Organizational changes of a substantive nature will be reported to the NRC within 30 days of announcement.

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 (Rev. 2) and ANSI N45.2.11-74 on the prime contractors and applicable subcontractors.

HL&P has contracted with B&R and Westinghouse to perform the design, engineering and design verification. HL&P also utilizes the services of Bechtel Power Corporation to perform tasks in support of these activities including review of engineering, design and construction activities and their associated records in order to "benchmark" project status, and to verify conformance with applicable requirements and practices. Upon completion of review of specific design areas, HL&P may request Bechtel to complete or revise portions of such designs. Bechtel will execute all of the foregoing functions in accordance with Bechtel Engineering Department Procedures (EDPs) listed on Table 1 at Section 4.2.

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 is responsible for ensuring that project engineering activities are conducted in accordance with approved engineering procedures. The project engineering organization provides programmatic direction and overview of the engineering activities. The HL&P project engineering activities are conducted in accordance with Project Engineering Procedures (PEPs). These procedures are delineated in Table 1, Section 4.1.

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

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

c. 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.

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

e. 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 functions of structures, systems, and components. Design documents also include, as appropriate, acceptance criteria for inspections and tests.

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

g. Safety-related and/or 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.*

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

i. 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.

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

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

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

HL&P Quality Assurance performs audits of HL&P, Bechtel, B&R, and Westinghouse to ensure that design controls, requirements, specifications and documents are in accordance with the design control criteria. These audits will include review of the frequency and effectiveness of the use of supervisors as design verifiers.

In addition HL&P Project Quality Assurance reviews quality/construction procedures to ensure that the quality requirements of the design specifications are incorporated. HL&P Project Quality Assurance also performs implementation reviews 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.

* With respect to work performed by Bechtel Power Corporation, these design control measures are subject to the interpretation set forth in Notes 4 through 8 of Table 2.

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 in preparing procurement procedures for the South Texas Project. B&R performs procurement activities for nuclear safety-related

Table 1

Plan/Procedures used to Implement Quality Assurance for the Major Activities

4.1 Project Engineering Procedures		10CFR50 App. B Criterion
PEP - I	Introduction	
II	Manual Provisions	
III	Scope	
IV	Definitions	
-01	Preparation and Control of Project Engineering Procedures	VI
-02	Document Receipt & Handling	N/A
-03	Engineering Signature Authority	III
-04	Reference Document Library	N/A
-05	Performance of Owner's Reviews	III
-06	Design Change Request	N/A
-07	(deleted) Design Document Distribution List	N/A
-08	Engineering Action Item Tracking	N/A
-09	Transmittal of Owner's Review Comments to Ext. Organizations	N/A
-10	Project Engineering Organization & Responsibilities	I
-11	Reporting Design and Construction Deficiencies to NRC	XV,XVI
-12	Handling FSAR Change Notices	II
-13	Review of NRC Inspection and Enforcement Bulletins Circulars	II
-14	Designation & Handling of Confidential Security Documents	N/A
-15	Preparation of Purchase Authorizations (IP)	N/A
-16	Engineering Activity for the Procurement of Spare Parts	IV,VII

Table 1

Plan/Procedures used to Implement Quality Assurance for the Major Activities

4.1 Project Engineering Procedures		10CFR50 App. B Criterion
-17	Preparation of NSSS Contract Modification Approval (IP)	N/A
-18	Preparation and Control of Specifications	III,IV
-19	Processing Supplier Deviation Requests (IP)	III,IV
-20	Document Change Notice control (IP)	VI,III
-21	Design Verification (IP)	III
-22	Personnel Training (IP)	II

Note: (IP) indicates procedure is in preparation and not yet issued for use.

Table 1

Plan/Procedures used to Implement Quality Assurance for the Major Activities

4.2 Bechtel, Los Angeles Power Division Engineering Department Procedures		10CFR50 App. B Criterion
EDP-1.7	Engineering Department Procedures Preparation and Control	V
EDP-1.10	Division and Project Engineering Department Procedures Preparation and Control	V
EDP-2.7	Engineering Department	I
EDP-2.10	Engineering Management	I
EDP-2.13	Project Engineering Team Organization and Responsibilities	I
EDP-2.16	Project Design Group Functions	I
EDP-3.4	Scope of Services and Division of Responsibility	N/A
EDP-3.7	Project Material Assignment Schedule	N/A
EDP-3.10	Engineering Planning and Control	N/A
EDP-3.13	Processing and Control of Contract Changes	N/A
EDP-3.19	Trend Program	N/A
EDP-3.22	Cost Estimating Assistance Request	N/A
EDP-4.1	Design Criteria	III
EDP-4.2	Generic Engineering Documents	III
EDP-4.4	Design Standards and References for Project Libraries	N/A
EDP-4.7	Bechtel Manuals	N/A
EDP-4.13	Project Scope Book	N/A
EDP-4.16	Engineering Studies and Reports	N/A
EDP-4.20	Abstracts for Engineering Department Reports and Studies	N/A
EDP-4.21	Preparation and Control of Environmental Reports	N/A
EDP-4.22	Preparation and Control of SAR	II

Table 1

Plan/Procedures used to Implement Quality Assurance for the Major Activities

4.2 Bechtel, Los Angeles Power Division Engineering Department Procedures		10CFR50 App. B Criterion
EDP-4.23	SAR Change Control	II
EDP-4.24	Environmental Report Change Control	N/A
EDP-4.25	Design Interface Control	III
EDP-4.26	Interdisciplinary Design Review	III,VI
EDP-4.27	Design Verification	III
EDP-4.28	Project Q-List	III
EDP-4.31	Symbols for Identification of Q-Listed Items	III
EDP-4.33	On-Project Design Review	III,VI
EDP-4.34	Off-Project Design Review (Design Control Check List and Design Review Notice)	III,VI
EDP-4.36	Standard Computer Programs	III
EDP-4.37	Design Calculations	III
EDP-4.40	Release of Engineering Calculations to Client	N/A
EDP-4.46	Project Drawings	V,VI
EDP-4.47	Drawing Change Notice	V,VI
EDP-4.48	Standard Drafting Procedure	N/A
EDP-4.49	Project Specifications	III,IV
EDP-4.52	Project Adaption of Thermal Power Organization Standard Technical Specification	II,IV,VI
EDP-4.55	Project Material Requisitions	IV
EDP-4.58	Specifying and Reviewing Supplier Engineering and Quality Verification Documentation	II,IV
EDP-4.60	Processing Corrective Action Requests	XVI

Table 1

Plan/Procedures used to Implement Quality Assurance for the Major Activities

4.2 Bechtel, Los Angeles Power Division Engineering Department Procedures		10CFR50 App. B Criterion
EDP-4.61	Nonconformance Reports (NCR)	XV
EDP-4.62	Field Change Request (FCR)	III,V,VI
EDP-4.63	Supplier Deviation Disposition Requests	III
EDP-4.64	Review of Supplier Audit, Survey, and Inspection Reports	VII,XVIII
EDP-4.65	Design Deficiency Processing	III,XV
EDP-4.66	Substantial Safety Hazard and Significant Deficiency Reporting (Deficiency Evaluation Report)	III,XV
EDP-4.74	Experience Feedback	N/A
EDP-4.77	Plant Data Book	N/A
EDP-4.79	Control of Nuclear Plant Security Systems Documentation	VI
EDP-5.1	Communications Control	N/A
EDP-5.10	Project Engineering Procedures Manual	II
EDP-5.13	Control Logs	VI
EDP-5.15	Design Drawing Control	V,VI
EDP-5.16	Supplier Document Control	VI,II
EDP-5.17	Control and Processing of Computer Aided Drafting	N/A
EDP-5.19	Computer Program Use and Control	N/A
EDP-5.25	Project Master Distribution Schedule	N/A
EDP-5.31	Project Record Retention Processing	XVII
EDP-5.32	Nuclear Project Records Management (Design Office)	III,XVII
EDP-5.34	Project Quality Program Indoctrination and Training	II
EDP-5.37	Microfilming	N/A

Table 1

Plan/Procedures used to Implement Quality Assurance for the Major Activities

4.2 Bechtel, Los Angeles Power Division Engineering Department Procedures		10CFR50 App. B Criterion
EDP-6.5	Bid Evaluation	IV
EDP-6.10	Supplier Quality Assurance Program Selection and Evaluation	IV
EDP-7.3	Consultant Service Agreements and Consultant Invoices	N/A
EDP-7.9	Attendance at Technical Meetings by Engineering Personnel	N/A

TABLE 2

ANSI STANDARD AND REGULATORY GUIDE COMPLIANCE
(Continued)

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 4 thru 8)	Quality Assurance Requirements for the Design of Nuclear Power Plants
ANSI N45.2.12 (Draft 3, Rev. 4, 2/74) (see Note 3)	Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants
ANSI N45.2.13 (Draft 2, Rev. 4, 4/74)	Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants
ANSI N101.4-1972 R.G. 1.54 (Rev. 0,6/73)	Quality Assurance Requirements for Protective Coatings Applied to Water Cooled 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.

   When any of the specified limits and tolerances on loss of air content, slump, or temperature are exceeded at the placement point, correlation tests between the delivery point and placement point will be accomplished for each 100 cu. yds. of concrete placed as long as limits and tolerances are exceeded. If two consecutive tests are out of tolerance, corrective action will be implemented

TABLE 2

ANSI STANDARD AND REGULATORY GUIDE COMPLIANCE
(Continued)

to adjust the limits for the concrete entering the pump intake so that no concrete from the subsequent trucks will enter the pump intake as long as the tolerances are exceeded.

"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).

3. If a work activity and contract is for a two-month period or less, an audit is not necessary when a facility preaward audit has been conducted.

*The following interpretations of ANSI N45.2.11-1974 and Regulatory Guide 1.64, Rev. 2-6/76, apply to work performed by Bechtel Power Corporation.

4. 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 QA 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.

5. Section 4.a, 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.

6. 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 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.

7. 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.

8. Regulatory Position, Section C-2: If, in an exceptional circumstance, the originators' 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 for having the design verification or checking conducted by the supervisor 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 expectional circumstances.