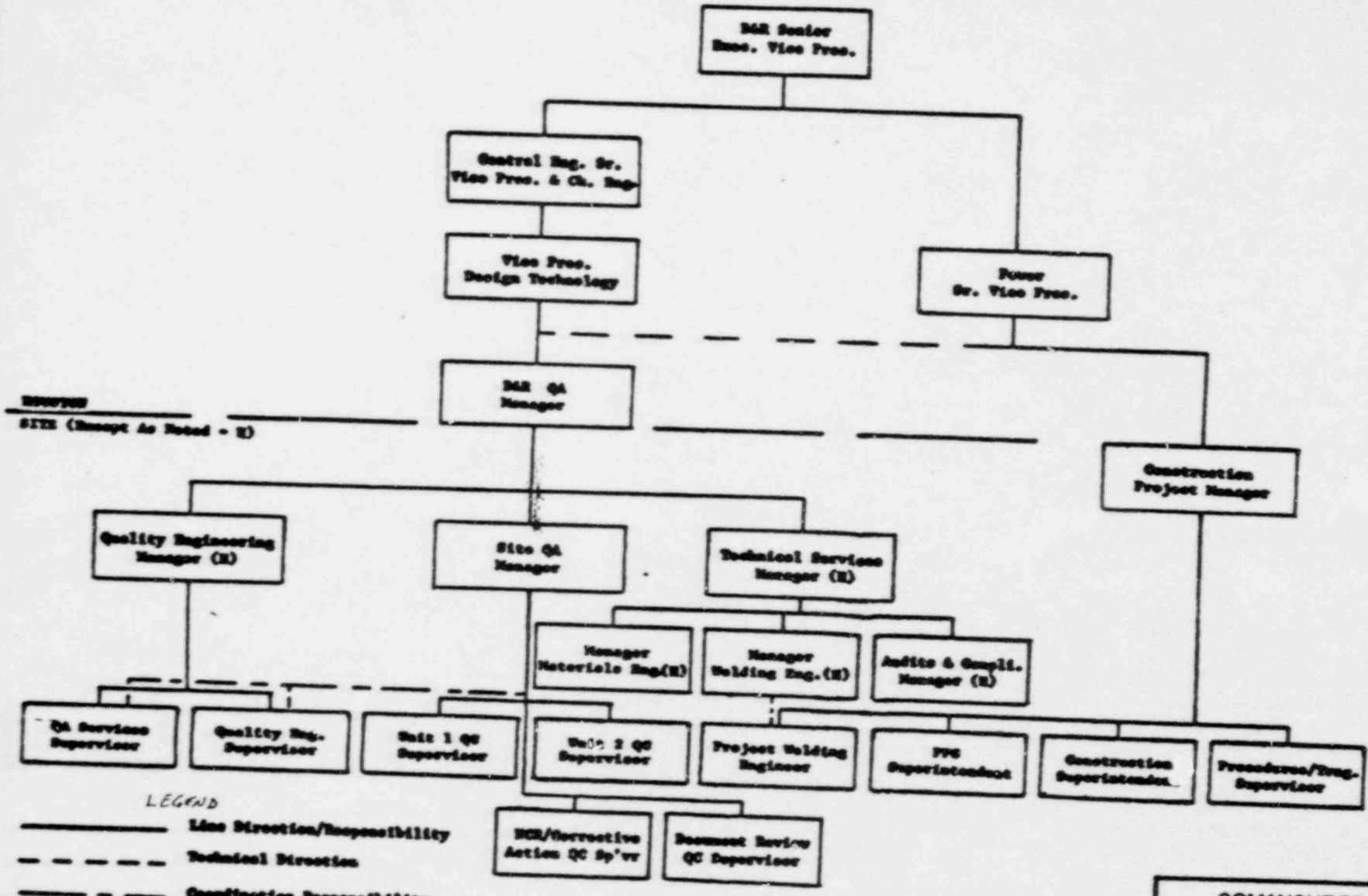
TECHNICAL DIRECTION — — — — — —

AMENDMENT 60
NOVEMBER 3, 1986

COMANCHE PEAK S.E.S.
FINAL SAFETY ANALYSIS REPORT
UNITS 1 & 2

ASME SECTION III, DIVISION 1
B & R QA ORGANIZATION
CHART FOR CPSES

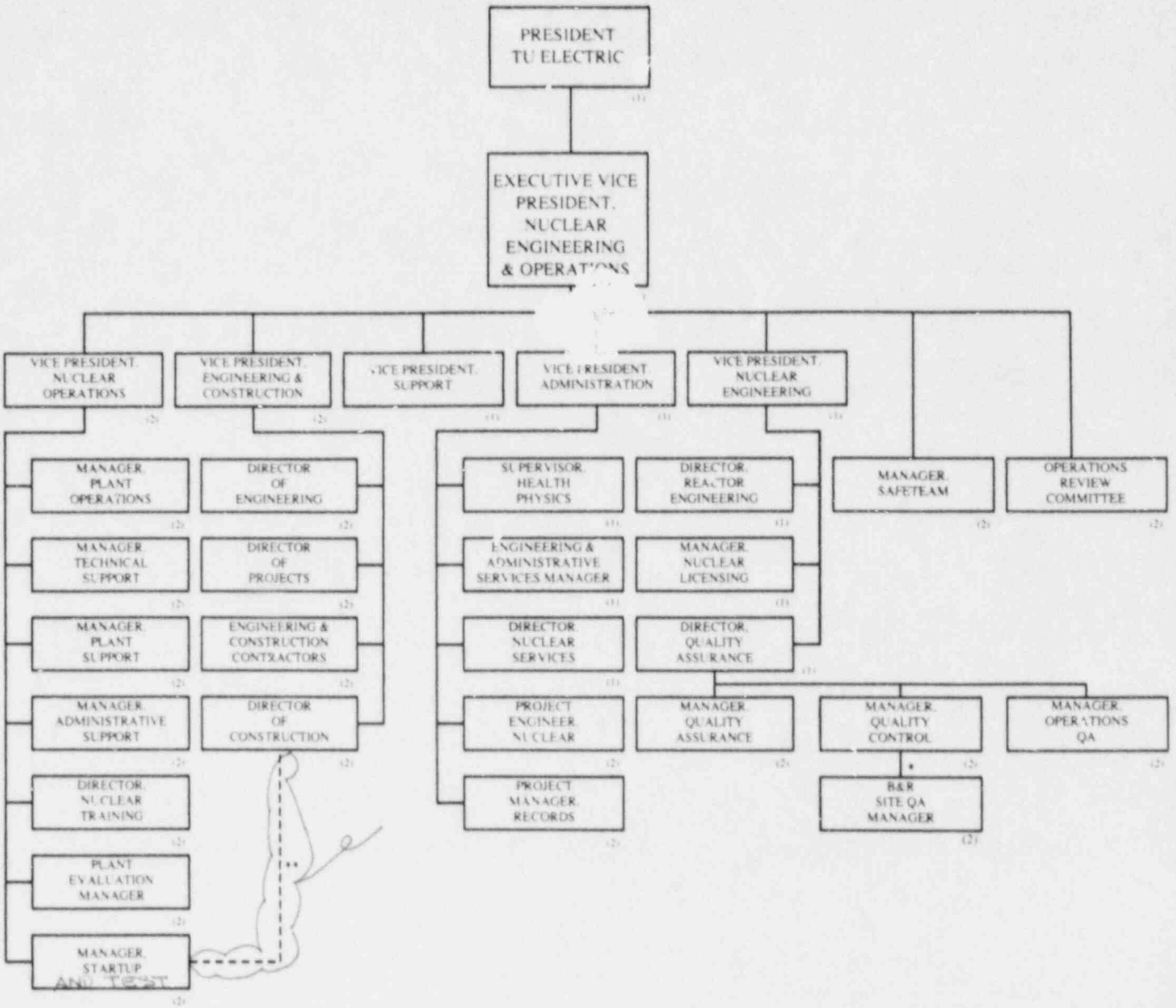
Figure 17.1-5



COMANCHE PEAK S.E.S.
FINAL SAFETY ANALYSIS REPORT
UNITS 1 & 2

ASME SECTION III, DIVISION 1
B & R QA ORGANIZATION
CHART FOR CPSES

Figure 17.1-5



PRIMARY LOCATION
(1) Corporate Office
(2) CPSES

* For other than ASME Sec. III, Div. 1 activities only.

** Refer to Section 13.1.1.2.1)

Construction work performed under the direction of the Director of Construction in accordance with the Construction QA Plan and Procedures.

COMANCHE PEAK S.E.S.
FINAL SAFETY ANALYSIS REPORT
UNITS 1 and 2

NUCLEAR ENGINEERING AND OPERATIONS (NEO) GROUP

FIGURE 17.1-6

Advanced draft

17.0 QUALITY ASSURANCE (QA)

Texas Utilities Electric Company (TU Electric) is submitting this application as Licensee for Comanche Peak Steam Electric Station (CPSES). TU Electric acts as owners agent for construction and operation of CPSES and is therefore responsible for the design, engineering, procurement, fabrication, and construction technical support of CPSES. This delegation of authority has been formally established among the Owners. Texas Utilities Company (TUCO) is the parent company of TU Electric. | 60 | 50

To establish and maintain the high quality level required for all quality-related activities for CPSES, TU Electric has developed a comprehensive Quality Assurance Program (QA Program) as documented in this chapter of the FSAR. TU Electric has implemented those portions of the Quality Assurance Program that are commensurate with the quality activities currently being performed. The program requires, as a minimum, that the quality activities performed by TU Electric and its contractors/vendors comply with the NRC criteria established in 10 CFR Part 50, Appendix B, Licensing of Production and Utilization Facilities, "Quality Assurance Criteria for Nuclear Power Plants". Where appropriate, the requirements of regulatory or safety guides have been incorporated into the program. | ADVANCE | 60

The TU Electric Quality Assurance Program requires that a Quality Assurance Manual be established to provide references to the written policies, procedures and instructions used to implement the QA Program for each nuclear power plant project for which it provides service. The combination of the requirements documented in the Quality Assurance Program and the Quality Assurance Manual provides TU Electric with the means of fully executing its assignment. | ADVANCE

Appendix 17A identifies all safety-related items for CPSES within the scope of the Quality Assurance Program.

17.1 QUALITY ASSURANCE DURING DESIGN AND CONSTRUCTION

17.1.1 ORGANIZATION

The major organizations involved in the Comanche Peak Steam Electric Station (CPSES) project are:

60 | Texas Utilities Electric Company (TU Electric) - as the Applicant, TU Electric has delegated to the Nuclear Engineering and Operations (NEO) Group within TU Electric the management and the authority for the engineering, design, procurement, construction, operation, and quality assurance activities of CPSES.

60 | The NEO Group has been designated by TU Electric to have the authority for all engineering, design, procurement and construction activities for CPSES. The NEO Group provides the QA program for quality-related activities within its scope of work. The NEO Group may contract with others for specific work tasks.

ADVANCE | Engineering Services Contractors - Architect-Engineers such as Stone and Webster, Ebasco and other engineering services contractors, are assigned specific scopes of work for design engineering in accordance with the requirements of the Nuclear Engineering and Operation (NEO) organization and conduct this work in accordance with their TU Electric approved Quality Assurance Programs.

60 | Westinghouse - as the nuclear steam supply system supplier, Westinghouse provides TU Electric with the nuclear steam supply system by conducting engineering, design, procurement, and fabrication services for the NSSS and by providing the initial supply of nuclear fuel. Westinghouse provides the QA program on the NSSS structures, systems and components.

ADVANCE | Brown & Root (B&R) - as the Constructor, B&R provides TU Electric with construction services at the site. As the ASME NA certificate holder, Brown & Root provides the QA program for ASME Code Section III work.

B&R also provides QA functions as requested by the TU Electric Director, Quality Assurance. | 60

Organization charts for TUCO, Westinghouse QA, B&R QA and NEO Group are presented as Figures 17.1-1, 17.1-4, 17.1-5 and 17.1-6, respectively. | 60

17.1.1.1 TU Electric

The TU Electric Quality Assurance Organization was established to provide effective control of quality activities related to its nuclear plants. For CPSES, the provision of this control applies to all organizations performing quality related services during the engineering, design, procurement, and construction phases. The NEO organizations participating in the design and construction phase of CPSES are shown in Figure 17.1-6. This chart illustrates the organizational structure and lines of reporting for each organization. | 60 | 50 | 60

17.1.1.1.1 Quality Assurance Department | 60

The Quality Assurance Department is responsible for the development, implementation, and evaluation of the TU Electric Quality Assurance Program for design and construction. This responsibility extends into all project activities including engineering, design, procurement, and construction. The Quality Assurance Department is headed by the Director, Quality Assurance. | 60 | 25 | 60

The Director, Quality Assurance reports on all technical and administrative matters to the Vice President, Nuclear Engineering. This reporting arrangement provides isolation of cost and scheduling influences from activities performed by the Director, Quality Assurance. | 55 | 60

55 | The Director, Quality Assurance has the duty and authority to identify
| quality-related problems; to initiate, recommend or provide solutions;
60 | and to verify the implementation and effectiveness of solutions. He
| has authority to "Stop Work" in the engineering, design, procurement
| and construction phases. His principal duties and responsibilities
include the following:

ADVANCE | 1. Develops an overall TU Electric Quality Assurance Program and
| Quality Assurance Manual.

ADVANCE | 2. Establishes means for implementing the QA Program and Manual
| including personnel indoctrination and training, definition of
| individual's quality assurance responsibilities, and evaluation
| of modifications to the QA Program and Manual.

59 | 3. Performs audits and surveillances of quality assurance activities
| conducted by TU Electric.

60 | 4. Performs audits and surveillances of quality assurance activities
| conducted by contractors/vendors.

60 | 5. Manages the Quality Assurance Department.

50 | 6. Maintains liaison on quality assurance matters with TU Electric
| senior management.

7. Establishes means to assure that individuals or groups assigned responsibility for checking, inspecting, auditing, or otherwise verifying correct performance of an activity are independent of the group responsible for the performance of that specific activity.

60 | 8. Reviews the performance of the Quality Assurance Program on a
| regular basis (not less than quarterly) with TU Electric senior
| management during meetings of the Senior Management QA Overview
| Committee.

9. Reviews selected engineering and design documents, e.g., procurement specifications, purchase orders, and Chapter 17 of the Final Safety Analysis Report, for conformance to TU Electric quality assurance standards. | 60

In addition, the Director, Quality Assurance supervises the Manager, QC, the Manager, Operations QA and the Manager, QA. The Manager, Quality Control is responsible for implementation of portions of the CPSES QA Program and technical supervision of site QC efforts in construction areas excluding ASME Section III Code work. The Manager, Operations QA is responsible for implementation of portions of the CPSES QA Program and technical supervision of the training, trending and corrective action reporting efforts. The Manager, QA is responsible for verification of overall conformance to the QA Program and Manual. | 65 ADVANCE

The qualification requirements of the TU Electric Director, Quality Assurance are: | 55

1. Minimum of 10 years experience in design, construction, and/or operations of power plants. A maximum of four years of this ten years experience may be fulfilled by related technical or academic training. | 59

2. A bachelors degree from an accredited college, university or other institution. | 59

3. Demonstrated ability to manage people and projects. | 9

4. Knowledge of quality assurance requirements for nuclear plants including a minimum of one year related experience in the implementation of a nuclear quality assurance program. | 59

17.1.1.1.2 Project Management | 37

The Vice President, Engineering and Construction reports to the Executive Vice President, Nuclear Engineering and Operations | 60

60 | and is responsible for the design and construction of CPSES. He has delegated design engineering and technical review of procurement activities for the CPSES project to the Director of Engineering. These activities may be delegated by the Director of Engineering to TU Electric approved engineering contractors/vendors. However, TU Electric retains overall responsibility for these activities. The Vice President, Engineering and Construction retains responsibility for cost and schedule and is charged with ensuring that quality requirements are met during design and construction.

60 | 17.1.1.2 Engineering Services Contractors

60 | Engineering Services Contractors are assigned specific scopes of work by the Vice President, Engineering and Construction through procurement documentation or other procedurally established administrative controls. Prior to award of contract for these services, the contractor's QA Manual will be approved and a pre-award evaluation will be performed by TU Electric Quality Assurance. This review and evaluation is designed to verify the conformance of the Contractor's QA Program to 10CFR50, Appendix B and any additional quality requirements, as specified by the Director of Engineering or the Director, Quality Assurance. Implementation audits are conducted beginning early in the life of the activities to assure adequate implementation of the contractors QA program.

60 | TU Electric, through the Vice President, Engineering and Construction may revoke the delegation and assume design responsibility or may reassign this responsibility to other organizations. The Director of Engineering is responsible for the technical management of each engineering services contractor. This includes the responsibility to establish an adequate design interface among the various organizations. The Director, Quality Assurance is responsible for assuring that an adequate interface exists through the audit and surveillance programs.

17.1.1.3 Brown & Root

Brown & Root provides the QA program for ASME Section III Code construction and other QA functions as requested by the TU Electric Director, QA. B&R has an organization such that those performing the quality assurance functions have the freedom to identify quality problems, to provide means for obtaining solutions to problems, and to verify that solutions have been implemented. This organization has sufficient independence, authority, and technical expertise to carry out the program in an orderly, routine manner. It employs a documentation system which provides necessary record retention and access capability. | ADVANCE

Figure 17.1-5 presents the B&R QA Organization for Houston's office and for site activities. | 60

The B&R Quality Assurance (QA) Manager has the following qualifications:

1. College degree in an engineering discipline from an accredited university.

2. Ten years engineering or Quality Control experience.

3. Technical, supervisory and management experience in the field of Quality Assurance and Quality Control.

4. Administrative and managerial effectiveness in implementing a quality assurance program.

Technical support and auditing functions are accomplished under the QA Manager's direction through the B&R QA Department Section Managers. | 12

60 | B&R has been delegated responsibility for site construction activities, such as erection and installation, as well as the formulation, preparation, and issuance of construction procedures and documents necessary to accomplish these activities. The B&R Construction Project Manager is also responsible for compliance with the B&R QA Manual in the fabrication and installation of ASME Code, Section III components.

ADVANCE | Technical direction of construction site QC activities other than ASME Section III Code work is provided by the TU Electric Manager, QC.
60 | Assisting him is the B&R Site QA Manager. Differences of opinion
50 | between the B&R Site QA Manager and the TU Electric Manager, QC, are
ADVANCE | resolved by the TU Electric Director, QA. For technical and administrative supervision of ASME Section III Code work and for administrative supervision in all other areas, the B&R Site QA Manager reports to the B&R QA Manager. These interfaces are defined in
60 | Figures 17.1-5 and Figure 17.1-6.

50 | QC engineers and inspectors performing ASME Section III, Division 1, activities are responsible to the B&R Site QA Manager and are authorized to: (1) approve the start of various phases of work after inspection has been provided, (2) prohibit the use of materials, equipment, or workmanship which do not conform to specifications or which will cause improper construction relative to specification, (3) stop any work which is not being done in accordance with plans or specifications by initiating a nonconformance report and (4) with prior approval from the B&R Site QA Manager, require the removal or repair of faulty construction or of construction performed without inspection and which cannot be inspected in place.

17.1.1.4 Consultants

50 | TU Electric utilizes the services of qualified consultants to assist in the performance of quality-related tasks such as audits, inspections, interpretations of test results, and review.

17.1.1.5 Organizational Interfaces

TU Electric establishes with each of its principal contractors a division of responsibility covering all phases of the project. This division of responsibility becomes the basis for identifying specific external interfaces to the system, structure, and component level which TU Electric must control. For CPSES, the interrelationships of the participating organizations in the QA Program are summarized as follows: | 50

1. B&R Site QA Manager reports to the B&R QA Manager for technical and administrative supervision of ASME Section III Code work, and for administrative supervision in all other areas. Technical direction of the B&R Site QA Manager in areas other than ASME is provided by the TU Electric Manager, QC. | ADVANCE | 55

2. Construction site inspection is performed under the direction of TU Electric Site QC and B&R Site QC (ASME Section III Code work). | ADVANCE

3. Periodic audits and surveillances of site QC and construction activities are performed by TU Electric QA to verify conformance. | 60

4. Vendors are required to provide internal, independent QA Programs to check safety-related design and fabrication work unless working under the TU Electric QA Program. | 60

5. TU Electric QA and/or its consultants or agents perform vendor audits and surveillances to verify vendor performance. | 60

6. Westinghouse is required to provide an internal QA Program for NSSS components. | 6

60 | 7. TU Electric and its design contractors/vendors provide a Design Control Program for design and engineering. TU Electric is responsibie for assuring design interfaces.

60 | 8. TU Electric QA periodically audits contractors/vendors, Brown and Root and internal TU Electric safety-related activities.

ADVANCE | 9. B&R QA periodically audits the B&R ASME Section III Code Program onsite, as required to maintain the B&R ASME Certificate of Authorization.

17.1.2 QUALITY ASSURANCE PROGRAM

ADVANCE | TU Electric's Quality Assurance Program and CPSES Quality Assurance Manual are the primary documents by which TU Electric assures effective control of all project quality-related activities. The other major participating organizations and their functions are identified in Section 17.1.1.

ADVANCE | In the development of the CPSES QA Program and Manual, TU Electric has utilized the provisions of Appendix B, 10 CFR Part 50, and certain of the ANSI N45.2 series standards, including N45.2.12, Draft 3, Rev. 0.

ADVANCE | Table 17.1-2 is a matrix which shows 10 CFR Part 50, Appendix B criteria versus appropriate sections of the Quality Assurance Manual. This matrix illustrates how the Manual satisfies the 18 criteria. Revisions to the Program and Manual incorporate the intended objectives of the ANSI standards and draft standards as presented in the NRC text "Guidance on Quality Assurance Requirements During Design and Procurement Phase of Nuclear Plants," dated June 7, 1973. Subsequent comments by the Nuclear Regulatory Commission staff have also been considered in latest revisions to the CPSES QA Program and Manual.

Procedures define the organizational structures within which the programs are implemented and delineates the authority and responsibility of the persons and organizations involved performing

design, engineering, procurement, and construction activities affecting the quality of design. These procedures identify the organization interfaces, both internal and external, between the contributing organizations.

The CPSES QA program is effectively administered and controlled by TU Electric through close association with, and supervision and audit of, the contractors who perform the requirements outlined herein. The QA programs of the contractors are reviewed by TU Electric QA and/or its agents to assure that they contain adequate requirements and procedures to control the quality level. | 60

Authority to implement certain nuclear QA activities included in the TU Electric QA Program during design, procurement and construction has been delegated to approved contractors/vendors. These activities are conducted in accordance with the current revisions of the approved contractors/vendors QA Topicals or QA Plans and Procedures. B&R is delegated the authority for QA functions relating to ASME Section III Code work. Primary authority for the construction site QA and QC programs lies with the TU Electric Director, Quality Assurance. This QA Program is organized to provide an integrated plan under the direct control of the TU Electric Director, QA. | 60 | ADVANCE | 60

17.1.3 DESIGN CONTROL

The TU Electric Quality Assurance Program provides for several levels of design control. These levels include the design control measures of TU Electric and its approved contractors/vendors. TU Electric is the engineering organization ultimately responsible for plant design. TU Electric has contracted with Westinghouse for the Nuclear Steam Supply System design. TU Electric may contract with approved Architect-Engineers for specific design work tasks. | ADVANCE | 60

60 | TU Electric Regulatory Guide commitments for design activities are discussed in, FSAR sections 1A(N) and 1A(B). The TU Electric QA Program requires that the engineering services contractors meet applicable NRC Regulatory Guides for technical design requirements as specified by the Director of Engineering for all safety-related activities.

ADVANCE | The CPSES QA Program requires verification that applicable NRC Regulatory Guides for technical design requirements have been incorporated in activities affecting quality by design review, audit, and surveillance of engineering services contractors.

This verification assures that applicable regulatory requirements and the design bases as specified in the license application for safety-related structures, systems, and components for CPSES are correctly translated into specifications, drawings, procedures, and

60 | instructions. Audits by TU Electric assures that the engineering services contractor organizations' design control measures include a clear definition of design interfaces, review and approval of initial design, including changes or revisions, and that personnel performing design reviews are thoroughly familiar with the regulatory requirements and design bases described in the PSAR/FSAR and are independent of those originating the design.

17.1.3.1 Design Control for Preparation of Drawings

6 | Design drawings are prepared, reviewed, and controlled per applicable project procedures. These procedures ensure that design drawings are reviewed independently for completeness, accuracy, agreement with design concepts, and possible interferences. Further review is provided by engineers of related disciplines who review for consistency and compatibility with related systems and design requirements. Procedures also call for supervisory review for content and compliance. Changes to drawings or drawing input are subject to the same controls as were applicable to the original.

17.1.3.2 Engineering Specifications

The TU Electric Quality Assurance Program requires that measures be documented for the translation of applicable regulatory requirements and design bases into specifications. Written procedures require that the specification be independently reviewed for technical accuracy, completeness, conformance with applicable regulatory requirements, and overall acceptability. Additional review is provided by related disciplines to ensure coordination and by project management for overall project requirements. Changes to engineering specifications are subject to the same controls as were applicable to the original. Written procedures further require documentation of the reviews.

17.1.3.3 Review of Vendor Equipment Drawings, Specifications, and Procedures

Upon receipt from a manufacturer, these documents are routed through the applicable engineering disciplines to check compliance with engineering drawings, and specifications. A controlled interface is maintained with the manufacturer to assure resolution of discrepancies. Interdiscipline and supervisory reviews of this process are performed and documented as well.

17.1.3.4 Engineering Calculations

Measures have been established that control the preparation of calculations. Written procedures outline the method of preparation to ensure uniformity, validity of assumptions and input, as well as accuracy of results. Procedures also require review of calculations by an independent checker. Each review is documented.

17.1.3.5 Design Review and Verification

Safety related design activity is reviewed in accordance with a formalized and documented system. The types of review used are:

6 | 1. Checks to compare information presented on a drawing or other document with a definite figure, criterion, or design base.

6 | 2. Supervisory reviews of design work, conducted by a superior in a given discipline, of work by a project team member in that discipline.

6 | 3. Interface reviews, by personnel of one discipline, of work performed by another discipline to determine that the reviewer's discipline requirements and commitments are satisfied.

6 | 4. Review by QA to determine that QA requirements are included as appropriate for the item being reviewed.

6 | Design verification to review, confirm or substantiate the design is performed to provide assurance that the design meets the specified inputs. Methods of verification include, but are not limited to, design review, alternate calculations, and qualification testing. Procedures will define the actions necessary to report and resolve deficiences identified during design verification.

50 | Written procedures define the actions necessary to report and resolve deficiencies identified during design verification.

17.1.3.6 Design and Engineering Surveillance

6 | In order to verify that engineering and design of nuclear safety related structures, systems, and components are performed in accordance with applicable procedures these efforts are reviewed by Quality Assurance through surveillance or audit. The scope and frequency of these reviews is commensurate with the complexity of the design and past performance.

The surveillance and audit functions are documented in written procedures.

17.1.3.7 Record Accumulation & Control

Records associated with the design activity are maintained and copies of these records stored as required. These records are audited by TU Electric QA and/or its agents. | 6

17.1.4 PROCUREMENT DOCUMENT CONTROL

Appropriate requirements have been established by the TU Electric Quality Assurance Program to assure that procurement documentation is controlled and accurately reflects applicable regulatory requirements, design bases, and other appropriate requirements, such as industry codes and standards. These requirements are consistent with the provisions of Regulatory Guide 1.28 and Regulatory Guide 1.123 as discussed in Appendix 1A(B) and apply to procurement documents prepared by TU Electric, or their designated agents. | 60 | 59

TU Electric has satisfied these requirements as follows: | 50

Selected review of procurement documentation for materials, equipment, and services listed in Table 17A-1 of FSAR Section 17A is performed. This review is described in 17.1.1.1.1. | 57

Planned, periodic, and documented audits are performed by TU Electric QA personnel or its agents to provide assurance that the procurement activities of TU Electric and contractors/vendors are being carried out in accordance with approved procedures. These audits will be conducted as described in paragraph 17.1.18. | 60

All procurement documents that are prepared by contractors/vendors on behalf of TU Electric are subject to reviews and controls similar to those described in this section. Contracts involving equipment, material, or services that are concerned with nuclear or | ADVANCE | 60

60 | nuclear safety equipment, systems, or structures require appropriate
| Quality Assurance and Quality Control by the vendor. QA defines the
| requirements of the Vendors' QA Program contents and changes thereto,
| and those requirements will be enumerated in each procurement
| specification.

ADVANCE | TU Electric or Brown and Root (ASME Section III Code Purchases)
| Quality Assurance also reviews purchase orders or contracts to assure
| that all required quality assurance and quality control information of
| the procurement document, including requirements for control,
| maintenance, and submittal of quality records, is reflected in the
| purchase order and contract.

60 | When required, contracts or purchase orders issued by TU Electric or
| its agents for any component, system, structure, or service,
| classified as being nuclear or nuclear safety-related is referenced to
| the applicable criterion of Appendix B to 10 CFR Part 50 or ASME code
| requirements.

60 | TU Electric and their contractors evaluate vendor Quality Assurance
| Programs prior to award of contracts or issuance of purchase orders as
| discussed in Section 17.1.7.

17.1.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

60 | Appropriate requirements have been established by the TU Electric
| Quality Assurance Program to assure that quality-related activities
| for CPSES are prescribed by documented instructions, procedures, or
| drawings; accomplished in accordance with such documents; and that
| approved acceptance criteria are met. The authority for the
| development of the methods that assure this is delegated to the
| various participating organizations; however, the developed methods
ADVANCE | are subject to TU Electric audit. The TU Electric QA Program
| requires that measures be established by TU Electric and its

contractors/vendors to assure that approved changes are promptly included into instructions, procedures, and drawings where applicable. The CPSES QA Program requires that changes be reviewed for their effect on present instructions, procedures and/or drawings. | 60 | ADVANCE

The TU Electric QA Program requires that an inspection procedure include flow charts, shop travelers or narrative description of the sequence of activities or operation for fabrication, processing, assembly, inspection, and test. Instructions shall indicate the operations or processes to be performed, type of characteristics to be measured or observed, the methods of examination, the applicable acceptance criteria and documentation requirements. The program also requires establishment of those inspection, test, and hold points from raw material through fabrication, processing, and assembly at which conformance of parts, components, and subsystems to requirements are verified. Hold points identify those inspections which are rendered impossible to perform by subsequent operations, and those inspections must be certified as completed before start of the next operation by the use of process sheets (e.g. travelers). Each process sheet shall include the date of completion of operation or test and the signature or stamp of the operator or inspector. TU Electric QA reviews applicable documentation to assure that it adequately reflects applicable quality requirements. In its review activities, TU Electric QA assures that instructions, procedures, and drawings contain appropriate quantitative (such as, dimensions, tolerances, and operating limits) or qualitative (such as workmanship samples) acceptance criteria for determining that important activities have been satisfactorily accomplished. | 60 | 4 | 50 | 57

Through its auditing procedures, as described in 17.1.18, TU Electric determines that quality related activities are accomplished in accordance with those approved instructions, procedures, and drawings.

17.1.6 DOCUMENT CONTROL

50 | TU Electric has established requirements to assure that documents, including changes, are reviewed for adequacy and approved for release
60 | by authorized personnel. These requirements provide that contractors/vendors include in their internal programs measures to assure that changes to documents will be reviewed and approved by the same organizations that performed the original review and approval or others as designated by TU Electric. TU Electric will verify implementation of these requirements through audits of
ADVANCE | contractors/vendors. The CPSES QA Program requires that changes to documents that have been reviewed and approved by TU Electric organizations will be reviewed and approved by those same TU Electric organizations that performed the original review and approval unless TU Electric designates another organization. These requirements also
60 | provide that the documents are distributed to and used at the location where the prescribed activity is performed. The scope of these requirements applies to TU Electric as well as to contractors/vendors.

50 | TU Electric employs within its own internal organization a control system that utilizes registering of documents requiring control, distribution, and review and approval procedures. The TU Electric Quality Assurance Program requires design engineering and procurement documentation for all safety-related equipment which consists of specifications, drawings, PSAR/FSAR material and related licensing questions and answers, instructions, procedures, reports and changes thereto, and manufacturing and construction documents and records required for traceability, evidence of quality, and substantiation of
55 | the "as built" configuration, be controlled. Procedures identify those individuals or groups responsible for reviewing, approving and issuing documents and revisions thereto. Where deemed necessary, TU Electric will require that periodic in-place document summary lists including revision level be submitted by an organization to verify the use of the proper document or change.

The effectiveness of the participants' document control methods will be evaluated by TU Electric through reviews and audits. The reviews verify the review and approval of participating organizations' design and document control, while auditing permits TU Electric to determine the effectiveness of the system.

17.1.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES | 25

Measures to be utilized to control purchased material, equipment, and services consist of reviews, audits, and inspections. These measures are described in the TU Electric Quality Assurance program. | 50

Measures have been established in procedures which control the procurement of commercial quality items, 10CFR50, Appendix B items and ASME Code items. Vendors who are considered by TU Electric or its prime contractors for the supply of 10CFR50, Appendix B and ASME Code items are evaluated in advance of placing them on the approved vendors list. Evaluation of potential vendors and maintenance of an approved vendors list is performed by TU Electric or its prime contractors in accordance with procedures. The documented evaluation is based on one or more of the following: | 59

1. A review of the supplier's quality assurance program description provided with the proposal/bid. | 59

2. A review of historical evidence of the supplier's performance in providing similar items or services. | 59

3. A pre-award survey of the supplier's facilities and QA program. | 59

The vendor to supply the material, equipment and services is selected from the approved vendors list. | 59

59 | Audits of vendors will be performed as required by procedures. These | audits will be conducted as described in 17.1.18.

Documented, objective evidence such as certifications, chemical and physical analyses, inspection reports, test results, personnel and process qualification results, code stampings, and non-destructive test reports are required for evaluation by TU Electric and
60 | contractors/vendors. This verification assures conformance to design | drawings, specifications, codes, standards, regulatory requirements, | and other applicable criteria. These documents are a part of the quality verification records retained at the CPSES site in accordance with Section 17.1.17.

60 | Source inspection, when deemed necessary, is required by the | applicable purchasing document The TU Electric Quality Assurance | Program requires that hold points be determined as necessary for this | activity and vendors are required to give sufficient notice of | approaching hold points to allow scheduling of personnel (Where | required for adequate control, both in process and final source | inspections covering review of the quality verification, documentation | as well as attribute examination, are performed). An inspection document is used to establish the inspection sequence and for recording inspections results. This document also becomes part of the
60 | quality verification records. Provision is made for reporting | deviations and nonconformances if any, for recommending disposition | and corrective action, for re-inspection if required, and for release | for shipment if appropriate.

50 | TU Electric requires that procurement documents specify that suppliers | provide the quality verification package at the CPSES plant site.
60 | During the review and approval of procurement documents, TU Electric | will check to assure that the above requirement is included. Audits | assure that the contractor/vendor is implementing a records-management | system. Equipment received on-site prior to receipt of the quality
25 | verification package is controlled as a non-conforming item.

Uncontrolled installation or use of delivered components does not occur until receipt of objective evidence of the quality verification package. The quality verification package is required to be on-site prior to relying on the related equipment to perform a safety function. | 25

17.1.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS AND COMPONENTS

Appropriate requirements have been established to assure continuous and accurate identification and control of materials, parts, and components so that the use of incorrect or defective materials, parts, or components is prevented.

| Q421.82

TU Electric and its contractors/vendors are required to utilize procedures which establish and document a system or method for identifying the material (e.g., physical marking, tagging, labeling, color code). Upon receipt of Q material, equipment receipt inspections are performed and documented. Items are then entered into the program established by site procedures and instructions for the storage and handling of Q material and equipment. Procedures and instructions require the status of nonconforming items to be maintained as required by Section 17.1.14. Upon request for material and equipment, the status of the item requested is checked, and QC concurrence is required prior to release to construction. Provisions are made for the conditional release of the status of nonconforming items under certain conditions. Procedures outline the required identification, traceability, and controls, including TU Electric QA approval that must be met before a conditional release request can be issued. If granted, the approval provides for further processing on a removal risk basis while the conditional release is in effect. This system provides assurance that only acceptable items are ultimately used. Material traceability is provided as specifically required by | ADVANCE | 60 | 13 | 50 | ADVANCE | 50

50 | applicable codes and procedures. Material identification either on the item, or on records uniquely traceable to the item, will be provided for other components except where specific categories of material are exempted. Where identification marking of an item is employed, the marking is clear, understandable and legible, and applied in such a manner as not to affect the function of the item. The identification and control measures provide for relating the item of production (batch, lot, components, part) at any stage, from materials receipt through fabrication, shipment, and installation, to an applicable drawing, specification, or other technical document.

ADVANCE | TU Electric and its contractors/vendors are required to establish and implement a documented program for inspecting, marking, identifying, and documenting the status of material prior to use or storage.

25 | Hold points are required where inspections must be made and certified complete before start of next operation. Inspection of materials includes the following; as applicable:

1. Verification that identification and markings are in accordance with applicable codes, standards, specifications, drawings, and purchase orders.

2. Visual examination of materials and components for physical damage or contamination.

3. Examination of quality verification records to assure that the material received was manufactured, tested and inspected prior to shipment in accordance with applicable requirements.

4. Actual inspection as required of workmanship, configuration, and other characteristics.

These inspections are documented and verified as appropriate by vendor and TU Electric QA/QC organizations. TU Electric performs surveillance of vendor facilities to assure implementation of the program. | 25

Items shipped to the site are normally identified by nameplate or other identification marking on the item. In those instances when it is not practical to provide identification markings on the individual items, identification information is provided in shipping paperwork that is transmitted with each shipment.

TU Electric and its contractors/vendors are required to establish specific measures to assure compliance with approved procedures for identification and control of materials, parts, and components, including partially fabricated assemblies. TU Electric QA verifies conformance by three methods: | ADVANCE | 60

1. Review and approval of contractors'/vendors' quality assurance programs. | 60

2. Surveillance of selected manufacturing, fabrication, construction, and installation activities by quality assurance personnel.

3. Auditing of TU Electric and contractors/vendors implementation of the approved Quality Assurance Program. | 60

17.1.9 CONTROL OF SPECIAL PROCESS

TU Electric and its contractors/vendors are required to establish written procedures and controls to assure that special processes including welding, heat treating, casting, coating applications, nondestructive testing, and concrete batching | ADVANCE

60 | are accomplished by qualified personnel, using qualified procedures, | in accordance with applicable codes, standards, specifications, | criteria, and other special requirements. These procedures describe the operations performed, the sequence of operations, the characteristics involved (e.g., flow, temperature, fit-up, finish, hardness, and dimensions), the limits of these characteristics, process controls, measuring and testing equipment utilized, and documentation requirements.

56 | Alternative requirements, as provided by ASME Code Cases, are utilized
60 | at CPSES in accordance with 10 CFR Part 50, Section 55a(a)(3). By | reference to ASME Section III requirements in the procurement | specifications, the use of code cases by mechanical equipment vendors | requires mutual consent of TU Electric or his agent and the | manufacturer. The ASME Code Cases which are used for design and
56 | erection at CPSES are identified in the appropriate mechanical design | and erection specifications or the Brown & Root QA Manual; | conditionally-approved Code Cases will show justification for their | use, as required by NRC, in these documents. The application of ASME
60 | Code Cases is documented on the ASME Data Report Forms. For further | discussion, see the text concerning Regulatory Guides 1.84 and 1.85 in | FSAR sections 1A(N) and 1A(B).

Examinations, tests, and inspections are conducted to verify conformance to the specified requirements.

Written procedures also are required to cover training, examination, qualification, certification, and verification of personnel as well as the maintenance of all required personnel records.

ADVANCE | Compliance with these procedures is required for TU Electric and its | contractors/vendors. Procedures for control of special processes are
60 | subject to review and approval by TU Electric on a case basis.

55 | TU Electric assures conformance with these requirements by:

1. Review of procedures for inclusion of control of special processes where required; proper definition of requirements for operator training, qualification, and certification; conformance to applicable codes, standards, drawing, specifications, or other criteria. | 50

2. Audits to verify the adequacy of selected site and vendor shop activities and the effectiveness of the special process control procedures being implemented. | 60

17.1.10 INSPECTION

TU Electric andits contractors/vendors are required to establish a division of authority which determines the services, structures, systems, components and materials for which each has inspection authority. TU Electric however, reserves the right to review, disapprove and perform surveillance or audits of the inspection procedures utilized by these organizations. | ADVANCE | 50

The review and approval of contractor's/vendor's inspection procedures is accomplished as an integral part of TU Electric's review of the organization's Quality Assurance/Quality Control Programs. TU Electric Quality Assurance uses the following criteria in establishing an inspection program and in evaluating inspection methods proposed by organizations under contract: | 60 | ADVANCE

1. Inspection procedures for functional groups such as procurement, project management, construction, and shop inspection are described, including measures to identify inspection and test status.

2. Duties and responsibilities of personnel performing inspection are clearly established.

3. Qualifications of personnel performing inspections are commensurate with their duties and responsibilities.

4. Documentation methods for inspection activities of each group are established (e.g., inspection forms, reports).

50 | 5. Documentation control systems for identifying, distributing, and retaining requisite inspection documents are defined.

6. Review and approval procedures for inspection documentation are provided.

7. Surveillance methods are established to assure proper implementation of inspection procedures.

ADVANCE | 8. Planning of inspection sequence activities include the type of characteristics to be measured, the methods of examination, and the criteria.

Inspection planning is utilized to assure conformance to procedures, drawings, specifications, codes, standards and other documented instructions. Inspections are performed by individuals not responsible for the activity being inspected. Sufficient inspections are conducted to verify conformance particularly in areas rendered inaccessible by further processing. Process monitoring is utilized in lieu of inspection in those cases where inspection is impossible, disadvantageous or destructive. When required for adequate control, a combination of inspection and process monitoring is employed. Hold points are established and enforced as required by the supplier and the purchaser. TU Electric and/or its representatives verifies by review of inspection reports, visits to vendor shops, and onsite surveillance, that inspections are being performed and documented by personnel in conformance with approved procedures.

17.1.11 TEST CONTROL

The TU Electric Quality Assurance Program requires that TU Electric and its contractors/vendors designate appropriate tests to be performed at specific stages of manufacturing, fabrication, and construction. Conduct of test is governed by written procedures which incorporate requirements and acceptance limits to assure that the structures, systems, and components tested perform satisfactorily in service. Tests are conducted in accordance with these procedures and are properly documented. | ADVANCE

TU Electric and its contractors/vendors are required to assure that all necessary tests are conducted. Such testing is performed in accordance with quality assurance and engineering test procedures which incorporate or reference the test requirements and acceptance limits contained in applicable design documents. Test requirements and acceptance criteria are provided by the organization responsible for the specification of the item under test, unless otherwise designated. The entire test program covers all required testing, including, as appropriate, development testing, prototype qualification testing, performance testing of production equipment, calibration testing of instruments, and hydrostatic testing of pressure boundary components. | ADVANCE

Test procedures include:

1. Requirements that prerequisites for the test have been met. Test prerequisites include but are not limited to the following:

    a. Calibrated instrumentation
    b. Adequate and appropriate equipment
    c. Trained, qualified, and, as appropriate, licensed and/or certified personnel

d. Preparation, conditions, and completeness of item to be tested
e. Suitable and, if required, controlled environmental conditions
f. Mandatory inspection hold points where applicable for witness by owner, contractor, or authorized inspector
g. Provisions for data collection and storage
h. Acceptance and rejection criteria
i. Methods of documenting or recording test data results

2. Designation of specific test methods to adequately assess appropriate parameters.

3. Designation of measuring and test equipment to be used.

4. Specific environmental considerations.

5. Measures to prevent damage to the item or system under test.

6. Safety considerations.

7. Documentation requirements.

Test results are evaluated to verify:

1. Proper functioning of the system, structure, or component.

2. Conformance to design specifications.

3. Compliance with stated test requirements.

50 | 4. That test results are within acceptance limits.

5. That recording and documentation is complete and accurate.

Audits, surveillances and witnessing of specified tests by TU Electric personnel serve to assure the functional adequacy of and verify compliance with, the testing program. | 60

17.1.12 CONTROL OF MEASURING AND TEST EQUIPMENT

The TU Electric Quality Assurance Program requires that organizations performing quality related activities involving measuring and test equipment have written procedures to govern these actions. TU Electric requires, therefore, that the standards used for calibration and accuracy verification of measuring and test equipment be traceable to the National Bureau of Standards or other appropriate sources. In addition, only properly calibrated measuring and test equipment are used. A calibration frequency and method system has been established to which the tools, instruments, gages, and other devices conform. Records of calibrations are maintained and the calibration equipment appropriately marked to indicate the date and acceptance of the calibration. | 60 | 66

Calibration curves are retained for each standard. The maximum allowable deviation on a calibration correction curve is the guaranteed accuracy of the instrument. If the instrument's deviation exceeds the guaranteed accuracy, then the instrument is repaired or replaced. Calibration standards, when not limited by the state of the art, have an uncertainty (error) requirement of no more than 1/4th of the required uncertainty of the equipment being calibrated. | 60 | 33

When inspection and testing equipment is found to be out of calibration due to use or damage, or when out of limits at recalibration, all items inspected, tested, or measured with that equipment since the latest valid calibration are evaluated. Upon completion of the evaluation each unacceptable item is treated as a nonconformance. | 55

60 | TU Electric QA personnel engaged in vendor activities monitor vendors' calibration programs, including evidence of calibration status and the use of in-calibration equipment. In addition, TU Electric QA personnel perform periodic audits of the various participants to ensure that approved calibration control procedures are being implemented.

17.1.13 HANDLING, STORAGE, AND SHIPPING

60 | Contractor/vendor procedures for the performance of cleaning, handling, storage, shipping, and preservation of materials and equipment to prevent damage or deterioration are reviewed by TU Electric or the assigned engineering services contractor/vendor. The
25 | approved procedures become a part, either by inclusion or reference, of the purchase documents issued by these organizations. TU Electric verifies that adequate provisions for procedures are included in purchase documents by ongoing review prior to issuance, by surveillance or by audit.

At the site, material and equipment are stored in accordance with approved procedures. TU Electric requires that instructions or guidance for site handling, preservation, storage, and control are prepared and approved prior to arrival of the equipment at the site. These procedures may require that special environmental facilities such as inert gas, humidity controlled, or temperature controlled storage areas are required at the site prior to the receipt of the equipment.

60 | TU Electric performs periodic surveillance and audits of contractors/vendors to assure that the specified and approved procedures are being properly implemented.

17.1.14 INSPECTION, TEST, AND OPERATING STATUS

TU Electric and its construction contractor/vendors have established procedures to identify the inspection, test, and operating status of safety-related structures, systems, and components. The inspection and test status of items are required to be maintained through the use of status indicators such as physical location, tags, markings, shop travelers, stamps, or inspection records. These measures provide for assuring that only items that have received and satisfactorily passed the required inspections and tests are used in manufacturing or are released for shipment. The procedures for control of status indicators, including the authority for application and removal of tags, markings, labels, or stamps, are documented in approved manufacturing or quality assurance procedures. | 60 | 50

System completeness and acceptance prior to fuel load will be determined by: | 33

1. Reviewing quality verification records for adequacy, completeness, and conformance to quality assurance requirements for each system or component being accepted.

2. Visually examining the systems or components in order to verify that they have been correctly installed. | 33

Systems are transferred to TU Electric through procedures that require inspections and signoffs by TU Electric. Upon completion of the transfer, the Manager, Plant Operations assumes operational and maintenance responsibility for each system. Prerequisite testing and preoperational testing will be conducted. TU Electric QA/QC personnel will assure that outstanding construction, document and test deficiencies will be controlled. Prior to fuel load, all remaining outstanding identified deficiencies will be reviewed to verify that they have no adverse impact on safety. | ADVANCE | 50 | 55 | 50

The methods of identifying the status of these systems is through the use of status indicators such as tags, stickers, markings, or status
60 | cards. These indicators are used on valves, switches, meters, or | equipment to indicate their test or operating status. TU Electric QA Site personnel monitor the use of these indicators to assure their proper and effective implementation.

17.1.15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

60 | The TU Electric Quality Assurance Program requires that measures be | documented by TU Electric and its contractors/vendors to control the | identification, documentation, segregation, and disposition of | nonconforming material, parts, or components. These measures prevent | their inadvertent use or installation and are subject to review by TU | Electric QA.

Written procedures require investigation of the nonconforming item, decisions on their disposition, and preparation of adequate reports. Procedures also control further processing, fabrication, delivery, or
60 | installation of items for which disposition is pending. All reports | documenting actions taken on nonconforming items are available to TU | Electric for evaluation.

ADVANCE | The TU Electric Quality Assurance Program requires that measures be | established by TU Electric and its construction contractors to assure | that departures from design specification and drawing requirements | that cannot be dispositioned "rework" or "scrap" are formally reported | to and dispositioned by TU Electric Engineering or its contractors. | TU Electric QA audits to assure compliance. The TU Electric QA
60 | Manager assures that periodic evaluations of these reports are | forwarded to TU Electric management to show quality trends.

The effectiveness of nonconformance control procedures may be verified by:

1. Contractor quality assurance and manufacturing, fabrication, or construction personnel involved in processing nonconforming reports.

2. TU Electric participation in dispositions and approvals as well as by the contractor responsible for the specification. | 60

3. Document review at final inspection or shipping release.

4. Audits or surveillances performed by the contractor, vendor, and TU Electric. | 60

Conditions which render the quality of an item or activity unacceptable or indeterminate will be identified, resolved and closed out. Such conditions are documented on inspection reports, deficiency reports, or nonconformance reports in accordance with procedures. | 50

An inspection report (IR) is used to document field inspections performed by Quality Control (QC). Each attribute on the IR is verified to be satisfactory or unsatisfactory. | 50

A deficiency report (DR) is a document used for documenting, controlling and correcting a condition or action which departs from procedures or other specific requirements but does not necessarily render the quality or function of a safety-related item unacceptable or indeterminate. | 61

A nonconformance report (NCR) is a document used for documenting, controlling, and correcting a condition or action which departs from | ADVANCE

ADVANCE | procedures or other specified requirements and renders the quality or function of a safety-related item unacceptable or indeterminate.

65 | Nonconformance reports shall be issued for those instances where:

65 | (1) A potentially nonconforming condition is identified and an approved method is not provided in the work, inspection, or test procedures or program to document the condition; or

65 | (2) A potentially nonconforming condition has been identified and documented in accordance with approved procedures or programs and the identified condition cannot be corrected (reworked or scrapped) to comply with existing engineering requirements in accordance with approved procedures.

65 |

ADVANCE | Disposition of items of unsatisfactory, unacceptable or indeterminate quality identified on IR's, DR's, or NCR's, is determined by appropriate personnel and may result in a design change as discussed in Section 17.1.3 "Design Control". IR's, DR's, and NCR's remain

50 | open until the deficiency is satisfactorily resolved and identified corrective action satisfactorily completed. Upon completion of the action required for disposition, repaired or reworked items are reinspected to verify compliance with specified actions and

65 | requirements. Independent review of nonconformances, including disposition and closeout, is performed by appropriate Quality Assurance personnel. The status of these items is maintained in

50 | accordance with Section 17.1.14, "Inspection and Test Status" and Section 17.1.13, "Handling, Storage and Shipping".

Procedures require trending of deficiencies reported on inspection reports, deficiency reports, and nonconformance reports to identify trends adverse to quality. Trend reports are reviewed quarterly by appropriate levels of management to address areas requiring corrective action. | 50

Nonconformance reports and trend reports are reviewed upon issuance by the appropriate Quality Assurance personnel for significant conditions adverse to quality or chronically repetitive deficiencies. If such conditions exist, procedures require additional action, as appropriate. This may include issuance of corrective action requests as discussed in Section 17.1.16, "Corrective Action", or reports to the Nuclear Regulatory Commission. | 65 | 50

17.1.16 CORRECTIVE ACTION

TU Electric requires that measures be established to assure that conditions adverse to quality are promptly identified, reported, and corrected. Responsibility for performing corrective action is assigned to the responsible TU Electric organization or its contractors/vendors so that each is alert to those conditions adverse to quality within his own area of activity. In the case of significant conditions adverse to quality, measures are taken to assure that the cause of the condition is determined and corrective action is implemented to preclude repetition. Corrective action procedures placed in effect require thorough investigation and documentation of significant conditions adverse to quality. The cause and corrective action is reported in writing to the appropriate levels of contractor/vendor management and to TU Electric in accordance with the purchase document. | 50 | ADVANCE | 60 | 60

For CPSES, the Quality Assurance Program requires that procedures and practices be established and documented which provide assurance | ADVANCE

that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances, are promptly identified, documented, and corrected as soon as practicable, and that appropriate action be taken to correct the cause of the condition. Corrective action documentation and request forms or formal letters are used to document the corrective

ADVANCE | action-related requests, responses, and follow up. The QA Program | requires that measures be established by TU Electric and its | construction contractors/vendors to assure that the acceptability of | rework or repairs is verified by reinspecting the item as originally | inspected and that the reinspection is documented. These measures

60 | are verified by review and approval of the construction | contractors'/vendors' QA Program and by the subsequent audit for | conformance to the approved program. Significant conditions adverse to quality are identified (such as those which, if they had remained undetected, would have adversely affected safety-related functions), the cause of the condition is determined, and corrective action is taken to preclude repetition. Such significant conditions, their causes, and the corrective action taken are documented and reported to appropriate levels of management through established communication systems. Corrective action followup and close-out procedures provide that corrective action commitments are implemented in a systematic and timely manner and are effective.

The occurrence and magnitude of deficiencies and nonconformances requiring corrective action are evaluated by the purchaser's inspectors during surveillance and at hold point inspection and witnessing. Additionally, these areas are identified for audit purposes.

The effectiveness of the vendor's corrective action program is

60 | assessed during audits by TU Electric. Stop work authority is | exercised as required.

17.1.17 QUALITY ASSURANCE RECORDS

The TU Electric Quality Assurance Program establishes procedures and practices to assure that TU Electric and its contractors/vendors have a quality records system which provides documentary evidence of the performance of activities affecting quality. Procedures assure or shall require: | 60

1. That records that are required to be maintained show evidence of performance of activities affecting quality. Typical records maintained include quality assurance programs and plans, design data and studies, design review reports, specifications, procurement documents, procedures, inspection and test reports, material certifications, personnel certification and test reports, audit reports, reports of nonconformances and corrective actions, as-built drawings, operating logs, calibration records, maintenance data, and failure and incident reports.

2. That inspection and test records, as a minimum, identify the date of the inspection or test, the inspector or data recorder, the type of observation, the results, the acceptability, and the action taken in connection with any deficiencies noted. | 50

3. That records are protected against deterioration and damage.

4. The criteria for determining the classification of the record as well as the length of the retention period.

5. The method of identification and indexing of records for ease of retrievability.

6. Responsibility for record keeping during design, fabrication, construction, preoperational testing and commercial operation.

7. The method of transfer of records between organizations.

60 | TU Electric verifies conformance to the record requirements by reviewing contractors'/vendors' quality assurance methods for record keeping, by auditing contractors'/vendors' systems when functional, and by selective review of quality records for completeness and accuracy.

ADVANCE |

ADVANCE | Records will be stored in specially constructed storage facilities at CPSES to prevent their destruction, deterioration or theft. Access to the records facility is controlled so that only authorized personnel will have access to the records area. As an alternative to the utilization of the storage facility, maintenance of duplicate records stored in a remote location is acceptable.

17.1.18 AUDITS

TU Electric requires that planned and periodic audits be performed to verify compliance with all aspects of the quality assurance program

60 | and to determine the effectiveness of the program. TU Electric QA performs such audits on TU Electric and its contractors/vendors to provide an objective evaluation of the effectiveness of their programs; to determine that their programs are in compliance with established requirement, methods, and procedures; to determine quality progress; and to verify implementation of recommended corrective action. TU Electric audits, both internal and external, are conducted primarily by members of the Quality Assurance staff. Consultants will be utilized by TU Electric on audits as required.

As part of the Quality Assurance program TU Electric QA: | 29

1. Utilizes an audit planning document which defines the organizations and activities to be audited and the frequency of the audits.

2. Requires auditors be familiar with the type of activities to be audited and have no direct responsibilities in the area being audited.

3. Provides auditing checklists or other objective guidelines to identify those activities which will be examined. | 25

4. Requires examination of the essential characteristics of the quality related activity examined. | 50

5. Requires an audit report be prepared and that it notes the extent of examination and deficiencies found. | 55

6. Requires the audit report be sent to management responsible for the area audited for review and corrective action for deficiencies.

7. Requires corrective action taken as result of the audit be reported.

8. Requires reauditing of deficient areas when it is considered necessary to verify implementation of required corrective actions.

Documentation of audits performed by contractors/vendors are made available to TU Electric for evaluation. | 60

ADVANCE | TU Electric verifies conformance to the regulatory audit requirements
| by three methods:

60 | 1. Review of contractors'/vendors' quality assurance methods for
| auditing.

ADVANCE |

ADVANCE | 2. Review of documentation of the audit report performed by those
| contractors/vendors.

ADVANCE | 3. Internal and external audits performed by members of the Quality
| Assurance staff.

FSAR

TABLE 17.1-2

(Sheet 1 of 2)

CPSES QA MANUAL COMPLIANCE MATRIX

; ADVANCE

COMANCHE PEAK QUALITY ASSURANCE MANUAL	APPENDIX B QUALITY ASSURANCE CRITERIA																		; ADVANCE
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	
1.0 Organization	X																		; ADVANCE
2.0 Quality Assurance Plan		X																	; ADVANCE
3.0 Design Control			X																
4.0 Procurement Document Control				X															
5.0 Instructions, Procedures and Drawings					X														
6.0 Document Control						X													
7.0 Control of Purchased Items and Services							X												
8.0 Identification and Control Items								X											
9.0 Control of Construction Processes									X										
10.0 Examinations, Tests and Inspections										X									
11.0 Test Control											X								
12.0 Control of Measuring and Test Equipment												X							
13.0 Handling, Storage, and Preservation													X						
14.0 Examination or Test Status														X					

FSAR

TABLE 17.1-2

(Sheet 2)

CPSES QA PLAN COMPLIANCE MATRIX

COMANCHE PEAK QUALITY ASSURANCE MANUAL	APPENDIX B QUALITY ASSURANCE CRITERIA																		
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	ADVANCE
15.0 Nonconforming Items															X				
16.0 Corrective Action																X			
17.0 Quality Assurance Records																	X		
																			ADVANCE
18.0 Audits																		X	
																			ADVANCE

COMANCHE PEAK STEAM ELECTRIC STATION

FINAL SAFETY ANALYSIS REPORT

UNITS 1 AND 2

TEXAS UTILITIES COMPANY

ORGANIZATION

FIGURE 17.1-1

CPSES /FSAR

FIGURE 17.1-2

THIS FIGURE HAS BEEN DELETED SEE FIGURE 17.1-6. | ADVANCE

COMANCHE PEAK STEAM ELECTRIC STATION
FINAL SAFETY ANALYSIS REPORT
UNITS 1 AND 2

ASME SECTION III, DIVISION 1
B & R QA ORGANIZATION
CHART FOR CPSES

FIGURE 17.1-5

COMANCHE PEAK STEAM ELECTRIC STATION
FINAL SAFETY ANALYSIS REPORT
UNITS 1 AND 2

NUCLEAR ENGINEERING
AND OPERATIONS (NEO) GROUP

FIGURE 17.1-6

Bold/Overstrike

17.2 QUALITY ASSURANCE DURING THE OPERATIONS PHASE

17.2.1 ORGANIZATION

17.2.1.1 Organizational Structure

Texas Utilities Electric Company (TU Electric), as the licensee, has overall responsibility for the operation of the Comanche Peak Steam Electric Station (CPSES). Nuclear Engineering and Operations (NEO) has been designated by TU Electric to coordinate the design, construction and operation of CPSES. The organizational structure of TU Electric and NEO are described in Section 13.1. | 53

The following paragraphs amplify upon Section 13.1 with regard to establishment and execution of the quality assurance program for the operation of CPSES. Figure 17.2-1 shows the structure and relationships of those elements of NEO which function under the control of the QA program. Figure 17.2-2 shows the CPSES Nuclear Operations organizational structure. | 53 | 62

TU Electric may, from time to time, assign responsibility for executing certain portions of the program to qualified consultants and contractors. However, TU Electric, retains ultimate responsibility for the CPSES operations quality assurance program. | 53

17.2.1.1.1 Executive Vice-President, Nuclear Engineering and Operations | 56 | 56

The Executive Vice-President, Nuclear Engineering and Operations is responsible for the overall management of company operations, including operation of CPSES, and for the establishment of company policies. He has the overall responsibility for the establishment and execution of the quality assurance program for the operation of CPSES. | 56

56 | The Executive Vice-President, Nuclear Engineering and Operations has assigned to the Vice-President, Nuclear Operations the overall responsibility for operation of CPSES and for development and implementation of the quality assurance program for operations at CPSES.

15 | 17.2.1.1.2 Vice President, Nuclear Operations

62 | The Vice President, Nuclear Operations is responsible to the Executive Vice President, Nuclear Engineering and Operations for operating activities at CPSES. The Vice President, Nuclear Operations has the responsibility for development, approval and implementation of the CPSES Operations Administrative Control and Quality Assurance Plan. Plan approval by the Vice President, Nuclear Operations is executed after prior review and concurrence by the Manager, Plant Operations and the Director, Quality Assurance.

53 | Specific duties and responsibilities of the Vice President, Nuclear Operations include the following:

62 | 1. Technical and administrative direction of the Manager, Plant Operations.

56 |

62 | 2. Technical and administrative direction of the Manager, Startup and Test.

62 | 3. Technical and administrative direction of the Manager, Technical Support.

62 | 4. Technical and administrative direction of the Manager, Plant Support.

5. Technical and administrative direction of the Manager, Administrative Support. | 62

6. Technical and administrative direction of the Plant Evaluation Manager. | 62

7. Technical and administrative direction of the Director, Nuclear Training. | 62

8. Operational and technical support of all Nuclear Plants operated by TU Electric. | 62

9. Technical and administrative direction for the implementation of quality assurance requirements and controls at nuclear plants operated by TU Electric. | 62

10. Overall responsibility for the Initial Startup Test Program at CPSES. | 62

17.2.1.1.3 Manager, Plant Operations | 62

The Manager, Plant Operations is responsible to the Vice President, Nuclear Operations for Plant operations activities at CPSES. He is the individual who is directly responsible for the safe, reliable, and efficient operation of CPSES. | 62 | 37

Specific duties and responsibilities of the Manager, Plant Operations include the following: | 15

15 | 1. Management of all operations activities at CPSES.

15 | 2. Technical and administrative direction of:

62 | a. Operations Manager
62 | b. Maintenance Manager
62 | c. Instrumentation and Control Manager

3. Chairmanship of the Station Operations Review Committee.

15 | 4. Membership on the Operations Review Committee.

37 | 5. Overall responsibility for the Initial Startup Test Program at CPSES.

62 | 6. Chairman of the Joint Test Group (JTG).

62 | 17.2.1.1.4 Director, Quality Assurance

62 | The Director, Quality Assurance, reports directly to the Vice-President, Nuclear Engineering and is responsible to him for assuring effective implementation of the CPSES operations Quality Assurance Program. This reporting relationship assures that the Director,
55 | Quality Assurance has sufficient authority, organizational freedom, and independence from undue influence from, or responsibility for, costs and schedules such that he can effectively assure implementation of and compliance with the CPSES operations quality assurance requirements and controls.

62 | The Director, Quality Assurance is responsible for submitting reviewing the CPSES Operations Administrative Control and Quality Assurance Manual Plan for concurrence and recommending approval to the Executive Vice President, Nuclear Engineering and Operations. He is responsible for the performance of quality assurance activities in support of CPSES operation.

The Director, Quality Assurance communicates directly with NEO supervisory and management personnel and with appropriate management levels in consultant and contractor quality assurance organizations to identify quality problems; initiate, recommend or provide solutions; and to verify implementation of solutions to quality problems. He also has authority to "stop work" during the operations phase. | 55 | 14

Specific duties and responsibilities of the Director, Quality Assurance include the following: | 55

1. Direction of Quality Assurance Department personnel. | 62

2. Technical and administrative direction of: | 62

   a. Manager, Operations QA | 62
   b. Manager, QC | 62
   c. Manager, QA | 62

3. Verification through audit and surveillance that procedures for the control of quality-related activities comply with quality assurance requirements. | 62

4. Verification through audit and surveillance of the implementation of the quality assurance program within NEO and evaluation of its effectiveness. | 62

5. Assurance through audit, surveillance and inspection that consultants, contractors and suppliers providing quality-related items or services have established and implemented an adequate quality assurance program. | 62

6. Membership on, or supervision of a member of the Operations Review Committee. | 55

62 | 17.2.1.1.5 Director, Engineering

62 | The Director, Engineering is responsible for providing engineering related technical services in support of CPSES operations.

62 | Specific duties and responsibilities of the Director, Engineering includes the following:

53 | 1. Technical support to Nuclear operations.

5 | 2. Technical direction and administrative guidance to his staff.

5 | 3. Assistance, as required, in the procurement of equipment, materials, and services for the operation, maintenance or modification of CPSES.

62 | 17.2.1.2 Quality Assurance Department

62 | The Quality Assurance Department, under the direction of the Director, Quality Assurance functions to assure effective implementation of the quality assurance program.

62 | Specific functions performed by the Quality Assurance Department include:

62 | 1. Quality assurance auditing of NEO quality-related activities, both offsite and onsite.

2. Evaluation of consultants', contractors', and suppliers' quality assurance programs and implementing procedures.

3. Quality assurance auditing of consultants, contractors, and suppliers.

4. Surveillance and inspection conducted at equipment and material suppliers' facilities.

5. Review of procurement documents to assure incorporation of adequate quality assurance requirements for non-routinely procured items and services.

6. Surveillance and review of site quality related activities to assure compliance with the applicable quality requirements. | 65

17.2.1.3 CPSES Operations Quality Assurance Section

| Q421.48

The CPSES Operations Quality Assurance Section, is supervised by the Manager, Operations QA who reports directly to the Director, Quality Assurance. *The Manager, Operations QA is responsible to the Director, Quality Assurance for assuring effective implementation of the CPSES Operations Quality Assurance Program.* | 62

| Q421.48

The Manager, Operations QA has sufficient authority and organizational freedom at CPSES to identify quality problems, recommend solutions, verify implementation of solutions, to stop unsatisfactory work and control further processing, delivery or installation of non-conforming material until proper disposition has occurred. | 62

| Q421.48

In addition, the Manager, Operations QA advises the Director, Quality Assurance, of the status of the *Operations* quality assurance program at CPSES and of any significant conditions which are adverse to quality. | 62

The Operations Quality Assurance Section is responsible for the administration and implementation of an effective quality control inspection program at CPSES. | 65

| 65

11 | 17.2.1.4 Operations Review Committee

Independent reviews of activities affecting plant safety during the operations phase are performed by the Operations Review Committee. The structure and responsibilities of this committee are described in Section 13.4.

17.2.1.5 Delegation of Quality Assurance Functions

53 | NEO periodically retains qualified consultants and contractors to provide safety-related services. All consultants and contractors providing safety-related services and suppliers providing safety-related equipment or materials for CPSES are required to establish and implement quality assurance programs appropriate for their scope of
53 | supply. NEO includes specific requirements in procurement documents with which consultants', contractors', or suppliers' quality assurance programs must comply.

17.2.1.6 Personnel Qualifications

55 | 17.2.1.6.1 Director, Quality Assurance

55 | The Following qualification requirements have been established for the Director, Quality Assurance.

59 | 1. Minimum of ten years related experience in design, construction, and/or operation of power plants. A maximum of four years of this ten years experience may be fulfilled by related technical or academic training.

59 | 2. A bachelors degree from an accredited college, university or other institution.

Q421.47 |
9 | 3. Demonstrated ability to manage people and projects.

| Q421.47

4. Knowledge of quality assurance requirements for nuclear plants including a minimum of one year related experience in the implementation of a nuclear quality assurance program. | 59

17.2.1.6.2 Manager, Operations QA | 62

The following qualification requirements have been established for the Manager, Operations QA | 62

| Q421.7

Six years experience in the field of quality assurance, preferably at an operating nuclear plant, or operations supervisory experience. At least one year of this six years experience shall be nuclear power plant experience in the overall implementation of the quality assurance program. A minimum of one year of this six years experience shall be related technical or academic training. A maximum of four years of this six years experience may be fulfilled by related technical or academic training. | 4

17.2.1.7 Inspection Functions

| Q421.11

The Manager, Operations QA is responsible for administration and implementation of an effective quality control inspection program. Inspections shall be performed by qualified individuals other than those who performed or directly supervised the activity being inspected. Personnel performing these inspections may be from the same department but are not from the same group that performed the work. | 62 | 11

| Q421.11

In addition, qualification criteria for inspection personnel are reviewed for concurrence by the Manager, Operations QA ~~as part of the Station Operations Review Committee~~. | 62

Q421.11 |

11 | When pressure boundaries are breached, functional tests shall be | conducted to the extent required to demonstrate acceptability of the | repair or maintenance.

17.2.2 QUALITY ASSURANCE PROGRAM

62 | The Corporate Quality Assurance Program establishes general policies | delineating requires requirements for a Quality Assurance Manual | Plans, to be developed for each nuclear power plant, which prescribe | specific measures to assure the quality of safety-related activities, | structures, systems and components of that facility. The quality assurance requirements and controls implemented during operations of CPSES are established by the portion of the CPSES Quality Assurance Program in this section (17.2) of the FSAR. One quality assurance plan establishes the quality assurance requirements and controls for the design and construction phase, and another plan establishes the quality assurance requirements and controls for the operations phase, 18 | Other plans may be developed as necessary. The quality assurance | requirements and controls implemented during design and construction | of the CPSES are established by the CPSES Quality Assurance Program | Plan (Design and Construction), which is described in Section 17.1.

Q421.15 |

15 | Quality The CPSES Operations Administrative Control and Quality | Assurance Plan establishes the quality assurance requirements and | controls are established to be implemented throughout the testing and | operation phases at CPSES. This program shall be implemented at 9 | least 90 days prior to fuel loading. Responsibilities This plan | defines responsibilities and authority, and prescribes measures for | the control and accomplishment of activities affecting the quality and | operation of safety-related structures, systems, and components of | CPSES are defined. The structures, systems, and components covered 4 | by the operations quality assurance program are listed in Table 17A-1. These The provisions of the plan apply to all activities, such as operating, maintaining, repairing, modifying, and refueling which affect the safety-related functions of those structures, systems, and components.

| 62

A Quality Assurance Program shall be developed and implemented to attain high levels of quality assurance during the operation of CPSES. This program shall comply with the requirements of Title 10, Code of Federal Regulations, Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Processing Plants," and certain NRC Regulatory Guides and ANSI standards as identified in the Final Safety Analysis Report (SAR). | 62

Overall responsibility for the Quality Assurance (QA) Program lies with the Executive Vice President, Nuclear Engineering and Operations. Specific responsibility for development and administration of the program rests with the Director, Quality Assurance. | 62

| Q421.50

The Executive Vice President, Nuclear Engineering and Operations shall, on a regular basis, not to exceed 24 months, perform or authorize independent Management Audits of quality assurance activities as necessary to assess the scope, status, implementation and effectiveness of the QA Program to assure that the program is adequate and complies with 10CFR50, Appendix B criteria. These audits will be conducted in accordance with predetermined schedules, with audit results documented in Audit Reports, and a follow-up system utilized to assure that corrective action is taken and reaudited when it is considered necessary to verify implementation. | 62 | 9

The ~~operations~~ quality assurance requirements and controls **applicable to the operations phase, as established by the CPSES Operations Administrative Control and Quality Assurance Plan,** comply with the requirements of 10 CFR Part 50, Appendix B. Table 17.2-1 provides a matrix showing those sections of the **QA Manual** ~~plan~~ which satisfy the requirements of each criterion of 10 CFR Part 50, Appendix B. The ~~operations~~ quality assurance requirements and controls shall be consistent with the applicable guidance of those Regulatory Guides and industry standards listed in Table 17.2-2 and discussed in Appendix 1A(B).

Q421.51 |

62 | The Director, Manager, Operations QA is responsible for controlling | the distribution of the Operation Administrative Control and Quality | Assurance Manual Plan and revisions thereto.

The CPSES operations quality assurance requirements and controls are designed to assure that activities affecting the quality and operation of safety-related items are accomplished in a planned and controlled manner. To achieve this objective, the CPSES Operations Administrative Control and Quality Assurance Plan requires that Activities affecting quality are be accomplished in accordance with written, approved procedures and instructions under suitably controlled conditions. Controlled conditions include, as applicable, appropriate equipment, suitable environmental conditions, and completion of prerequisites. The CPSES Operations Administrative Control and Quality Assurance Plan and All procedures prescribing activities affecting quality are controlled and distributed in accordance with the measures described in Section 17.2.6.

55 | The Director, Quality Assurance, is responsible for assuring, through | audits and surveillance, implementation of the Operations | Administrative Control and Quality Assurance Program Plan. He is | responsible for regularly assessing the status and adequacy of the | Program plan, within NEO, and as implemented by consultants,
62 | contractors, and suppliers. The Director, Quality Assurance, reports | the results of these evaluations to the Vice-President, Nuclear | Engineering. Unresolved issues between the Director, Quality | Assurance and others concerning quality are brought to the Executive | Vice-President, Nuclear Engineering and Operations for resolution.

Q421.54 |

62 | The Director Manager, Operations QA has overall responsibility for the | identification, scheduling, assignment, conduct and reporting of | station review activities assigned to the QA Department. Station
11 | activities affecting quality are subject to quality surveillance by | quality assurance site personnel.

In addition, the Manager, Operations QA has responsibility for administration and implementation of the CPSES quality control program. | 62

| Q421.54

The Manager, Operations QA reviews for quality assurance requirements all procedures involving operation, maintenance, modification, inspection and testing during the operations phase as a normal function of the Station Operations Review Committee. Implementation of all procedures is periodically reviewed by the QA organization through audits and surveillance activities. | 62

~~The CPSES Operations Administrative Control and Quality Assurance Plan requires that~~ An indoctrination and training program ~~is~~ be established for those personnel performing activities affecting quality. The scope, objectives, and methods for implementing the indoctrination and training program are prescribed by written, approved procedures. These procedures also prescribe methods for documenting the accomplishment of training. The indoctrination and training program includes provisions that personnel performing activities affecting quality are: | 62

1. Instructed as to the purpose, scope, and implementation of the ~~CPSES Operations Administrative Control and~~ Quality Assurance Program ~~Plan~~ and related procedures and instructions as appropriate to their activities.

2. Qualified in the principles and techniques of activities for which they are responsible.

3. Retrained, re-examined or recertified, when appropriate, to maintain necessary proficiency in those activities for which they are responsible.

Schedules have been developed to assure that implementing procedures are prepared prior to commencement of the activities which they are
37 | intended to control. Methods by which preoperational startup testing
| is accomplished and controlled are contained in the CPSES Startup
40 | Quality Assurance Plan. The method by which initial startup testing
| is accomplished and controlled are contained in the CPSES Operations
62 | Administrative Control and Quality Assurance Plan. The conduct of
| the test program and the administrative controls to be implemented are
| described in Section 14.2.

Q421.55 | 17.2.3 DESIGN CONTROL
Q421.57 |

The CPSES Operations Administrative Control and Quality Assurance Plan establishes Requirements for the control of design activities associated with modifications of safety-related structures, systems, and components. These requirements are consistent with the provisions of Regulatory Guide 1.28, and Regulatory Guide 1.64 as discussed in Apperdix 1A(B).

Q421.55
44 CPSES Manager, Plant Operations shall have the responsibility for approving approval for and controlling of the implementation of
62 | station design modifications. The Vice President, Engineering and
| Construction has the overall responsibility for developing procedures
| to maintain and control the design control process.

Q421.57 |
44 | Final design approval of all station modifications is the
| responsibility of the SORC. The SORC will submit all proposed
| station design modifications which involve a change in CPSES Technical
| Specifications or an unreviewed safety question to the ORC for review
| and approval before proceeding with implementation. Safety
| evaluations on station design modifications which do not involve
| unreviewed safety questions or a change in CPSES Technical
| Specifications will be reviewed by ORC, however, this will not be a
| prerequisite for implementation. Upon recommendation from SORC, the
| CPSES Manager, Plant Operations approves each station design
| modification for implementation.

| Q421.55

All design modification requests made by station personnel, shall be submitted to the Manager, Technical Support for coordination of the station level engineering review. The actual change ~~modification~~ of design for those design modification ~~change~~ requests approved by the CPSES Manager, Plant Operations shall ~~may~~ be done by ~~NEO technical support staff~~ NEO engineering personnel or approved engineering services contractors in areas other than reactor engineering for which the Reactor Engineering Department will be responsible~~, consultants of the original designer~~. The above organizations will have approved design procedures and/or instructions before any design modifications are performed by the respective organization. These procedures and/or instructions will assure proper design review and verification. These procedures and instructions will also assure that design control is commensurate with the original design. The Vice President, Engineering and Construction will assure that the designer is provided with the latest revisions to all drawings, specifications, and other design documents which are applicable.

| 62 | 53 | 62

Design changes, including those originating on site, are subject to the same controls which were applicable to the original design. NEO may designate an organization to make design changes other than the one which prepared the original design. In these cases, NEO will assure that that organization has access to pertinent background information, including an adequate understanding of the requirements and intent of the original design, and has demonstrated competence in applicable design areas.

| Q421.56

The Vice President, Engineering and Construction shall coordinate necessary revisions to drawings and other design documents. The Manager, Plant Operations shall coordinate necessary revisions to plant procedures and instructions as a result of design changes. Changes are promptly distributed to ensure availability to responsible plant personnel prior to commencement of work.

| 62 | 44

Design ~~The plan requires that design~~ changes made to the facility are accomplished in a planned and controlled manner in accordance with written, approved procedures. These procedures include provisions, as necessary, to ensure that:

1. Design documents, specifications, drawings, and procedures and instructions reflect applicable regulatory requirements and design bases.

2. Design documents specify quality requirements or reference quality standards as necessary.

62 | 3. There is adequate review of the suitability of materials, parts, components, and processes which are essential to the safety-related functions of structures, systems, and components.

62 | 4. Materials, parts, and components which are standard commercial (off the shelf) or which have been previously approved for a different application are evaluated for suitability prior to selection.

4 | 5. Design documents are revised to reflect design modifications.

6. Internal and external design interfaces between organizations participating in design modifications are adequately controlled, including the review, approval, release, and distribution of design documents and revisions.

62 | The above controls are applied as necessary to such aspects of design as reactor physics; seismic, stress, thermal, hydraulic, radiation, and accident analyses; compatibility of materials; and accessability for inservice inspection, maintenance, repair and replacement.

The plan requires that the adequacy of design changes be verified by the performance of design reviews, alternate calculations, or qualification testing. The control measures specified in the plan for control of design verification activities are as follows:

1. Personnel responsible for design verification do not include the original designer or the designer's immediate supervisor.

2. Written procedures identify the positions or organizations responsible for design verification and define their authority and responsibility.

3. Qualification tests to verify the adequacy of the design are performed using the most adverse specified design conditions.

Design changes are reviewed to assure that design parameters are defined and that inspection and test criteria are identified.

Any errors or deficiencies found in the design process or the design itself are documented and corrective action taken, as described in Section 17.2.16.

Design documents and revisions thereto are controlled and distributed as described in Section 17.2.6. Records of design activities and design changes are collected, stored, and maintained, as described in Section 17.2.17.

17.2.4 PROCUREMENT DOCUMENT CONTROL

The CPSES Operations Administrative Control and Quality Assurance Plan establishes Requirements are established for the control of procurement documents prepared by NEO, or their designated agents for safety-related components, materials, and services. These requirements are consistent with the provisions of Regulatory Guide 1.33 1.28 and Regulatory Guide 1.123 as discussed in Appendix 1A(B) and apply to procurement documents prepared by NEO, or their designated agents. | 53

The plan requires that Procurement documents, such as purchase specifications, contain or reference the following:

1. The design basis technical requirements, including the applicable regulatory requirements, material and component identification requirements, drawings, specifications, codes and industrial standards, and test and inspection requirements

2. The applicable requirements of 10 CFR Part 50, Appendix B and of the QA Program plan, which must be complied with and described in the supplier's QA program.

53 | 3. Identification of the documentation to be prepared, maintained, | or submitted (as applicable) to NEO for review and approval. These documents may include, as necessary, inspection and test records, qualification records, or code required documentation.

4. Identification of those records to be retained, controlled, and maintained by the supplier, and those delivered to the purchaser prior to use or installation of the hardware.

9 | 5. NEO's right of access to supplier's facilities and records for | source inspection and audit.

6. Requirements for supplier reporting and dispositioning of nonconformances from procurement requirements.

7. Provisions for extending applicable requirements of the procurement documents to lower-tier suppliers.

Q421.58 |

NEO procurement documents are prepared, reviewed, approved, and controlled in accordance with written procedures which clearly delineate the sequence of actions to be accomplished and which identify the individuals or groups responsible for accomplishing those

actions. These procedures include provisions for review of procurement documents. This review is performed to insure that necessary quality requirements are incorporated and correct, and that procurement requirements for spare or replacement parts are equivalent to or better than those used for the original equipment. Documentary evidence of that review and approval is retained and available for verification. | 9

NEO evaluates supplier quality assurance programs prior to award of contracts or issuance of purchase orders, as discussed in Section 17.2.7.

17.2.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

| Q421.53

~~The CPSES Operations Administrative Control and Quality Assurance Plan~~ | 18 ~~requires that~~ Activities affecting the quality of safety-related structures, systems, and components ~~are to~~ be prescribed by and accomplished in accordance with documented instructions, procedures, and drawings. The manager or supervisor who has cognizance over a specific safety-related activity is responsible for the development and approval of procedures and instructions for prescribing the accomplishment of that activity. Administrative procedures and instructions are reviewed and approved prior to performance of the activity. The cognizant supervisor is responsible for ensuring that the activity is performed in accordance with the procedures and instructions. The development, review, and use of procedures, instructions, and drawings is reviewed on a periodic basis by the Manager, Quality Assurance as part of the station quality surveillance program. These requirements are consistent with the provisions of Regulatory Guides ~~1.28~~ 1.33, 1.30, and 1.116 as discussed in Appendix 1A(B). | 62 | 55 | 53 | 65 | 15

| Q421.59

~~The plan also delineates certain~~ Requirements regarding the content of various types of instructions and procedures **are established which** / ~~These requirements~~ provide for the inclusion, as necessary, of items such as prerequisites, precautions, qualitative or quantitative acceptance criteria, inspection points, and checklists, depending upon the nature of the instruction or procedure.

Administrative procedures clearly delineate the sequence of actions to be accomplished in the preparation, review, approval, and control of those instructions and procedures, and they identify the individuals responsible for those actions.

62 | Confirmation that these instructions and procedures meet requirements | of the **QA Program** ~~plan~~ and are properly implemented is accomplished | through audit or surveillance activities by the QA Department.

17.2.6 DOCUMENT CONTROL

~~The CPSES Operations Administrative Control and Quality Assurance Plan establishes~~ Requirements **are established** for the control of documents that prescribe activities affecting quality. The documents which are to be controlled include:

1. Design Specifications

2. Design, manufacturing, construction, and installation drawings

3. Procurement documents

53 | 4. The **QA Manual** ~~plan~~ and all station procedures and instructions | which implement requirements of the **QA Program.** ~~plan~~

53 | 5. Maintenance, modification, and operating procedures and | instructions

6. Final Safety Analysis Report | 53

7. Inspection and test procedures and instructions | 53

These requirements are consistent with the provisions of Regulatory Guides 1.28 and 1.33 as discussed in Appendix 1A(B) and include the following measures:

| Q421.69

1. Documents, and changes thereto, are reviewed for adequacy and approved for release by authorized personnel in accordance with written procedures. These procedures identify those individuals or groups responsible for reviewing, approving, and issuing documents and revisions thereto. These individuals or groups include as appropriate the Manager, Operations QA, the NEO QA department or an individual other than the person who generated the documents but qualified in quality assurance. | 62

2. Documents, and changes thereto, are promptly distributed to ensure availability prior to commencement of work.

3. Changes to documents are reviewed and approved by the same organization that performed the original review and approval unless another qualified organization is designated.

4. Master status lists identifying the current revision of documents are periodically updated and utilized to preclude the use of superseded documents.

5. Obsolete or superseded documents are destroyed or identified as "SUPERSEDED" to prevent their inadvertent use.

Documents generated by NEO are controlled in accordance with written, approved procedures and instructions. Maintenance, modification and inspection procedures and instructions affecting safety related | 53

53 | equipment are reviewed by a person knowledgeable in QA disciplines to
| determine:

Q421.6 |

9 | A. The need for inspection, identification of inspection
| personnel, and documentation of inspection results.

Q421.6 |

9 | B. That the necessary inspection requirements, methods, and
| acceptance criteria have been identified.

62 | The Manager, Operations QA is responsible for providing the necessary
| reviews of these procedures and instructions.

17.2.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

~~The CPSES Operations Administrative Control and Quality Assurance Plan establishes~~ Requirements are established for the control of purchased safety-related material, equipment and services, including spare or

54 | replacement parts. These requirements are consistent with the
| provisions of Regulatory Guides ~~1.28,~~ 1.33, and 1.123 as discussed in
| Appendix 1A(B).

59 | Measures have been established in procedures which determine the level
| of quality assurance required for the procurement of an item or
| service. As required, contractor and suppliers are evaluated by
| quality assurance personnel prior to award of a purchase order or
| contract to assure the contractor's or supplier's capability to comply
| with procurement document requirements. This evaluation is based on
one or more of the following:

1. A review of the supplier's quality assurance program description provided with the proposal/bid.

2. A review of historical evidence of the supplier's performance in providing similar items or services.

3. A preaward survey of the supplier's facilities and QA program.

| Q421.62

Technical requirements for items and materials to be procured are developed by the design or engineering organization responsible for the modification or maintenance activity. Procurement documents for safety related items and materials are reviewed for inclusion of technical and quality assurance requirements by the Quality Assurance Department prior to initiation of the procurement action by the purchasing organization. The results of the quality assurance review are documented and retained for future reference. | 9 | 62 | 9

The plan requires Surveillance and audit of suppliers and contractors, are conducted where appropriate, to assure compliance with quality requirements. The Quality Assurance Department is responsible for surveillance and audit of offsite suppliers and contractors. The CPSES Quality Assurance Section is responsible for surveillance of contractors providing services onsite. Surveillance of suppliers and contractors is performed by qualified personnel in accordance with written procedures, instructions and checklists. | 62 | 53

Surveillance and audit of suppliers are performed to an extent consistent with the importance, complexity, and quantity of the item(s) being purchased and include measures to periodically confirm the validity of suppliers' certificates of conformance. Quality verification records are reviewed by quality assurance personnel to assure their completeness and their compliance with procurement document requirements.

Receipt inspections at CPSES are performed by qualified quality control inspectors in accordance with written procedures and instructions to assure that: | 53

1. Materials, equipment, or components are properly identified and correspond with associated documentation.

2. Inspection records or certificates of conformance attesting to the acceptance of materials, equipment, and components are completed and are available at CPSES prior to installation or use.

3. Materials, equipment, and components are inspected and judged acceptable in accordance with predetermined inspection instructions prior to installation or use.

4. Items accepted or released are identified as to their inspection status prior to forwarding them to a controlled storage area or releasing them for installation or further work.

5. Nonconforming items are clearly identified, controlled, and segregated where practical, until proper disposition is made.

17.2.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

The CPSES Operations Administrative Control and Quality Assurance Plan establishes Requirements are established for the identification and control of safety-related materials, parts, and components, including spare or replacement items. These requirements are consistent with the provisions of Regulatory Guides 1.28, 1.33, and 1.38 as discussed in Appendix 1A(B).

The plan requires that Materials, parts, and components are be identified and controlled to prevent the use of incorrect or defective items. The plan also requires that Identification of items is be maintained either on the item in a manner that does not affect the function or quality of the item, or on records traceable to the item.

Suppliers of safety-related materials, parts, or components are required by procurement documents to establish a system of identification and control which is consistent with the above requirements.

Procedures and instructions implementing these requirement provide for the following: | 53

1. Verification that items received onsite are properly identified and can be traced to the appropriate documentation, such as drawings, specifications, purchase orders, manufacturing and inspection documents, nonconformance reports, or mill test reports.

2. Verification of item identification consistent with the inventory control system and traceable to documentation which identifies the proper uses or applications of the item.

17.2.9 CONTROL OF SPECIAL PROCESSES

| Q421.63

~~The CPSES Operations Administrative Control and Quality Assurance Plan~~ | 9
~~establishes~~ Requirements are established for the control of special processes, which are those processes where direct inspection is impossible or disadvantageous such as welding, heat treating, nondestructive testing, and cleaning, which are consistent with the provisions of Regulatory Guides ~~1.28~~ 1.30, 1.33, 1.37, and 1.58 as discussed in Appendix 1A(B).

~~The plan requires that~~ Special processes are be performed by qualified personnel using proper equipment and in accordance with written qualified procedures and instructions. These personnel, procedures and instructions are to be qualified in accordance with applicable codes, standards, and specifications. Qualification records of special process procedures and instructions, and personnel performing special processes are filed, maintained, and available for verification. | 53

| Q421.64

Qualification of special processes, equipment, and personnel is the responsibility of the cognizant Managers or | 62

62 | Section Supervisors. Qualified test laboratories and consultants may
9 | be used in qualification of special processes. Procedures shall be
| developed which delineate the requirements for special process.
62 | These procedures shall be reviewed by the Manager, Operations QA as
| part of the normal function of the SORC.

17.2.10 INSPECTION

~~The CPSES Operations Administrative Control and Quality Assurance Plan establishes~~ Requirements are established for an inspection program to verify conformance of activities affecting quality with requirements specified for those activities. These requirements are consistent with the provisions of Regulatory Guides ~~1.28~~ 1.30, 1.33, 1.58, and 1.116 ~~1.11~~ as discussed in Appendix 1A(B).

Q421.48 |
62 | The Manager, Operations QA is responsible for administering and
| implementing the CPSES quality control inspection program.
18 | Inspections are performed by quality control inspectors who are
| qualified and certified in accordance with ANSI N45.2.6-1978 and who
| are independent of the individuals performing the activity being
62 | inspected. The quality control inspectors may be selected from among
| any of the NEO departments, including contract personnel, and will
| report directly to the Manager, Operations QA when acting in the
| capacity of quality control inspectors. All quality control
13 | inspection personnel have authority to stop unsatisfactory work and
| control further processing, delivery, or installation of nonconforming
| material, parts or components. ~~This stop work authority shall be~~
~~specified in the CPSES Operations Administrative Control and Quality~~
~~Assurance Plan.~~ The quality control inspector's qualifications and
| certifications are maintained current through the NEO training
| program.

Q421.83 |
14 | Inspections at CPSES are performed in accordance with written
| procedures, instructions, or checklists, appropriate to the

circumstances which provide for the following: | 14

1. Identification of characteristics and activities to be inspected.

2. Acceptance and rejection criteria.

3. Method of inspection.

4 Recording the results of the inspection and identification of the quality control inspector.

5. Indirect control by monitoring of processing methods, equipment, and personnel when direct inspection is not possible.

| Q421.66

6. Identification of any required procedures, drawings, or specifications. | 11

| Q421.67

Station administrative procedures controlling the Measuring and Test Equipment program contain criteria for determining the accuracy of M&TE to be used in performing inspections depending upon the accuracy requirements of the parameters being measured. | 11

| Q421.35

Maintenance, repair, and modification procedures and instructions containing inspection criteria shall be reviewed by a level III inspector qualified in accordance with ANSI N45.2.6-1978 to ensure that adequate inspection hold points are included and that the inspection methods are adequate. Criteria contained in appropriate station administrative procedures and in applicable codes and standards shall be used in determining when inspections and tests are required. | 53 | 11

In addition, all safety related plant procedures and instructions are reviewed by the Operations QA section to assure that required quality requirements have been included. | 55

Q421.58 |

9 | Inspection results are documented in accordance with procedures and instructions developed and approved for that activity. Inspection results are evaluated and then acceptability determined by individuals qualified to perform that function in accordance with the station training program. Records of the evaluations are documented and retained in the station quality records.

4 | Contractors performing work at CPSES and equipment and material suppliers are required to work under inspection programs consistent with applicable codes and standards. These contractors and suppliers are required to provide work plans or inspection and fabrication procedures or outlines, which are reviewed for adequacy by NEO personnel.

17.2.11 TEST CONTROL

~~The CPSES Operations Administrative Control and Quality Assurance Plan establishes~~ Requirements **are established** for the control of testing of

37 | safety-related systems, equipment, and structures. These requirements are consistent with the provisions of Regulatory Guides ~~1.28~~ 1.30, 1.33, 1.58, 1.68, 1.68.2 and 1.116 as discussed in Appendix 1A(B).

17.2.11.1 Test Program

40 | Preoperational **and initial startup** testing is performed in accordance with ~~the CPSES Startup Quality Assurance Plan and~~ Section 14.2 of the FSAR. ~~Initial startup testing is performed in accordance with the~~

37 | ~~CPSES Operations Administrative Control and Quality Assurance Plan.~~

Surveillance testing is performed during the operational phase to verify continuing operational readiness and adequacy for those systems and components which are normally in a standby condition and to evaluate whether there has been any degradation of performance, or any departure from the prescribed operating conditions for the systems or components normally in service.

Tests are performed following station modifications or repairs to demonstrate satisfactory performance prior to placing affected items in service. When pressure boundaries are breached functional tests shall be conducted to the extent required to demonstrate acceptability of the repair or maintenance.

17.2.11.2 Test Procedures

Testing is identified, documented, and controlled in accordance with written administrative procedures. Each test is accomplished in accordance with written test procedures by qualified personnel.

The administrative procedures controlling the test program identify the necessary test procedures, the provisions to be included in those procedures, the method of reviewing and approving those procedures, and the methods for documenting and evaluating the results.

Test procedures include the following provisions as appropriate:

1. Prerequisites - those items of work which must be completed prior to establishing initial conditions for the test, including:
   a. Calibrated instrumentation;
   b. Adequate and appropriate equipment;
   c. Initial conditions and completeness of the item to be tested;
   d. Suitable environmental conditions, if applicable; and
   e. Data Sheets.

2. Special precautions - items needed for safety of personnel or equipment. Special situations where caution or extraordinary attentiveness to operational circumstances is required.

3. Instructions for performing the test - steps required to conduct the test, observations to be made, data to be recorded.

4. Acceptance criteria - criteria against which the success or failure of the test can be determined.

17.2.11.3 Test Results

Records of test results are reviewed by qualified personnel to assure acceptability. These records are retained as quality verification records in accordance with the controls described in Section 17.2.17.

17.2.12 CONTROL OF MEASURING AND TEST EQUIPMENT

~~The CPSES Operations Administrative Control and Quality Assurance Plan establishes~~ Requirements are established for control of measuring and
53 | test equipment. Applicable ~~The plan and applicable~~ procedures and
| instructions prescribe calibration techniques and frequency,
| maintenance requirements, and control measures for measuring and test
| equipment used in the measurement, inspection, and testing of safety-
| related components, systems and structures. These measures are consistent with the provisions of Regulatory Guides ~~1.28~~ and 1.33 as discussed in Appendix 1A(B). Controls for measuring and test equipment include the transportation, storage, and protection of the equipment; the handling of associated documents which gives the status of all items under the calibration systems; and the permanent and unique identification of each device.

Measuring and test equipment is calibrated at specified intervals based upon the required accuracy, purpose, degree of usage, stability
69 | characteristics, and other pertinent considerations. Calibrations are
| normally performed against standards which are traceable to nationally
| recognized standards and which have a tolerance (error) of not more
| than one-fourth of the required tolerance of the equipment being
| calibrated. When traceability to nationally recognized standards
| does not exist, or when the 4:1 accuracy requirement is not reasonably
| achievable, the basis for the calibration is documented. This
| documentation shows that the calibration inaccuracies are enveloped by
| the calibration inaccuracy assumed in the applicable engineering
| documents (e.g. setpoint calculations, specifications, etc.), or
| these documents are revised using the new calibration inaccuracies.

Whether the device is calibrated at the power station or at an outside laboratory, a sticker is affixed on a conspicuous surface where practical, identifying the date the next calibration is due and the serial number of the instrument.

When test and measuring devices utilized in activities affecting quality are found to be out of calibration, an evaluation is made and documented concerning the validity of previous tests and the acceptability of items previously tested since the last valid calibration.

| Q421.69

The Operations Administrative Control/QA Plan establishes the Manager, | 62
Technical Support, Maintenance Manager and Instrumentation and Control |
Manager are as responsible for developing and implementing procedures |
and instructions to establish a control and calibration program. |

Effectiveness of the program is assured through periodic reviews and | 65
quality surveillances performed under the direction of the Manager, |
Quality Assurance. |

17.2.13 HANDLING, STORAGE, AND SHIPPING

The CPSES Operations Administrative Control and Quality Assurance Plan establishes Requirements are established for the control, handling, storage, shipping, cleaning, and preservation of material and equipment in accordance with established instructions, procedures, or drawings. These requirements are consistent with the provisions of Regulatory Guides 1.28, 1.33, and 1.38 as discussed in Appendix 1A(B) and . Measures prescribed by the plan and associated procedures include the following provisions, as necessary:

| Q421.70

1. For critical, sensitive, perishable, or high value items, | 53
specific written procedures and instructions for handling, |
storing, packing, shipping, and preserving are used. These |
procedures and instructions reflect design and specification | 9

9 | requirements such as inert gas atmosphere, specific moisture content levels, and temperature levels, and reflect manufacturers recommendations in regards to special handling and storage requirements such as shelf life and environmental controls.

2. Personnel responsible for handling these special items are qualified to the extent required by these special handling instructions.

3. Special handling tools and equipment are inspected and tested in accordance with written procedures to verify that they are adequately maintained.

17.2.14 INSPECTION, TEST, AND OPERATION STATUS

~~The CPSES Operations Administrative Control and Quality Assurance Plan establishes~~ Requirements **are established** for identification and control of the inspection, test, and operating status of safety-related structures, systems, and components. These requirements are consistent with the provisions of Regulatory Guide~~s~~ ~~1.28~~ and 1.33 as discussed in Appendix 1A(B).

53 | Written procedures and instructions prescribe the use of tags, labels, and logs to indicate the inspection, test, and operating status of systems and equipment at CPSES. These procedures and instructions also provide for tagging of nonconforming, inoperative, or malfunctioning equipment to prevent inadvertent use. In addition, these procedures and instructions identify those individuals who are authorized to apply or remove those tags and labels and provide for the use of logs to maintain the status of tags and labels in use at CPSES.

CPSES personnel and contractor personnel working onsite are instructed regarding the purpose of, and precautions associated with, the various tags and labels used at CPSES. Proper use of tags and labels to indicate inspection, test, and operating status is verified through surveillance by onsite Operations Quality Assurance personnel. | 9

17.2.15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

The CPSES Operation Administrative Control and Quality Assurance Plan establishes Requirements are established for the control of nonconforming materials, parts or components. These requirements are consistent with the provisions of Regulatory Guides 1.28, 1.33, 1.38, and 1.123 as discussed in Appendix 1A(B).

The plan requires that Material, parts, or components found nonconforming through review, inspection, or testing are be controlled by administrative procedures. These procedures provide for the following:

1. Identification of nonconforming items by use of nonconformance tags, and segregation of those items, if practical, to prevent inadvertent use pending proper disposition and reinspection.

2. Identification of those individuals or organizations responsible for disposition of nonconforming items.

3. Preparation of nonconformance reports which identify nonconforming items and describe the nonconformance, the disposition of the nonconformance, and the reinspection or testing performed to determine the acceptability of the item after the disposition has been completed.

4. Verification of the acceptability of rework/repair of items by reinspection or testing of the item as originally performed or

by a method which is equivalent to the original inspection and testing method.

5. Nonconformance reports which are dispositioned "use as is" or "repair" are made part of the quality verification records associated with the items.

6. Periodic analysis of these reports to be performed and forwarded to management to show quality trends.

Q421.71 |
65 | Responsibility for the definition and implementation of activities related to nonconformance control is assigned to the cognizant superintendent of the area of concern. Nonconformances which are
11 | resolved by repair or use-as-is dispositions are reviewed and approved by the CPSES Engineering Department.

Q421.71 |
65 | Independent review of nonconformances, including disposition and closeout, is performed by appropriate Quality Assurance personnel.

Q421.73 |
69 | Marking and segregation of nonconforming items, when required, are addressed in station procedures. In addition, station procedures require that nonconforming items not be re-installed or placed in service except by conditional release until the nonconformance is finally resolved or corrected. Conditional releases are temporary
62 | measures which allow limited use, operation or installation of nonconforming items pending a final disposition. The Engineering Department evaluates each conditional release for the safety impact of the nonconformance on the operation of the plant and approves the use of the conditional release. Each conditional release also describes any limitations or special precautions required. The administrative
53 | controls assure that nonconforming materials are not relied upon for safety related service. Compliance with these administrative requirements is verified through the station surveillance and audit program.

17.2.16 CORRECTIVE ACTION

The CPSES Operations Administrative Control and Quality Assurance Plan establishes Requirements are established for the identification and correction of conditions adverse to quality. These requirements are consistent with the provisions of Regulatory Guides 1.28 and 1.33 as discussed in Appendix 1A(B). | 37

The plan requires that Conditions adverse to quality, such as failures, malfunctions, deficiencies and deviations, identified through review of documents, surveillance, audits, or experience during operation, are documented and dispositioned. Significant conditions adverse to quality are evaluated to determine the cause of the condition and the corrective action to be taken to preclude recurrence.

Reports of significant conditions adverse to quality are reviewed by the Operation Review Committee and that committee's decisions and/or recommendations regarding corrective action are forwarded to appropriate management personnel. Follow-up reviews of nonconformance reports to verify proper implementation of corrective action are conducted by quality assurance personnel.

17.2.17 QUALITY ASSURANCE RECORDS

The CPSES Operations Administrative Control & Quality Assurance Plan and the CPSES Startup Quality Assurance Plan establish Requirements are established for the identification, collection, and storage of quality assurance records. These requirements are consistent with the provisions of Regulatory Guides 1.33 and 1.88 as discussed in Appendix 1A(B). | 37

The plans require that Sufficient records are be maintained to provide documentary evidence of the quality of items and of the accomplishment of activities affecting quality. Records to be maintained include | 37

such items as drawings, specifications, procurement documents, nonconformance reports, corrective action reports, operating logs, personnel and procedure qualifications, results of inspections and test, material certifications and test results, and audit reports.

53 | Quality assurance records are maintained in accordance with procedures | and instructions which assign responsibilities for the collection, | maintenance, and protection of records. These procedures and | instructions provide a system of record identification to assure | retrievability and prescribe retention periods for various types of | records.

62 | The Vice President, ~~Manager,~~ Administration ~~Administrative Support~~ is | responsible for development of procedures and instructions to | implement the management requirements related to QA records.

Quality assurance records are stored in a specially constructed storage facility at CPSES to prevent their destruction, deterioration, or theft. The CPSES record storage facility construction is consistent with the applicable requirements of the regulatory guides referenced above. Access to the records facility is controlled so that only authorized personnel have access to the records area.

17.2.18 AUDITS

33 | ~~The CPSES Operations Administrative Control and Quality Assurance Plan | establishes~~ Requirements are established for an audit program. The | audit program is consistent with the applicable portions of Regulatory | Guides ~~1.28 and~~ 1.33 (as discussed in Appendix 1A(B)), and ANSI | N45.2.12 (draft 4, Revision 2 - January, 1976).

55 | ~~The plan requires that~~ Planned and periodic audits are ~~be~~ performed in | accordance with written procedures to verify compliance with all | aspects of the quality assurance program. Responsibility for the

audit program has been assigned to the Director, Quality Assurance. | 55
Audits are conducted by personnel of the Quality Assurance Department | 62
and include examination of quality-related activities such as: |

1. Operation, maintenance, and modification of CPSES.

2. Receiving and work inspection.

3. Preparation, review, approval and control of instructions, procedures, drawings, specifications, and other quality-related documents.

4. Indoctrination and training.

5. Control of measuring and test equipment.

Organizations performing activities affecting quality that are subject to audit include the following:

1. The engineering and construction, startup, operations, maintenance, engineering, quality assurance, and support organizations for CPSES. | 55 |

2. Contractors, consultants, and suppliers of quality related items or service.

| Q421.75
As part of the Quality Assurance program NEO QA: | 33

1. Utilizes an audit planning document which defines the organizations and activities to be audited and the frequency of the audits. | 9 |

9 | 2. Requires auditors to be familiar with the type of activities to be audited and have no direct responsibilities in the area being audited.

9 | 3. Provide auditing checklists or other objective guidelines to identify those activities which affect quality.

9 | 4. Requires examination of the essential characteristics of the quality activity examined.

9 | 5. Requires an audit report be prepared and that it notes the extent of examination and deficiencies found.

9 | 6. Requires the audit report be sent to management responsible for the area audited for review and corrective action for deficiencies.

9 | 7. Requires corrective action taken as result of the audit be reported.

9 | 8. Requires reauditing of deficient areas when it is considered necessary to verify implementation of required corrective actions.

37 | 9. Requires vendors/subcontractors to comply with items 1-8 above to the extent necessary.

53 | Documentation of audits performed by participating contractors is made available to NEO for evaluation.

Q421.75 |

9 | In summary, NEO verifies conformance of the regulatory audit requirements by three methods:

9 | 1. Review of contractors'/vendors' quality assurance methods for auditing.

2. Review of documentation of the audit report performed by these contractors/vendors. | 9 |

3. Internal and external audits performed by members of the Quality Assurance staff. | 9 |

TABLE 17.2-1

(Sheet 1 of 2)

CPSES QA MANUAL COMPLIANCE MATRIX

COMANCHE PEAK QUALITY ASSURANCE MANUAL	APPENDIX B QUALITY ASSURANCE CRITERIA																	
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII
1.0 Organization	X																	
2.0 Quality Assurance Plan		X																
3.0 Design Control			X															
4.0 Procurement Document Control				X														
5.0 Instructions, Procedures and Drawings					X													
6.0 Document Control						X												
7.0 Control of Purchased Items and Services							X											
8.0 Identification and Control Items								X										
9.0 Control of Construction Processes									X									
10.0 Examinations, Tests and Inspections										X								
11.0 Test Control											X							
12.0 Control of Measuring and Test Equipment												X						
13.0 Handling, Storage, and Preservation													X					
14.0 Examination or Test Status														X				

COMANCHE PEAK
QUALITY ASSURANCE
MANUAL

APPENDIX B
QUALITY ASSURANCE CRITERIA

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII
15.0 Nonconforming Items															X			
16.0 Corrective Action																X		
17.0 Quality Assurance Records																	X	
18.0 Audits																		X

COMPLIANCE MATRIX

10CFR50 Appendix B Criterion		CPSES Administrative Control and Quality Assurance Plan	
Criterion	Title	Section	Title
I	Organization	2.0	Organization
II	QA Program	4	All Sections
III	Design	4.0	Station Engineering
		8.0	Station Design

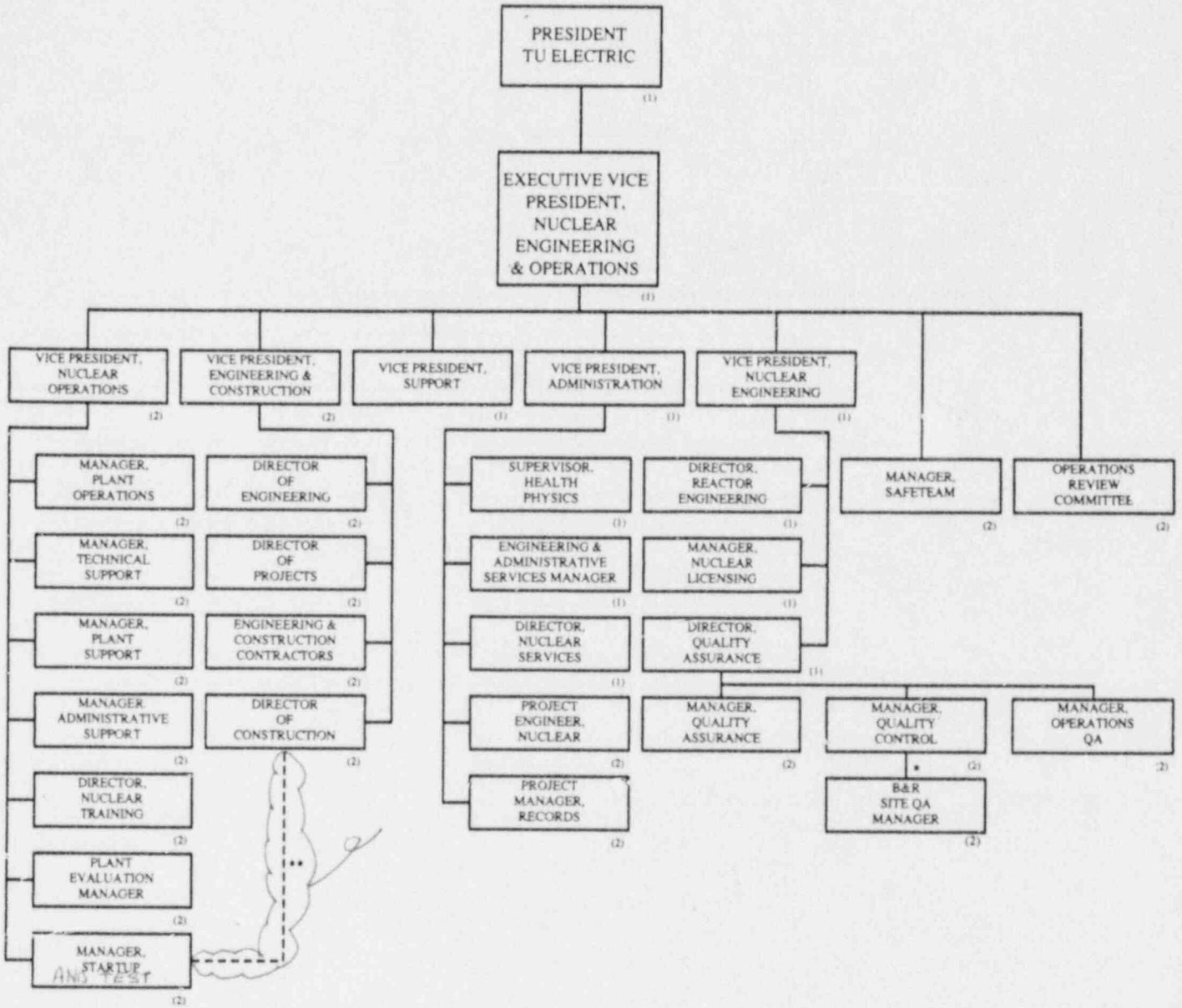
IV	Procurement Document Control	IIII	Procurement
V	Instructions, Procedures, and Drawings	13.0	Station Procedures, Instructions and Manuals
VI	Document Control	3.0	Station Administration
VII	Control of Purchased Material, Equipment and Services	10.0 11.0	Procurement Material Control
VIII	Identification and Controls of Material, Parts and Components	5.0 11.0	Station Operations Material Control
IX	Control of Special Processes	7.0	Station Maintenance
X	Inspection	6.0	Station Inspection and Testing
		11.0	Material Control

XI	Test Control	6/0	Station Inspection and Testing
XII	Control of Measuring and Test Equipment	6/0	Station Inspection and Testing
XIII	Handling, Storage and Shipping	9/0 11/0	Fuel Handling Material Control
XIV	Inspection, Test and Operating Status	5/0 6/0	Station Operations Station Inspection and Testing
XV	Nonconforming Materials, Parts or Components	3/0 11/0	Station Administration Material Control
XVI	Corrective Action	3/0	Station Administration
XVII	QA Records	3/0	Station Administration
XVIII	Audits	12/0	Review and Audit

REGULATORY GUIDES AND INDUSTRY STANDARDS

The CPSES operations quality assurance program, as established by the CPSES Operations Administrative Control and Quality Assurance Plan, is consistent with the applicable guidance of the NRC Regulatory Guides and industry standards listed below. TU Electric will commit to comply with the respective regulatory positions as discussed in Appendix 1A(B).

Regulatory Guide	Title
1.8	Personnel Selection and Training
1.28	Quality Assurance Requirements (Design and Construction) (endorses ANSI N45.2-1971)
1.30	Quality Assurance Requirements for Installation, Inspection, and Testing of Instrumentation and Electric Equipment (endorses ANSI N45.2.4-1972)
1.33	Quality Assurance Program Requirements (Operations) (endorses ANSI N18.7-1976)
1.37	Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants (endorses ANSI N45.2.1-1973)
1.38	Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants (endorses ANSI N45.2.2-1972)



PRIMARY LOCATION
(1) Corporate Office
(2) CPSES

* For other than ASME Sec. III, Div. 1 activities only.

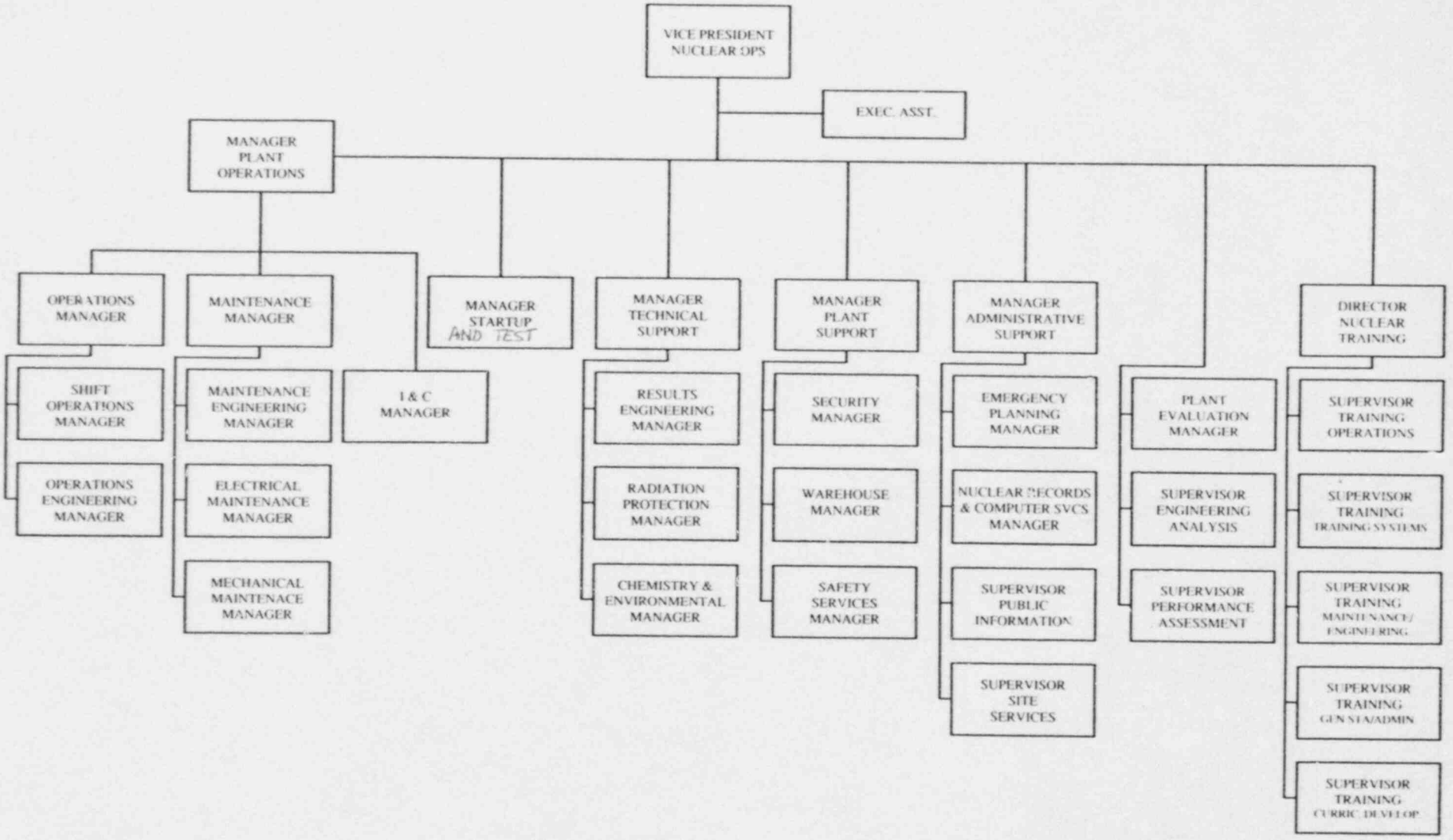
** Refer to Section 13.1.1.2.1

AMENDMENT 62
MARCH 31, 1987

COMANCHE PEAK S.E.S.
FINAL SAFETY ANALYSIS REPORT
UNITS 1 and 2

NUCLEAR ENGINEERING
AND OPERATIONS (NEO) GROUP

FIGURE 17.2-1



COMANCHE PEAK S.E.S.
FINAL SAFETY ANALYSIS REPORT
UNITS 1 and 2

NUCLEAR OPERATIONS ORGANIZATIONS

FIGURE 17.2-2

AMENDMENT 62
MARCH 31, 1987

Advanced draft

17.2 QUALITY ASSURANCE DURING THE OPERATIONS PHASE

17.2.1 ORGANIZATION

17.2.1.1 Organizational Structure

Texas Utilities Electric Company (TU Electric), as the licensee, has overall responsibility for the operation of the Comanche Peak Steam Electric Station (CPSES). Nuclear Engineering and Operations (NEO) has been designated by TU Electric to coordinate the design, construction and operation of CPSES. The organizational structure of TU Electric and NEO are described in Section 13.1. | 53

The following paragraphs amplify upon Section 13.1 with regard to establishment and execution of the quality assurance program for the operation of CPSES. Figure 17.2-1 shows the structure and relationships of those elements of NEO which function under the control of the QA program. Figure 17.2-2 shows the CPSES Nuclear Operations organizational structure. | 53 | 62

TU Electric may, from time to time, assign responsibility for executing certain portions of the program to qualified consultants and contractors. However, TU Electric, retains ultimate responsibility for the CPSES operations quality assurance program. | 53

17.2.1.1.1 Executive Vice-President, Nuclear Engineering and Operations | 56 | 56

The Executive Vice-President, Nuclear Engineering and Operations is responsible for the overall management of company operations, including operation of CPSES, and for the establishment of company policies. He has the overall responsibility for the establishment and execution of the quality assurance program for the operation of CPSES. | 56

ADVANCE | The Executive Vice-President, Nuclear Engineering and Operations has
| assigned to the Vice-President, Nuclear Operations the overall
| responsibility for operation of CPSES and for implementation of the
| quality assurance program for operations at CPSES.

15 | 17.2.1.1.2 Vice President, Nuclear Operations

62 | The Vice President, Nuclear Operations is responsible to the Executive
| Vice President, Nuclear Engineering and Operations for operating
| activities at CPSES.

ADVANCE |

53 | Specific duties and responsibilities of the Vice President, Nuclear
| Operations include the following:

62 | 1. Technical and administrative direction of the Manager, Plant
| Operations.

56 |

ADVANCE | 2. Technical and administrative direction of the Manager, Startup
| and Test.

62 | 3. Technical and administrative direction of the Manager, Technical
| Support.

62 | 4. Technical and administrative direction of the Manager, Plant
| Support.

5. Technical and administrative direction of the Manager, Administrative Support. | 62

6. Technical and administrative direction of the Plant Evaluation Manager. | 62

7. Technical and administrative direction of the Director, Nuclear Training. | 62

8. Operational and technical support of all Nuclear Plants operated by TU Electric. | 62

9. Technical and administrative direction for the implementation of quality assurance requirements and controls at nuclear plants operated by TU Electric. | 62

10. Overall responsibility for the Initial Startup Test Program at CPSES. | 62 ADVANCE

17.2.1.1.3 Manager, Plant Operations | 62

The Manager, Plant Operations is responsible to the Vice President, Nuclear Operations for Plant operations activities at CPSES. He is the individual who is directly responsible for the safe, reliable, and efficient operation of CPSES. | 62

Specific duties and responsibilities of the Manager, Plant Operations include the following: | 37 15

15 | 1. Management of all operations activities at CPSES.

15 | 2. Technical and administrative direction of:

62 | a. Operations Manager
62 | b. Maintenance Manager
62 | c. Instrumentation and Control Manager

3. Chairmanship of the Station Operations Review Committee.

15 | 4. Membership on the Operations Review Committee.

ADVANCE |

62 | 17.2.1.1.4 Director, Quality Assurance

ADVANCE | The Director, Quality Assurance, reports directly to the Vice-
| President, Nuclear Engineering and is responsible to him for assuring
| effective implementation of the Quality Assurance Program. This
55 | reporting relationship assures that the Director, Quality Assurance
| has sufficient authority, organizational freedom, and independence
| from undue influence from, or responsibility for, costs and schedules
| such that he can effectively assure implementation of and compliance
| with the CPSES operations quality assurance requirements and controls.

ADVANCE | The Director, Quality Assurance is responsible for submitting the
| Quality Assurance Manual for concurrence and approval to the Executive
| Vice President, Nuclear Engineering and Operations. He is
62 | responsible for the performance of quality assurance activities in
| support of CPSES operation.

The Director, Quality Assurance communicates directly with NEO supervisory and management personnel and with appropriate management levels in consultant and contractor quality assurance organizations to identify quality problems; initiate, recommend or provide solutions; and to verify implementation of solutions to quality problems. He also has authority to "stop work" during the operations phase. | 55 | 14

Specific duties and responsibilities of the Director, Quality Assurance include the following: | 55

1. Direction of Quality Assurance Department personnel. | 62

2. Technical and administrative direction of: | 62

   a. Manager, Operations QA | 62
   b. Manager, QC | 62
   c. Manager, QA | 62

3. Verification through audit and surveillance that procedures for the control of quality-related activities comply with quality assurance requirements. | 62

4. Verification through audit and surveillance of the implementation of the quality assurance program within NEO and evaluation of its effectiveness. | 62

5. Assurance through audit, surveillance and inspection that consultants, contractors and suppliers providing quality-related items or services have established and implemented an adequate quality assurance program. | 62

6. Membership on, or supervision of a member of the Operations Review Committee. | 55

62 | 17.2.1.1.5 Director, Engineering

62 | The Director, Engineering is responsible for providing engineering
| related technical services in support of CPSES operations.

62 | Specific duties and responsibilities of the Director, Engineering
| includes the following:

53 | 1. Technical support to Nuclear operations.

5 | 2. Technical direction and administrative guidance to his staff.

5 | 3. Assistance, as required, in the procurement of equipment,
| materials, and services for the operation, maintenance or
| modification of CPSES.

62 | 17.2.1.2 Quality Assurance Department

62 | The Quality Assurance Department, under the direction of the Director,
| Quality Assurance functions to assure effective implementation of the
| quality assurance program.

62 | Specific functions performed by the Quality Assurance Department
| include:

62 | 1. Quality assurance auditing of NEO quality-related activities,
| both offsite and onsite.

2. Evaluation of consultants', contractors', and suppliers' quality assurance programs and implementing procedures.

3. Quality assurance auditing of consultants, contractors, and suppliers.

4. Surveillance and inspection conducted at equipment and material suppliers' facilities.

5. Review of procurement documents to assure incorporation of adequate quality assurance requirements for non-routinely procured items and services.

6. Surveillance and review of site quality related activities to assure compliance with the applicable quality requirements. | 65

17.2.1.3 CPSES Operations Quality Assurance Section

| Q421.48

The CPSES Operations Quality Assurance Section, is supervised by the Manager, Operations QA who reports directly to the Director, Quality Assurance. | 62

| ADVANCE
| Q421.48

The Manager, Operations QA has sufficient authority and organizational freedom at CPSES to identify quality problems, recommend solutions, verify implementation of solutions, to stop unsatisfactory work and control further processing, delivery or installation of non-conforming material until proper disposition has occurred. | 62

| Q421.48

In addition, the Manager, Operations QA advises the Director, Quality Assurance, of the status of the quality assurance program at CPSES and of any significant conditions which are adverse to quality. | 62

The Operations Quality Assurance Section is responsible for the administration and implementation of an effective quality control inspection program at CPSES. | 65

| 65

11 | 17.2.1.4 Operations Review Committee

Independent reviews of activities affecting plant safety during the operations phase are performed by the Operations Review Committee. The structure and responsibilities of this committee are described in Section 13.4.

17.2.1.5 Delegation of Quality Assurance Functions

53 | NEO periodically retains qualified consultants and contractors to provide safety-related services. All consultants and contractors providing safety-related services and suppliers providing safety-related equipment or materials for CPSES are required to establish and implement quality assurance programs appropriate for their scope of
53 | supply. NEO includes specific requirements in procurement documents with which consultants', contractors', or suppliers' quality assurance programs must comply.

17.2.1.6 Personnel Qualifications

55 | 17.2.1.6.1 Director Quality Assurance

55 | The Following qualification requirements have been established for the Director, Quality Assurance.

59 | 1. Minimum of ten years related experience in design, construction, and/or operation of power plants. A maximum of four years of this ten years experience may be fulfilled by related technical or academic training.

59 | 2. A bachelors degree from an accredited college, university or other institution.

Q421.47 |
9 | 3. Demonstrated ability to manage people and projects.

| Q421.47

4. Knowledge of quality assurance requirements for nuclear plants including a minimum of one year related experience in the implementation of a nuclear quality assurance program. | 59

17.2.1.6.2 Manager, Operations QA | 62

The following qualification requirements have been established for the Manager, Operations QA | 62

| Q421.7

Six years experience in the field of quality assurance, preferably at an operating nuclear plant, or operations supervisory experience. At least one year of this six years experience shall be nuclear power plant experience in the overall implementation of the quality assurance program. A minimum of one year of this six years experience shall be related technical or academic training. A maximum of four years of this six years experience may be fulfilled by related technical or academic training. | 4

17.2.1.7 Inspection Functions

| Q421.11

The Manager, Operations QA is responsible for administration and implementation of an effective quality control inspection program. | 62

Inspections shall be performed by qualified individuals other than those who performed or directly supervised the activity being inspected. Personnel performing these inspections may be from the same department but are not from the same group that performed the work. | 11

| Q421.11

In addition, qualification criteria for inspection personnel are reviewed for concurrence by the Manager, Operations QA. | ADVANCE

Q421.11 |
ADVANCE |

17.2.2 QUALITY ASSURANCE PROGRAM

ADVANCE | The Quality Assurance Program requires a Quality Assurance Manual be
| developed for each nuclear power plant, which prescribe specific
| measures to assure the quality of safety-related activities,
| structures, systems and components of that facility. The quality
| assurance requirements and controls implemented during operations of
| CPSES are established by the portion of the CPSES Quality Assurance
| Program in this section (17.2) of the FSAR. The quality assurance
| requirements and controls implemented during design and construction
| of the CPSES are established by the CPSES Quality Assurance Program
| (Design and Construction), which is described in Section 17.1.

Q421.15 |
ADVANCE | Quality assurance requirements and controls are established
| implemented throughout the testing and operation phases at CPSES.
9 | This program shall be implemented at least 90 days prior to fuel
ADVANCE | loading. Responsibilities and authority, and measures for the
| control and accomplishment of activities affecting the quality and
| operation of safety-related structures, systems, and components of
| CPSES are defined. The structures, systems, and components covered
| by the quality assurance program are listed in Table 1/A-1. These
ADVANCE | provisions apply to all activities, such as operating, maintaining,
| repairing, modifying, and refueling which affect the safety-related
| functions of those structures, systems, and components.

| 62

A Quality Assurance Program shall be developed and implemented to attain high levels of quality assurance during the operation of CPSES. This program shall comply with the requirements of Title 10, Code of Federal Regulations, Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Processing Plants," and certain NRC Regulatory Guides and ANSI standards as identified in the Final Safety Analysis Report (SAR). | 62

Overall responsibility for the Quality Assurance (QA) Program lies with the Executive Vice President, Nuclear Engineering and Operations. Specific responsibility for development and administration of the program rests with the Director, Quality Assurance. | 62

| Q421.50

The Executive Vice President, Nuclear Engineering and Operations shall, on a regular basis, not to exceed 24 months, perform or authorize independent Management Audits of quality assurance activities as necessary to assess the scope, status, implementation and effectiveness of the QA Program to assure that the program is adequate and complies with 10CFR50, Appendix B criteria. These audits will be conducted in accordance with predetermined schedules, with audit results documented in Audit Reports, and a follow-up system utilized to assure that corrective action is taken and reaudited when it is considered necessary to verify implementation. | 62 | 9

The quality assurance requirements and controls applicable to the operations phase, comply with the requirements of 10 CFR Part 50, Appendix B. Table 17.2-1 provides a matrix showing those sections of the QA Manual which satisfy the requirements of each criterion of 10 CFR Part 50, Appendix B. The quality assurance requirements and controls shall be consistent with the applicable guidance of those Regulatory Guides and industry standards listed in Table 17.2-2 and discussed in Appendix 1A(B). | ADVANCE

Q421.51 |

ADVANCE | The Director, QA is responsible for controlling the distribution of
| the Quality Assurance Manual and revisions thereto.

The quality assurance requirements and controls are designed to assure that activities affecting the quality and operation of safety-related

ADVANCE | items are accomplished in a planned and controlled manner. Activities
| affecting quality are accomplished in accordance with written,
| approved procedures and instructions under suitably controlled
| conditions. Controlled conditions include, as applicable,
appropriate equipment, suitable environmental conditions, and

ADVANCE | completion of prerequisites. All procedures prescribing activities
| affecting quality are controlled and distributed in accordance with
| the measures described in Section 17.2.6.

ADVANCE | The Director, Quality Assurance, is responsible for assuring, through
| audits and surveillance, implementation of the Quality Assurance
| Program. He is responsible for regularly assessing the status and
| adequacy of the Program, within NEO, and as implemented by
| consultants, contractors, and suppliers. The Director, Quality

62 | Assurance, reports the results of these evaluations to the Vice-
| President, Nuclear Engineering. Unresolved issues between the
| Director, Quality Assurance and others concerning quality are brought
| to the Executive Vice-President, Nuclear Engineering and Operations
| for resolution.

Q421.54 |

ADVANCE | The Director, QA has overall responsibility for the identification,
| scheduling, assignment, conduct and reporting of station activities
| assigned to the QA Department. Station activities affecting quality

11 | are subject to quality surveillance by quality assurance site
| personnel.

In addition, the Manager, Operations QA has responsibility for administration and implementation of the CPSES quality control program. | 62

| Q421.54

The Manager, Operations QA reviews for quality assurance requirements all procedures involving operation, maintenance, modification, inspection and testing during the operations phase as a normal function of the Station Operations Review Committee. Implementation of all procedures is periodically reviewed by the QA organization through audits and surveillance activities. | 62

An indoctrination and training program is established for those personnel performing activities affecting quality. The scope, objectives, and methods for implementing the indoctrination and training program are prescribed by written, approved procedures. These procedures also prescribe methods for documenting the accomplishment of training. The indoctrination and training program includes provisions that personnel performing activities affecting quality are: | ADVANCE

1. Instructed as to the purpose, scope, and implementation of the Quality Assurance Program and related procedures and instructions as appropriate to their activities. | ADVANCE

2. Qualified in the principles and techniques of activities for which they are responsible.

3. Retrained, re-examined or recertified, when appropriate, to maintain necessary proficiency in those activities for which they are responsible.

Schedules have been developed to assure that implementing procedures are prepared prior to commencement of the activities which they are
ADVANCE | intended to control. The conduct of the test program and the | administrative controls to be implemented are described in Section | 14.2.

Q421.55 | 17.2.3 DESIGN CONTROL
Q421.57 |
ADVANCE | Requirements for the control of design activities associated with | modifications of safety-related structures, systems, and components | are consistent with the provisions of Regulatory Guide 1.28, and | Regulatory Guide 1.64 as discussed in Appendix 1A(B).
Q421.55 |
ADVANCE | The CPSES Manager, Plant Operations shall have the responsibility for | approving and controlling the implementation of station design | modifications. The Vice President, Engineering and Construction has
62 | the overall responsibility for developing procedures to maintain and | control the design control process.
Q421.57 |
ADVANCE | Final approval of all station modifications is the responsibility of | the SORC. The SORC will submit all proposed station design
44 | modifications which involve a change in CPSES Technical Specifications | or an unreviewed safety question to the ORC for review and approval | before proceeding with implementation. Safety evaluations on station | design modifications which do not involve unreviewed safety questions | or a change in CPSES Technical Specifications will be reviewed by ORC, | however, this will not be a prerequisite for implementation. Upon | recommendation from SORC, the CPSES Manager, Plant Operations approves | each station design modification for implementation.

| Q421.55

All design modification requests made by station personnel, shall be | 62
submitted to the Manager, Technical Support for coordination of the |
station level engineering review. The actual change of design for | ADVANCE
those design modification requests approved by the CPSES Manager, |
Plant Operations shall be done by NEO engineering personnel or |
approved engineering services contractors in areas other than reactor |
engineering for which the Reactor Engineering Department will be |
responsible. The above organizations will have approved design |
procedures and/or instructions before any design modifications are | 53
performed by the respective organization. These procedures and/or |
instructions will assure proper design review and verification. |
These procedures and instructions will also assure that design control |
is commensurate with the original design. The Vice President, | 62
Engineering and Construction will assure that the designer is provided |
with the latest revisions to all drawings, specifications, and other |
design documents which are applicable. |

Design changes, including those originating on site, are subject to the same controls which were applicable to the original design. NEO may designate an organization to make design changes other than the one which prepared the original design. In these cases, NEO will assure that that organization has access to pertinent background information, including an adequate understanding of the requirements and intent of the original design, and has demonstrated competence in applicable design areas.

| Q421.56

The Vice President, Engineering and Construction shall coordinate | 62
necessary revisions to drawings and other design documents. The |
Manager, Plant Operations shall coordinate necessary revisions to |
plant procedures and instructions as a result of design changes. |
Changes are promptly distributed to ensure availability to responsible | 44
plant personnel prior to commencement of work. |

ADVANCE | Design changes made to the facility are accomplished in a planned and | controlled manner in accordance with written, approved procedures. These procedures include provisions, as necessary, to ensure that:

1. Design documents, specifications, drawings, and procedures and instructions reflect applicable regulatory requirements and design bases.

2. Design documents specify quality requirements or reference quality standards as necessary.

62 | 3. There is adequate review of the suitability of materials, parts, | components, and processes which are essential to the safety- | related functions of structures, systems, and components.

62 | 4. Materials, parts, and components which are standard commercial | (off the shelf) or which have been previously approved for a | different application are evaluated for suitability prior to | selection.

4 | 5. Design documents are revised to reflect design modifications.

6. Internal and external design interfaces between organizations participating in design modifications are adequately controlled, including the review, approval, release, and distribution of design documents and revisions.

62 | The above controls are applied as necessary to such aspects of design | as reactor physics; seismic, stress, thermal, hydraulic, radiation, | and accident analyses; compatibility of materials; and accessability | for inservice inspection, maintenance, repair and replacement.

The adequacy of design changes be verified by the performance of design reviews, alternate calculations, or qualification testing. The control measures specified in the plan for control of design verification activities are as follows: | ADVANCE

1. Personnel responsible for design verification do not include the original designer or the designer's immediate supervisor.

2. Written procedures identify the positions or organizations responsible for design verification and define their authority and responsibility.

3. Qualification tests to verify the adequacy of the design are performed using the most adverse specified design conditions.

Design changes are reviewed to assure that design parameters are defined and that inspection and test criteria are identified.

Any errors or deficiencies found in the design process or the design itself are documented and corrective action taken, as described in Section 17.2.16.

Design documents and revisions thereto are controlled and distributed as described in Section 17.2.6. Records of design activities and design changes are collected, stored, and maintained, as described in Section 17.2.17.

17.2.4 PROCUREMENT DOCUMENT CONTROL

Requirements are established for the control of procurement documents prepared by NEO, or their designated agents for safety-related components, materials, and services. These requirements are consistent with the provisions of Regulatory Guide 1.33 and Regulatory Guide 1.123 as discussed in Appendix 1A(B) and apply to procurement documents prepared by NEO, or their designated agents. | ADVANCE

ADVANCE | Procurement documents, such as purchase specifications, contain or reference the following:

1. The design basis technical requirements, including the applicable regulatory requirements, material and component identification requirements, drawings, specifications, codes and industrial standards, and test and inspection requirements

ADVANCE | 2. The applicable requirements of 10 CFR Part 50, Appendix B and of the QA Program, which must be complied with and described in the supplier's QA program.

53 | 3. Identification of the documentation to be prepared, maintained, or submitted (as applicable) to NEO for review and approval. These documents may include, as necessary, inspection and test records, qualification records, or code required documentation.

4. Identification of those records to be retained, controlled, and maintained by the supplier, and those delivered to the purchaser prior to use or installation of the hardware.

9 | 5. NEO's right of access to supplier's facilities and records for source inspection and audit.

6. Requirements for supplier reporting and dispositioning of nonconformances from procurement requirements.

7. Provisions for extending applicable requirements of the procurement documents to lower-tier suppliers.

Q421.58 |

NEO procurement documents are prepared, reviewed, approved, and controlled in accordance with written procedures which clearly delineate the sequence of actions to be accomplished and which identify the individuals or groups responsible for accomplishing those

actions. These procedures include provisions for review of procurement documents. This review is performed to insure that necessary quality requirements are incorporated and correct, and that procurement requirements for spare or replacement parts are equivalent to or better than those used for the original equipment. Documentary evidence of that review and approval is retained and available for verification. | 9

NEO evaluates supplier quality assurance programs prior to award of contracts or issuance of purchase orders, as discussed in Section 17.2.7.

17.2.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

| Q421.53

Activities affecting the quality of safety-related structures, systems, and components are prescribed by and accomplished in accordance with documented instructions, procedures, and drawings. | ADVANCE

The manager or supervisor who has cognizance over a specific safety-related activity is responsible for the development and approval of procedures and instructions for prescribing the accomplishment of that activity. Administrative procedures and instructions are reviewed and approved prior to performance of the activity. | 62

The cognizant supervisor is responsible for ensuring that the activity is performed in accordance with the procedures and instructions. | 55

The development, review, and use of procedures, instructions, and drawings is reviewed on a periodic basis by the Manager, Quality Assurance as part of the station quality surveillance program. | 53

These requirements are consistent with the provisions of Regulatory Guides 1.33, 1.30, and 1.116 as discussed in Appendix 1A(B). | 65

| 15

| Q421.59

ADVANCE | Requirements regarding the content of various types of instructions
| and procedures are established which provide for the inclusion, as
| necessary, of items such as prerequisites, precautions, qualitative or
| quantitative acceptance criteria, inspection points, and checklists,
| depending upon the nature of the instruction or procedure.

Administrative procedures clearly delineate the sequence of actions to be accomplished in the preparation, review, approval, and control of those instructions and procedures, and they identify the individuals responsible for those actions.

ADVANCE | Confirmation that these instructions and procedures meet requirements
| of the QA Program and are properly implemented is accomplished through
| audit or surveillance activities by the QA Department.

17.2.6 DOCUMENT CONTROL

ADVANCE | Requirements are established for the control of documents that
| prescribe activities affecting quality. The documents which are to be controlled include:

1. Design Specifications

2. Design, manufacturing, construction, and installation drawings

3. Procurement documents

ADVANCE | 4. The QA Manual and all station procedures and instructions which
| implement requirements of the QA Program.

53 | 5. Maintenance, modification, and operating procedures and
| instructions

6. Final Safety Analysis Report | 53

7. Inspection and test procedures and instructions | 53

These requirements are consistent with the provisions of Regulatory Guide 1.33 as discussed in Appendix 1A(B) and include the following measures: | ADVANCE | Q421.69

1. Documents, and changes thereto, are reviewed for adequacy and approved for release by authorized personnel in accordance with written procedures. These procedures identify those individuals or groups responsible for reviewing, approving, and issuing documents and revisions thereto. These individuals or groups include as appropriate the Manager, Operations QA, the NEO QA department or an individual other than the person who generated the documents but qualified in quality assurance. | 62

2. Documents, and changes thereto, are promptly distributed to ensure availability prior to commencement of work.

3. Changes to documents are reviewed and approved by the same organization that performed the original review and approval unless another qualified organization is designated.

4. Master status lists identifying the current revision of documents are periodically updated and utilized to preclude the use of superseded documents.

5. Obsolete or superseded documents are destroyed or identified to prevent their inadvertent use.

Documents generated by NEO are controlled in accordance with written, approved procedures and instructions. Maintenance, modification and inspection procedures and instructions affecting safety related | 53

53 | equipment are reviewed by a person knowledgeable in QA disciplines to
| determine:

Q421.6 |

9 | A. The need for inspection, identification of inspection
| personnel, and documentation of inspection results.

Q421.6 |

9 | B. That the necessary inspection requirements, methods, and
| acceptance criteria have been identified.

62 | The Manager, Operations QA is responsible for providing the necessary
reviews of these procedures and instructions.

17.2.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

ADVANCE | Requirements are established for the control of purchased safety-
| related material, equipment and services, including spare or
| replacement parts. These requirements are consistent with the
54 | provisions of Regulatory Guides 1.33, and 1.123 as discussed in
| Appendix 1A(B).

59 | Measures have been established in procedures which determine the level
| of quality assurance required for the procurement of an item or
| service. As required, contractor and suppliers are evaluated by
| quality assurance personnel prior to award of a purchase order or
| contract to assure the contractor's or supplier's capability to comply
| with procurement document requirements. This evaluation is based on
one or more of the following:

1. A review of the supplier's quality assurance program description provided with the proposal/bid.

2. A review of historical evidence of the supplier's performance in providing similar items or services.

3. A preaward survey of the supplier's facilities and QA program.

| Q421.62

Technical requirements for items and materials to be procured are developed by the design or engineering organization responsible for the modification or maintenance activity. Procurement documents for safety related items and materials are reviewed for inclusion of technical and quality assurance requirements by the Quality Assurance Department prior to initiation of the procurement action by the purchasing organization. The results of the quality assurance review are documented and retained for future reference. | 9 | 62 | 9

Surveillance and audit of suppliers and contractors, are conducted where appropriate, to assure compliance with quality requirements. The Quality Assurance Department is responsible for surveillance and audit of offsite suppliers and contractors. The CPSES Quality Assurance Section is responsible for surveillance of contractors providing services onsite. Surveillance of suppliers and contractors is performed by qualified personnel in accordance with written procedures, instructions and checklists. | ADVANCE | 62 | 53

Surveillance and audit of suppliers are performed to an extent consistent with the importance, complexity, and quantity of the item(s) being purchased and include measures to periodically confirm the validity of suppliers' certificates of conformance. Quality verification records are reviewed by quality assurance personnel to assure their completeness and their compliance with procurement document requirements.

Receipt inspections at CPSES are performed by qualified quality control inspectors in accordance with written procedures and instructions to assure that: | 53

1. Materials, equipment, or components are properly identified and correspond with associated documentation.

2. Inspection records or certificates of conformance attesting to the acceptance of materials, equipment, and components are completed and are available at CPSES prior to installation or use.

3. Materials, equipment, and components are inspected and judged acceptable in accordance with predetermined inspection instructions prior to installation or use.

4. Items accepted or released are identified as to their inspection status prior to forwarding them to a controlled storage area or releasing them for installation or further work.

5. Nonconforming items are clearly identified, controlled, and segregated where practical, until proper disposition is made.

17.2.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

ADVANCE | Requirements are established for the identification and control of safety-related materials, parts, and components, including spare or replacement items. These requirements are consistent with the provisions of Regulatory Guides 1.33 and 1.38 as discussed in Appendix 1A(B).

ADVANCE | Materials, parts, and components are identified and controlled to prevent the use of incorrect or defective items. Identification of items is maintained either on the item in a manner that does not affect the function or quality of the item, or on records traceable to the item.

Suppliers of safety related materials, parts, or components are required by procurement documents to establish a system of identification and control which is consistent with the above requirements.

Procedures and instructions implementing these requirements provide for the following: | 53

1. Verification that items received onsite are properly identified and can be traced to the appropriate documentation, such as drawings, specifications, purchase orders, manufacturing and inspection documents, nonconformance reports, or mill test reports.

2. Verification of item identification consistent with the inventory control system and traceable to documentation which identifies the proper uses or applications of the item.

17.2.9 CONTROL OF SPECIAL PROCESSES

| Q421.63

Requirements are established for the control of special processes, which are those processes where direct inspection is impossible or disadvantageous such as welding, heat treating, nondestructive testing, and cleaning, which are consistent with the provisions of Regulatory Guides 1.30, 1.33, 1.37, and 1.58 as discussed in Appendix 1A(B). | ADVANCE

Special processes are performed by qualified personnel using proper equipment and in accordance with written qualified procedures and instructions. These personnel, procedures and instructions are to be qualified in accordance with applicable codes, standards, and specifications. Qualification records of special process procedures and instructions, and personnel performing special processes are filed, maintained, and available for verification. | ADVANCE | 53

| Q421.64

Qualification of special processes, equipment, and personnel is the responsibility of the cognizant Managers or | 62

62 | Section Supervisors. Qualified test laboratories and consultants may
9 | be used in qualification of special processes. Procedures shall be
| developed which delineate the requirements for special process.
62 | These procedures shall be reviewed by the Manager, Operations QA as
| part of the normal function of the SORC.

17.2.10 INSPECTION

ADVANCE | Requirements are established for an inspection program to verify
| conformance of activities affecting quality with requirements
| specified for those activities. These requirements are consistent
| with the provisions of Regulatory Guides 1.30, 1.33, 1.58, and 1.116
| as discussed in Appendix 1A(B).

Q421.48 |

62 | The Manager, Operations QA is responsible for administering and
| implementing the CPSES quality control inspection program.
18 | Inspections are performed by quality control inspectors who are
| qualified and certified in accordance with ANSI N45.2.6-1978 and who
| are independent of the individuals performing the activity being
62 | inspected. The quality control inspectors may be selected from among
| any of the NEO departments, including contract personnel, and will
| report directly to the Manager, Operations QA when acting in the
| capacity of quality control inspectors. All quality control
13 | inspection personnel have authority to stop unsatisfactory work and
| control further processing, delivery, or installation of nonconforming
ADVANCE | material, parts or components. The quality control inspector's
| qualifications and certifications are maintained current through the
| NEO training program.

Q421.83 |

14 | Inspections at CPSES are performed in accordance with written
| procedures, instructions, or checklists, appropriate to the

circumstances which provide for the following: | 14

1. Identification of characteristics and activities to be inspected.

2. Acceptance and rejection criteria.

3. Method of inspection.

4. Recording the results of the inspection and identification of the quality control inspector.

5. Indirect control by monitoring of processing methods, equipment, and personnel when direct inspection is not possible.

| Q421.66

6. Identification of any required procedures, drawings, or specifications. | 11

| Q421.67

Station administrative procedures controlling the Measuring and Test Equipment program contain criteria for determining the accuracy of M&TE to be used in performing inspections depending upon the accuracy requirements of the parameters being measured. | 11

| Q421.35

Maintenance, repair, and modification procedures and instructions containing inspection criteria shall be reviewed by a level III inspector qualified in accordance with ANSI N45.2.6-1978 to ensure that adequate inspection hold points are included and that the inspection methods are adequate. Criteria contained in appropriate station administrative procedures and in applicable codes and standards shall be used in determining when inspections and tests are required. | 53 | 11

In addition, all safety related plant procedures and instructions are reviewed by the Operations QA section to assure that required quality requirements have been included. | 55

Q421.58 |
9 | Inspection results are documented in accordance with procedures and instructions developed and approved for that activity. Inspection results are evaluated and then acceptability determined by individuals qualified to perform that function in accordance with the station training program. Records of the evaluations are documented and retained in the station quality records.

4 | Contractors performing work at CPSES and equipment and material suppliers are required to work under inspection programs consistent with applicable codes and standards. These contractors and suppliers are required to provide work plans or inspection and fabrication procedures or outlines, which are reviewed for adequacy by NEO personnel.

17.2.11 TEST CONTROL

ADVANCE | Requirements are established for the control of testing of safety-related systems, equipment, and structures. These requirements are
37 | consistent with the provisions of Regulatory Guides 1.30, 1.33, 1.58, 1.68, 1.68.2 and 1.116 as discussed in Appendix 1A(B).

17.2.11.1 Test Program

ADVANCE | Preoperational and initial startup testing is performed in accordance with Section 14.2 of the FSAR.

Surveillance testing is performed during the operational phase to verify continuing operational readiness and adequacy for those systems and components which are normally in a standby condition and to evaluate whether there has been any degradation of performance, or any departure from the prescribed operating conditions for the systems or components normally in service.

Tests are performed following station modifications or repairs to demonstrate satisfactory performance prior to placing affected items in service. When pressure boundaries are breached functional tests shall be conducted to the extent required to demonstrate acceptability of the repair or maintenance. | ADVANCE

17.2.11.2 Test Procedures

Testing is identified, documented, and controlled in accordance with written administrative procedures. Each test is accomplished in accordance with written test procedures by qualified personnel.

The administrative procedures controlling the test program identify the necessary test procedures, the provisions to be included in those procedures, the method of reviewing and approving those procedures, and the methods for documenting and evaluating the results.

Test procedures include the following provisions as appropriate:

1. Prerequisites - those items of work which must be completed prior to establishing initial conditions for the test, including:
   a. Calibrated instrumentation;
   b. Adequate and appropriate equipment;
   c. Initial conditions and completeness of the item to be tested;
   d. Suitable environmental conditions, if applicable; and
   e. Data Sheets.

2. Special precautions - items needed for safety of personnel or equipment. Special situations where caution or extraordinary attentiveness to operational circumstances is required.

3. Instructions for performing the test - steps required to conduct the test, observations to be made, data to be recorded.

4. Acceptance criteria - criteria against which the success or [illegible] can be determined.

17.2.11.3 Test Results

Records of test results are reviewed by qualified personnel to assure acceptability. These records are retained as quality verification records in accordance with the controls described in Section 17.2.17.

17.2.12 CONTROL OF MEASURING AND TEST EQUIPMENT

ADVANCE | Requirements are established for control of measuring and test equipment. Applicable procedures and instructions prescribe calibration techniques and frequency, maintenance requirements, and control measures for measuring and test equipment used in the measurement, inspection, and testing of safety-related components, systems and structures. These measures are consistent with the provisions of Regulatory Guide and 1.33 as discussed in Appendix 1A(B). Controls for measuring and test equipment include the transportation, storage, and protection of the equipment; the handling of associated documents which gives the status of all items under the calibration systems; and the permanent and unique identification of each device.

Measuring and test equipment is calibrated at specified intervals based upon the required accuracy, purpose, degree of usage, stability
69 | characteristics, and other pertinent considerations. Calibrations are normally performed against standards which are traceable to nationally recognized standards and which have a tolerance (error) of not more than one-fourth of the required tolerance of the equipment being calibrated. When traceability to nationally recognized standards does not exist, or when the 4:1 accuracy requirement is not reasonably achievable, the basis for the calibration is documented. This documentation shows that the calibration inaccuracies are enveloped by the calibration inaccuracy assumed in the applicable engineering documents (e.g. setpoint calculations, specifications, etc.), or these documents are revised using the new calibration inaccuracies.

Whether the device is calibrated at the power station or at an outside laboratory, a sticker is affixed on a conspicuous surface where practical, identifying the date the next calibration is due and the serial number of the instrument.

When test and measuring devices utilized in activities affecting quality are found to be out of calibration, an evaluation is made and documented concerning the validity of previous tests and the acceptability of items previously tested since the last valid calibration.

| Q421.69

The Manager, Technical Support, Maintenance Manager and Instrumentation and Control Manager are responsible for developing and implementing procedures and instructions to establish a control and calibration program. | ADVANCE

Effectiveness of the program is assured through periodic reviews and quality surveillances performed under the direction of the Manager, Quality Assurance. | 65

17.2.13 HANDLING, STORAGE, AND SHIPPING

Requirements are established for the control, handling, storage, shipping, cleaning, and preservation of material and equipment in accordance with established instructions, procedures, or drawings. These requirements are consistent with the provisions of Regulatory Guides 1.33 and 1.38 as discussed in Appendix 1A(B) and include the following provisions, as necessary: | ADVANCE

| Q421.70

1. For critical, sensitive, perishable, or high value items, specific written procedures and instructions for handling, storing, packing, shipping, and preserving are used. These procedures and instructions reflect design and specification | 53 | 9

9 | requirements such as inert gas atmosphere, specific moisture
| content levels, and temperature levels, and reflect
| manufacturers recommendations in regards to special handling and
| storage requirements such as shelf life and environmental
| controls.

2. Personnel responsible for handling these special items are qualified to the extent required by these special handling instructions.

3. Special handling tools and equipment are inspected and tested in accordance with written procedures to verify that they are adequately maintained.

17.2.14 INSPECTION, TEST, AND OPERATION STATUS

ADVANCE | Requirements are established for identification and control of the
| inspection, test, and operating status of safety-related structures,
| systems, and components. These requirements are consistent with the provisions of Regulatory Guide and 1.33 as discussed in Appendix 1A(B).

53 | Written procedures and instructions prescribe the use of tags, labels,
| and logs to indicate the inspection, test, and operating status of
| systems and equipment at CPSES. These procedures and instructions
| also provide for tagging of nonconforming, inoperative, or
| malfunctioning equipment to prevent inadvertent use. In addition,
| these procedures and instructions identify those individuals who are
| authorized to apply or remove those tags and labels and provide for
| the use of logs to maintain the status of tags and labels in use at
| CPSES.

CPSES personnel and contractor personnel working onsite are instructed regarding the purpose of, and precautions associated with, the various tags and labels used at CPSES. Proper use of tags and labels to indicate inspection, test, and operating status is verified through surveillance by onsite Quality Assurance personnel. | 9

17.2.15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

Requirements are established for the control of nonconforming materials, parts or components. These requirements are consistent with the provisions of Regulatory Guides 1.33, 1.38, and 1.123 as discussed in Appendix 1A(B). | ADVANCE

Material, parts, or components found nonconforming through review, inspection, or testing are controlled by administrative procedures. These procedures provide for the following: | ADVANCE

1. Identification of nonconforming items by use of nonconformance tags, and segregation of those items, if practical, to prevent inadvertent use pending proper disposition and reinspection.

2. Identification of those individuals or organizations responsible for disposition of nonconforming items.

3. Preparation of nonconformance reports which identify nonconforming items and describe the nonconformance, the disposition of the nonconformance, and the reinspection or testing performed to determine the acceptability of the item after the disposition has been completed.

4. Verification of the acceptability of rework/repair of items by reinspection or testing of the item as originally performed or

by a method which is equivalent to the original inspection and testing method.

5. Nonconformance reports which are dispositioned "use as is" or "repair" are made part of the quality verification records associated with the items.

6. Periodic analysis of these reports to be performed and forwarded to management to show quality trends.

Q421.71 |
65 | Responsibility for the definition and implementation of activities related to nonconformance control is assigned to the cognizant superintendent of the area of concern. Nonconformances which are
11 | resolved by repair or use-as-is dispositions are reviewed and approved by the CPSES Engineering Department.

Q421.71 |
65 | Independent review of nonconformances, including disposition and closeout, is performed by appropriate Quality Assurance personnel.

Q421.73 |
69 | Marking and segregation of nonconforming items, when required, are addressed in station procedures. In addition, station procedures require that nonconforming items not be re-installed or placed in service except by conditional release until the nonconformance is finally resolved or corrected. Conditional releases are temporary
62 | measures which allow limited use, operation or installation of nonconforming items pending a final disposition. The Engineering Department evaluates each conditional release for the safety impact of the nonconformance on the operation of the plant and approves the use of the conditional release. Each conditional release also describes any limitations or special precautions required. The administrative
53 | controls assure that nonconforming materials are not relied upon for safety related service. Compliance with these administrative requirements is verified through the station surveillance and audit program.

17.2.16 CORRECTIVE ACTION

Requirements are established for the identification and correction of conditions adverse to quality. These requirements are consistent with the provisions of Regulatory Guide 1.33 as discussed in Appendix 1A(B). | ADVANCE | 37

Conditions adverse to quality, such as failures, malfunctions, deficiencies and deviations, identified through review of documents, surveillance, audits, or experience during operation, are documented and dispositioned. Significant conditions adverse to quality are evaluated to determine the cause of the condition and the corrective action to be taken to preclude recurrence. | ADVANCE

Reports of significant conditions adverse to quality are reviewed by the Operation Review Committee and that committee's decisions and/or recommendations regarding corrective action are forwarded to appropriate management personnel. Follow-up reviews of nonconformance reports to verify proper implementation of corrective action are conducted by quality assurance personnel.

17.2.17 QUALITY ASSURANCE RECORDS

Requirements are established for the identification, collection, and storage of quality assurance records. These requirements are consistent with the provisions of Regulatory Guides 1.33 and 1.88 as discussed in Appendix 1A(B). | ADVANCE

Sufficient records are maintained to provide documentary evidence of the quality of items and of the accomplishment of activities affecting quality. Records to be maintained include | ADVANCE

such items as drawings, specifications, procurement documents, nonconformance reports, corrective action reports, operating logs, personnel and procedure qualifications, results of inspections and test, material certifications and test results, and audit reports.

53 | Quality assurance records are maintained in accordance with procedures | and instructions which assign responsibilities for the collection, | maintenance, and protection of records. These procedures and | instructions provide a system of record identification to assure | retrievability and prescribe retention periods for various types of | records.

ADVANCE | The Vice President, Administration is responsible for development of | procedures and instructions to implement the management requirements | related to QA records.

Quality assurance records are stored in a specially constructed storage facility at CPSES to prevent their destruction, deterioration, or theft. The CPSES record storage facility construction is consistent with the applicable requirements of the regulatory guides referenced above. Access to the records facility is controlled so that only authorized personnel have access to the records area.

17.2.18 AUDITS

ADVANCE | Requirements are established for an audit program. The audit program
33 | is consistent with the applicable portions of Regulatory Guide 1.33 | (as discussed in Appendix 1A(B)), and ANSI N45.2.12 (draft 4, Revision | 2 - January, 1976).

ADVANCE | Planned and periodic audits are performed in accordance with written | procedures to verify compliance with all aspects of the quality | assurance program. Responsibility for the

audit program has been assigned to the Director, Quality Assurance. | 55
Audits are conducted by personnel of the Quality Assurance Department | 62
and include examination of quality-related activities such as: |

1. Operation, maintenance, and modification of CPSES.

2. Receiving and work inspection.

3. Preparation, review, approval and control of instructions, procedures, drawings, specifications, and other quality-related documents.

4. Indoctrination and training.

5. Control of measuring and test equipment.

Organizations performing activities affecting quality that are subject to audit include the following:

1. The engineering and construction, startup, operations, maintenance, engineering, quality assurance, and support organizations for CPSES. | 55 |

2. Contractors, consultants, and suppliers of quality related items or service.

| Q421.75
As part of the Quality Assurance program NEO QA: | 33

1. Utilizes an audit planning document which defines the organizations and activities to be audited and the frequency of the audits. | 9 |

9 | 2. Requires auditors to be familiar with the type of activities to be audited and have no direct responsibilities in the area being audited.

9 | 3. Provide auditing checklists or other objective guidelines to identify those activities which affect quality.

9 | 4. Requires examination of the essential characteristics of the quality activity examined.

9 | 5. Requires an audit report be prepared and that it notes the extent of examination and deficiencies found.

9 | 6. Requires the audit report be sent to management responsible for the area audited for review and corrective action for deficiencies.

9 | 7. Requires corrective action taken as result of the audit be reported.

9 | 8. Requires reauditing of deficient areas when it is considered necessary to verify implementation of required corrective actions.

37 | 9. Requires vendors/subcontractors to comply with items 1-8 above to the extent necessary.

53 | Documentation of audits performed by participating contractors is made available to NEO for evaluation.

Q421.75 |

9 | In summary, NEO verifies conformance of the regulatory audit requirements by three methods:

ADVANCE | 1. Review of contractors'/vendors' quality assurance methods for auditing.

2.	Review of documentation of the audit report performed by these contractors/vendors.	ADVANCE
3.	Internal and external audits performed by members of the Quality Assurance staff.	9

CPSES/FSAR

TABLE 17.2-1

(Sheet 1 of 2)

CPSES QA MANUAL COMPLIANCE MATRIX

COMANCHE PEAK QUALITY ASSURANCE MANUAL	APPENDIX B QUALITY ASSURANCE CRITERIA																	
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII
1.0 Organization	X																	
2.0 Quality Assurance Plan		X																
3.0 Design Control			X															
4.0 Procurement Document Control				X														
5.0 Instructions, Procedures and Drawings					X													
6.0 Document Control						X												
7.0 Control of Purchased Items and Services							X											
8.0 Identification and Control Items								X										
9.0 Control of Construction Processes									X									
10.0 Examinations, Tests and Inspections										X								
11.0 Test Control											X							
12.0 Control of Measuring and Test Equipment												X						
13.0 Handling, Storage, and Preservation													X					
14.0 Examination or Test Status														X				

COMANCHE PEAK	APPENDIX B																	: ADVANCE
QUALITY ASSURANCE	QUALITY ASSURANCE CRITERIA																	: ADVANCE
MANUAL	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	: ADVANCE
15.0 Nonconforming Items															X				: ADVANCE
16.0 Corrective Action																X			: ADVANCE
17.0 Quality Assurance																			: ADVANCE
Records																	X		: ADVANCE
18.0 Audits																		X	: ADVANCE

REGULATORY GUIDES AND INDUSTRY STANDARDS

The CPSES quality assurance program is consistent with the applicable guidance of the NRC Regulatory Guides and industry standards listed below. TU Electric will commit to comply with the respective regulatory positions as discussed in Appendix 1A(B). | ADVANCE

Regulatory Guide	Title	
1.8	Personnel Selection and Training	ADVANCE
1.30	Quality Assurance Requirements for Installation, Inspection, and Testing of Instrumentation and Electric Equipment (endorses ANSI N45.2.4-1972)	
1.33	Quality Assurance Program Requirements (Operations) (endorses ANSI N18.7-1976)	
1.37	Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants (endorses ANSI N45.2.1-1973)	
1.38	Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants (endorses ANSI N45.2.2-1972)	

REGULATORY GUIDES AND INDUSTRY STANDARDS

Regulatory Guide	Title
1.39	Housekeeping Requirements for Watercooled Nuclear Power Plants (endorses ANSI N45.2.3-1973)
1.58	Qualification of Nuclear Power Plant Inspection. Examination, and Testing Personnel (endorses ANSI N45.2.6-1978)
1.64	Quality Assurance Requirements for Design of Nuclear Power Plants (endorses ANSI N45.2.11-1974)
1.74	Quality Assurance Terms and Definitions (endorses ANSI N45.2.10-1973)
1.88	Collection, Storage and Maintenance of Nuclear Power Plant Quality Assurance Records (endorses ANSI N45.2.9-1974)
1.94	Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants
1.116	Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems (endorses ANSI N45.2.8-1975)

| 40

REGULATORY GUIDES AND INDUSTRY STANDARDS

Regulatory Guide	Title
1.123	Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants (endorses ANSI N45.2.13-1976)

ANSI Standard	
N45.2.12	Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants (Draft 4, Rev. 2 -January, 1976)