PART A

HOUSTON LIGHTING AND POWER COMPANY
QUALITY ASSURANCE PROGRAM DESCRIPTION

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION
QUALITY ASSURANCE DURING DESIGN AND CONSTRUCTION

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HOUSTON LIGHTING & POWER COMPANY
QUALITY ASSURANCE PROGRAM DESCRIPTION

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QUALITY ASSURANCE PROGRAM DESCRIPTION

South Texas Project Electric Generating Station

Quality Assurance During Design and Construction

Houston Lighting & Power Company (HL&P), as a licensee and as Project Manager for itself and the other owners, has quality assurance responsibility for design, engineering, procurement, fabrication, construction, and operation associated with the South Texas Project Electric Generating Station (STP). Although HL&P has delegated certain of its quality assurance authority to its contractors, it nevertheless retains the responsibility for the quality assurance program controlling all aspects of the STP. HL&P reviews and approves this QAPD and all changes thereto prior to implementation. Additionally, HL&P establishes quality assurance requirements for the Project in a Project Quality Assurance Plan. The Project Quality Assurance Plan specifies requirements applicable to prime contractors and HL&P. The HL&P Quality Assurance staff monitors the performance of HL&P staff and contractors to assure compliance with the Project Quality Assurance Plan.

HL&P has contracted with Westinghouse Electric Corporation (Westinghouse)for the design, fabrication, and quality assurance services for the nuclear steam supply system and with Bechtel Energy Corporation (BEC) for plant design, procurement, engineering, construction management, quality assurance services and other related services, including quality assurance services for Westinghouse items upon receipt at the Project site. HL&P has contracted with Ebasco Services, Inc. (ESI) for quality assurance and quality control and with Ebasco Construction Inc. (ECI) for construction services for its scope of work. This quality assurance program description addresses the HL&P quality assurance program (Part A), the quality assurance program of BEC (Part B), and the quality assurance program of Ebasco (Part C). The Westinghouse quality assurance program is described in WCAP-8370, "Westinghouse Nuclear Energy Systems Division Quality Assurance Plan" and is not included in this program description.

PART A

HOUSTON LIGHTING & POWER COMPANY
QUALITY ASSURANCE PROGRAM DESCRIPTION

South Texas Project Electric Generating Station
Quality Assurance During Design and Construction

Houston Lighting & Power Company (HL&P), as a licensee and as Project Manager for itself and the other owners, has the Quality Assurance (QA) responsibility for design, engineering, procurement, fabrication, construction, preoperational testing and operation of the South Texas Project (STP) Electric Generating Station.

HL&P's Project Quality Assurance Plan requires that HL&P, its prime contractors, subcontractors and vendors comply with the criteria established by 10CFR50, Appendix B. It is the intent of HL&P to comply with ANSI N45.2 and the applicable daughter standards and implementing Regulatory Guides as indicated in Table 1. Furthermore, HL&P will assure through programmatic direction that the prime contractors and all their subcontractors and suppliers performing nuclear safety-related work comply with 10CFR50, Appendix B; ANSI N45.2, and the Regulatory Guides as referenced herein consistent with their scope of work.

Programmatic direction is defined as the role of the owner in establishing the program requirements and ensuring the adecuacy of the Prime Design, Engineering and Construction Management Quality Assurance Program. The programmatic direction consists of review and approval of the system features initially and continued monitoring of those systems if the systems need strengthening. The assurance of compliance by first level nuclear safety-related suppliers and contractors will be accomplished through the Engineer/Construction Manager's review and approval of the supplier's/contractor's Quality Assurance Program.

The system monitoring is achieved through audits and surveillances of work in progress.

The HL&P Quality Assurance Program is implemented in two phases: the design and construction phase as defined by the Project Quality Assurance Plan and the operational phase, including preoperational testing and startup, as defined by the Operational Quality Assurance Plan. The Project Quality Assurance Plan is described herein. The Operational Quality Assurance Plan is described in Chapter 17.2 of the FSAR.

The combination of these Quality Assurance programs augmented by definitive procedures provide HL&P with the assurance that its quality commitments are met.

1.0 Organization

1.1 The organization charts shown in Figures 1 through 5 illustrate: (a) groups within HL&P having quality responsibilities (engineering, procurement, construction) and (b) Quality Assurance interdepartmental relationships for the South Texas Project.

1.2 The Project Quality Assurance Manager, South Texas Project, is responsible for providing the programmatic direction, and administering policies, goals, objectives and methods which are described in the Project Quality Assurance Plan. The HL&P Group Vice President Nuclear, reviews and approves the Project Quality Assurance Plan and has ultimate responsibility for Quality Assurance activities. The Project Quality Assurance Plan describes specific Quality Assurance controls to be established by HL&P and the prime contractors on the South Texas Project.

1.3 Two levels of control have been implemented by HL&P to monitor the effectiveness of the Quality Assurance Programs at the South Texas Project.

a. Corporate level control - Corporate level control is achieved through the direct involvement of the HL&P Group Vice President, Nuclear, and Quality Services audits or vendor surveillance as described below. The Group Vice President, Nuclear, regularly meets with QA management and receives reports on the status of the QA Programs to aid him in evaluating the overall effectiveness. Quality Services audits and vendor surveillance are conducted under the direction of the General Manager, Nuclear Assurance to evaluate the overall program effectiveness of HL&P Project Quality Assurance, Westinghouse and its suppliers. Quality Services audits of the Architect Engineer/Construction Manager's activities may be performed as requested by the Project Quality Assurance Manager.

b. Project level control - Project level control is achieved through Project Quality Assurance Program approval and monitoring of the effectiveness of implementation by HL&P, prime contractors and subcontractors. The Project QA staff under the direction of the Project Quality Assurance Manager prepares the Project Quality Assurance Plan and reviews and approves the Project Quality Program Manual for the Architect Engineer/Construction Manager. The monitoring is implemented by scheduled Project audits performed by qualified auditors. Additional monitoring is accomplished by Project QA personnel performing unscheduled selected surveillance of in-process work. HL&P Project Quality Assurance also maintains the capability to perform inspection verifications of in-process or completed work if determined to be necessary by the Project Quality Assurance Manager. If necessary the inspections are performed by personnel qualified in accordance with ANSI N45.2.6.

1.4 Group Vice President, Nuclear

The Group Vice President, Nuclear, is responsible for management of nuclear projects and operating nuclear plants and for all nuclear activities within HL&P related to design, engineering, construction, operation, and quality assurance. The Group Vice President, Nuclear, provides technical guidance and administrative direction to:

a. General Manager, South Texas Project

b. Manager, Nuclear Engineering

c. Vice President, Nuclear Plant Operations
(Description of responsibilities is contained in Chapter 17.2, FSAR)

d. General Manager, Nuclear Assurance

The Group Vice President, Nuclear, reports to the Chairman of the Board and Chief Executive Officer.

1.5 General Manager, South Texas Project

The General Manager, South Texas Project reports to the Group Vice President, Nuclear.

He has overall responsibility for the engineering, licensing, construction, procurement, cost, schedule, and startup of the South Texas Project. He has authority to "Stop Work" for cause in all activities of the Project.

1.5.1 Unit 2 Project Manager

The Unit 2 Project Manager reports to the General Manager, STP as shown in Figure 2.

He has overall responsibility for the Unit 2 Construction Startup, Engineering, Licensing, Records Management, Cost and Schedule activities of the South Texas Project acting for the General Manager, STP in his absence and/or stead. He directs the efforts of his staff and the prime contractors to insure that Unit 2 is designed, constructed and tested efficiently and cost effectively while upholding quality and safety standards. He has "Stop Work Authority" for cause in all activities affecting his area of responsibility.

1.5.2 Manager, Engineering and Licensing

The Manager, Engineering and Licensing reports to the Unit 2 Project Manager as shown in figure 2.

He has overall responsibility for Engineering and Licensing activities of the South Texas Project acting for the Unit 2 Project Manager in his absence and/or stead. He provides the primary interface with the NRC. He directs the engineering personnel in the performance of the owner's review of the design and engineering work performed by the prime contractors. He insures that adequate engineering, planning, coordination of solutions to problems, and work priorities are established by the prime contractors. He has "Stop Work Authority" for cause in the engineering and design activities on the project.

1.5.3 Principal Engineer, Project Site

The Principal Engineer, Project Site reports to the Manager, Engineering and Licensing. He is responsible for coordinating the site engineering interface in the technical resolution of all site related engineering problems, reviewing field change requests, site initiated design change notices and for monitoring the activities of the prime contractors construction engineering groups. He assists in the release and interpretation of design documents. He can recommend "Stop Work" for cause in the area of engineering and design within his responsibility.

1.5.4 Principal Engineer, Project Houston

The Principal Engineer, Project Houston reports to the Manager, Engineering and Licensing. He is responsible for coordinating the Houston Engineering interface in the technical resolution of all Houston related engineering problems, reviewing Houston change requests, Houston initiated design change notices, and for monitoring the activities of the prime contractors engineering groups. He assists in the release and interpretation of design documents. He can recommend "Stop Work" for cause in the area of engineering and design within his responsibility.

1.5.5 Principal Engineer, Houston Licensing

The Principal Engineer, Houston Licensing reports to the Manager, Engineering and Licensing. He provides the administrative and technical support necessary to ensure that licensing documents are prepared and published so as to be both timely and accurate.

1.5.6 Manager Project Controls

The Manager, Project Controls reports to the Unit 2 Project Manager. He is responsible for directing and monitoring the cost and scheduling control and reporting activities for the project.

1.5.7 Manager, Records Management/Document Control and Information Processing

The Manager, Records Management/Document Control and Information Processing reports to the Unit 2 Project Manager. The Manager, RM/DC/IP is responsible for managing the Records Management personnel and interfacing with the prime contractors and all Project organizations with respect to the establishment of systems that control, collect, store and transfer records related to the South Texas Project.

1.5.8 Manager, Project Records Review Program

The Manager, Project Records Review Program reports to the Manager, Records Management/Document Control and Information Processing. He is responsible for reviewing safety related installation records for technical adequacy, identification of records discrepancies, returning of discrepant records to the originating group for correction, and HL&P final acceptance of the records. This review is a joint effort between Ebasco, Bechtel and HL&P.

1.5.9 Startup Organization

NOTE: The detailed discussion of the startup organization is contained in the Operations Quality Assurance Plan (OQAP).

1.5.10 Manager, Construction

The Manager, Construction reports to the Unit 2 Project Manager. He is responsible for providing technical direction and administrative guidance to HL&P and its prime contractors in the area of construction, construction control and reviewing documents, drawings and specifications related to construction. He provides direction to Site Security, with respect to the Construction organization. He is responsible for ensuring that the prime contractors comply with all contractual and construction requirements. He monitors the prime contractors construction in the areas of construction plans, schedules, work methods, craft performance, staffing, equipment utilization and progress. He has the authority to "Stop Work" for cause in all activities related to construction.

1.5.11 Supervisor, Project Services and Administration

The Supervisor Project Services and Administration reports to the General Manager South Texas Project. He is responsible for assuring proper review and coordination of all Project procedures, maintenance of the STP forms control program, maintaining a controlled required reading program for the STP Project Team and the review of non-project procedures to ensure consistency with Project requirements and objectives.

1.6 General Manager, Nuclear Assurance

The General Manager, Nuclear Assurance, has the authority and responsibility to identify, initiate, recommend, or provide solutions to quality related problems and verify the implementation and effectiveness of the solutions. He has the authority to "Stop Work" for cause in the design, construction, and operation phase of the nuclear plant. The minimum requirements established for this position are:

a) A college degree in a field of engineering or science, or equivalent experience.

b) Familiarity with nuclear power generation facilities and the related operations.

c) Knowledge of the industry's quality assurance standards and regulatory requirements.

d) Management experience and familiarity with HL&P corporate organizations.

The General Manager, Nuclear Assurance, provides technical guidance and administrative direction to:

e) Project Quality Assurance Manager

f) Quality Services Manager

g) Operations Quality Assurance Manager
(The responsibilities of the Operations Quality Assurance Manager are described in Chapter 17.2, FSAR).

h) Engineering Assurance Manager

The General Manager, Nuclear Assurance, reports to the Group Vice President, Nuclear.

1.6.1 Project Quality Assurance Manager, South Texas Project

The Project Quality Assurance Manager, South Texas Project has the responsibility to identify, initiate, recommend, or provide solutions and authority to solve quality related problems and to verify the implementation and effectiveness of the solutions. He has the authority to "Stop Work" for cause of any quality-related activity during the design and construction phase of the South Texas Project. The Project Quality Assurance Manager, South Texas Project, must, as a minimum, have:

a) A college degree in a field of engineering or science, or equivalent experience.

b) Familiarity with nuclear power generation facilities and related operations.

c) Knowledge of the QA standards and regulatory requirements.

d) Management experience and familiarity with HL&P corporate organizations.

The major responsibilities of the Project Quality Assurance Manager, STP are:

e) Develop and administer QA policies, goals, objectives, and methods which ensure the proper planning, development, implementation, coordination and administration of the Project Quality Assurance Plan.

f) Provide programmatic direction on QA related matters of HL&P, and contractor management.

g) Direct the onsite audit and surveillance activities; direct audits/surveillances of the Engineer/Construction Manager's QA program implementation in the design office.

h) Coordinate activities relating to auditing and vendor surveillance in conjunction with the HL&P Quality Services Manager.

The Project Quality Assurance Manager reports on all Quality Assurance matters directly to the General Manager, Nuclear Assurance.

1.6.2 Project QA Supervisor - Analysis

The Project QA Supervisor - Analysis reports directly to the Project QA Manager. He is responsible for assisting in development of QA programs and procedures, provides input for responses to NRC Inspection and Enforcement Reports, performs special studies, investigations and analysis of quality programs as requested, provides quality engineering input into trend analysis, technical analysis and corrective action and participates in audits as requested. He has "Conditional Stop Work Authority" for cause on any quality related activity during the design and construction phase of the project at the site.

1.6.3 Lead QA Specialist - Audits

The Lead QA Specialist - Audits reports directly to the Project QA Manager. He is responsible for coordinating, scheduling and participating in audits of HL&P, the Architect Engineer/Construction Manager, the Constructor and other contractors, and supports special task force efforts and project team studies when requested. He has "Conditional Stop Work Authority" for cause on any quality related activity during the design and construction phase of the project at the site.

1.6.4 Project QA Supervisor - Surveillances/Effectiveness Inspections

The Project QA Supervisor - Surveillances/Effectiveness Inspections reports directly to the Project QA Manager. He is responsible for coordinating and directing surveillances of HL&P and contractors, directing the HL&P inspection of selected construction and fabrication activities and coordinating with prime contractor personnel. He is responsible for nonconformance identification and assures that personnel within the Quality Control Group are properly certified. He has "Conditional Stop Work Authority" for cause on any quality related activity during the design and construction phase of the project at the site.

1.6.5 Quality Services Manager

The Quality Services Manager is responsible for directing Quality Services activities which are primarily involved with plant outages and modifications under the Operations QA Program, but also includes Vendor Control, Quality Engineering and Quality Systems/ Administration activities performed in support of the Project. The Quality Services Manager exercises "Stop Work Authority" for Project related matters through the Project QA Manager by notifying the Project QA Manager of a deficient condition which could warrant possible stop work. The Quality Services Manager, South Texas Project, must, as a minimum have:

a) A college degree in a field of engineering or science.

b) Familiarity with nuclear power generation facilities and related operations.

c) Knowledge of the QA standards and regulatory requirements.

d) Management experience and familiarity with HL&P corporate organizations.

The major responsibilities of the Quality Services Manager are:

e) Develop and administer Quality Assurance policies and ensure the proper planning, development, implementation, coordination and administration of the Operation Quality Assurance Plan.

f) Provide programmatic direction on QA related matters to HL&P and contractor management.

The Quality Services Manager reports on all Quality Assurance matters directly to the General Manager, Nuclear Assurance.

1.6.6 Quality Services Supervisor, Vendor Control

The Quality Services Supervisor, Vendor Control reports directly to the Quality Services Manager, South Texas Project. He is responsible for providing administrative guidance and direction to the HL&P Vendor Surveillance and Evaluation Group. He exercises "Stop Work Authority" through the Quality Services Manager by notifying the Quality Services Manager of a deficient condition which could warrant possible stop work.

1.6.7 Quality Services Supervisor, Quality Engineering

The Quality Services Supervisor, Quality Engineering reports to the Quality Services Manager, for project related activities he reports to the Project QA Manager. He is responsible for providing technical direction and administrative guidance to HL&P Design/Procurement Quality Assurance personnel, coordinating the resolutions of vendor problems identified by HL&P QA and providing programmatic direction to the Engineer/Construction Manager regarding design control, vendor surveillance and auditing functions. He exercises "Stop Work Authority" by notifying the Quality Services Manager of a deficient condition which could warrant possible stop work.

1.6.8 Supervisor, Quality Systems/Administration

The Supervisor, Quality Systems/Administration reports directly to the Quality Services Manager. He is responsible for providing technical direction and administrative guidance to the Quality Systems/Administration personnel, developing and maintaining the HL&P Project QA Plan, evaluating the Engineer/Construction Manager and Constructor QA programs, administering the HL&P STP QA personnel training and certification program, administrative control of HL&P STP Project Quality Assurance Procedures and providing mechanisms to correct the QA programs as necessary. He exercises "Stop Work Authority" by notifying the Project QA Manager of a deficient condition which could warrant possible stop work.

1.6.9 Engineering Assurance Manager

The Engineering Assurance Manager reports directly to the General Manager, Nuclear Assurance. He is responsible for the planning, scheduling, and execution of independent technical reviews of selected design and engineering activity performed by both HL&P Engineering and, as appropriate, the prime contractors. He exercises "Stop Work Authority" by notifying the Project QA Manager, Quality Services Manager or Operations QA Manager, as appropriate, of a deficient condition which could warrant possible stop work.

1.7 Manager, Nuclear Training

The Manager, Nuclear Training reports to the Vice President, Nuclear Plant Operations. He directs, coordinates, and administers the STP nuclear training efforts and provides direction to the prime contractors relative to training. The STPEGS Nuclear Training program includes the Quality Assurance Indoctrination for HL&P personnel associated with the safety related activities for the South Texas Project.

1.8 Manager, Nuclear Engineering

The Manager, Nuclear Engineering reports to the Group Vice President, Nuclear. He is responsible for directing personnel in the performance of an owner's review of selected analyses. He is also responsible for overseeing and coordinating nuclear fuel plant design interface support to the STP Project Team.

1.9 The organizations or entities listed below may be delegated Quality Assurance authority within their scope of work. HL&P has the responsibility to audit and monitor all of the below listed organizations' or entities' performance to assure that their quality programs provide sufficient authority and organizational freedom for personnel performing QA functions and that they are effectively implemented.

a) Houston Lighting & Power Company as a licensee and Project Manager for itself and the other owners has the overall responsibility for design, engineering, procurement, construction, operation and quality assurance activities. Bechtel Energy Corporation and Westinghouse Electric Corporation have contractual responsibility to provide acceptable QA programs to HL&P. The contract provides HL&P the authority to audit and monitor BEC and Westinghouse performance to assure that the QA programs provide for sufficient authority and organizational freedom to be effectively implemented.

b) Bechtel Energy Corporation as the Architect/Engineer and Construction Manager provides HL&P with design, engineering, procurement, construction management and Quality Assurance services.

c) Westinghouse Electric Corporation as the Nuclear Steam Supply System (NSSS) supplier provides HL&P with the NSSS design, engineering, procurement, fabrication, and quality assurance services.

d) Ebasco Services Inc. as the Constructor shall provide HL&P with construction quality assurance and quality control services under the direction and as approved by the Construction Manager.

e) Consultants - HL&P utilizes the services of qualified consultants to assist in the performance of quality tasks.

Figure 5 illustrates how these companies interrelate with HL&P for the South Texas Project.

2.0 Quality Assurance Program

2.1 The HL&P Project Quality Assurance Program for the South Texas Project has been developed in accordance with the criteria of 10CFR50 Appendix B, ANSI N45.2 and Regulatory Guides as reference herein, to provide programmatic direction on quality requirements for the prime contractors and subcontractors during design and construction.

2.2 The nuclear safety-related structures, systems and components covered by this program are listed in Section 3.2 of the FSAR. Westinghouse Electric Corporation provides quality assurance services for the items listed in Table 3.2.B-1 of the FSAR until delivery to the site. BEC and ESI provide quality assurance services for the items listed in Table 3.2.A-1 of the FSAR within the scope of their work. BEC provides quality assurance and quality control services for Westinghouse items (Table 3.2.B-1) upon receipt at the site until release for construction, after which ESI provides such services.

2.3 The HL&P Quality Assurance Program for the South Texas Project is described by the HL&P Project Quality Assurance Plan. The plan requires that written procedures, Training and Certification, issuance of specifications and drawings, and work and inspection planning be accomplished in advance of performing nuclear safety-related activities. HL&P Project Quality Assurance ensures through procedure reviews that this advance preparation is accomplished.

The Project Quality Assurance Plan for the South Texas Project has in the past been structured in accordance with the Regulatory Guides (RGs) and Industrial Standards that are addressed in the NRC publications "Guidance on QA Requirements During Design and Procurement Phase of Nuclear Power Plants," (The Gray Book) Revision 1 dated May 24, 1974 (WASH 1283) and "Guidance on QA Requirements During the Construction Phase of Nuclear Power Plants," (The Green Book) dated May 10, 1974 (WASH 1309). Presently the regulatory guides and standards listed on Table 1 are in effect for the South Texas Project.

2.4 The HL&P Plans and Procedures Manuals, which are used to implement the quality related activities for each major HL&P organization, are listed in Table 2. Verification that plans and procedures are properly implemented is accomplished by HL&P Quality Assurance through audits, surveillance, and regular management assessment of the Quality Assurance Program.

2.5 It is the policy of HL&P, acting as a licensee and Project Manager for the other owners for the South Texas Project, to assure that the design, fabrication, construction, testing and operation of STP are in conformance with Project specifications, procedures, codes and NRC regulations. It is the responsibility of each organization assigned to the STP to ensure that Project procedural review methods include provisions to ensure that the requirements stated in this program description are incorporated into Project procedures. The Project Quality Assurance Plan identifies activities and establishes requirements for procedures which identify, initiate and verify the resolution of nuclear safety-related quality problems. The implementing procedures call

for the resolution of quality problems at the lowest possible authorized level. However, if a dispute is encountered in the resolution of a quality problem which cannot be resolved at lower levels, the General Manager, Nuclear Assurance, presents the problem ultimately to the HL&P Group Vice President, Nuclear, for resolution.

2.6 The HL&P Nuclear Training Department is responsible for conducting a quality oriented indoctrination program for new HL&P personnel who have quality-related functions. The HL&P Project Quality Assurance Plan requires that prior to performing activities affecting quality the personnel are trained, as necessary, in the applicable procedures. The training provides a thorough understanding of the purpose, scope, policies, principles, and techniques of the specific procedures or instructions. When personnel perform special activities, a training and certification program is established and maintained. Refresher training is conducted as necessary to ensure that proficiency is maintained. Bechtel is required to establish a training program for Bechtel and administer the constructor's training program including refresher training as necessary, to ensure proficiency is achieved and maintained. Quality Assurance audits and surveillances are performed to ensure compliance with these criteria.

2.7 The Project Quality Assurance Manager is directly responsible for assuring effective implementation of the Quality Assurance program. The qualifications for this position are defined in Section 1.7.1.

2.8 The HL&P Project Quality Assurance Plan requires BEC to review and approve procedures which control nuclear safety-related construction activities. It is the responsibility of BEC's Project Quality Assurance to determine that the contractor's procedures require proper equipment, environment and other prerequisites to perform the associated activity. The implementation of these requirements is verified through audits and surveillances performed by either HL&P, BEC or ESI Quality Assurance.

2.9 All quality related activities implemented for the South Texas Project are audited annually at a minimum, or at least once within the life of the activity, whichever is shorter. These audits are performed by either HL&P, BEC, or ESI Quality Assurance personnel. Selected areas are targeted and scheduled for more frequent auditing based on such factors as complexity, relative significance, past performance, etc. Supplemental audits will also be performed as described in Section 18.

2.10 The results of the South Texas Project Quality Assurance audit and surveillance activities are presented in a periodic report to the HL&P Group Vice President, Nuclear. Regular executive management review of these activities and the direct involvement of the HL&P Group Vice President, Nuclear, assures that an objective program assessment of the South Texas Project Quality Assurance programs is being performed.

HL&P Project Quality Assurance reviews and documents approval of the BEC Project Quality Program Manual (PQPM); and audits and surveillances are performed by either HL&P Quality Assurance or Bechtel Quality Assurance to ensure compliance with the BEC PQPM.

2.11 HL&P and BEC Project Quality Assurance will establish and document a program for transferring responsibilities and controls for quality-related activities from BEC to HL&P during phaseout of design/construction and plant turnover. This program will be implemented prior to preoperational testing. This program will be in accordance with and consistent with the requirements of this section and/or 17.2 of the FSAR.

2.12 HL&P is committed to maintaining the Quality Assurance Program Description as an effective and meaningful document to provide programmatic direction to HL&P and the prime contractors on the South Texas Project. When changes are proposed to the QAPD for HL&P or its prime contractors and those proposed changes reduce the commitments previously established in the QAPD, approval by the NRC will be obtained prior to implementation of the change(s).

2.13 When changes are made to the QAPD which alter the program for HL&P or its prime contractors and those changes do not reduce the commitments previously established in the QAPD, appropriate notification will be made to the NRC within 90 days of implementation.

3.0 Design Control

HL&P has the overall responsibility for design and engineering of the South Texas Project and imposes the requirements of 10CFR50, Appendix B, Criterion III, Regulatory Guide 1.64 and ANSI N45.2.11 on the prime contractors and applicable subcontractors.
HL&P has assigned the authority to BEC and Westinghouse to perform the design, engineering and design verification.

HL&P, as appropriate, selects contractors/subcontractors to perform design related tasks. These tasks include but are not limited to the following:

- New design
- Special design studies
- Design work outside the scope of prime contractors
- Changes to existing design performed by contractors no longer associated with the South Texas Project.

To be eligible to participate in design activities the contractor must be approved to assure he has the capability to perform the design or requested task in accordance with specified requirements. When a contractor has been selected, the HL&P General Manager, STP, or designee shall ensure that all appropriate design background information with which to perform the task is provided.

HL&P Engineering performs reviews of selected elements of the completed design, design documents and specifications to ensure that contractual requirements are met.

The HL&P Manager, Engineering and Licensing is responsible for ensuring that engineering activities are conducted in accordance with approved engineering procedures. The Engineering organization provides programmatic direction and overview of the engineering activities. The HL&P Engineering activities are conducted in accordance with Project Engineering Procedures (PEP's).

When HL&P has direct responsibility or assumes direct responsibility for conducting design activities, these activities will be conducted in accordance with the requirements of this section and/or the FSAR Section 17.2.3.

HL&P contractors are required to provide the following design control measures in their quality assurance programs:

- A design control system is established to document the methods of accomplishing and controlling essential design activities.

- Design documents such as calculations, diagrams, specifications and drawings are prepared and records developed such that the final design is traceable to its sources.

- Design activities, documents and interfaces are controlled to assure that applicable input such as design bases, regulatory requirements, codes and standards are incorporated into the final design.

- Design input requirements, including design criteria, are documented and their selection reviewed and approved.

- Design documents include an indication as to their importance to safety and shall specify the quality characteristics, including materials, parts, equipment and processes, that are essential to safety-related aspects of structures, systems, and components.

- Design documents also include, as appropriate, acceptance criteria for inspections and tests.

- Design control measures are applied to safety-related items such as seismic, stress, thermal, hydraulic, radiation and accident analyses, as they apply to the development of design input or as they are used to analyze the design.

- Safety-related designs, including Seismic Category I designs, are verified for adequacy and accuracy through independent objective review of design documents by individuals competent in the subject activity. This verification may include the use of alternate or simplified solution methods or qualification testing, as appropriate.

- Design changes, including engineering, vendor and construction originated changes, are controlled in a manner commensurate with the control imposed on the original design.

- Document distribution is controlled such that all individuals using a design document or its results and/or conclusions for further design work can be notified if the document is revised or cancelled.

- Design documentation includes evidence that design control requirements have been satisfied.

- Errors and deficiencies in approved design documents, including design methods (such as computer codes), that could adversely affect safety-related structures, systems and components are documented; and action taken to assure that all errors and deficiencies are corrected.

- Deviations from specified quality standards are identified and procedures are established to ensure their control.

- An accurate definition of the quality classes, including systems designated as safety-related is provided.

Quality Assurance audits are performed by either HL&P or BEC Quality Assurance personnel of HL&P, BEC and Westinghouse to ensure that design controls, requirements, specifications and documents are in accordance with the design control criteria.

In addition, HL&P Project Quality Assurance reviews selected quality/construction procedures to ensure that the quality requirements of the design specifications are incorporated. Quality Assurance audits and surveillances are performed by either HL&P or BEC Quality Assurance personnel to ensure that the work is accomplished in accordance with the design requirements and to ensure that field changes to the design are processed in accordance with the design control criteria.

4.0 Procurement Document Control

To assure that nuclear safety-related items are purchased in a planned and controlled manner, the HL&P Project Quality Assurance Plan establishes basic requirements which are to be used by HL&P and prime contractors in preparing procurement procedures for the South Texas Project. BEC performs procurement activities for nuclear safety-related equipment, materials and services, exclusive of the NSSS contract, which

is performed by Westinghouse. BEC will approve any Ebasco nuclear safety-related procurements. BEC, and as appropriate, Ebasco verify through contract, vendor surveillance and audit that their suppliers comply with the established requirements.

When HL&P [illegible]rect responsibility or assumes direct responsibility for procurement activities, these activities will be conducted in accordance with the requirements of this section.

The basic requirements are:

- Written procedures are established clearly delineating the sequence of actions to be accomplished in the preparation, review, approval, and control of procurement documents.

- A review of the adequacy of quality requirements stated in procurement documents is performed by qualified personnel knowledgeable in the QA requirements. This review is to determine all quality requirements are correctly stated; they can be inspected and controlled; there are adequate acceptance and rejection criteria; and the procurement document has been prepared in accordance with QA Program requirements.

- Documented evidence of the review and approval of procurement documents is provided and available for verification.

- Procurement documents identify those quality assurance requirements which must be complied with and described in the supplier's QA Program to meet 10CFR50, Appendix B; ANSI N45.2 and applicable ANSI standards and Regulatory Guides. This QA Program shall be reviewed for adequacy by qualified personnel knowledgeable in quality assurance.

- Procurement documents contain or reference applicable design bases; technical requirements, including regulatory requirements; component and material identification; drawings; specifications; codes and industrial standards, including their revision status; tests and inspection requirements; and instructions of such activities as fabrication, cleaning, erecting, packaging, handling, shipping, storing and inspecting.

- Procurement documents contain, as applicable, requirements which identify the documentation to be prepared, maintained, submitted and made available to the procuring agent for review and/or approval, such as drawings, specifications, procedures, inspection and test records, personnel and procedure qualifications and material and test reports.

- Procurement documents contain, as required, provisions for extending applicable requirements to lower tier subcontractors and suppliers, including purchaser's access to facilities and records.

- Procurement documents contain provisions for control of nonconformances including 10CFR21 notification and for method of acceptance of the item or service.

- Procurement documents contain the requirements for the retention, control, submittal and maintenance of records.

- Procurement documents contain the procuring agency's right of access to Vendor's facilities and records for source inspection and audit.

- Changes and/or revisions to procurement documents are subject to at least the same review and approval requirements as the original document.

- Purchase documents for spare or replacement parts of safety-related structures, systems and components are reviewed for adequacy of quality requirements by qualified personnel knowledgeable in quality assurance. The review is to determine the adequacy of the quality assurance requirements and acceptance criteria relative to the original design.

- The evaluation and selection of suppliers are determined by qualified personnel in accordance with written procedures acceptable to HL&P.

- Procurement documents, records and changes thereto are collected, stored, maintained and retrievable in a systematic and controlled manner.

HL&P Engineering is responsible for review of selected BEC Procurement Specifications.

Audits and surveillances are performed by either HL&P or BEC Quality Assurance personnel to verify that the requirements have been implemented and that they are effective.

5.0 Instructions, Procedures and Drawings

The HL&P Project Quality Assurance Plan requires HL&P, the prime contractors and their suppliers to establish and implement a Quality Assurance Program which is in compliance with 10CFR50 Appendix B, ANSI N45.2 and applicable ANSI standards and Regulatory Guides. Each program is required to be effective in verifying that the defined activities are accomplished and documented in accordance with written procedures, instructions, and drawings and that they provide quantitative and qualitative acceptance criteria.

HL&P Project Quality Assurance reviews and approves the BEC South Texas Project Quality Assurance Program. To measure the effectiveness of the prime contractors' quality assurance programs, a monitoring program consisting of audits and surveillances has been established for the South Texas Project. HL&P Project Quality Assurance also audits HL&P Corporate organizations that perform functions for the South Texas Project. Additionally, HL&P Quality Services audits HL&P Project Quality Assurance and Westinghouse for compliance with their respective Quality Assurance Programs.

6.0 Document Control

The HL&P Project Quality Assurance Plan and implementing procedures require that HL&P, the prime contractors and subcontractors implement a document control system for nuclear safety-related items for the South Texas Project. The established system ensures that design, engineering, procurement, fabrication, construction and QA/QC procedures, plans and changes thereto are reviewed and approved by procedurally authorized groups and that the documents are issued, maintained current and controlled by the use of controlled lists of document holders to ensure that superseded documents are replaced in a timely manner.

Measures are established and documented to control the issuance of documents, such as instructions, procedures and drawings, including changes thereto, which prescribe activities affecting quality. These measures assure that documents, including changes, are reviewed for technical adequacy and the inclusion of appropriate quality requirements, are approved for release by authorized personnel and are distributed to and used at the location where the prescribed activity is performed. Changes to documents are reviewed and approved by the same organizations that performed the original review and approval unless other organizations are specifically designated. The reviewing organizations have access to pertinent background information upon which to base their approval and shall have adequate understanding of the requirements and intent of the original document.

Those participating in an activity are made aware of and use proper and current instructions, procedures, drawings and engineering requirements for performing the activity. Participating organizations have procedures for control of the documents and changes thereto to preclude the possible use of outdated or inappropriate documents.

Document Control measures provide for:

- Identification of individuals or organizations responsible for preparing, reviewing, approving and issuing documents and revisions thereto;

- Identifying the proper documents to be used in performing the activity;

- Coordination and control of interface documents;

- Ascertaining that proper documents are being used;

- Establishing current and updated distribution lists;

- A listing identifying the current revision of instructions, procedures, specifications, drawings and procurement documents. The list is updated and distributed to predetermined responsible personnel.

Audits and surveillances are performed by either HL&P, BEC or ESI QA personnel to verify that document control systems are in place and effectively implemented.

7.0 Control of Purchased Material, Equipment and Services

The HL&P Quality Assurance Plan and implementing procedures require that HL&P, prime contractors and subcontractors define and document the system and requirements for the control of nuclear safety-related purchased material, equipment and services.

Control and verification of supplier's activities during fabrication, inspection, testing and shipment of materials, equipment and components is planned and performed as early as possible, as required to assure conformance to the purchase order or contractual requirements. These procedures provide for:

- Requiring the supplier to identify processes to be utilized in fulfilling procurement requirements.

- Reviewing documents required to be submitted by the procurement requirements.

- Specifying the characteristics or processes to be witnessed, inspected or verified and accepted based upon the fabrication schedules; the method of surveillance and the extent of documentation required; and those responsible for implementing these procedures.

- Audits, surveillance and/or inspections which verify that the supplier complies with the quality requirements of his QA program.

Control and verification of organizations performing services is accomplished by technical verification of data provided, surveillance and/or audit of the activity and review of objective evidence such as certifications, reports, etc.

The selection of suppliers is based on evaluation of their capability to provide items or services in accordance with the requirements of the procurement documents prior to award of contract.

Procurement source evaluation and selection measures are implemented by HL&P and BEC which provide for the identification of the organizational responsibilities for determining supplier capability.

Measures for evaluation and selection of procurement sources, and the results thereof, are documented and include one or more of (a) through (c) and also must include (d) below:

a. Evaluation of the supplier's history of providing an identical or similar product or service which performs satisfactorily in actual use. The supplier's history shall reflect current capability.

b. Supplier's current quality records supported by documented qualitative and quantitative information which can be objectively evaluated. The records reviewed may include the ASME Section III Certificates of Authorization for N, NA, NPT and NV stamps.

c. Supplier's technical and quality capability as determined by a direct evaluation of his facilities and personnel and the implementation of his approved quality assurance program. Reviews of ASME Nuclear Certificates of Authorization may be used to qualify the supplier in lieu of direct evaluation.

d. Evaluation of bid documents including review for technical adequacy, quality assurance and commercial considerations.

Procurement of spare or replacement parts for safety-related structures, systems and components is subject to QA program controls, to codes and standards and to technical requirements at least equal to the invoked original technical requirements or any properly reviewed and approved revisions.

A receipt inspection is planned and implemented to assure:

- Timely inspection of items upon receipt.

- The material, component or equipment is properly identified and corresponds to the identification on the purchase document and receiving documentation.

- Material, components, equipment and acceptance records satisfy the receiving inspection instructions prior to installation or use.

- Specified inspection, test and other records are accepted and available at the South Texas Project prior to installation or use where required unless otherwise authorized by conditional release.

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

- Coordination of receipt inspection with vendor surveillance activities to verify the required vendor inspection has been performed or a waiver documented.

- Deficiencies if applicable have been resolved prior to shipment.

Supplier control and use of Certificates of Conformance, when required by procurement documents, are evaluated by audits, vendor inspections or tests to ensure they are valid. The supplier's records shall include a description of those nonconformances from the procurement requirements dispositioned "accept as is" or "repair," including evidence of acceptance by the purchaser's engineering organization.

Site receiving inspection ensures that, for nuclear safety-related items received at the South Texas Project, there is accompanying documentation that indicates review and concurrence by the appropriate prime contractor or designee, that the item complies with established requirements or has an authorized waiver prior to shipment. Audits and surveillances are performed by either HL&P or BEC Quality Assurance personnel to ensure compliance with these criteria.

HL&P Quality Services ensures by audits/surveillances of the AE/Construction Manager's vendor surveillance function that source surveillance and inspection are performed in accordance with the quality assurance program. In addition, audits and surveillances are performed by either HL&P or BEC Quality Assurance personnel of activities commencing with receiving inspection at the site to ensure proper controls of purchased material and equipment are exercised and to ensure overall compliance.

8.0 Identification and Control of Materials, Parts and Components

The HL&P Project Quality Assurance Plan requires that prime contractors and suppliers establish written procedures for the identification and control of materials, parts and components including partially assembled components. Prime contractor's and supplier's procedures shall include the documented verification of correct identification of materials, components and subassemblies, and that the method of identification does not affect the function or quality of the item prior to release of the items for assembly or installation. These procedures must:

- Establish controls to identify and control materials (including consumables), parts and components (including partially fabricated subassemblies).

- Provide specific identification and traceability controls when required by codes, standards or specifications.

- Provide a method for identification and control of incorrect or defective items. This system includes verification and documentation prior to release for fabrication, assembling, shipping and installation.

All safety related items and material shall be controlled by one or more of the following:

- Uniquely identified and traceable.

- Physically marked - items are not traceable but are readily retrievable.

- Physically identified as to type and user tested.

- Identifiable as to type, by some physical characteristic or other administrative control.

BEC and ESI Quality Assurance verify that the above criteria are incorporated into the quality/construction procedures during the review/approval cycle. Audits and surveillances are performed by either HL&P, BEC or ESI Quality Assurance personnel to verify compliance.

9.0 Control of Special Processes

The HL&P Project Quality Assurance Plan requires that written procedures be established by prime contractors and subcontractors for the activities associated with all special processes. For special processes the qualification of personnel, procedures and equipment relating to specific codes, standards, specifications and contractual requirements shall be documented and maintained current.

Special Processes - special manufacturing processes, metallurgical, chemical, material cleaning, welding, plating and other processes where assurance of the process quality is dependent largely on the inherent skill of the operator and cannot be assured by the inspection of articles alone.

Special processes for the South Texas Project include but are not limited to:

- Welding

- Heat treating

- Cadwelding

- Nondestructive examination

- Chemical cleaning and flushing

- Coatings

Organizational responsibilities are defined in procedures for qualification of special processes, equipment and personnel. These responsibilities will include the provision to assure that special processes are performed by qualified personnel using procedures qualified and approved in accordance with applicable codes, standards or other requirements.

Special processes are performed under controlled conditions by qualified personnel using procedures qualified and approved in accordance with applicable codes, standards or other requirements. For special processes not covered by existing codes or standards the specific equipment, personnel qualification and procedure qualification requirements are defined prior to application of the special process. Records are maintained for the qualification of procedures, equipment and personnel associated with special processes. Records are in sufficient detail to clearly define the procedures, equipment or personnel being qualified; criteria or requirements used for qualification; and the individual approving the qualification.

HL&P Quality Assurance verifies that the special process control criteria are met by BEC and ESI review and approval of special process procedures.

HL&P will retain the capability with a quality control group to perform, as directed by the PQAM, certain special process examinations (NDE) during the inspection verification process. Special process examinations performed during the inspection verification process will be accomplished using the same procedure that was used for the initial examination. These examinations will be performed by personnel qualified in accordance with SNT-TC-1A-80. Instances of recommendations within SNT-TC-1A-80 ('shoulds') will be considered mandatory requirements ('shalls'). This exception will be reflected in approved implementing procedures.

Audits and surveillances of special process activities are performed by either HL&P, BEC or ESI Quality Assurance personnel to ensure compliance with all aspects of the Quality Assurance Program.

10.0 Inspection

The HL&P Project Quality Assurance Plan requires the prime contractor for construction and subcontractors to establish and implement an inspection operation whose activities are independent from the group performing the activities being inspected. The training, qualifications and certifications of inspectors include criteria from appropriate codes, standards, and procedures. Inspector training shall be documented and kept current. Inspection activities relating to construction, fabrication, installation and testing are documented, kept current and identify all mandatory inspection hold and test points and the criteria to be witnessed by authorized inspectors. Operations and inspections (including rework, replaced items) are performed in predetermined, documented sequences. Deviations or deletions must be accomplished in accordance with approved and documented systems. Inspection procedures include all required inspection operations defined by the specifications, drawings, codes and standards. These procedures provide for the following:

a. Identification of characteristics and activities to be inspected.

b. A description of the method of inspection.

c. Identification of the individuals or groups responsible for performing the inspection operation.

d. Acceptance and rejection criteria.

e. Identification of required procedures, drawings and specifications and revisions.

f. Recording the identification of inspector and/or data recorder if applicable and the results of the inspection operation.

g. Specifying necessary measuring and test equipment including accuracy requirements and verification of calibration.

h. Evaluation of inspection results.

Where direct inspections are impossible or disadvantageous, in-process monitoring is specified in the inspection procedures and both direct and in-process monitoring are used when control is inadequate without both. All required procedures, specifications and drawings are made available to the inspectors prior to performing inspection. If mandatory inspection hold points are required beyond which work cannot proceed without the specific consent of the designated representative, the specific hold points will be indicated in appropriate documents. Inspection results are documented, evaluated and their acceptability determined by a responsible individual or group.

BEC or ESI Quality Assurance verify that inspection control criteria are complied with by review and approval of the inspection procedures.

HL&P Quality Control may occasionally perform inspection verifications as deemed necessary by the Project Quality Assurance Manager.

Audits and surveillances of inspection activities are performed by either HL&P, BEC or ESI Quality Assurance personnel to ensure compliance with all aspects of the quality assurance program.

The HL&P inspectors are trained and certified by a program conforming to ANSI N45.2.6 and as applicable, SNT-TC-1A-80. Instances of recommendations within SNT-TC-1A-80 ('shoulds') will be considered mandatory requirements ('shalls'). This exception will be reflected in approved implementing procedures.

11.0 Test Control

The HL&P Project Quality Assurance Plan requires that a test control program be developed and documented by the prime contractors and contractors for tests that they are responsible for, which demonstrates that the facility performs in accordance with the South Texas Project requirements and specifications. Preoperational testing and start-up testing requirements are established by the Operational Quality Assurance Plan, as described in Chapter 17.2 of the FSAR. The training,

certification of personnel, calibration and certification of test equipment, system or component status, environmental conditions, inspection hold points and configuration of the items to be tested are included in the procedures. Test results are documented, evaluated and the acceptance status determined by the authorized departments.

Test procedures or instructions provide for the following as required:

a. The inclusion of requirements and acceptance limits contained in applicable design and procurement documents.

b. Instructions for performing the test.

c. Test prerequisites such as calibrated instrumentation, adequate test equipment and instrumentation including their accuracy requirements, completeness of item to be tested, suitable and controlled environmental conditions and provisions for data collection and storage.

d. Mandatory inspection hold points for witness by Owner and the contractor's inspector (as required).

e. Acceptance and rejection criteria.

f. Methods for documenting or recording test data and results.

g. Provisions for assuring that test prerequisites have been met.

h. Evaluation of results.

BEC and ESI Quality Assurance verify inclusion of adequate test control criteria by review and approval of test procedures. Audits and surveillances are performed by either HL&P, BEC or ESI Quality Assurance personnel to verify that the controls are implemented and effective.

The test control activities are an example of a case in which HL&P Project Quality Assurance monitoring activities and the Operational Quality Assurance monitoring activities will interface and in some instances overlap. HL&P Project Quality Assurance procedures will specifically define the responsibilities for this period.

12.C Control of Measuring and Test Equipment

The HL&P Project Quality Assurance Plan requires the establishment, documentation and implementation of a Measuring and Test Equipment Control System. The system is to include calibration techniques, accuracy, frequency and maintenance of all measuring instruments/test equipment used in the measuring, inspection and monitoring of nuclear safety-related items. Calibration and maintenance data shall be filed and kept current. Calibration standards are to be traceable to

nationally recognized standards where standards exist. If standards do not exist, the basis for calibration of the equipment shall be documented. If measuring or test equipment is found to be out of calibration, missing or lost, an investigation is required to be performed to determine the validity of the use of the instrument and whether measurements or tests are required to be reperformed. Reinspection when required will be documented.

Equipment is identified and traceable to the calibration test data and suitably marked to indicate calibration due date.

Measuring and test equipment is calibrated at specified intervals and based on the required accuracy, purpose, frequency of use, stability characteristics, and other conditions affecting the measurement. Calibration of this equipment is against standards that have an accuracy of at least four times the required accuracy of the equipment being calibrated, or when this is not possible, have an accuracy that assures the equipment being calibrated will be within required tolerance and that the basis of acceptance is documented and authorized by responsible management.

Calibrating standards will, when possible, have greater accuracy than standards being calibrated. Calibrating standards with the same accuracy may be used if they can be shown to be adequate for the requirements and the basis of acceptance is documented and authorized by responsible management.

BEC and ESI Quality Assurance review and approve procedures for control of calibration of measuring and test equipment to ensure these criteria are incorporated. Audits and surveillances are performed by either HL&P, BEC or ESI Quality Assurance personnel to verify compliance.

In the conduct of its inspection verifications, as directed by the PQAM, HL&P Quality Control is required to use measuring and test equipment of the appropriate accuracy level which is controlled by procedures meeting the requirements of this section.

13.0 Handling, Storage and Shipping

The HL&P Project Quality Assurance Plan requires that for nuclear safety-related items, written procedures be developed in accordance with design requirements, specifications and standards to control the cleaning, handling, storage, packaging, shipping and preservation to preclude damage and deterioration by environmental conditions. The activities are to be accomplished by appropriately trained and experienced personnel.

BEC and, as appropriate, ESI Quality Assurance review and approve quality construction procedures for receiving, handling, storage and cleaning to verify that the appropriate criteria of Regulatory Guide 1.38 and ANSI N45.2.2 are included. Periodic audits and surveillances are conducted by either HL&P, BEC or ESI Quality Assurance personnel to verify compliance with the procedures.

14.0 Inspection, Test and Operating Status

The HL&P Project Quality Assurance Plan requires that the prime contractor and construction contractors indicate the current inspection, test and operating status of nuclear safety-related items through the use of stamps, markings, tags or other suitable means. Procedures include the requirements for:

a. Controlling the application and removal of inspection status indicators such as tags, markings, labels and stamps.

b. Documenting the status of nonconforming, inoperative, or malfunctioning structures, systems and components to prevent inadvertent use.

c. Defining, controlling and documenting the use, application and removal of inspection tags, labels or markings which identify the status of inspections or tests performed and attest to the acceptability of the structure, system or component.

d. Controlling the altering of the sequence of required tests, inspections and other operations.

BEC and ESI Quality Assurance review and approve these procedures. Audits and surveillances are performed by either HL&P, BEC or ESI Quality Assurance personnel to assure compliance.

15.0 Nonconforming Materials, Parts or Components

The HL&P Project Quality Assurance Plan requires that HL&P maintains and the prime contractors' Quality Assurance Programs include a system which is documented by written procedures for the identification, segregation and disposition of nonconforming materials, parts and components. The procedures shall specify the preparation and handling of nonconformance documents, segregation requirements and which groups are responsible for review and disposition of the items. Documentation identifies the nonconforming item; describes the nonconformance, the disposition of the nonconformance and the inspection requirements; and includes signature approval of the disposition and final closeout. Nonconformances are corrected or resolution determined prior to initiation of the preoperational test program on the item. Rework, repairs and subsequent reinspection and tests are conducted in accordance with the original inspection and test requirements or accepted alternatives. These tests shall be performed in accordance with controlled procedures and contain mechanisms for providing information to the identifying group as to the disposition of the nonconformance. For NSSS items, the organization responsible for dispositioning of the nonconformance shall obtain concurrence of the Westinghouse Site Representative. HL&P Quality Assurance performs trend analysis of HL&P, BEC and ESI nonconformances. Procedures are established by HL&P to report significant deficiencies during the design, construction and startup phase to HL&P executive management and to the Nuclear Regulatory Commission in accordance with 10CFR50.55(e) and 10CFR21 where applicable. Either HL&P, BEC or ESI Quality Assurance personnel perform periodic audits and surveillances to assure compliance.

16.0 Corrective Action

The HL&P Project Quality Assurance Plan for the South Texas Project requires that a system be established and documented by HL&P and the prime contractors which defines the responsibilities, authorities and methods used by specific groups involved in the evaluation of nonconformances and trending to determine the need for corrective action. The system includes measures to identify the cause of significant conditions adverse to quality, measures to ensure that the root causes are corrected, and measures to ensure that timely action is taken. Follow-up is performed to ensure the effectiveness of corrective action and that appropriate levels of management are informed of the results. HL&P performs trend analysis of HL&P, BEC and ESI identified deficiencies to determine the need for corrective action. General categories of documents to be trended are: Nonconformance Reports; Standard Deficiency Reports; Deficiency Notices; Inspection Reports; and Audit Deficiency Reports. Specific documents to be trended, and the frequency of trending, are identified in approved procedures. Either HL&P, BEC or ESI Quality Assurance personnel perform audits and surveillances to assure compliance.

17.0 Quality Assurance Records

The HL&P Project Quality Assurance Plan requires that a Quality Assurance record system be developed by HL&P and the prime contractors for the South Texas Project. The record system provides evidence that activities relating to quality are defined, implemented and that inspection and test documents contain a description of the type of observation, reference to nonconformance reports, evidence relating to status of observation, date and inspector identification.

Quality records shall include reviews, audits, reports, specifications, nonconformance reports, analyses, personnel and equipment qualification procedures.

The HL&P Project Quality Assurance Plan requires that HL&P and prime contractors establish requirements to ensure that records generated during the design, procurement and construction are identifiable, retrievable and meet the requirements of 10CFR50, Appendix B, and ANSI N45.2.9 as endorsed by Regulatory Guide 1.88.

As an alternative to the ANSI N45.2.9 storage requirements, records may be maintained for the South Texas Project in a two-hour rated fire resistant file room meeting NFPA No. 232-1975 including the following provisions:

- An automatic fire suppression system and an early warning fire detection system is utilized.
- Records are stored in fully enclosed metal cabinets.
- Smoking and eating/drinking are prohibited within the records storage facility.

- Work not directly associated with record storage or retrieval is prohibited within the records storage facility.

- Ventilation, temperature and humidity control equipment is controlled where they penetrate fire barriers bounding the storage facility.

Either HL&P, BEC or ESI Quality Assurance personnel perform audits and surveillances to assure compliance.

18.0 Audits

The HL&P Project Quality Assurance Plan establishes the requirement that HL&P, prime contractors and subcontractors develop, document and implement audit activities which are structured in accordance with the requirements of ANSI N45.2.12 for the South Texas Project. As required by the ANSI standard, results of audits are presented for review to management of the audited organization and, in the case of HL&P performed audits the HL&P Group Vice President, Nuclear. Where indicated HL&P performs follow-up action.

HL&P has the ultimate responsibility for the auditing of quality related activities on the Project. HL&P Quality Services audits are performed primarily on the HL&P Project Quality Assurance group, and Westinghouse. HL&P Project Quality Assurance is primarily responsible for audits of the Engineer/Construction Manager, constructor, subcontractors, HL&P Project team organizations, and the HL&P corporate organizations providing services to the Project. To the extent possible, audits are scheduled such that recurring audit areas are audited by different organizations on successive audits when deemed appropriate. Certain selected audit areas will be retained by HL&P in order to provide continued assurance that HL&P, Bechtel and Ebasco programs are maintained as required.

The prime contractors and subcontractors perform quality related audits of internal activities and suppliers of material, components and systems.

HL&P, BEC or ESI personnel perform supplemental audits when required, based on such factors as significant changes in the Quality Assurance Program, results of trending programs or investigations into the root causes of problems.

TABLE 1

ANSI STANDARD AND REGULATORY GUIDE COMPLIANCE

The STP Quality Assurance Program complies with the following ANSI Standards and associated Regulatory Guides except as noted:

STANDARD	TITLE
ANSI N45.2-1971 R.G. 1.28 (Rev. 0, 6/72)	Quality Assurance Program Requirements for Nuclear Power Plants
ANSI N45.2.1-1973 R. G. 1.37 (Rev. 0, 3/73) (see notes 8 through 10)	Cleaning of Fluid Systems and Associated Components During Construction Phase of Nuclear Power Plants
ANSI N45.2.2-1972 R.G. 1.38 (Rev. 0, 3/73) (see Notes 11 through 16)	Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plants
ANSI N45.2.3-1973 R.G. 1.39 (Rev. 0, 3/73) (see Notes 17 and 18)	Housekeeping During the Construction Phase of Nuclear Power Plants
ANSI N45.2.4-1972 R.G. 1.30 (Rev. 0, 8/72) (see Notes 19 and 20)	Installation, Inspection and Testing Requirements for Instrumentation and Electric Equipment During the Construction of Nuclear Power Generating Stations
ANSI N45.2.5-1974 (see Notes 1 and 2)	Supplementary Quality Assurance Requirements for Installation, Inspection and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants.
ANSI N45.2.6-1973 R.G. 1.58 (Rev. 0, 8/73) As modified by positions C.5, C.6, C.7, C.8 and C.10 of Rev. 1 (see Note 34)	Qualifications of Inspection, Examination and Testing Personnel for the Construction Phase of Nuclear Power Plants
ANSI N45.2.8-1975 Reg. 1.116 (6/76) (see Notes 21 through 23)	Supplementary Quality Assurance Requirements for Installation, Inspection and Testing of Mechanical Equipment and Systems for the Construction Phase of Nuclear Power Plants

TABLE 1
ANSI STANDARD AND REGULATORY GUIDE COMPLIANCE
(Continued)

ANSI N45.2.9-1974 R.G. 1.88 (Rev. 2, 10/76) (see Notes 24 through 26)	Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants
ANSI N45.2.10-1973 R.G. 1.74 (Rev. 0, 2/74)	Quality Assurance Terms and Definitions
ANSI N45.2.11-1974* R.G. 1.64 (Rev. 2, 6/76) (see Notes 3 through 7)	Quality Assurance Requirements for the Design of Nuclear Power Plants
ANSI N45.2.12-1977 R.G. 1.144 (Rev. 1, 9/80) (see Notes 32 and 33)	Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants
ANSI N45.2.13-1976 R.G. 1.123 (10/76) (see Notes 27 through 31)	Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants
ANSI N45.2.23-1978 R.G. 1.146 (Rev. 0, 8/80)	Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants

Exception Notes

1. ANSI N45.2.5-1974, Section 4.8 states "Pumped concrete must be sampled from the pump line discharge." In lieu of this statement, in-process strength samples of pumped concrete are taken at the delivery point. Correlation tests of air content, slump, and temperature are performed to verify these plastic properties of the concrete at the placement point in accordance with the following frequency requirements:

   a. A minimum of 2 correlation tests are performed for each pumped placement exceeding 200 cu. yds.

   b. Otherwise, a minimum of 2 correlation tests per week are performed when any individual pumped placement during a week requires delivery of more than one truckload of concrete.

   c. During a week when a pumped placement exceeding 200 cu. yds. is made, the correlation tests performed on that placement will satisfy the weekly requirement for performing two correlation tests as specified in Item b above.

TABLE 1
ANSI STANDARD AND REGULATORY GUIDE COMPLIANCE
(Continued)

If the correlation test result shows a concrete property not meeting the specification limits and/or tolerances at the point of placement, the frequency of correlation testing shall be increased to 100 cubic yards. If two consecutive correlation tests exceed the specified limit for slump, air content, or temperature, the Constructor shall document the condition, notify Bechtel Site Engineering within 24 hours of completion of the placement and shall return to control of the concrete by in-process testing at the point of placement per ANSI N45.2.5-1974.

"Correlation Tests," "Delivery Point," and "Placement Point" are as defined in ANSI N45.2.5-1978, Section 1.4.

2. Samples and frequency for cadweld testing is in accordance with ACI-359/-ASME Section III, Division 2, issued for trial use and comment in 1973, including addenda 1 through 6, (see Sections 3.8.1.6.3 and 3.8.3.6.3 of the STP Final Safety Analysis Report).

* The following interpretations (Notes 3 through 7) of ANSI N45.2.11-1974 and Regulatory Guide 1.64, Rev. 2-6/76, apply to HL&P, their contractors and consultants working under HL&P's Quality Program.

3. Section 3.1, Design Input Requirements, General. This section implies that all necessary design input (as listed in Section 3.2) should be available prior to the start of a design activity. In practice, certain design activities are initiated before the firm input requirements are available. (For example, foundation designs prepared based on preliminary information or equipment sizes and mounting, embedded conduit run based on preliminary estimates of circuit requirements, etc.). The design phase Quality Assurance program will be structured to ensure that all necessary design input is available before completion of final design of the work affected by the input, and that final design input is available for use in verification of the final design.

4. Section 4.1, Design Process, General. Paragraph 3 implies traceability back from final design to the source of design input. In practice, a literal interpretation of this is not always possible. For example, final design drawings do not identify the related calculations. This paragraph will be interpreted to mean that it shall be possible to relate the criteria used and analyses performed to the final design documents and that record files will permit location of analyses supporting specific design output documents.

5. Section 4.2, Design Analyses. This section implies a requirement for retention of all calculations. In principle, it is considered good practice for the responsible engineer or engineering organization to retain all

TABLE 1
ANSI STANDARD AND REGULATORY GUIDE COMPLIANCE
(continued)

final calculations, and this will be done for all manual calculations covered by the program. However, for computer programs only documentation of the design input, assumptions made in the analyses, results obtained, and evidence of verification will be retained since permanent retention of all versions of all computer programs is not considered practical or necessary if sufficient information is available for a competent individual to verify the results using the input and assumptions.

6. Section 10, Records. In-process documentation, relating to checking and coordination of drawings (for example, check and coordination prints) or copies of marked-up specifications used to solicit comments shall be retained until the drawing or specification is approved and issued for use outside of Engineering. Such in-process documents will be available for review/audit until the document is approved, but may be discarded once the document has been approved. In the first sentence of the second paragraph the phrase "final design documents" shall mean those documents which are the latest revision that has been issued for use.

7. Regulatory Position, Section C-2: If, in an exceptional circumstance, the originator's immediate supervisor is the only technically qualified individual available, the design verification or checking will be conducted by the supervisor with the following provisions:

   a. The other requirements of Regulatory Guide 1.64 will be met.

   b. The justification will be individually documented and approved by the next level of supervision.

   c. Quality Assurance audits will include review of the frequency and effectiveness of the use of the immediate supervisor to assure that this provision is used only in exceptional circumstances.

8. Section 2.1, Planning. The required planning is frequently performed on a generic basis for application to many installations on one or more projects. This results in standard procedures or plans for installation and inspection and testing which meet the requirements of the standard. Individual plans for each item or system are not normally prepared unless the work operations are unique. However, standard procedures or plans will be reviewed for applicability in each case. Installation plans or procedures are also limited in scope to those actions or activities which are essential to maintain or achieve required quality. This is consistent with Section II, Paragraphs 2 and 3 of ANSI N45.2-1971 which provides for examination, measurement, or testing to assure quality or indirect control by monitoring of processing methods. However, final cleaning or flushing activities will be performed in accordance with procedures specific to the system.

TABLE 1
ANSI STANDARD AND REGULATORY GUIDE COMPLIANCE
(continued)

9. Section 4, Preinstallation Cleanliness. This section states, "Items should not be delivered to the point of installation site sooner than necessary unless the installed location is considered a better storage area." As an alternate to this requirement, items may be delivered to the installation site sooner than absolutely necessary when determined to be advantageous for other considerations, for example, reduced handling or easier access, thereby reducing susceptibility to handling damage. In all such cases, equipment stored inplace will be protected in accordance with Section 5 of ANSI N45.2.1.

10. Section 3.1.2, HL&P interprets the lighting level of 100 footcandles to be guidance. It is HL&P's normal practice that the lighting level for determining "metal clean" of accessible surfaces of piping and components is determined by the inspector. Typically he uses a standard two-cell-flashlight supplemented by other lighting as he deems necessary.

11. Section 2.7, Classification of Items. The four-level classification system may not be used explicitly. However, the specific requirements for each classification as specified in the standard will be applied to the items suggested in each classification and for similar items.

    Classification differing from Section 2.7 will be considered acceptable provided no degradation is assured; for example, electric motors designed for outside service may be stored in Level C area rather than a Level B.

12. Section 6.2, Storage Areas. Paragraph 6.2.1 requires control and limited access to storage areas. In lieu of and to amplify this paragraph, the following will be applied:

    Access to storage areas for Level A, B and C will be controlled by the individual(s) responsible for storage. While the above areas will be posted to limit access, other positive controls (other than that for the overall site area) or guards may not be provided. Level D areas will be posted with the storage level designation only.

13. Section 5.5, Correction of Nonconformances. This section provides for "rework" and "use as is" dispositions for nonconforming items. As an alternate, the "repair" disposition (as defined in ANSI N45.2.10-1973) will also be used.

14. Section 6.2.4, Storage of Food and Associated Items. Controlled areas, within storage areas, will be established for the storage of food, drink, and salt tablets. These areas will be controlled through normal supervision and inspection.

TABLE 1
ANSI STANDARD AND REGULATORY GUIDE COMPLIANCE
(continued)

15. In Section 8, the control of documentation and records shall be in accordance with Section 17 of this Program Description.

16. Appendix A 3.4.2, Inert Gas Blankets. There may be cases involving large or complex shapes for which an inert or dry air purge flow is provided rather than a static gas blanket in order to provide adequate protection due to difficulty of providing a leakproof barrier. In these cases a positive pressure purge flow may be utilized as an alternative to the leakproof barrier.

17. Section 2.1, Planning. The required planning is frequently performed on a generic basis for application to many installations on one or more projects. This results in standard procedures or plans for installation and inspection and testing which meet the requirements of the standard. Individual plans for each item or system are not normally prepared unless the work operations are unique. However, standard procedures or plans will be reviewed for applicability in each case. Installation plans or procedures are also limited in scope to those actions or activities which are essential to maintain or achieve required quality.

18. Alternative equivalent zone designations and requirements may be utilized to cover those situations not included in the subject standard; for example, situations in which shoe covers and/or coveralls are required but material accountability is not. In addition, zones might be combined into the next more restrictive category in order to reduce total number of zones.

19. Section 1.2, Applicability. The Standard is applied to the items and systems identified in Paragraph 1.1.1 and to additional systems depending on the nature and scope of the work to be performed and the importance of the item or service involved.

20. Section 2.1, Planning. The required planning is frequently performed on a generic basis for application to many installations on one or more projects. This results in standard procedures or plans for installation and inspection and testing which meet the requirements of the standard. Individual plans for each item or system are not normally prepared unless the work operations are unique. However, standard procedures or plans will be reviewed for applicability in each case. Installation plans or procedures are also limited in scope to those actions or activities which are essential to maintain or achieve required quality.

TABLE 1
ANSI STANDARD AND REGULATORY GUIDE COMPLIANCE
(continued)

21. Section 1.1, Scope. The term "important items" will be interpreted to apply to those activities or quality attributes of an item or service that could affect a nuclear safety-related characteristic. For example, if a barrier is required for leakage control, but serves no structural function, the leaktight characteristic would be considered "important", but appearance, dimensional requirements, and structural features would not necessarily be considered important; or if a pump casing is required for coolant boundary integrity, but the pump does not have to operate to provide for nuclear safety, those attributes which affect its operation would not be considered important from the standpoint of nuclear safety.

    Section 2.1, Planning. The required planning is frequently performed on a generic basis for application to many installations on one or more projects. This results in standard procedures or plans for installation and inspection and testing which meet the requirements of the standard.

    Individual plans for each item or system are not normally prepared unless the work operations are unique. However, standard procedures or plans will be reviewed for applicability in each case. Installation plans or procedures are also limited in scope to those actions or activities which are essential to maintain or achieve required quality.

22. Section 3.3, Process and Procedures. The terms "installation site", "installation area", and "site" used in this standard shall be interpreted as follows:

    a. "Installation site" or "site" will be interpreted the same as "construction site". When applied to documents, these may be at the central office or work area document control station.

    b. Installation area - Immediate proximity of location where work is to be performed.

23. Section 3.5(e), Site Conditions. This requirement will be applied only if subsequent correction of adjacent nonconformances could damage the item being installed.

    Section 4.6, Care of Items. HL&P retains the authority and is the "Responsible Organization" for temporary usage of equipment or facilities unless specific (i.e. on a case by case basis) or general authority is granted in writing to the Construction Manager's organization.

24. Section 1.4, Definitions. Quality Assurance Records - A document is considered completed when it has finished full processing and has been issued for use in design, procurement, construction, or manufacturing.

TABLE 1
ANSI STANDARD AND REGULATORY GUIDE COMPLIANCE
(continued)

25. Section 1.4, Definitions. Authenticated Records - Those records which are clearly identified as a statement by the individual or organization holding responsibility. Handwritten signatures are not required if the document or printout is clearly identified as a statement by the reporting individual or organization.

26. For Appendix A, an installation shall be considered to be in an "as constructed" condition if it is installed within the tolerances established by Project Engineering indicated in the design output documents.

27. Section C.3 of the Regulatory Guide - A corrective action system may, depending upon complexity and/or importance to safety of the item or service provided, be imposed upon the supplier. When a corrective action system is imposed on a supplier, the applicable elements of Section 9.0 of the standard will be included and its implementation will be verified.

28. Section C.4 of the Regulatory Guide - Applicable information concerning the method(s) of acceptance of an item or service will be made available to receiving inspection personnel.

29. Section 4.2.a of the Standard - When evaluation of a supplier is based solely on historical supplier data, these data will primarily include HL&P's or a prime contractor's records that have been accumulated in connection with previous procurement actions. Data that includes experience of users of identical or similar products of the prospective supplier and product operating experience will be used if they become available; however, such data are normally available only to those involved in plant operations.

30. Section 10.2.d. of the Standard - The requirements of this section are interpreted as follows. The person attesting to a certificate shall be an authorized and responsible employee of the supplier and shall be identified by the supplier.

31. HL&P's position relative to ANSI N45.2.13-1976, Section 10.2.f., Verification of the Validity of Supplier Certificates and the Effectiveness of the Certification System, is as follows: The verification of the validity of supplier certificates and the effectiveness of the certification system are accomplished as an integral part of the total supplier control and product acceptance program, and no separate HL&P system exists that addresses itself solely to such verification. The degree of verification required will depend upon the type of item or service and their safety importance. The means of verification may include source witness/hold points, source audits, and document reviews; independent inspections at the time of material receipt; user tests on selected commodities, such as concrete components; and tests after installation on selected components and systems. All of these means verify whether or not a supplier has fulfilled procurement document requirements and whether or not a certification system is effective.

TABLE 1
ANSI STANDARD AND REGULATORY GUIDE COMPLIANCE
(continued)

32. ANSI N45.2.12-1977, Section 4.5.1 states, "The audited organization shall provide a follow-up report stating the corrective action taken and the date corrective action was completed." This implies that the audited organization must provide the auditing organization with written notification detailing what corrective action was taken and when the corrective action was completed.

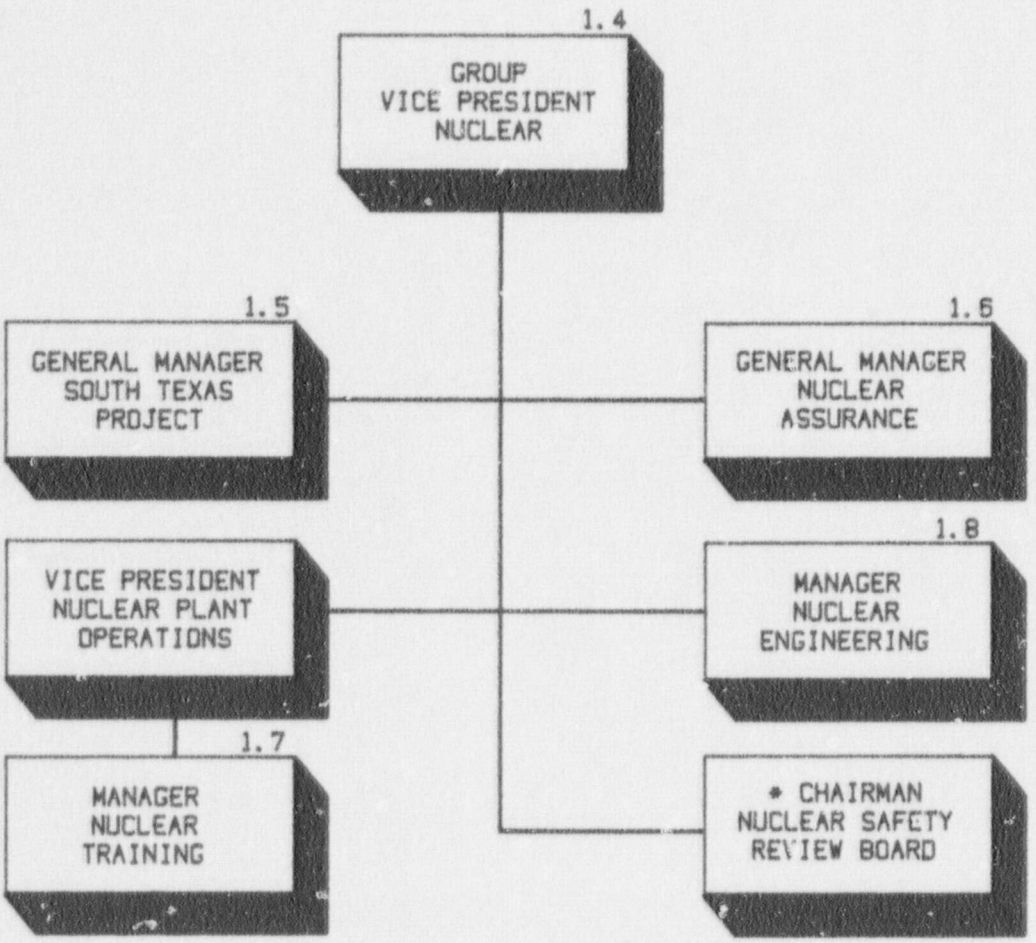
    In actual practice, the audited organization will provide the auditing organization with documented corrective action including the date when the corrective action will be completed. The auditing organization will evaluate the corrective action response to determine if corrective action verification is necessary. If verification is necessary, the corrective action verification will be performed after the scheduled completion date and the results of the verification will be documented.

33. ANSI N45.2.12-1977, Section 1.3 states, "In no way shall the performance of audits by an organization diminish the responsibility of the audited organization or contractor for audit of his designated portion of the quality assurance program or the quality of his product or services". For the South Texas Project all quality related activities implemented for the South Texas Project are audited annually at a minimum, or at least once within the life of the activity, whichever is shorter. These audits are performed by either HL&P, BEC, or ESI Quality Assurance personnel.

34. As an alternate, compliance with ANSI N45.2.6-1978 and R. G. 1.58 (Rev. 1, 9/80) in its entirety is acceptable.

TABLE 2
HL&P MANUALS USED TO IMPLEMENT THE
QUALITY ASSURANCE PROGRAM

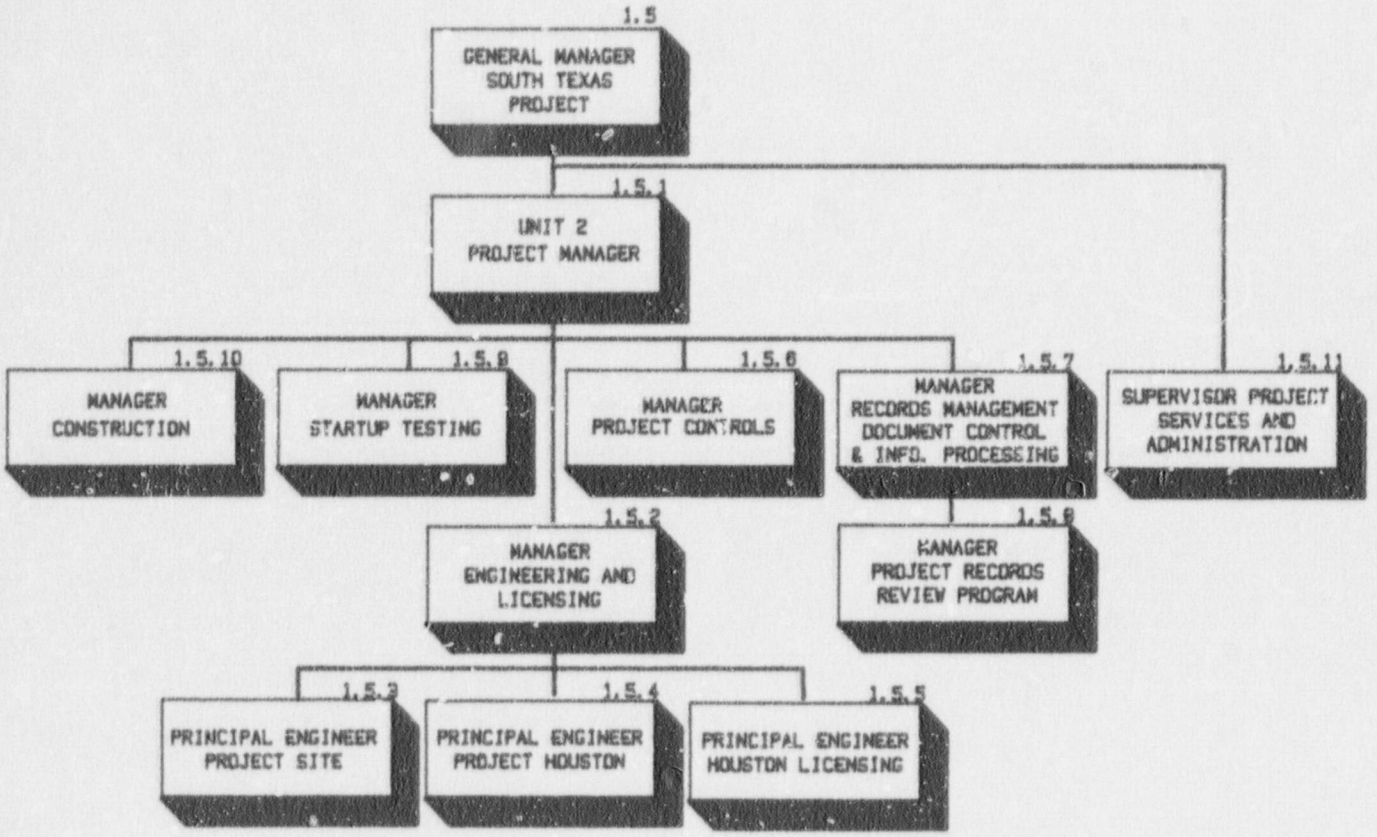
- Project Quality Assurance Plan
- Project Specific Quality Assurance Procedures Manual
- Standard Quality Assurance Procedures Manual
- Quality Services Procedures Manual
- Project Engineering Procedures Manual
- Interdepartmental Procedures Manual
- Project Licensing Procedures Manual
- Project Procurement Procedures Manual
- Project Management Procedures Manual
- Records Management Systems Procedures Manual
- Standard Site Procedures Manual



*OPERATIONS RESPONSIBILITIES ONLY
REFER TO FSAR AND OPERATIONS
QA PLAN

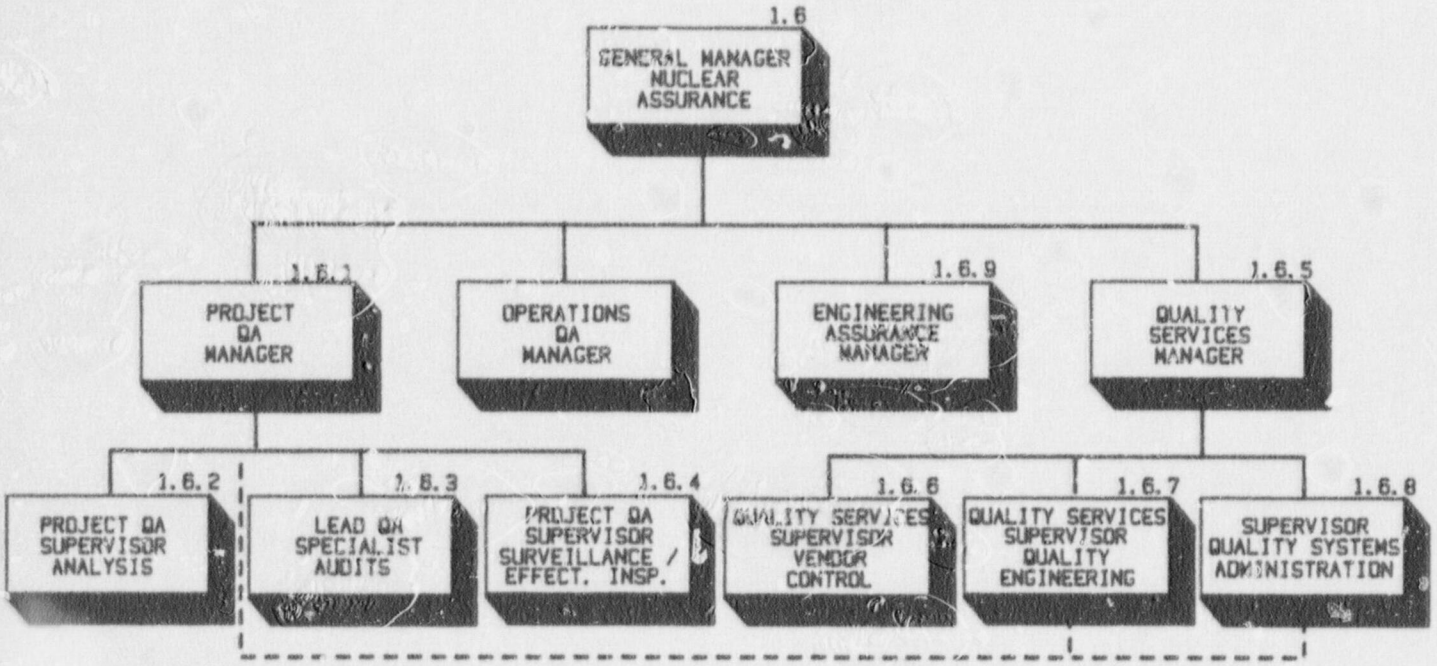
PROJECT & TECHNICAL DIRECTION ————————

Figure 1



PROJECT & TECHNICAL DIRECTION ——————————

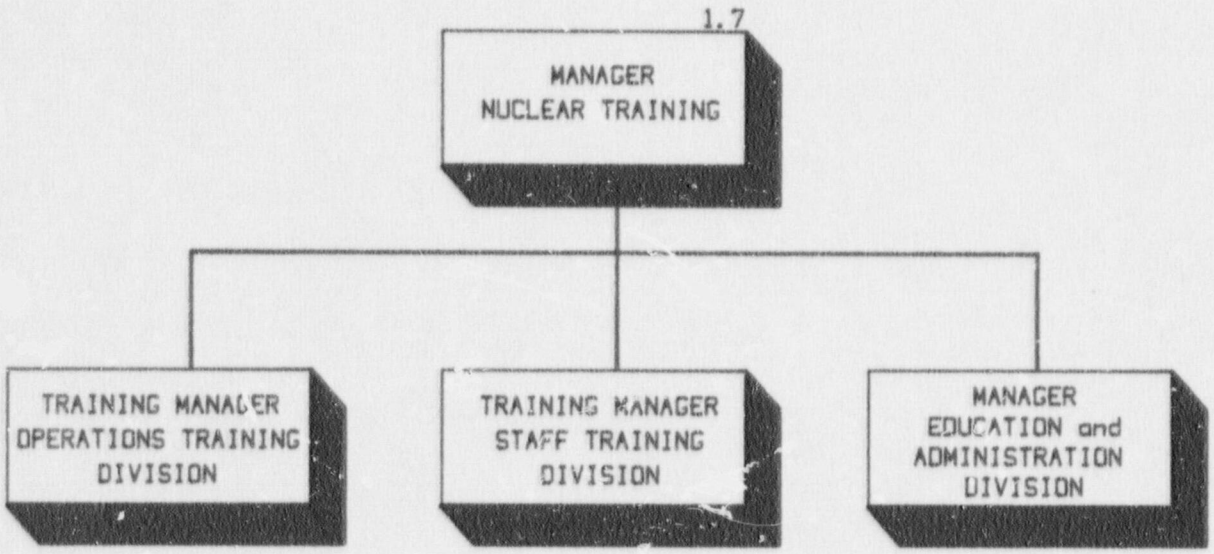
Figure 2



PROJECT & TECHNICAL DIRECTION ————————

PROJECT DIRECTION ----------

Figure 3



PROJECT & TECHNICAL DIRECTION ——————

Figure 4

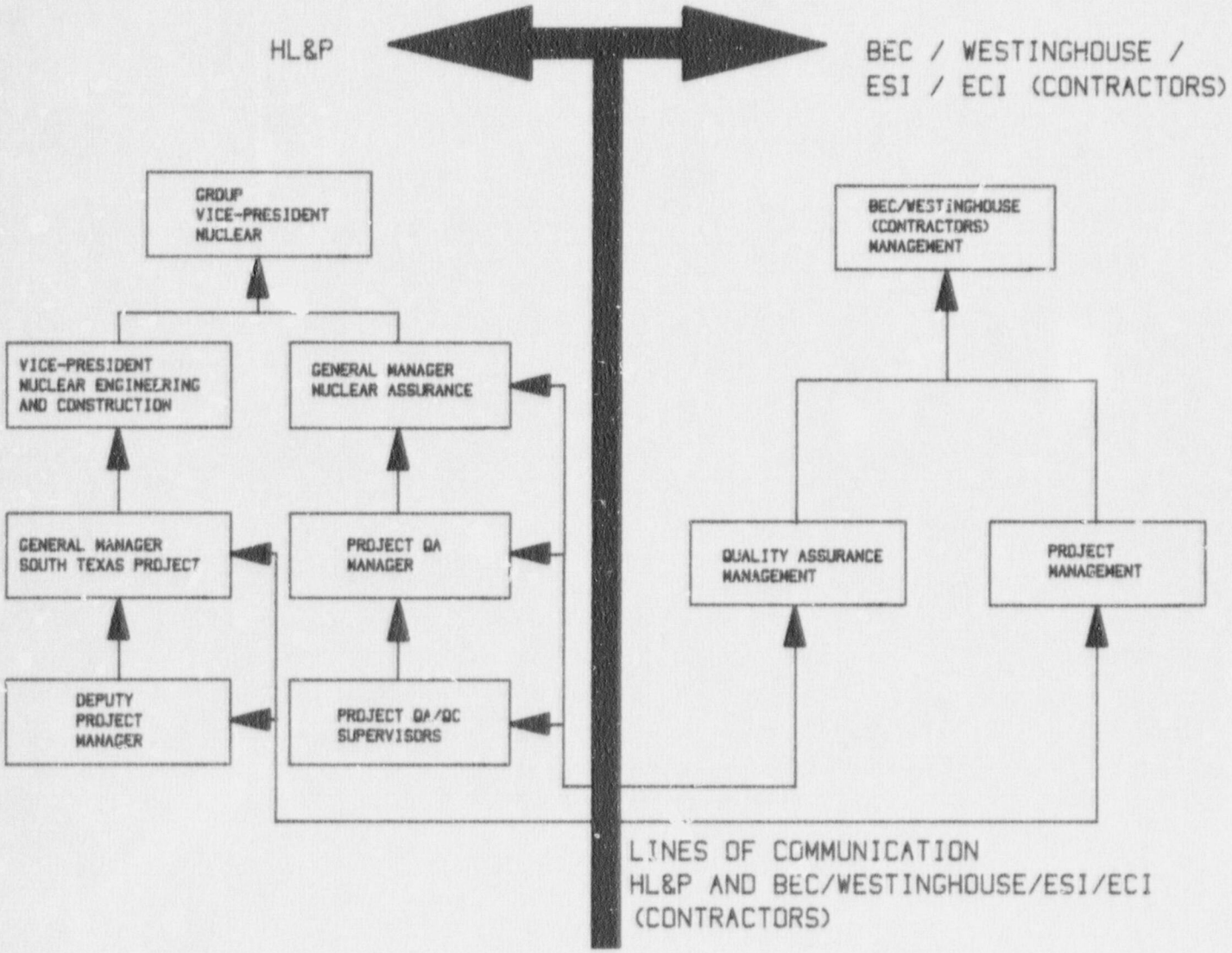

HL&P
BEC / WESTINGHOUSE / ESI / ECI (CONTRACTORS)
GROUP VICE-PRESIDENT NUCLEAR
BEC/WESTINGHOUSE (CONTRACTORS) MANAGEMENT
VICE-PRESIDENT NUCLEAR ENGINEERING AND CONSTRUCTION
GENERAL MANAGER NUCLEAR ASSURANCE
GENERAL MANAGER SOUTH TEXAS PROJECT
PROJECT QA MANAGER
QUALITY ASSURANCE MANAGEMENT
PROJECT MANAGEMENT
DEPUTY PROJECT MANAGER
PROJECT QA/QC SUPERVISORS
LINES OF COMMUNICATION HL&P AND BEC/WESTINGHOUSE/ESI/ECI (CONTRACTORS)

Figure 5