SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION	NUMBER Chapter 6.0	REV. NO. 6
OPERATIONS QUALITY ASSURANCE PLAN DESIGN AND MODIFICATION CONTROL Draft RJP	PAGE 1 OF 8	
	EFFECTIVE DATE 12/18/92	

1.0 PURPOSE

1.1 The purpose of this chapter is to establish the requirements and responsibilities for design and modification control of structures, systems, or components at the South Texas Project Electric Generating Station (STPEGS).

2.0 SCOPE

2.1 This chapter applies to the design and modification activities associated with the preparation and review of design documents including the translation of applicable Code of Federal Regulation requirements and design bases into design documents.

2.2 The application of the requirements of this chapter for items/activities designated as "Full", "Targeted", or "Basic" is delineated in Attachment 1.

3.0 DEFINITIONS

3.1 None

4.0 REFERENCES

4.1 STPEGS Technical Specifications

4.2 OQAP Chapter 5.0, Maintenance, Installation of Modifications, and Related Activities

4.3 OQAP Chapter 14.0, Records Control

4.4 10CFR50.59, Changes, Tests and Experiments

4.5 OQAP Chapter 13.0, Deficiency Control

5.0 REQUIREMENTS

5.1 Measures shall be established to document selection of design inputs. Changes to specified design inputs, including identification of their source, shall be identified and documented. As the design evolves, unreviewed safety question evaluations shall be performed as required by 10CFR50.59.

5.2 Measures shall be established to control design activities to assure design inputs are translated into design documents such as specifications, drawings, procedures, or instructions.

5.2.1 Design activities involving reactor physics; stress, thermal, hydraulic, and accident analysis; materials compatibility; and accessibility for maintenance, inservice inspection, and repair will be performed according to approved procedures by appropriately qualified individuals. Results of analyses will be appropriately verified and documented.

5.2.2 Design documents shall include appropriate quality standards. If an alternate quality requirement is used (e.g., other than the originally specified quality standard) the change shall be documented and approved.

5.2.3 Design analyses shall be sufficiently detailed as to purpose, method, assumptions, design input, references, units, and status (preliminary or final) such that a technically qualified person can review and understand the analyses and verify the adequacy of the results without recourse to the originator.

5.2.4 A review for application suitability of materials, parts, equipment, and processes essential to the functions of safety/quality-related structures, systems, and components is done as part of the design document preparation and review process. The procedures which govern the preparation and review of design documents require that valid industry standards and specifications be used for this review. Review of standard off-the-shelf commercial materials, parts, and equipment for suitability of application with safety/quality-related structures, systems, and components will be conducted before selection.

5.3 Measures shall be established to identify and control design interface among participating organizations (internal and external).

5.4 Measures shall be established to verify adequacy of design and design changes.

5.4.1 The design process shall include design verification by qualified persons to assure that the design is adequate and meets specified design input. Design control procedures shall specify requirements for the selection and performance of design verification. Design verification shall be either by design review, alternate calculation, qualification testing, or by a combination of these. The depth of design verification shall be commensurate with the importance of the system or component to plant safety, complexity of the design, and similarity of design to previous designs.

5.4.1.1 If the verification method performed is only through qualification testing, the following are required.

- o Procedures shall provide criteria that specify when verification should be by test.
- o Prototype, component, or feature testing shall be performed as early as possible before installation of plant equipment, or before the point when the installation would become irreversible.
- o Verification by test shall be performed under conditions that simulate the most adverse design conditions as determined by analysis.

5.4.2 Design verification shall be performed by competent individuals or groups other than those who performed the original design.

5.4.3 Design verification should not be performed by individuals that have immediate supervisory responsibility for the individual performing the design; have specified a singular design approach; have ruled out certain design considerations; or have established the design inputs for that particular design aspect. However, the supervisor may perform the verification if the supervisor is the only technically qualified individual and the need for the supervisor to perform the review is approved and documented in advance by the supervisor's management.

5.4.4 Design verification will normally be performed prior to release for procurement, manufacture, installation, or use by another organization in other design activities. Exceptions shall be justified and documented. Procedures shall control the justification of exceptions and the completion of the verification of all affected design output documents prior to relying on the component, system, or structure to perform its function.

5.5 Measures shall be established to control the approval, issuance, and changes of design documents to prevent the inadvertent use of superseded design information. Design documents include design drawings and specifications, vendor documents, setpoints with tolerances and design limits.

5.6 Changes made to design documents are reviewed and approved by the same groups or organization which reviewed and approved original design documents. If the organization which originally approved a particular design document is no longer responsible, another organization may be designated if competent in the specific design area, has access to pertinent background information and has an adequate understanding of the requirements and intent of the original design.

5.7 Errors and deficiencies found in approved design documents, including design methods, that could adversely affect safety/quality-related structures, systems, or components shall be documented and action taken to correct and prevent the recurrence of deficiencies, in accordance with Reference 4.5.

5.8 Measures shall be established for the identification and control of deviations from specified quality standards.

5.9 Measures shall be established which assure that maintenance and modifications associated with design changes which may affect the functioning of safety/quality-related structures, systems, or components are performed in a manner to ensure quality at least equivalent to that specified in the UFSAR or other original design bases and requirements, unless changed by GQA categorization.

5.10 Measures shall be established to maintain the list of safety/quality-related structures, systems, and components current after modifications are made.

5.11 Measures shall be established to assure that only appropriately verified, qualified and controlled computer codes are authorized for use.

5.12 Modifications

5.12.1 Modifications to safety/quality-related structures, systems, and components shall be controlled, reviewed, and approved.

5.12.2 Installation and testing of modifications shall be performed in accordance with Reference 4.2 and approved procedures. These procedures shall contain provisions as appropriate to ensure quality of installation and appropriate post modification testing.

5.12.3 Safety/quality-related structures, systems, and components shall not be declared operable after a modification until the following provisions are satisfied:

5.12.3.1 Affected procedures are revised and distributed to appropriate users.

5.12.3.2 Appropriate personnel are trained.

5.13 Plant Modifications will be checked against the design change documentation for proper implementation prior to closing out the design change process.

6.0 DOCUMENTATION

6.1 Procedures which are generated as required by this chapter shall identify the records which are required to implement and document those activities. The records shall be controlled in accordance with Reference 4.3.

7.0 ATTACHMENTS

7.1 Attachment 1 - QA Program Applicability Matrix

QA Program Applicability Matrix

PARAGRAPH	FULL	TARGETED*	BASIC**
5.1	X	X	
5.2	X	X	X
5.2.1	X	X	X
5.2.2	X	X	X
5.2.3	X	X	
5.2.4	X	X	X
5.3	X	X	X
5.4	X	X	X
5.4.1	X	X	X
5.4.1.1	X	X	X
5.4.2	X	X	X
5.4.3	X	X	
5.4.4	X	X	
5.5	X	X	X
5.6	X	X	X
5.7	X	X	X
5.8	X	X	X
5.9	X	X	X
5.10	X	X	X
5.11	X	X	X
5.12	X	X	
5.12.1	X	X	X
5.12.2	X	X	X
5.12.3	X	X	X
5.12.3.1	X	X	X
5.12.3.2	X	X	

QA Program Applicability Matrix

PARAGRAPH	FULL	TARGETED*	BASIC**
5.13	X	X	X
6.0	X	X	X

* Specific sections and requirements will be invoked for items and activities designated as "Targeted". This determination will be based on analysis of items/activities and identification of significant/important attributes.

** The identified sections indicate the minimum requirements that will satisfy the requirements of 10CFR50, Appendix B.