

PART A

HOUSTON LIGHTING AND POWER COMPANY
QUALITY ASSURANCE PROGRAM DESCRIPTION

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

REVISION 5
DATE November 1, 1983

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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:

| <u>STANDARD</u> | <u>TITLE</u> |
|---|---|
| ANSI N45.2-1971 R.G.1.28 (Rev. 0,6/72) | Quality Assurance Program Requirements for Nuclear Facilities |
| 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) | Package, Shipping, Receiving, Storage and Handling of Items of 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 33) | 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 |

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TABLE 1
ANSI STANDARD AND REGULATORY GUIDE COMPLIANCE
(Continued)

4

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. HL&P Vendor Surveillance shall comply with ANSI N45.2.6 - 1978 and R. G. 1.58 (Rev. 1, 9/80) only. Exception is taken to regulatory position C.1 for personnel who (1) approve preoperational, startup, and operational test results and (2) direct or supervise the conduct of individual preoperational, startup, and operational tests. These personnel will be qualified under the guidelines of ANSI N45.2.6 - 1978, rather than R. G. 1.8.

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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. BEC Quality Assurance audits and surveillances are performed to ensure compliance with these criteria.

HL&P Design Office Quality Assurance ensures by audits/surveillance 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, HL&P Quality Assurance performs audits and surveillances of activities commencing with receiving inspection at the site to ensure proper controls of purchased material and equipment are exercised and to insure overall compliance.

8.0 Identification and Control of Material, 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.

BEC and ESI Quality Assurance verify that the above criteria are incorporated into the quality/construction procedures during the review/approval cycle and then follows up with audits and surveillances to verify compliance.

PART B

BECHTEL ENERGY CORPORATION
QUALITY ASSURANCE PROGRAM DESCRIPTION

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

REVISION 5
DATE November 1, 1983

BECHTEL QUALITY ASSURANCE PROGRAM DESCRIPTION
FOR SOUTH TEXAS PROJECT

INTRODUCTION

The Bechtel Quality Assurance Program Description used by the Bechtel Energy Corporation for the South Texas Project is described in the NRC approved Bechtel Topical Report BQ-TOP-1, Rev. 3A, Bechtel Quality Assurance Program for Nuclear Power Plants and the modifications and additions described below.

Throughout the Program Description (Part B) where the Program Description states Thermal Power Organization, it shall be construed as synonymous with Bechtel Power Management. | 4

Throughout the Program Description (Part B) where Construction Quality Control is stated, it shall be construed that Project Quality Control reports to the Project Quality Assurance Manager. |

SCOPE OF SERVICES

Bechtel Energy Corporation is responsible for Engineering, Procurement and Construction Management activities at the South Texas Project. This activity includes receiving, storage, maintenance, receiving inspection and Quality Assurance functions. Bechtel Construction Management is responsible for management of the construction and quality assurance/quality control activities of the Constructor/Contractor(s). Construction Management consists of planning, scheduling, monitoring and evaluating the Constructor/Contractor(s) construction and quality assurance/quality control activities. The construction, field engineering, and quality control activities defined in the topical will be the responsibility of the Constructor/Contractor(s). The Constructor/Contractor(s) will be responsible for submitting to Bechtel, for approval, a quality program which is consistent and compatible with the applicable sections of Bechtel's Topical Report. | 4

The following is a description of the South Texas Project modifications to meet the scope of the project and client requirements. | 4

Section 1 - Organization

o 1.5.4 Division Construction

Managers of Division Construction provide technical and administrative direction to the Construction Department personnel. Managers of Division Construction are assisted by Construction Managers and Chief Construction Engineers, where assigned. Construction Managers are responsible for the management and technical direction of assigned projects, and for assuring that construction projects are provided with appropriate personnel and are following prescribed division practices and procedures for conduct of construction activities.

1.6.1 Project Quality Assurance

The project quality assurance program is directed by the Project Quality Assurance Manager who is responsible to assure that Quality Assurance or Quality Control actions listed below are accomplished in accordance with the requirements of the project:

- 1) Coordinate the functions of the project quality program, and serve as the focal point for project communication on matters relating to this program. | 4
- 2) Coordinate project quality-related activities of Engineering, Procurement, Project Administration, Records Management System, and Construction. | 4
- 3) Audit and surveillance of project quality-related functions and adherence to procedures. Advise management of the status of program implementation. Conduct prescheduled project audits and supplemental audits directed by the Project Quality Assurance Manager.
- 4) Review Supplier and Constructor/Contractor(s) quality assurance program requirements in procurement documents, conditional releases of nonconforming items at the construction site, and completed quality verification records packages prior to turnover to the client. | 4
- 5) Concur with evaluation of recommended supplier's quality assurance program, in accordance with subsection 7.1. Evaluate supplier's Quality Programs for jobsite originated safety related purchases when determined necessary by the Project Quality Assurance Manager. | 4
- 6) Take stopwork action when warranted.
- 7) Identify quality problems, initiate documented action leading to a solution, and verify implementation of solutions.
- 8) Review project plans and schedules for quality-related activities to assure timely and effective implementation of the quality assurance functions for the project. | 4
- 9) Provide periodic reports to the Division Quality Assurance Manager and Project Manager evaluating the status of the project quality assurance program and advising of any problems requiring special attention.
- 10) Coordinate quality assurance functions within the project and with groups outside the division, such as M&QS and Procurement Supplier Quality.
- 11) Assure that quality assurance related procedures and manuals prepared by or used for the project meet project quality program requirements and initiate revisions when necessary.

12) Review, prior to use, Procurement Quality Surveillance Inspection plans and Quality Control instructions for clarity and the existence of the information described in Sections 7 and 10. In addition, evaluate the adequacy of selected plans and instructions by performing an in-depth review of:

- a. Accuracy of translation of drawing and specification requirements.
- b. Basis for determining inspection level and sequence.
- c. Adequacy of inspection method.

This review provides assurance that the total quality program requirements inclusions are complete. Reviews of generic plans and instructions can be performed on a generic basis. In that case, the PQAM only verifies that the review of the generic plan or instructions has been performed.

- 13) Review and approve Constructor/Contractor(s) quality programs. | 4
- 14) Prepare quality assurance descriptions in Safety Analysis Reports.
- 15) Review Nonconformance Reports and other quality problem related documents to determine trends, identify significant deficiencies, and recommend appropriate corrective action.

The field quality assurance program includes the capability to perform:

- o Receiving inspection of permanent plant material and equipment.
- o Maintenance and storage inspection of permanent plant equipment and material in Bechtel's custody.
- o Review of receiving and Bechtel QC documentation.
- o Surveillance inspection of work performed by Constructor/Contractor(s). This inspection supplements the quality programs of the Constructor/Contractor(s) who have responsibility for their work and their quality verification. | 4

Surveillance inspection includes either selected physical inspection at prescribed hold points and observation or witness of inspections performed by the Constructor/Contractor(s): | 4

- o Reviewing quality control documentation.
- o Reviewing Bechtel and/or Constructor/Contractor(s) quality documentation. | 4
- o Providing technical direction to testing laboratories and inspection Contractors. | 4

- o Reviewing supplier quality verification document packages for completeness and traceability to the item(s). | 4
- o Identifying quality problems, initiating action leading to solutions, and verifying implementation of solutions. | 4
- o Reviewing Constructor/Contractor(s) quality verification documents. | 4
- o Reinspection of Constructor/Contractor(s) completed work may be imposed as deemed necessary. | 4

1.6.2 Project Engineering

- 3) Prepare specifications for Supplier and Constructor/Contractor(s) Quality Assurance Program. | 5
- 5) Review and approve the design changes and approve nonconformance dispositions. | 5
- 6) Review drawings, procedures, test data, manuals and reports submitted to Engineering by suppliers and Constructor/Contractor(s). | 5
- 8) Provide support to Construction management relative to storage and maintenance of permanent plant equipment. | 5

1.6.3 Project Construction Management

A Manager of Construction is assigned to each nuclear plant project involving construction or construction management assignment, and is responsible for the project field construction performance. The Manager of Construction is responsible for assuring that construction activities are performed in accordance with the design requirements as established by project engineering and other applicable requirements. | 4

The project construction management organization is shown in Figure 11. | 5

The Constructor/Contractor(s) are assigned first-level responsibility for the control of the quality of their work. Their performance is coordinated and monitored by the Bechtel field organization. The Bechtel Quality Assurance organization performs documented audits and surveillances and has the capability to perform surveillance inspection. | 4

In cases where the Constructor/Contractor(s) are responsible for quality verification inspection or other quality assurance functions, the contract documents incorporate the requirements for the Constructor/Contractor(s) quality assurance program. Constructor/Contractor(s) quality assurance and quality control personnel are required to have the appropriate authority, organizational freedom, and independence within their own organization. | 4

Constructor/Contractor(s) program requirements are specified by incorporation of the requirements of Reg. Guide 1.28 (6/7/72) or the ASME Boiler and Pressure Vessel Code, Section III, as appropriate. In the event that the Constructor/Contractor(s) is unable to provide an acceptable program, Bechtel may assume quality verification inspection responsibilities or these may be contracted to another organization. | 4

1.6.4 Project Procurement

The Project Procurement Manager receives technical and administration direction from the Manager, Division Procurement, LAPD through the Manager, Division Procurement, Houston and project direction from the designee Project Manager.

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Section 3 - Design Control

Page 30 - first paragraph:

In the case of proposed changes to the original design initiated at the construction site, the design changes shall be reviewed, accepted and documented by Bechtel Project Engineering. Acceptance of design changes by Bechtel Project Engineering is required prior to implementation. For design changes proposed by suppliers, acceptance of the design change by Project Engineering is required prior to shipment of the item to the jobsite.

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- third paragraph:

Certain other detail design work described below may be performed by Bechtel Engineering. This work is not subject to design verification or checking described above. The nature and scope will vary with each Engineering discipline. Civil Engineering design affecting safety-related structures, systems, and components is limited to functions such as the design of form details for concrete placement and design of temporary supports for reinforcing and embedded steel. Within Instrumentation and Electrical Engineering, these design functions include the preparation of isometric drawings of electrical conduit and instrumentation tubing and the detailing and selection of hangers and supports. Within Piping Engineering, these design functions are normally limited to the preparation of isometric drawings and detailing of small (two-inch nominal and under) piping using sizes, material, routing and support criteria provided by Engineering specifications. Sizing, separation, instrument location, support criteria and standard designs are developed by Bechtel Engineering within the program described above.

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- fourth paragraph:

Suppliers are not allowed to change Bechtel design requirements or Bechtel reviewed supplier design documents without obtaining approval by Bechtel Project Engineering. Construction site changes to engineering design are documented by means of change notices or change requests which require authorization by Project Engineering. Significant or unique changes are authorized individually; Project Engineering may give written authorization in the form of specifications or other instructions to field organizations to make routine changes. Field organizations have the authority to approve changes to design details in cases where the original design details were prepared by that field organization.

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Section 4 - Procurement Document Control

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Page 32 - paragraph 3, item 1) through item 8) Page 33:

Replace the paragraph beginning "...The following describes the sequence of steps..." with the following paragraph:

Appropriate project procedures provide details to accomplish the administrative actions in processing procurement documents in the design office and at the jobsite.

Section 5 - Instructions, Procedures, and Drawings

Page 34 - sixth paragraph:

Field organizations prepare other procedures when engineering documents require amplification to perform various discipline activities associated with fabrication, cleaning, erection, installation, test, repair, modification, etc., of items.

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Section 6 - Document Control

Page 35 - sixth paragraph:

Changes made to approved design documents by Project Engineering or proposed by field organizations are reviewed and approved by Project Engineering in accordance with established procedures which provide that changes are reviewed in the same manner as the original issue.

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Section 7 - Control of Purchased Material, Equipment & Services

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Page 37 item number 2):

- 2) Determination by Engineering and Quality Assurance that the supplier or Constructor/Contractor(s) quality program is capable of meeting the specified requirements. This may be based on evaluations by Procurement Supplier Quality for manufacturing suppliers or Quality Assurance for jobsite Constructor/Contractor(s), and field procurements.

Section 14 - Inspection, Test, and Operating Status

Page 50 - fourth paragraph:

Project Engineering and supervisory personnel are authorized to apply and remove identifying tags, markings, and labels on equipment in accordance with approved procedures. Quality Control personnel are the only ones authorized to direct application and removal of inspection status indicators. Bechtel, in cooperation with the plant owners' operating personnel, establishes a tagging procedure which delineates those authorized for applying and removing tags during preoperational testing phases.

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Section 15 - Nonconforming Items

Page 51 - paragraph 2 items 2, 3 and 5):
- paragraph 2 item 4 - Delete

- 2) Determine interim disposition by field organizations.
- 3) Have Project Engineering approve dispositions.
- 5) Provide conditional release of nonconforming items upon approval of Quality Assurance.

- last paragraph:

The authority for disposition of nonconforming items follows the rules for approval of design changes described in Section 3 of this report. Quality Assurance reviews dispositions to determine that they are fully responsive to the conditions described in the nonconformance report. Quality Control is responsible for verification of rework and repair dispositions, applying inspection processes at least equivalent to that applied to the original work. "Repair" or "use as is" dispositions on nonconformances to procurement requirements at a supplier's plant must be approved by Project Engineering.

Page 52 - second paragraph:

Nonconforming items discovered at final inspection which cannot be corrected by rework or completion of originally prescribed processing are required to be identified, tagged, and/or segregated. Discrepancies in work not yet submitted for final inspection which can be corrected by rework or completion of work processes are not considered to be nonconformances. For construction work performed by Bechtel, no further work can proceed on the nonconforming item until an approved disposition is implemented, unless a conditional release is approved by Quality Assurance. Suppliers, and Constructor/Contractor(s), as required by procurement documents, apply similar procedures involving their quality assurance functions. Bechtel Procurement Supplier Quality Representatives are instructed to withhold release for shipment until all nonconformances have been resolved or an interim disposition is approved by Project Engineering.

The following is a modification of Appendix "A" of the topical which describes Bechtel's position on Regulatory Guide and ANSI standards:

- o Reg. Guide 1.58 Rev. 0, 8/73 Plus positions C.5, C.6, C.7, ANSI N45.2.6, 1973 C.8, and C.10 of Rev. 1
- o Reg. Guide 1.144 Rev. 1, 9/80 | 4
ANSI N45.2.12, 1977
Exception listed below
- o Reg. Guide 1.146 Rev. 0, 8/80
ANSI N45.2.23, 1978
Full Compliance - No exceptions

Exception

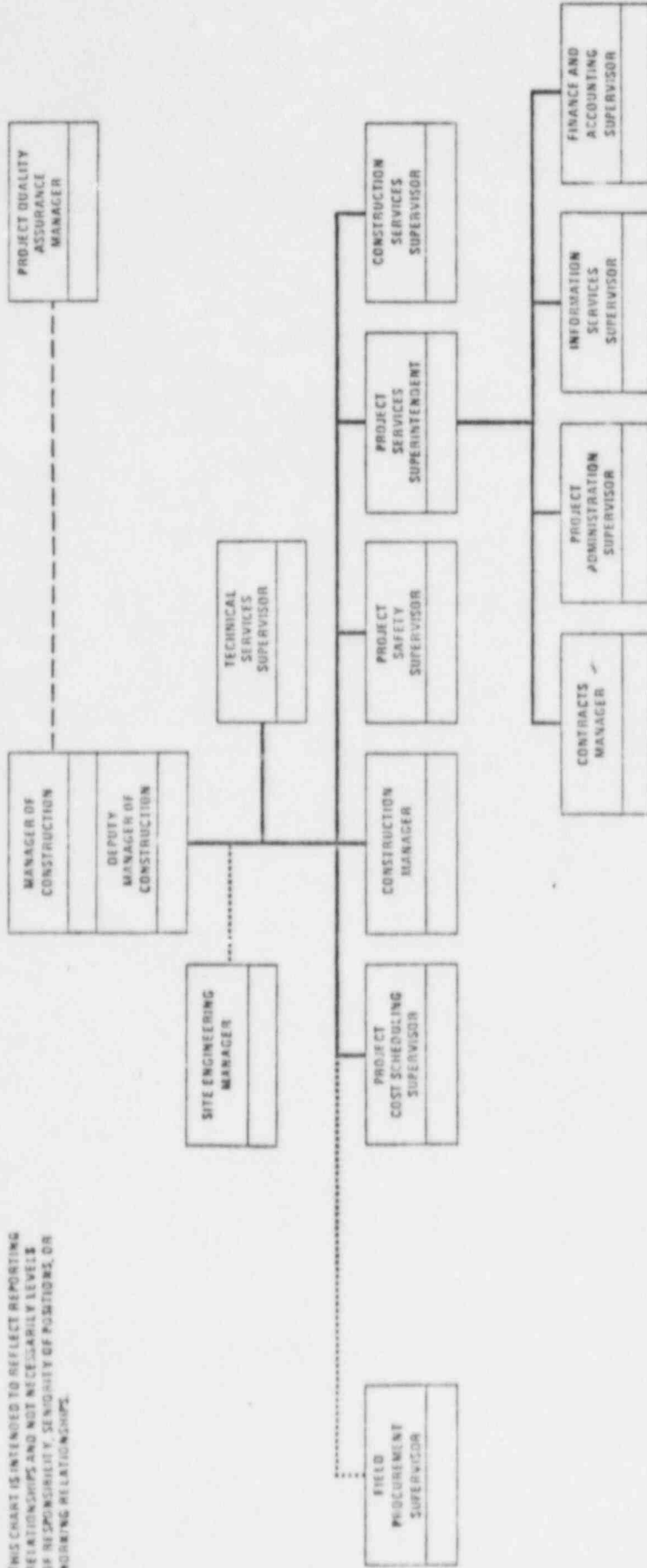
ANSI N45.2.12-1977, Section 4.5.1 states, "The audited organization shall provide a follow-up report stating the corrective action taken and the date corrective action was completed." This implies that the audited organization must provide the auditing organization with written notification detailing what corrective action was taken and when the corrective action was completed. | 4

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 result of the verification will be documented.

Attachment A is a modified Table I to the topical which describes Bechtel's Quality Program Documents.

SOUTH TEXAS PROJECT CONSTRUCTION MANAGEMENT ORGANIZATION CHART

THIS CHART IS INTENDED TO REFLECT REPORTING RELATIONSHIPS AND NOT NECESSARILY LEVELS OF RESPONSIBILITY, SENIORITY OF POSITIONS, OR WORKING RELATIONSHIPS.



LEGEND:
 TECHNICAL & ADMINISTRATIVE ———
 PROJECT COORDINATION - - -
 PROJECT DIRECTION ·····

REVISION 5

Figure 11
Page 10 of 10

BECHTEL QUALITY PROGRAM DOCUMENTS

| <u>DOCUMENT</u> | <u>ORIGINATING AUTHORITY</u> | <u>REVIEW FOR QA POLICY AND PROGRAM REQUIREMENTS</u> | <u>AUTHORIZING APPROVAL</u> | <u>CONTENTS</u> | |
|---|--------------------------------------|--|---|--|---|
| * BECHTEL QUALITY ASSURANCE MANUAL- ASME NUCLEAR COMPONENTS (BQAM-ASME III) | MANAGER C&S/R&E | QA-BPC** DIVISION QUALITY ASSURANCE MANAGER | PRESIDENT AND APPROPRIATE AUTHORIZED CODE INSPECTION AGENCY | POLICIES AND PROCEDURES FOR OVERALL BECHTEL PROGRAM APPLICABLE TO ASME WORK | 4 |
| QUALITY ASSURANCE PROCEDURES | PROJECT QUALITY ASSURANCE MANAGER | N/A | DIVISION QUALITY ASSURANCE MANAGER | PROCEDURES FOR CONDUCTING PROJECT QUALITY ASSURANCE ACTIVITIES | 4 |
| ENGINEERING DEPARTMENT PROCEDURES AND INSTRUCTIONS | DESIGNATED INDIVIDUALS | DIVISION QUALITY ASSURANCE MANAGER*** | MANAGER DIVISION ENGINEERING*** | DEFINITION OF RESPONSIBILITIES AND PROCEDURES FOR DESIGN, DESIGN REVIEW, AND DOCUMENT CONTROL IN THE ENGINEERING DEPARTMENTS | 4 |
| PROCUREMENT MANUALS (QUALITY PROGRAM RELATED) | PROCUREMENT | QA-BPC** | COGNIZANT PROCUREMENT MANAGERS | PROCEDURES FOR HOME OFFICE AND FIELD PROCUREMENT NECESSARY TO FOLLOW TPO QUALITY POLICY | 4 |
| * PROCUREMENT SUPPLIER QUALITY MANUAL | MANAGER PROCUREMENT SUPPLIER QUALITY | QA-BPC** | MANAGER PROCUREMENT SUPPLIER QUALITY | PROCUREMENT SUPPLIER QUALITY PROCEDURES | |
| M&QS PROCEDURE AND POLICY GUIDES (QUALITY PROGRAM RELATED) | MANAGER M&QS | QA-BPC** | MANAGER M&QS | POLICIES AND PROCEDURES FOR PERFORMING M&QS FUNCTIONS | |
| TECHNICAL SUPPORT PROCEDURES MANUAL | TECHNICAL SERVICES | DIVISION QA MANAGER | MANAGER TECHNICAL SERVICES | RESPONSIBILITIES AND PROCEDURES FOR PROJECT SUPPORT GROUPS | 4 |
| PROJECT MANUALS PROCEDURES (QUALITY PROGRAM RELATED) | COGNIZANT PROJECT TEAM MEMBER | PGA E | COGNIZANT MANAGERS | NOTE 2 | 4 |

*AVAILABLE ON REQUEST TO APPROPRIATE REGULATORY AGENCIES

**INCLUDES REVIEW BY DIVISION QUALITY ASSURANCE MANAGERS

***AREA OFFICE EDP'S ARE REVIEWED AND APPROVED BY THE AREA OFFICE QUALITY ASSURANCE MANAGER AND AREA OFFICE MANAGER OF ENGINEERING. THESE EDP'S SHALL BE SENT TO DIVISION QUALITY ASSURANCE STAFF FOR POST APPROVAL REVIEW.

NOTES: 1 REVISIONS TO THESE DOCUMENTS REQUIRE THE SAME REVIEW AND APPROVAL AS THE ORIGINAL.

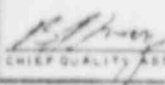
2 THERE ARE PROVISIONS FOR PROJECT UNIQUE MODIFICATIONS TO THE ABOVE DOCUMENTS TO DELINEATE SPECIFIC PROJECT REQUIREMENTS BUT NOT DEPART FROM THE PROGRAM REQUIREMENTS OF THIS REPORT. REVIEW AND APPROVAL AUTHORITY FOR SUCH MODIFICATIONS ARE DEFINED WITHIN THE GOVERNING PROCEDURES.

PART C

EBASCO SERVICES, INCORPORATED
QUALITY ASSURANCE PROGRAM DESCRIPTION

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

REVISION 5
DATE November 1, 1983

| | | | |
|---|-------------------|--|--------------|
| EBASCO SERVICES INCORPORATED | | NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 | SECTION |
| APPROVAL  CHIEF QUALITY ASSURANCE ENGINEER | TABLE OF CONTENTS | | REVISION 5 |
| | | | DATE 5-20-83 |

PART I - General

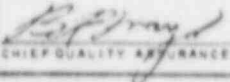
| <u>Section</u> | <u>Title</u> | <u>Rev. No.</u> | <u>Date</u> |
|----------------|--|-----------------|-------------|
| QA-I-1 | Quality Assurance Program | 4 | 5-20-83 |
| QA-I-2 | Organization and Responsibilities | 4 | 5-20-83 |
| QA-I-3 | Personnel Indoctrination and Training Program in Quality Assurance | 2 | 11-19-82 |
| QA-I-4 | Deleted (not applicable) | | |
| QA-I-5 | Quality Assurance Evaluation of Suppliers/Contractors | 2 | 11-19-82 |
| QA-I-6 | Quality Assurance Records | 2 | 11-19-82 |

PART II - Engineering Offices

Deleted (not applicable)

PART III - Construction Site

| <u>Section</u> | <u>Title</u> | <u>Rev. No.</u> | <u>Date</u> |
|----------------|--|-----------------|-------------|
| QA-III-1 | Instructions, Procedures, and Drawings | 2 | 11-19-82 |
| QA-III-2 | Document Control | 2 | 11-19-82 |
| QA-III-3 | Procurement Document Control | 1 | 5-4-82 |
| QA-III-4 | Construction Site Procurements | 2 | 11-19-82 |
| QA-III-5 | Supplier/Contractor Surveillance | 1 | 5-4-82 |
| QA-III-6 | Nonconformances | 2 | 11-19-82 |
| QA-III-7 | Corrective Action | 2 | 11-19-82 |
| QA-III-8 | Control of Special Processes | 3 | 12-13-82 |
| QA-III-9 | Quality Assurance Audits | 3 | 2-22-83 |

| | | | |
|---------------------------------|---|---|-------------------|
| Ebasco Services INCORPORATED | | NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 TABLE OF CONTENTS | SECTION |
| APPROVAL |  CHIEF QUALITY ASSURANCE ENGINEER | | REVISION <u>5</u> |
| | | DATE <u>5-20-83</u> | |

PART III - Construction Site (Cont'd)

| <u>Section</u> | <u>Title</u> | <u>Rev. No.</u> | <u>Date</u> |
|----------------|--|-----------------|-------------|
| QA-III-10 | Identification and Control of Items | 1 | 5-4-82 |
| QA-III-11 | Inspection | 3 | 2-22-83 |
| QA-III-12 | Test Control | 2 | 2-22-83 |
| QA-III-13 | Control of Measuring and Testing Equipment | 2 | 11-19-82 |
| QA-III-14 | Control of Receiving, Handling, and Storage | 3 | 2-22-83 |
| QA-III-15 | Inspection, Test, and Operating Status | 1 | 5-4-82 |
| Appendix I | Terms and Definitions | 1 | 5-4-82 |
| Appendix II | Ebasco Exceptions to US Nuclear Regulatory Guides and ANSI Standards Indicated in Section QA-I-1 | 2 | 2-22-83 |

| | | | |
|--|--|--|-------------------|
| EBASCO SERVICES INCORPORATED | | NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 | SECTION QA-I-1 |
| APPROVAL <i>[Signature]</i> CHIEF QUALITY ASSURANCE ENGINEER | | | REVISION 4 |
| | | | DATE 5-20-83 |
| | | QUALITY ASSURANCE PROGRAM | |

1.0 SCOPE

The purpose of this section is to describe the Quality Assurance Program of Ebasco Services Incorporated and its applicability to safety-related activities and services performed by Ebasco in the construction of South Texas Project. This program has been designed to meet the applicable requirements of the United States Nuclear Regulatory Commission 18 Quality Assurance Criteria of 10CFR50, Appendix B. It has also been designed to meet the regulatory position of the following US NRC Regulatory Guides and ANSI Standards, with exceptions and clarifications as stated in Appendix II of this Manual:

| <u>Standard</u> | <u>Title</u> |
|---|--|
| 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 Appendix II Notes 3 through 5) | 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 Appendix II Notes 6 through 11) | Packaging, Shipping, Receiving, Storage, and Hauling of Items for Nuclear Power Plants (During the Construction Phase) |
| ANSI N45.2.3-1973 R.G. 1.39 (Rev. 0, 3/73) (See Appendix II Notes 12 and 13) | Housekeeping During the Construction Phase of Nuclear Power Plants |
| ANSI N45.2.4-1972 R.G. 1.30 (Rev. 0, 8/72) (See Appendix II Notes 14 and 15) | Installation, Inspection, and Testing Requirements for Instrumentation and Electric Equipment During the Construction of Nuclear Power Generating Stations |
| ANSI N45.2.5-1974 (See Appendix II 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 |

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|--|--|---|-------------------|
| EBASCO SERVICES INCORPORATED | | NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 QUALITY ASSURANCE PROGRAM | SECTION QA-I-1 |
| APPROVAL <i>[Signature]</i> CHIEF QUALITY ASSURANCE ENGINEER | | | REVISION 4 |
| | | | DATE 5-20-83 |

Standard

Title

ANSI N45.2.6-1973
R.G. 1.58 (Rev. 0, 8/73)
Plus Positions C.5, C.6, C.7,
C.8, and C.10 of Rev. 1

Qualifications of Inspection,
Examination, and Testing
Personnel for the Construction
Phase of Nuclear Power Plants

ANSI N45.2.8-1975
R.G. 1.116 (6/76)
(See Appendix II Notes 16 through 18)

Supplementary Quality Assurance
Requirements for Installation,
Inspection, and Testing of
Mechanical Equipment and Systems
for the Construction Phase of
Nuclear Power Plants

ANSI N45.2.9-1974
R.G. 1.88 (Rev. 2, 10/76)
(See Appendix II Notes 19 through 21)

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 N45.2.12-1977
R.G. 1.144 (Rev. 1, 9/80)
(See Appendix II Note 27)

Requirements for Auditing of Quality
Assurance Programs for Nuclear Power
Plants

ANSI N45.2.13-1976
R.G. 1.123 (10/76)
(See Appendix II Notes 22 through 26)

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

Table I-1.1 provides a matrix which shows the sections of the Ebasco Nuclear Quality Assurance Program Manual that correspond to the requirements of 10CFR50, Appendix B and US NRC Regulatory Guide 1.28, Rev. 0. The Ebasco Quality Assurance Program is comprised of: The Ebasco Nuclear Quality Assurance Program Manual, written corporate policies, procedures, departmental instructions, and drawings related to quality. Table I-1.2 provides a matrix of the principal implementing procedures with 10CFR50, Appendix B. Table I-1.3 is a listing of these procedures by title. The principal implementing procedures are not necessarily limited to those indicated in the matrix. Implementing procedures will be issued for South Texas Project use as the need for specific procedures arises due to the expanding scope of Ebasco safety-related activities.

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| EBASCO SERVICES INCORPORATED | | NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 QUALITY ASSURANCE PROGRAM | SECTION QA-I-1 |
| APPROVAL |  CHIEF QUALITY ASSURANCE ENGINEER | | REVISION <u>4</u> DATE <u>5-20-83</u> |

The Ebasco Nuclear Quality Assurance Program Manual has been designed to meet the requirements of 10CFR50.34 (7) for a quality assurance program description. It will be incorporated into applicable portions of safety analysis reports by reference as provided by 10CFR50.32.

The Ebasco Quality Program for the South Texas Project is in force at the Ebasco Engineering Office and Construction Operations. The Ebasco Engineering Office is an organized unit where engineering, procurement, and related functions are performed. Construction Operations encompass those activities related to the construction of a nuclear power station. Ebasco's responsibility for implementing the Ebasco Quality Program shall begin at the commencement of activities affecting quality and shall end with the turnover of completed systems to the Client.

Definitions pertaining to the Ebasco Quality Program are listed in Appendix I of this Manual.

2.0 QUALITY ASSURANCE ENGINEERING

2.1 The Ebasco Quality Assurance Engineering Department is responsible for establishing new, and updating existing, quality assurance requirements. In addition, this department is responsible to administer and enforce the implementation of the Ebasco Quality Assurance Manual.

3.0 QUALITY PROGRAM COMMITTEE

3.1 The Ebasco Quality Program Committee is responsible for and has authority to make and approve procedures for any changes to this Manual. This committee is comprised of representatives of the Materials Engineering and Quality Assurance, Engineering, Construction, Projects, Purchasing, Consulting Engineering, Advanced Technology, and Plant Operations and Betterment Departments; and of Envirosphere Company. These representatives are appointed by the Vice President of the respective department.

The Vice President Materials Engineering and Quality Assurance is designated by the Executive Vice President Operations as the Chairman of the Quality Program Committee. A member of Quality Assurance Engineering Department shall be designated by the Chairman as Quality Program Coordinator, who shall function as the Quality Program Committee's secretary and be a member of the Committee.


The Chief Quality Assurance Engineer is designated by the Vice President Materials Engineering and Quality Assurance as a permanent representative of the Materials Engineering and Quality Assurance Department on the Quality Program Committee.

The Committee shall be responsible for and shall have authority to make any changes to the policies and procedures of the Ebasco Quality Program.

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| EBASCO SERVICES INCORPORATED | | NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 QUALITY ASSURANCE PROGRAM | SECTION QA-I-1 |
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All changes or revisions to the Ebasco Quality Program shall be processed through the Quality Program Committee by the Quality Program Coordinator.

3.2 Ebasco Quality Program Procedures document the various significant activities of the Quality Program that are the direct responsibility of the Quality Program Committee or the Quality Program Coordinator. These procedures include but are not limited to the following:

3.2.1 Quality Program Procedure No. 4 entitled, QUALITY PROGRAM COORDINATOR - DESCRIPTION OF POSITION, DUTIES, RESPONSIBILITIES.

3.2.2 Quality Program Procedure No. 5 entitled, DEVIATING EBASCO PROJECT-RELATED QUALITY ASSURANCE PROGRAMS FROM THE EBASCO NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL. This provides for control of such deviations by requiring execution of an authorization form involving approval of specified authorities to assure, among other things, that safety and/or quality will not be sacrificed.

3.2.3 Quality Program Procedure No. 6 entitled, ASSIGNMENT, DISTRIBUTION AND CONTROL OF THE EBASCO NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL.

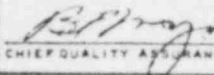
3.2.4 Quality Program Procedure No. 7 entitled, REVISIONS TO THE EBASCO NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL.

4.0 GENERAL

4.1 Section QA-I-2 of this Manual describes the organizational structure, functional responsibilities, levels of authority, and lines of internal and external communication for management, direction, and execution of the Ebasco Quality Assurance Program. By the Statement of Authority at the front of this Manual, Ebasco's President mandates the company-wide use of this Manual and its supporting documents which make up the Ebasco Quality Program.

4.2 It shall be the responsibility of each Ebasco department and the individual personnel of that department to adhere to the requirements of this Program. Section QA-III-1 of this Manual requires these departments to develop and control instructions, procedures, and/or drawings which describe the manner in which activities affecting quality are to be accomplished. When documented evidence is required for the satisfactory performance of these activities, checklists, forms, and/or other appropriate means shall provide this evidence. The documents which contain the procedures listed in Table I-1.3 and are used to implement the Ebasco QA Program are:

4.2.1 Quality Assurance Engineering Department - Quality Assurance Procedures Manual

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| EBASCO SERVICES INCORPORATED | | NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 QUALITY ASSURANCE PROGRAM | SECTION QA-I-1 |
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- 4.2.2 Quality Assurance Engineering Department - Site Quality Assurance Procedures Manual
- 4.2.3 Company Procedures Manual - Quality Program
- 4.2.4 Company Procedures Manual - Nuclear
- 4.2.5 Vendor Quality Assurance Department - Vendor Quality Assurance Department Procedures Manual
- 4.2.6 Site Quality Assurance Engineering Department - Quality Control Procedures Manual
- 4.2.7 Site Quality Assurance Engineering Department - Site Quality Assurance Instructions Manual
- 4.2.8 Site Construction Department Procedures Manual - Administrative Site Procedures
- 4.2.9 Site Construction Department Procedures Manual - Construction Site Procedures

The above-listed manuals may also contain departmental working procedures which do not describe activities affecting quality and therefore are not governed by the requirements of this Manual. Furthermore, certain implementing procedures may require changes in order to suit unique client requirements; such procedures for a specific project will be included in a project manual of procedures and/or a site manual. In this case, the changed procedure shall be designated a Project Procedure. These procedures will be subject to controls similar to those applicable to the original documents.

4.3 In addition to the requirements of Section QA-III-1 of this Manual and Paragraph 4.2 above, Section QA-III-8 of this Manual further assures control over quality-related activities by requiring that special processes shall be performed in accordance with written qualified procedures, and that they shall be performed only by qualified personnel. All qualifications shall be in accordance with applicable codes, standards, specifications, and other requirements as applicable. The Ebasco Quality Program provides for the verification of quality requirements through written policies, procedures, and instructions for the performance of inspections and tests. These inspections and tests are performed on Ebasco-purchased items and services as well as on services supplied by Ebasco. All inspections shall be performed by individuals other than those who performed the activity.

4.4 In order to extend the control of activities affecting quality to the supplier level, suppliers of Ebasco-purchased items and services

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shall be evaluated with respect to quality assurance capability in accordance with the requirements of Section QA-I-5 of this Manual. Section QA-I-5 requires Ebasco suppliers to have in effect quality programs that meet the requirements of 10CFR50 Appendix B and ANSI N45.2 that are applicable to the items and services being purchased. Items and services shall not be purchased from suppliers that do not meet the applicable requirements of Section QA-I-5.

In addition to the initial quality assurance evaluation of suppliers, the Ebasco Quality Program provides for the in-process surveillance of items in the supplier's shops. This surveillance program is described in Section QA-III-5 of this Manual.

5.0 INDOCTRINATION AND TRAINING

Section QA-I-3 of this Manual provides for the company-wide indoctrination and training of Ebasco personnel engaged in activities subject to the requirements of the Ebasco Quality Assurance Program. The objectives of the training program are to familiarize applicable Ebasco personnel with this Quality Assurance Program, herein defined as the Ebasco Topical Report ETR-1001 and the implementing procedures identified in Table I-1.3. Overall responsibility for training as delineated in QA-I-3 rests with the Quality Assurance Engineering Department.

6.0 REVIEW OF QUALITY PROGRAM ADEQUACY

6.1 The adequacy of the Ebasco Quality Program is reviewed on a regular basis. The determination of program adequacy is based on audit results and trend analyses. Section QA-III-9 of this Manual provides for the performance and follow-up of audits by Quality Assurance Engineering and of audits of the Materials Engineering and Quality Assurance functions.

6.2 Audits performed by Quality Assurance Engineering are designed to evaluate the Quality Program effectiveness on a project basis. When corrective action is necessary, re-audits are scheduled to assure implementation of corrective action.

6.3 Information on audits performed by Quality Assurance Engineering shall be submitted to the Quality Assurance Engineering Internal Audit Supervisor. He shall make an analysis of the available quality data with respect to quality trends and report the result at least semi-annually to the appropriate executive level of management for review and assessment in accordance with Quality Assurance Engineering Procedure QA-D.3. The Vice President of Materials Engineering and Quality Assurance shall be responsible for initiating the implementation of any changes or corrective action deemed necessary to improve the effectiveness of the Ebasco Quality Assurance Program.

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| APPROVAL <i>E. Proza</i> CHIEF QUALITY ASSURANCE ENGINEER | | | REVISION 4 DATE 5-20-83 |

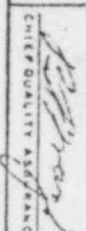
TABLE I-1.1

MATRIX OF COMPLIANCE TO
US NRC 10CFR50 APPENDIX B AND ANSI N45.2

| <u>10CFR50 Appendix B Criteria</u> | <u>ANSI N45.2 Paragraph</u> | <u>Ebasco Nuclear Quality Assurance Program Manual Section</u> |
|--|---------------------------------|--|
| I | 3 | QA-I-2 |
| II | 2 | QA-I-1, QA-I-3 |
| IV | 5 | QA-III-3 |
| V | 6 | QA-III-1 |
| VI | 7 | QA-III-2 |
| VII | 8 | QA-I-5, QA-III-2, QA-III-4 |
| VIII | 9 | QA-III-10 |
| IX | 10 | QA-III-8 |
| X | 11 | QA-III-5, QA-III-11 |
| XI | 12 | QA-III-12 |
| XII | 13 | QA-III-13 |
| XIII | 14 | QA-III-14 |
| XIV | 15 | QA-III-15 |
| XV | 16 | QA-III-6 |
| XVI | 17 | QA-III-7 |
| XVII | 18 | QA-I-6 |
| XVIII | 19 | QA-III-9 |

TABLE I-1.2
MATRIX OF COMPLIANCE OF
PRINCIPAL IMPLEMENTING PROCEDURES TO 10CFR50 APPENDIX B

| Crite- rion | Nuclear (N-) Procedures | Quality Control Procedures (QCP-) | Quality Assurance Instructions (QAI-) | Quality Assurance (QA-) Procedures | Construction Dept. Procedures | | | Vendor Quality Assurance Dept. (VQAD-) Procedures | Quality Program (QP-) Procedures |
|----------------|-------------------------------|--|--|---|-------------------------------|---------------------------------------|--------|--|---|
| | | | | | (ASP-) | (CSP-) | (CMI-) | | |
| I | -21 | -1.1 | -001 | | -2 | | | | |
| II | | -2.1,-2.2 | -003,-012,-017,-018 | -G.3,-S.1,-S.23 | -14,-34 | | | | -4 through -7 |
| IV | | | -009 | -D.1,-D.2,-P.6 | -3 | | | | |
| V | -23 | -6.1,-6.3 | -005 | -G.1,-G.2,-P.1, -S.23 | -1,-7, -11,-12 | -1 through -100 (as applicable) | | | |
| VI | | -6.2 | -002 | -G.1,-G.2,-S.3,-S.9 | -6 | | | | |
| VII | | | | -P.1,-P.5,-P.9, -S.10 | -3 | | | -1 through -15, -17,-18,-19 | |
| VIII | | -14.1 | | | -5,-32 | -14,-25-38, -39 | | | |
| IX | | -9.1 through -9.5 | -014,-015 | -P.1,-P.7,-P.12, -S.15 through -S.20 | | -81 through -95 | | | |
| X | | -2.1,-10.1 through -13.3 (** applicable) | | -G.3.1,-P.5,-P.12 | | | | | |
| XI | | -11.1 | | -P.1,-P.5 | | -5,-17,-32 | | | |
| XII | | -12.1 | -015 | -S.8 | | -34,-94 | | | |
| XIII | | -10.22,-13.1, -13.2,-13.3 | | -P.1,-S.5,-S.6 | -4,-5, -82 | -37,-60 through-65 | -1 | | |
| XIV | | -14.1 | | -P.1,-P.5 | | -49 | | | |
| XV | | -15.1,-15.2, -15.3 | -004 | -P.3,-S.7 | -15,-33 | | | | |
| XVI | | -16.1 | -007,-008,-011 | -D.3,-P.3,-S.7 | -16 | | | | |
| XVII | | -17.1 | -010,-016,-019 | -D.5,-G.3,-G.4, -P.9,-P.12,-S.4, -S.11 | -8 | | | | |
| XVIII | -24 | | -003,-006,-013 | -D.4,-D.5,-D.5.1, -D.5.2,-G.3,-P.9, -S.1 through -S.23 (except -S.7) | | | | | |

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| REVISION DATE | SECTION QA-I-1 4 5-20-83 |

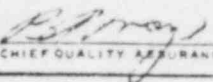
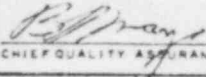
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TABLE I-1.3

PRINCIPAL IMPLEMENTING PROCEDURES

| <u>Procedure No.</u> | <u>Title</u> |
|----------------------|--|
| N-21 | Nuclear Quality Program Authorization and Implementation |
| N-23 | Reporting a Defect/Noncompliance to the NRC |
| N-24 | Ebasco Management Quality Assurance Audit Committee |
| QA-G.1 | Preparation and Control of Quality Assurance Engineering Department Procedures |
| QA-G.2 | Control and Distribution of Project-Related Manuals |
| QA-G.3 | Qualification of QA Audit Personnel |
| QA-G.3.1 | Qualification of Inspection, Examination and Testing Personnel |
| QA-G.4 | Quality Assurance Engineering Records |
| QA-D.1 | Review of Safety-Related Component Specifications |
| QA-D.2 | Review of Engineering Drawings |
| QA-D.3 | Determination and Analysis of Quality Trends |
| QA-D.4 | Resolution of External Audit Findings |
| QA-D.5 | Internal Audits |
| QA-D.5.1 | Internal Auditing of Vendor Quality Assurance Representatives |
| QA-D.5.2 | Site Audit Procedure |
| QA-P.1 | Review of Vendor's Procedures |
| QA-P.3 | Review of Nonconformances |

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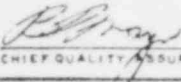
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Procedure
No. _____

Title

| | |
|---------|--|
| QA-P.5 | Requirements for Preparation, Implementation and Control of QA Plans |
| QA-P.6 | Evaluation of Bid Exceptions |
| QA-P.7 | Review of Nondestructive Examination (NDE) Procedures |
| QA-P.9 | Quality Assurance Vendor Evaluations |
| QA-P.12 | Procedure for Review of Radiographic Film Submittals |
| QA-S-1 | Planning of Site Quality Assurance Engineering Activities |
| QA-S-2 | General Audit Procedure |
| QA-S-3 | Processing of Quality Assurance Engineering Audit Reports |
| QA-S-4 | Quality Assurance Records Audit |
| QA-S-5 | Material Receipt Audit |
| QA-S-6 | Material and Component Storage Audit |
| QA-S-7 | Processing Nonconformance Reports |
| QA-S-8 | Calibration and Gage Control Audit |
| QA-S-9 | Document Control Audit |
| QA-S-10 | Vendor Documentation Audit |
| QA-S-11 | System Turnover Audit |
| QA-S-12 | Civil Activities Audit |
| QA-S-13 | Structural Steel Audit |
| QA-S-14 | Reinforcing Steel Audit |

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Procedure
No.

Title

| | |
|---------|--|
| QA-S-15 | Protective Coating Audit |
| QA-S-16 | Welding Material Control Audit |
| QA-S-17 | Welding Qualification Audit |
| QA-S-18 | Mechanical and Welding Activities Audit |
| QA-S-19 | Nondestructive Examination Audit |
| QA-S-20 | Radiographic Review Audit |
| QA-S-21 | Electrical Activities Audit |
| QA-S-22 | Instrumentation Activities Audit |
| QA-S-23 | Quality Assurance Instructions |
| QP-4 | Quality Program Coordinator - Description of Position, Duties, Responsibilities |
| QP-5 | Deviating Ebasco Project-Related Quality Assurance Programs from the Ebasco Nuclear Quality Assurance Program Manual |
| QP-6 | Assignment, Distribution and Control of the Ebasco Nuclear Quality Assurance Program Manual |
| QP-7 | Revisions to the Ebasco Nuclear Quality Assurance Program Manual |
| VQAD-1 | Assignment of Purchase Orders/Contracts and Sub-Orders/Contracts for Examination of Safety Related Items |
| VQAD-2 | Assignment of Purchase Orders/Contracts and Sub-Orders for Examination of Non-Safety Related and Fossil Fuel Plant Items |
| VQAD-3 | Requirements for Processing and Implementation of Quality Assurance Plan |

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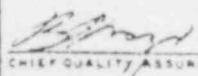
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Procedure
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Title

| | |
|---------|--|
| VQAD-4 | Use of Form 719-QA-W "Quality Assurance Report" |
| VQAD-5 | Setting-Up and Maintaining Purchase Order Files |
| VQAD-6 | Processing Quality Assurance Non-Conformance Reports (Form 6009-11) [Follow-Up of Non-Conformance and Review of Vendor Rework Records] |
| VQAD-7 | Use of "Problems that Require Resolution" Form |
| VQAD-8 | Preparation and Control of Vendor Quality Assurance Report Release for Shipment Form [Form 1305] |
| VQAD-9 | Review and Processing Quality Assurance Reports Form 719-QA-W |
| VQAD-10 | Preparation and Control of Implementing Procedures |
| VQAD-11 | Review of Radiographs by Vendor Quality Assurance Representative |
| VQAD-12 | Notification of Material Shipped Without Release |
| VQAD-13 | Review of Vendor Documentation |
| VQAD-14 | Notification of Rejection(s) to Vendor |
| VQAD-15 | Setting-Up and Maintaining Purchase Order Files in New York Office |
| VQAD-17 | Interface between Vendor Quality Assurance and Quality Assurance Engineering Departments |
| VQAD-18 | Interface between Vendor Quality Assurance and Materials Application Departments |
| VQAD-19 | Qualification of Inspection, Examination and Testing Personnel for Nuclear Facilities |

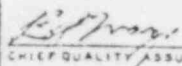
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| Procedure No. | Title | |
|---------------|--|----------|
| QCP-1.1 | Quality Control Organization and Responsibilities | R4 |
| QCP-2.1 | Indoctrination, Training and Qualification of Quality Control Personnel to ANSI N45.2.6 Requirements | |
| QCP-2.2 | Indoctrination, Training and Qualification of Quality Control Personnel to ASME Section III, Division 2 Requirements | R5 |
| QCP-6.1 | Preparation, Review and Approval of Quality Control Procedures | R4 |
| QCP-6.2 | Document Control | |
| QCP-6.3 | Quality Control Review of Incoming Revisions/ Changes to Bechtel Specifications and Procedures | R5 R4 |
| QCP-9.1 | Weld Inspection, Piping, ASME | |
| QCP-9.2 | Request for NLE | |
| QCP-9.3 | Inspection of Post Weld Heat Treatment | R5 |
| QCP-9.4 | Verification of Weld Filler Material Control | R4 |
| QCP-9.5 | Weld Inspection (AWS) | |
| QCP-10.1 | Cadweld Inspection | |
| QCP-10.2 | Preplacement Concrete Inspection | |
| QCP-10.3 | Concrete Placement Inspections | |
| QCP-10.4 | Post-Placement Concrete Inspection | |
| QCP-10.5 | Inspection of Structural Steel Erection and Bolting | |
| QCP-10.6 | Stud Welding Inspection | |
| QCP-10.7 | Miscellaneous Metal Fabrication Inspection | R5 |
| QCP-10.8 | Protective Coatings Inspection | R4 |

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| <u>Procedure No.</u> | <u>Title</u> | |
|----------------------|---|----|
| QCP-10.9 | General Inspection | R4 |
| QCP-10.10 | Soils Inspection | |
| QCP-10.11 | Mechanical Equipment Installation Inspection | |
| QCP-10.12 | Component Support and Restraint Installation Inspection | R5 |
| QCP-10.13 | Mechanical Instrumentation Installation Inspection | R4 |
| QCP-10.14 | Piping Installation Inspection (Interim Procedure, Walkdown Prior to Pressure Testing EW System Only) | |
| QCP-10.15 | Electrical Equipment Installation Inspection | |
| QCP-10.16 | Installation of Electrical Raceways | R5 |
| QCP-10.17 | Electrical Cable Installation Inspection | R4 |
| QCP-10.18 | Electrical Cable Termination Inspection | |
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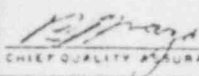
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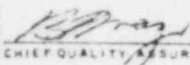
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1.0 SCOPE

This section of the Manual describes the organizational structure, functional responsibilities, levels of authority, and lines of internal and external communication for management, direction, and execution of the Ebasco Quality Program. It is recognized that quality assurance is an interdisciplinary function and not the sole domain of a single quality assurance group; for that reason, this section of the Manual includes organizational and functional descriptions of several departments in addition to that department whose sole function is quality assurance.


2.0 GENERAL

2.1 The Ebasco Operations organization consists of four independent quality-related principal divisions headed respectively by the Senior Vice Presidents of Engineering and Construction, Consulting Engineering, and Projects and Procurement, and the Vice President Materials Engineering and Quality Assurance. Each of these officers of the company reports to Ebasco's President and Chief Executive Officer through the Executive Vice President Operations. Reporting to the Senior Vice President Engineering and Construction are the Vice President Engineering and Vice President Construction. Reporting to the Senior Vice President Consulting Engineering are the President of Envirosphere Company, the Vice President Plant Operations and Betterment, and the Vice President Consulting Engineering. Reporting to the Senior Vice President Projects and Procurement is the Vice President Procurement.

A fifth quality-related principal division is headed by the Executive Vice President of Advanced Technology and Special Projects who reports directly to Ebasco's President. Reporting to the Executive Vice President Advanced Technology and Special Projects is the Vice President Advanced Technology.

2.2 Representatives of the Senior Vice President Projects and Procurement; of the Vice Presidents Engineering, Construction, Procurement, Plant Operations and Betterment, Consulting Engineering, and Materials Engineering and Quality Assurance; and of the President of Envirosphere Company comprise the operations organization representatives of the Quality Program Committee, which is responsible for Ebasco Quality Assurance policy. Also included on this Committee is a representative of the Vice President Advanced Technology. This is shown diagrammatically by Figure I-2.1 at the end of this section.

2.3 The divisions or departments most directly involved in the implementation of the quality assurance program for fabrication and installation are Materials Engineering and Quality Assurance, Construction, and Procurement. The organizational structures of these

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are shown in Figures I-2.2, I-2.4, and I-2.5 at the end of this section. The Construction Department provides overall contractual administration of a project, coordinating the efforts of involved departments and serving as a line of communication between Ebasco and its Clients. The Consulting Engineering, Plant Operations and Betterment, and Advanced Technology Departments are involved in the implementation of Quality Program requirements through the supplemental services they provide.

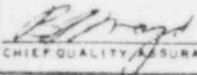
The responsibilities of each department of the Ebasco Organization for quality assurance requirements applied to Nuclear Power Stations are described herein.

3.0 MATERIALS ENGINEERING AND QUALITY ASSURANCE

3.1 Primary responsibility for Quality Assurance rests with the Vice President Materials Engineering and Quality Assurance who reports directly to the Executive Vice President Operations. Qualification requirements for the position of Vice President Materials Engineering and Quality Assurance are: Bachelor of Science Degree in Engineering; 10 to 15 years of experience in quality-related work or equivalent experience in the engineering or construction of a nuclear power plant, including at least 10 years experience in responsible managerial project positions; thorough knowledge of the Ebasco Quality Assurance Program. The Materials Engineering and Quality Assurance Unit is comprised of the following organizations, each of which contributes directly to the implementation of the Quality Program (see Figure I-2.2):

- a) Quality Assurance Engineering
- b) Materials Applications
- c) Vendor Quality Assurance
- d) Consulting Quality Assurance Engineer
- e) Materials Engineering Laboratory

3.1.1 Quality Assurance Engineering is administered by the Chief Quality Assurance Engineer who reports to the Vice President Materials Engineering and Quality Assurance. Qualification requirements for the position Chief Quality Assurance Engineer are: Bachelor of Science Degree in Engineering; 10-15 years of experience in quality-related work or equivalent experience in the engineering or construction of a Nuclear Power Plant, including at least 5 years experience in responsible managerial project positions; thorough

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knowledge of the Ebasco Quality Assurance Program. The Quality Assurance Engineering Department is responsible to plan implementation of, evaluate, monitor, and enforce the Ebasco Quality Program. This responsibility is carried out by five functional subdivisions:

- a) Project Quality Assurance Engineering
- b) Site Quality Assurance/Quality Control
- c) Site Quality Program
- d) Quality Assurance Specialists, which provide various other quality-related services and functions
- e) Nondestructive Examination (NDE) Quality Assurance

Managers, Supervisors, and Specialists in charge of the subdivisions report directly or through other supervisors to the Chief Quality Assurance Engineer. Engineers and Specialists are then assigned to specific projects from these subdivisions. The Quality Assurance Engineering Organization is shown in Figures I-2.6 and I-2.7 at the end of this section.

3.1.1.1 Site Quality Assurance - The Manager Site Quality Assurance, who reports to the Chief Quality Assurance Engineer in New York, is responsible for the direction, supervision, and administration of site quality assurance/quality control operations at those nuclear construction sites where a Quality Program Site Manager is not assigned. The Manager Site Quality Assurance is responsible for the development, maintenance, and current status of Site Quality Assurance Engineering Procedures, for providing technical assistance and guidance to subordinate Quality Assurance Engineering Site Supervisors and staff, and for distribution and control of quality assurance manuals, as well as changes thereto, for the South Texas Project. (See Figures I-2.2 and I-2.6.) In addition, he is responsible for the review and acceptance of Quality Control procedures.


3.1.1.2 Site Quality Program - A Quality Program Site Manager is assigned to each nuclear project construction site on a resident basis for the purpose of overall planning, direction, and implementation of the Ebasco Nuclear Quality Program Manual. The Quality Program Site Manager, who reports to the Chief Quality Assurance Engineer in New York, is subordinate to no individual on site and has the independent authority to identify site quality-related problems, to initiate or recommend solutions, to control

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existing nonconformances, to verify implementation of approved dispositions, to direct efforts to obtain ASME Certificates of Authorization for Ebasco as may be required for the South Texas Project, to represent Ebasco Quality Assurance Engineering with regard to South Texas Project activities, such as Client or his designee, Ebasco, and/or Vendor meetings, Client or his designee audits, and management audits, and, when necessary, to stop work. He is responsible to assure that all personnel working for him are qualified for their respective positions and properly trained. The Site Quality Program function is divided into three groups: Quality Assurance Engineering, Quality Control, and Quality Records, each reporting through a respective supervisor to the Quality Program Site Manager. (See Figure I-2.6.)

3.1.1.2.1 Site Quality Assurance Engineering - A Quality Assurance Site Supervisor and staff of engineers and representatives are assigned the following functions:

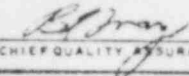
- a) Review and audit quality-related site construction and engineering activities and records on a continuing basis.
- b) Audit construction forces for adherence to prescribed approved procedures.
- c) Review and/or coordinate review of site suppliers' fabrication and test procedures.
- d) Review site-generated purchase orders for inclusion of quality assurance requirements.
- e) Review and advise on Quality Control Procedures for compliance with this Manual and code and regulatory requirements. When necessary, the Quality Assurance Site Supervisor may request the Manager Site Quality Assurance to assist in the review of these procedures.

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- f) Maintain records of all reviews and audits performed.
- g) Review all radiographic film for site-related nondestructive examination.
- h) Audit final records and documentation prior to turnover to the Client.
- i) Evaluate quality assurance programs of suppliers.
- j) Prepare quality assurance plans for the surveillance of activities in supplier's shops.
- k) Review or coordinate the review of suppliers' nondestructive examination and test procedures.
- l) Conduct audits of Vendor Quality Assurance personnel.
- m) The Quality Assurance Site Supervisor has stop work authority.

3.1.1.2.2 Site Quality Control - A Quality Control Site Supervisor and staff of engineers and inspectors are assigned the following functions consistent with the scope of work assigned to Ebasco:

- a) Planning and performance of inspection activities during the construction phase.
- b) Identifying and initiating correction of nonconforming conditions to requirements indicated by drawings, specifications, codes, or procedures, and performance of reinspection to verify corrective action taken.
- c) Establishing and enforcing quality control documentation and inspection requirements based upon specifications, codes, standards, and drawings as established by Engineering.

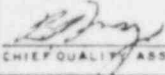
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- d) Performance or monitoring of site NDE, soils, and concrete testing activities.
- e) Assisting in organizing and administering training seminars as required to assure proper level of training, and engaging in the certification of Quality Control personnel to the required level of qualification.
- f) Identification and control of the quality status of items.
- g) Development and implementation of applicable Quality Control Plans, and generation of inspection reports covering mandatory inspection activities at the construction site.
- h) The Quality Control Site Supervisor has stop work authority.

The Site Quality Control Group will only be responsible for first-level Quality Control activities for safety-related items and services being performed by Ebasco's forces. For work being performed by Contractors, the Contractors will be responsible for first-level Quality Control activities.

3.1.1.2.3 Site Quality Records - A Quality Records Supervisor and staff of specialists are assigned the following functions:

- a) Develop, establish, and implement a system for the collection, storage, and maintenance of Quality Assurance Records at the project construction site.
- b) Responsible for review for completeness, control, storage, preservation, and safekeeping of vendor/contractor and site-generated quality assurance records.

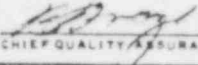
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- c) Establishment and implementation of a records indexing system to permit proper traceability and retrieval.
- d) Establishment of a procedure for access to the records storage area, and removal and retrieval of quality records.

3.1.1.3 Quality Assurance Specialists - Quality Assurance Engineering has several specialty groups responsible for the following activities which are performed in accordance with QA procedures:

- a) Performance of In-service Inspection.
- b) Qualification and certification of personnel as required by applicable codes or standards.
- c) Development of Quality Assurance standards and procedures.
- d) Review, evaluation, and summarization of Code and Regulatory Quality Assurance Requirements.
- e) Evaluation of suppliers' Quality Assurance Program.
- f) Conducting Quality Assurance education, both internal and external to Quality Assurance Engineering.
- g) Interdepartmental auditing of all individuals or groups responsible for activities covered by the Quality Program.
- h) Development of Quality Assurance Records Programs.
- i) Development of Quality Assurance Programs for Power Plant Operations.

3.1.1.4 Nondestructive Examination Quality Assurance - This group, under the Assistant Chief Quality Assurance Engineer in charge of In-service Inspection and Nondestructive

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Examination, provides expertise with regard to conducting various forms of NDE and includes the following functions:


- a) Establish and/or interpret NDE requirements and acceptance criteria for fabricated and erected equipment as required.
- b) Review and comment on NDE procedures and radiographic films submitted by manufacturers, site construction forces, and/or clients.
- c) Advise manufacturer and site construction forces as to proper NDE procedures, applications, techniques, equipment, and qualifications.

3.1.1.5 Radiation Safety - Ebasco's Corporate Radiation Safety Officer reports to the Chief Quality Assurance Engineer. He is responsible for auditing and enforcing the Ebasco procedures for radiation safety.

3.1.2 Materials Applications, under the supervision of the Chief Materials Applications Engineer, includes two subdivisions: Materials Applications Engineering and Welding Engineering. A Project Materials Applications Engineer and Project Welding Engineer are assigned to each project. These positions may be assigned to the same individual if properly qualified. Quality-related activities of Materials Applications personnel include the following:

- a) Develop material and welding specifications.
- b) Develop and qualify welding procedures and fabrication techniques for use by Ebasco site construction forces, engineered equipment suppliers, and erectors.
- c) Advise Ebasco Construction Management as to the development and application of advanced welding techniques which would enhance quality.
- d) Review Ebasco specifications and drawings for compliance with applicable codes and regulatory requirements for proper selection of materials, weld procedures, and joint details.
- e) Review suppliers' material specification and fabrication procedures for compliance with project specifications and codes.
- f) Assist in welder performance testing to assure that all code and regulatory requirements have been met.

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- g) Participate in quality assurance evaluations of suppliers in the area of welding, materials, and fabrication.
- h) Provide technical assistance as required to resolve problems in suppliers' shops and at the construction site in the areas of welding, materials, heat treatment, and other related areas.
- i) Provide technical assistance concerning material properties under service conditions involving stress, radiation, temperature, corrosive media, etc., to determine capability of specific materials to perform in such environments.

3.1.3 Vendor Quality Assurance is administered by the Chief Vendor Quality Assurance Representative who reports to the Vice President Materials Engineering and Quality Assurance. The primary function of this department is to establish and maintain confidence that purchase order and documented Quality Assurance Program requirements are complied with during fabrication in Suppliers' shops and in those of their sub-suppliers, and to document results of shop surveillance visits made to carry out this function.

3.1.4 The Consulting Quality Assurance Engineer reports to the Vice President Materials Engineering and Quality Assurance. He is responsible for conducting audits of the Ebasco Quality Assurance function to determine and report its compliance with the Ebasco Quality Program requirements.

3.1.5 The Materials Engineering Laboratory performs field nondestructive examination, and soils, concrete, and reinforcing steel testing services at construction sites, as applicable. The Laboratory is administered by a Manager who reports to the Vice President Materials Engineering and Quality Assurance.

4.0 CONSTRUCTION

Primary responsibility for construction rests with the Vice President of Construction (see Figure I-2.4). The Construction Department has the prime responsibility for the performance of quality construction.

4.1 The Ebasco Construction Manager reports to the Vice President of Construction and is responsible for overall supervision and coordination of all construction activities and services. The Ebasco Construction Manager has stop work authority.

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| EBASCO SERVICES INCORPORATED | | NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 | SECTION QA-I-2 |
| APPROVAL <i>[Signature]</i> CHIEF QUALITY ASSURANCE ENGINEER | | | REVISION 4 |
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4.2 The Manager of Construction Services reports to the Vice President of Construction and is responsible for general supervision of Construction Department Quality Program activities and of the Construction Engineering Group.

4.2.1 The Manager of Construction Engineering reports to the Manager of Construction Services and is responsible for the inclusion of quality requirements in Construction Contracts and review of Engineered Documents as required by the Quality Assurance Program Manual. (All construction contracts involving safety-related equipment are subject to review by the Quality Assurance Engineering Department for compliance with the applicable code and regulatory agency requirements and Quality Assurance Program requirements.)

4.3 The Site Manager reports to the Ebasco Construction Manager. The Site Manager is the construction leader at the site and is responsible for the accomplishment of all construction-related activities. The Site Manager has stop work authority. R4

4.4 The Project Superintendent reports to the Site Manager and is responsible for performing general site supervision of construction in accordance with drawings, specifications, and contractual obligations. The Project Superintendent has stop work authority. R5

4.5 The Unit Superintendents report to the Project Superintendent. Each Unit Superintendent is individually responsible for the Ebasco construction operations and activities within his assigned unit of the plant. The Unit Superintendents have stop work authority. R5
R4

4.6 The Assistant Superintendents report to the Unit Superintendents. The Assistant Superintendents will manage all phases of construction within disciplines assigned, including field engineering and cost control, to assure that the work accomplished is completed within the budget and in accordance with all installation specifications. R5

4.7 The Discipline Superintendents report to the Assistant Superintendents. Each Discipline Superintendent will direct, coordinate, and monitor all work performance within discipline to assure that work proceeds in accordance with approved plans, specifications, and QA program in compliance with approved Level III schedules. R4

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| EBASCO SERVICES INCORPORATED | | NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 ORGANIZATION AND RESPONSIBILITIES | SECTION QA-I-2 |
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4.8 The Labor Relations Representative reports to the Site Manager. The Labor Relations Representative is conversant with the general provisions of the Project Stabilization Agreement. The Labor Relations Representative participates in settlement of local labor disputes, assists in preparation for arbitration proceedings related to operations at the site, and advises the Project Superintendent on local labor relation matters. R4

4.9 The Senior Resident Engineer reports to the Site Manager and is responsible for administering, coordinating, and supervising all Site Construction Engineering and technical activities, for interpretation of design documents and specifications, and for furnishing assistance to Ebasco site personnel as required. The Senior Resident Engineer has stop work authority.

4.10 The Construction Control Superintendent reports to the Site Manager and is responsible for planning and scheduling; field cost and construction control; material tracking, takeoff, and expediting; and progress monitoring and reporting. R5
R4

4.11 The Construction Indirects Superintendent reports to the Project Superintendent. The Construction Indirects Superintendent is responsible for the direction of all support craft forces on the project, and the supply, maintenance, and repair of major project construction equipment. The Construction Indirects Superintendent has stop work authority. R5
R4
R5

4.12 The Construction Services Manager reports to the Site Manager and will be responsible for providing and establishing adequate and efficient security, safety, and training and development programs. R5
R4

4.13 The Safety Supervisor reports to the Project Superintendent. The Safety Supervisor is responsible for establishing and enforcing the site safety and industrial hygiene programs in accordance with established policy and all federal and state regulations, as well as any other criteria necessary to insure the safety of site personnel. R5
R4

4.14 The Administrative Manager reports to the Site Manager. The Administrative Manager is responsible for providing the necessary accounting, timekeeping, purchasing, material control, and computer support, as required to support the construction effort. R5
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| EBASCO SERVICES INCORPORATED | | NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 ORGANIZATION AND RESPONSIBILITIES | SECTION QA-I-2 |
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4.15 The Warehouse Administrator reports to the Administrative Manager. The Warehouse Administrator is responsible for field procurement activities, including negotiating and placement of purchase orders.

R4

4.16 The Materials Purchasing Agent reports to the Administrative Manager and is responsible for all field procurement activities, including negotiating, placement, and expediting of purchase orders and certain subcontracts. He is also responsible for procuring proper quality and insuring on-time delivery of field purchases, in order to support the Field Construction schedule. He has reporting to him all field purchasing agents, expeditors, and typists assigned to the Field Purchasing Department.

4.17 The Subcontract Coordinator reports to the Project Superintendent and is responsible for coordinating preparation of all construction subcontracts and providing administrative assistance as required to support construction during execution of all subcontracts.

R5

R4

4.18 The Outlying Facilities Superintendent reports to the Project Superintendent and is responsible for supervising and coordinating in an efficient manner all construction activities of all the Outlying Plant facilities, including the Diesel Generating Building in Unit 1 and Unit 2. The Outlying Facilities Superintendent has stop work authority.

R5

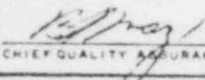
R4

4.19 The Welding Superintendent reports to the Chief Materials Applications Engineer or his designee. The Welding Superintendent will receive his day-to-day and technical direction from the Materials Applications Department in New York.

4.20 The System Completion Superintendent reports to the Project Superintendent and is responsible for systems completion. He ensures construction progress in support of systems completion. This includes coordination of all prestart-up planning and scheduling, and conducting construction test efforts.

R5

4.21 The Second Shift Superintendent reports to the Project Superintendent and is responsible for performing general site supervision of construction in accordance with drawings, specifications, and contractual obligations for all activities performed on the second shift. The Second Shift Superintendent has stop work authority.

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| EBASCO SERVICES INCORPORATED | | NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 ORGANIZATION AND RESPONSIBILITIES | SECTION QA-1-2 |
| APPROVAL |  CHIEF QUALITY ASSURANCE ENGINEER | | REVISION 4 |
| | | DATE 5-20-83 | |

5.0 PURCHASING AND TRAFFIC

Primary responsibility for purchasing and traffic by the Ebasco Engineering Office rests with the Vice President of Procurement.

5.1 Project Procurement Supervisors report to the Director of Purchasing through the Purchasing Agents and the Manager of Project Purchasing. The Director of Purchasing is responsible to the Vice President of Procurement. Contract Administrators and Buyers, who report to the Project Procurement Supervisors, are responsible for the phases of purchasing to which they are assigned.

5.2 The Purchasing Department is responsible for the following:

5.2.1 Obtaining prequalification quality assurance information from prospective Bidders.

5.2.2 Transmitting technical and quality assurance requirements to qualified prospective Bidders by inquiry.

5.3 The Manager of Traffic and Freight Forwarding reports to the Vice President of Procurement and is responsible for the overall transportation activities, project related, and purchased equipment from vendors' plants to jobsite as required under contract provisions.

6.0 INTERFACE

Interface, as applicable, is so illustrated by Figure I-2.9 at the end of this section and is explained by appropriate and applicable South Texas Project documents.

R4

Ebasco Services Incorporated
ORGANIZATION FOR CONSTRUCTION

ADAPTED FOR
 HOUSTON LIGHTING & POWER COMPANY
 SOUTH TEXAS PROJECT
 ELECTRIC GENERATING STATION UNITS 1 & 2

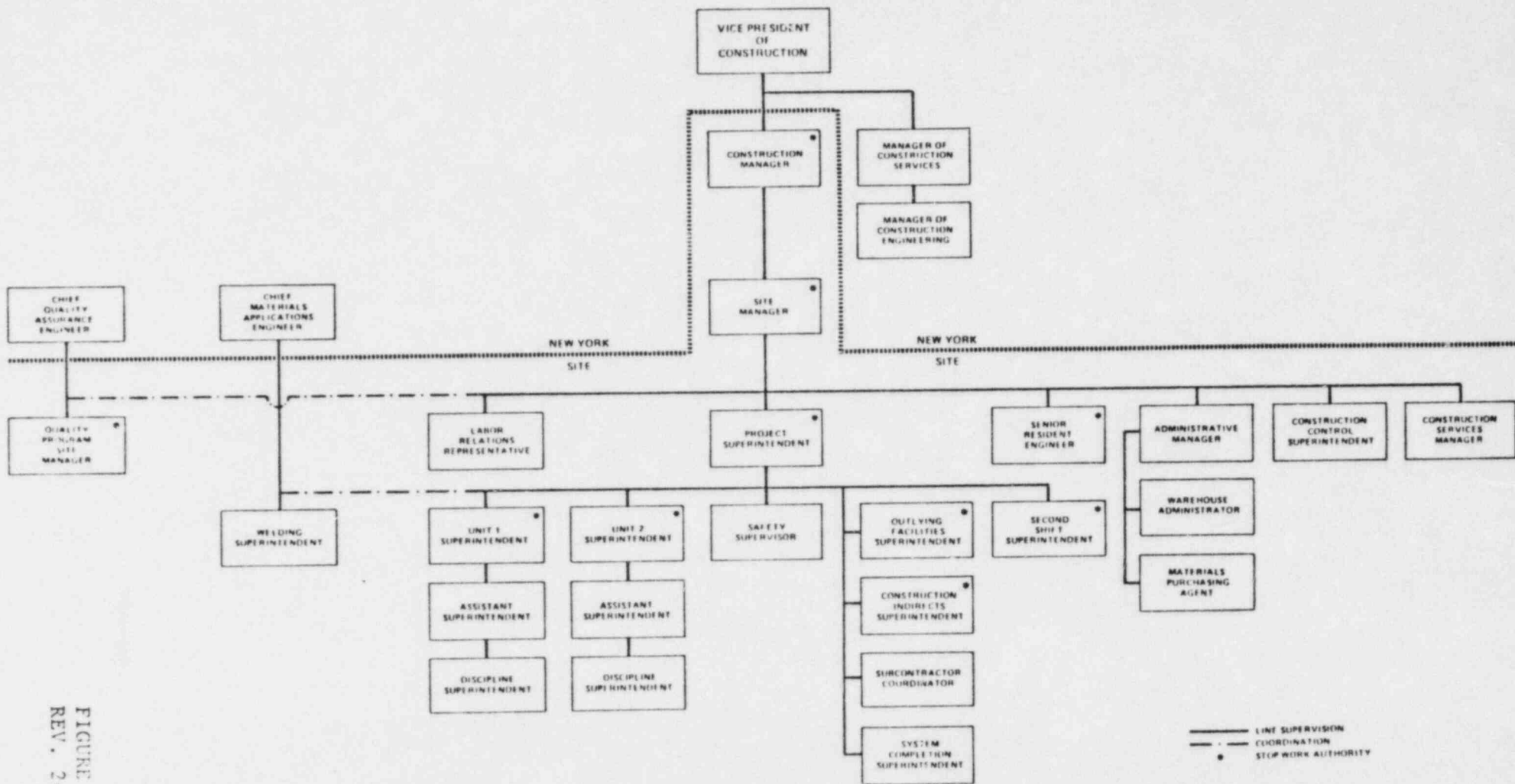


FIGURE 1-2.4
 REV. 2-STP

INTERFACE BETWEEN HOUSTON LIGHTING & POWER COMPANY, BECHTEL ENERGY CORPORATION, AND EBASCO SERVICES INCORPORATED

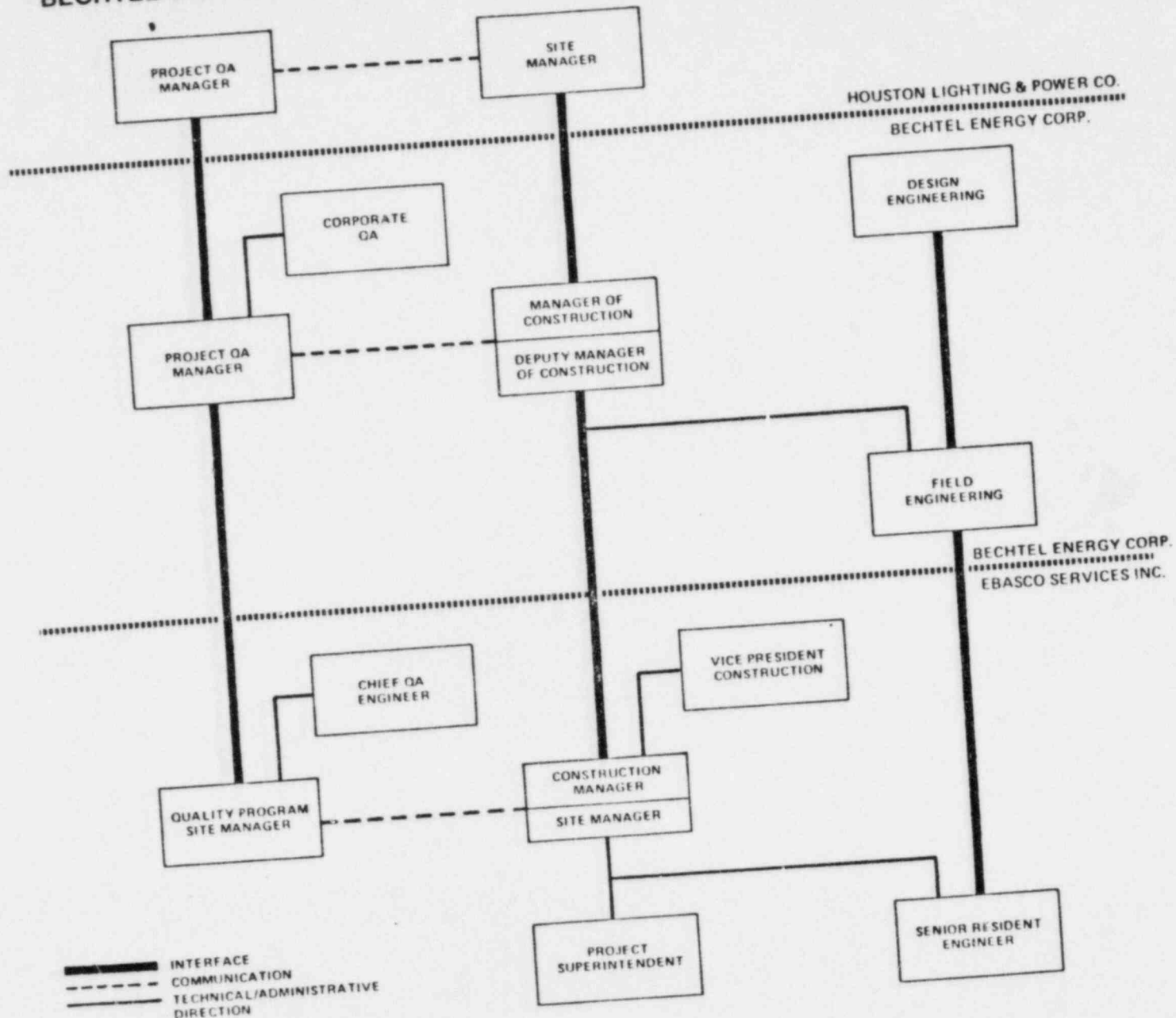


FIGURE 1-2.9
 REV. 2-STP