

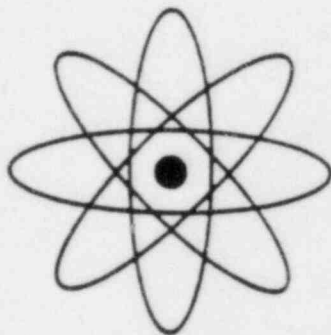
EBASCO

NUCLEAR

QUALITY ASSURANCE

PROGRAM MANUAL

ETR-1001



HOUSTON LIGHTING & POWER COMPANY

ELECTRIC GENERATING STATION UNITS 1 & 2



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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 12 1975

Mr. Leonard F. C. Reichle
Vice President
Ebasco Services Incorporated
Two Rector Street
New York, New York 10006

Dear Mr. Reichle:

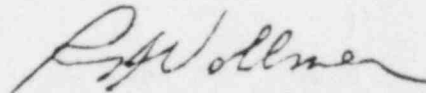
We have reviewed and evaluated the Ebasco Services Incorporated (EBASCO) Nuclear Quality Assurance Program Manual (Ebasco Report ETR-1001, Revision 0, March 14, 1975). We find that it describes an acceptable Quality Assurance Program for the design, procurement, and construction activities which are within the Ebasco scope of work for nuclear power plants.

For the Ebasco Quality Assurance Program, applicants need only reference this Topical Report in Section 17 of license applications. We do not intend to repeat our review of this Topical Report when it is referenced in an application.

Should regulatory criteria or regulations change such that our conclusions about this Topical Report are invalidated, we will notify you. You will be given the opportunity to revise and resubmit it should you so desire.

Please include a copy of this letter and our evaluation in each of the reports and resubmit 70 copies to the NRC.

Sincerely,



Richard H. Vollmer, Chief
Quality Assurance Branch
Division of Reactor Licensing

Enclosure:
NRC Topical Report Evaluation of
Ebasco Report ETR-1001, Rev. 0, 3/14/75



TOPICAL REPORT EVALUATION

Report Number: ETR-1001, Rev. 0, Nonproprietary
Report Title: Ebasco Nuclear Quality Assurance Program
Report Date: March 14, 1975
Originating Organization: Ebasco Services Incorporated
Reviewed By: Quality Assurance Branch

SUMMARY OF TOPICAL REPORT

Topical Report ETR-1001, Rev. 0 describes the Quality Assurance (QA) Program which the Ebasco Services Incorporated (Ebasco) applies to those design, procurement, and construction activities involving safety related structures, systems, and components of nuclear power plants within the Ebasco scope of work. ETR-1001, Rev. 0 commits Ebasco to comply with the requirements of Appendix B to 10 CFR Part 50 and to follow the QA guidance provided by the NRC in:

1. "Guidance on Quality Assurance Requirements During Design and Procurement Phase of Nuclear Power Plants," WASH 1283, Rev. 1, May 24, 1974, and
2. "Guidance on Quality Assurance Requirements During the Construction Phase of Nuclear Power Plants," WASH 1309, May 10, 1974.

Ebasco has provided for our evaluation a detailed organizational description of those individuals and groups involved in carrying out activities required by the QA Program and a delineation of duties, responsibilities, and authority of those organizational elements involved in the QA Program. ETR-1001, Rev. 0 contains a description of the measures used to carry out the Ebasco QA Program activities and describes how applicable requirements of Appendix B will be satisfied by the administration and implementation of these measures.

SUMMARY OF REGULATORY EVALUATION

We have evaluated the QA Program and the organizations responsible for QA functions as described in ETR-1001, Rev. 0. We find that QA policy and direction originate at an acceptably high management level and are effectively communicated to other parts of the organization. Those performing QA functions have responsibility and authority commensurate with their duties in implementing the QA Program. We also find that measures have been established, to be implemented by written procedures and instructions, which address each of the criteria of Appendix B and demonstrate conformance with each criterion.

Based on our review and evaluation of ETR-1001, Rev. 0 we conclude that:

1. The organizations and persons performing QA functions within Ebasco have the required independence and authority to effectively carry out the QA Program without reservation or undue influence from those directly

responsible for costs and schedules, and

2. The Ebasco QA Program contains the necessary requirements, procedures, and controls to demonstrate that quality-related activities will be conducted in accordance with the requirements of Appendix B to 10 CFR Part 50.

REGULATORY POSITION

It is the staff's position that the Ebasco Nuclear Quality Assurance Program Manual (Ebasco Report ETR-1001, Revision 0, March 14, 1975) is acceptable for use in the design, procurement, and construction of nuclear power plants. The Topical Report can be referenced by report number in Section 17 of future Safety Analysis Reports.



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TEXAS 78011

MAY 04 1984

Docket No. 99900505

Mr. B. E. Tenzer, Vice President
Corporate Quality Programs
Ebasco Services, Incorporated
Two World Trade Center
New York, NY 10048

Dear Mr. Tenzer:

Subject: NRC Acceptance of Revised Ebasco Quality Assurance Topical Report

We have completed our review of Revision 12 to Ebasco Topical Report ETR-1001 submitted through your letters of May 27, July 13, August 5, September 23, October 7, October 31, and November 9, 1983, and February 15, 1984. Revision 12 updates the topical report to reflect the current Ebasco Quality Assurance Program.

Based on our evaluation of the proposed changes described in Revision 12, we find that the revised topical report continues to meet the criteria of Appendix B to 10 CFR Part 50 and is, therefore, acceptable. Should regulatory criteria or regulations change such that our conclusions about this topical report are invalidated, we will notify you. You will be given the opportunity to revise and resubmit it should you so desire. Programmatic changes by Ebasco to this topical report are to be submitted to NRC for review prior to implementation. Organizational changes are to be submitted no later than 30 days after announcement.

To use this topical report in future license applications, applicants need only reference this topical in Section 17 of the SAR. Should it be referenced in a SAR for a new nuclear power project, the basis of our evaluation will be the acceptance criteria in the latest revision to the Standard Review Plan (SRP) Section 17.1 (currently Revision 2). Appropriate changes may, therefore, be necessary.

Please replace our letter of May 17, 1982, with a copy of this letter, renumber ETR-1001 as Revision 12 and forward eight copies to the Document Control Desk and one copy to the Vendor Program Branch, Division of Quality Assurance, Safeguards, and Inspection Programs, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

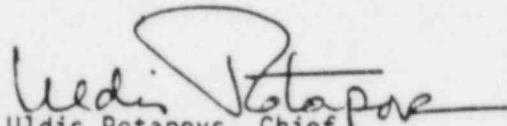
Mr. B. E. Tenzer

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Your submittal should point out the changes by use of a black bar in the margin where a change is made, and the revision number should be adjacent to the bar.

Should you have any questions regarding our review, or if we can provide assistance please contact this office.

Sincerely,

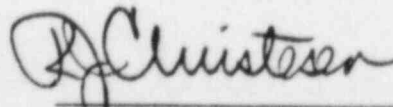
A handwritten signature in black ink, appearing to read "Uldis Potapovs". The signature is fluid and cursive, with a large loop at the end of the last name.

Uldis Potapovs, Chief
Vendor Program Branch
Division of Quality Assurance,
Safeguards, and Inspection Programs

STATEMENT OF AUTHORITY

The management of Ebasco Services Incorporated recognizes the necessity for a comprehensive Quality Program for Nuclear Power Plants. Ebasco Company Procedure No. N-21 establishes the basic organization, assigns authorities and responsibility for implementing the Quality Program, and establishes the requirement for a corporate Quality Assurance Manual. Accordingly, this Manual represents Ebasco Quality Program policy. In this respect, it is to be used as a standard by personnel in all Ebasco organizational units.

The primary responsibility for overall implementation and administration of the Ebasco Quality Assurance Program rests with the Vice President Corporate Quality Programs as delegated to him by the President. The Quality Program Committee has been established under the auspices of the President, consisting of representatives of designated Vice Presidents. The Committee is permanent and its Chairman shall be the Vice President Corporate Quality Programs.



R. J. Christesen
President

June 29, 1984

FOREWORD

This manual represents Ebasco Quality Program policy and requirements for the design, construction, retrofit and maintenance of nuclear power stations under the jurisdiction or in accordance with the requirements of the United States Nuclear Regulatory Commission. In this respect, it is to be used as a standard by all Ebasco personnel.

The manual has been prepared by the Quality Assurance organization and approved by the Ebasco Quality Program Committee. The manual reflects official Ebasco policy and has been designed to meet the requirements of the United States Nuclear Regulatory Commission document 10 CFR 50, Appendix B (18 Quality Assurance Criteria), and American National Standards Institute document N45.2, entitled Quality Assurance Program Requirements for Nuclear Power Plants.

The Ebasco Nuclear Quality Assurance Program Manual has been designed to meet the requirements of 10 CFR 50.34(7) for a quality assurance program description. It will be incorporated into applicable portions of safety analysis reports by reference as provided by 10 CFR 50.32.

The primary responsibility for overall implementation and administration of the Ebasco Quality Program rests with the Vice President Corporate Quality Programs as delegated to him by the President. The Director Quality Assurance is assigned the responsibility and authority to enforce Ebasco Quality Program requirements and has the unqualified support of corporate management. His decisions may not be overridden by personnel in any division or department, except with the written consent of the Vice President Corporate Quality Programs or the President.

The Director Quality Assurance shall staff each project to the extent necessary to perform Quality Assurance tasks directly and audit departments other than his own in their performance of tasks related to Quality Assurance. The Director Quality Assurance has the authority to require immediate correction of any non-conforming activity or condition to comply with Ebasco Quality Program requirements, or if necessary, to stop work until suitable corrective action has been taken or a satisfactory resolution reached.

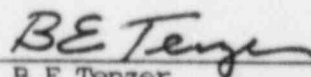
Recommendations or questions regarding the Quality Program or the manual shall be referred to the Director Quality Assurance, who shall be responsible for resolution. The Ebasco Quality Program Committee is responsible for and has the authority to make and approve procedures for any changes to this manual.

The Quality Program Coordinator, designated by the Chairman of the Ebasco Quality Program Committee, functions as the Committee's Secretary and publishes to all manual holders an Updating Status Memorandum for the manual at least every six months. The Memorandum summarizes changes made to the manual during the preceding period. The Quality Program Coordinator also maintains a listing of individual pages in the manual which indicates the current issue or revision date of each page. Information from this list can be obtained by addressing inquiries to the Quality Program Coordinator at the Ebasco New York Office.

The manual is assigned by the Quality Program Coordinator to individuals as required for their exclusive use. However, it remains the property of Ebasco Services Incorporated and shall be returned upon request. It is loaned in confidence and upon the condition that neither it nor the information contained in it will be reproduced, copied or disclosed in whole or in part. The material herein is copyrighted and protected by the copyright laws.

Should any circumstance arise under which a holder no longer requires the manual for the specific purpose for which it was assigned, it shall be returned promptly to the Quality Program Coordinator. Nuclear Quality Assurance manuals shall not be transferred or loaned to any other individual, position, firm or corporation without the written authorization of the Chairman of the Ebasco Quality Program Committee. The Quality Program Coordinator shall be informed promptly of any change in the mailing address of a manual holder.

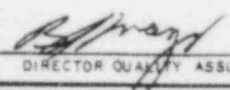
Manual holders are responsible to maintain their copies in updated condition, including the proper insertion of new or revised sections as furnished and the destruction of all cancelled or superseded sections. Sections shall not be removed from manuals except as directed for revision or cancellation.



B E Tenzer

Vice President Corporate Quality Programs

June 29, 1984

EBASCO SERVICES INCORPORATED		NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2	SECTION
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	<u>Rev. No.</u>	<u>Date</u>
<u>Introduction & Scope of Services</u>	5	7/5/84

PART I - General

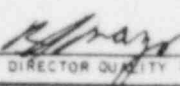
<u>Section</u>	<u>Title</u>	<u>Rev. No.</u>	<u>Date</u>
QA-I-1	Quality Assurance Program	6	7/5/84
QA-I-2	Organization and Responsibilities	6	7/5/84
QA-I-3	Personnel Indoctrination and Training Program in Quality Assurance	4	7/5/84
QA-I-4	Deleted (not applicable)		
QA-I-5	Deleted (not applicable)		
QA-I-6	Quality Assurance Records	4	7/5/84

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	4	7/5/84
QA-III-2	Document Control	5	7/5/84
QA-III-3	Deleted (not applicable)		
QA-III-4	Deleted (not applicable)		
QA-III-5	Deleted (not applicable)		
QA-III-6	Nonconformances	4	7/5/84
QA-III-7	Corrective Action	4	7/5/84
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PART III - Construction Site (Cont'd)

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QA-III-9	Quality Assurance Audits	5	7/5/84
QA-III-10	Identification and Control of Items	3	7/5/84
QA-III-11	Inspection	5	7/5/84
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QA-III-13	Control of Measuring and Testing Equipment	4	7/5/84
QA-III-14	Control of Receiving, Handling, and Storage	5	7/5/84
QA-III-15	Inspection, Test, and Operating Status	3	7/5/84
Appendix I	Terms and Definitions	3	7/5/84
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		INTRODUCTION & SCOPE OF SERVICES	

Introduction

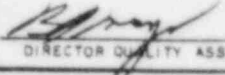
The Ebasco Quality Assurance Program to be used on the South Texas Project is described in this Manual. It is based on the Ebasco Nuclear Quality Assurance Program Manual, ETR-1001 Rev. 12, which was accepted by the United States Nuclear Regulatory Commission on May 4, 1984. ETR-1001 Rev. 12 represents Ebasco Quality Program policy and requirements for the design and construction of nuclear power stations under the jurisdiction of or in accordance with the requirements of the United States Nuclear Regulatory Commission. In this respect, it is the standard which is used by all Ebasco personnel. Ebasco's commitment to Quality is confirmed in the "Statement of Authority" signed by the President of Ebasco Services Incorporated.

This Manual, as modified for the South Texas Project, is assigned by the Quality Program Coordinator via the Manager Site Quality Assurance to individuals as required for their exclusive use. However, it remains the property of Ebasco Services Incorporated and shall be returned upon request. It is loaned in confidence and upon the condition that neither it nor the information contained in it will be reproduced, copied, or disclosed in whole or in part, except for its incorporation into applicable portions of Houston Lighting & Power Company safety analysis reports. The material herein is copyrighted and protected by the copyright laws.


Scope of Services

Ebasco Services Incorporated's scope of services for the South Texas Project includes construction services as well as quality assurance and quality control appropriate to those services. The design and procurement sections of ETR-1001 Rev. 12 are not applicable to Ebasco Services Incorporated's scope of services. Those responsibilities are assigned to the Client or his designee. The remainder of ETR-1001 Rev. 12 has been modified as appropriate for the South Texas Project and approved in accordance with applicable Company Procedures.

Although Section QA-III-1, "Instructions, Procedures, and Drawings," contains certain requirements relating to control of drawings, the Client or his designee is the Architect/Engineer and will issue all design drawings. Ebasco may, however, from time to time, initiate drawings which are not design documents, when authorized by specifications issued by the Client or his designee.

EBASCO SERVICES INCORPORATED		NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 INTRODUCTION & SCOPE OF SERVICES	SECTION
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Ebasco performs quality trend analysis on a corporate basis as described in Sections QA-I-1, QA-III-6, QA-III-7, and QA-III-9 of this Manual. This trend analysis is a corporate-wide compilation and analysis of quality data generated by the Quality Assurance organization in conjunction with the various projects on which Ebasco is performing nuclear safety-related activities and is not related to the specific South Texas Project trend analysis program. The Client is responsible for the performance of quality trend analysis specific to the South Texas Project.

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		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 the 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 10 CFR 50, Appendix B. It has also been designed to meet the regulatory position of the following USNRC 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 Handling 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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<u>Standard</u>	<u>Title</u>
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 22)	Requirements for Auditing of Quality Assurance Programs 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 10 CFR 50, Appendix B and USNRC 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 as they relate to 10 CFR 50, Appendix B criteria. 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 changes in scope of Ebasco safety-related activities.

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The Ebasco Nuclear Quality Assurance Program Manual has been designed to meet the requirements of 10 CFR 50.34(7) for a quality assurance program description. It will be incorporated into applicable portions of Houston Lighting & Power Company safety analysis reports in whole or by reference as provided by 10 CFR 50.32.

The Ebasco Quality Program for the South Texas Project is in force at the Ebasco home office and Construction operations. The Ebasco home office is an organized unit where project-related support functions are performed. Construction operations encompass those activities related to the construction of the 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 or his designee.

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

2.0 QUALITY ASSURANCE ORGANIZATION

The Ebasco Quality Assurance organization is responsible for establishing new, and updating existing, quality assurance requirements. In addition, this organization 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 International Operations, Corporate Engineering and Consulting Services, Advanced Technology, Project Procurement, Project Management Services, Corporate Quality Programs, Envirosphere Company, Ebasco Plant Services Inc, and Ebasco Constructors Inc. These representatives are appointed by the Vice President of the respective organizational area.

The Vice President Corporate Quality Programs is designated by the President as the Chairman of the Quality Program Committee. A member of the Quality Assurance organization 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 Director Quality Assurance is designated by the Vice President Corporate Quality Programs as a permanent representative of Corporate Quality Programs on the Quality Program Committee.

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

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- 4.2.1 Quality Assurance Procedures Manual for South Texas Project | R7
- 4.2.2 Site Quality Assurance Procedures Manual for South Texas Project |
- 4.2.3 Quality Program Procedures Manual
- 4.2.4 Company Procedures Manual - Nuclear
- 4.2.5 Quality Control Procedures Manual for South Texas Project | R7
- 4.2.6 Site Quality Assurance Instructions Manual for South Texas Project |
- 4.2.7 Construction Procedures Manual - Administrative Site Procedures for South Texas Project | R7
- 4.2.8 Construction Procedures Manual - Construction Site Procedures for South Texas Project | R7
- 4.2.9 Construction Procedures Manual - Construction Maintenance Instructions for South Texas Project | R7

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 the South Texas 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 services provided by Ebasco. All inspections shall be performed by individuals other than those who performed the activity.

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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 Manual and the implementing procedures identified in Table I-1.3. Overall responsibility for training as delineated in Section QA-I-3 rests with the Quality Assurance organization.

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 Site Quality Assurance and home office Quality Assurance Engineering and of management audits of the Materials Applications and Quality Assurance functions.

6.2 Audits performed by home office Quality Assurance Engineering and Site Quality Assurance 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. Section QA-III-9 of this Manual defines review activities and reports involved in the auditing function.

6.3 Information on audits performed by home office Quality Assurance Engineering and Site Quality Assurance shall be submitted to the Quality Assurance Engineering Supervisor of Auditing. 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 Procedure QA-D.3. The Vice President Corporate Quality Programs 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.

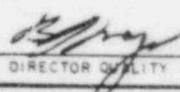
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TABLE I-1.1

MATRIX OF COMPLIANCE TO
USNRC 10 CFR 50 APPENDIX B AND ANSI N45.2

<u>10 CFR 50 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
III	4	Not Applicable to Ebasco STP Work Scope
IV	5	Not Applicable to Ebasco STP Work Scope
V	6	QA-III-1
VI	7	QA-III-2
VII	8	Not Applicable to Ebasco STP Work Scope
VIII	9	QA-III-10
IX	10	QA-III-8
X	11	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


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TABLE I-1.2

MATRIX OF COMPLIANCE OF PRINCIPAL IMPLEMENTING PROCEDURES TO 10 CFR 50 APPENDIX B

Criterion	Nuclear Procedures (N-)	Quality Control Procedures (QCP, MQE, QC-)	Quality Assurance Instructions (QA1-)	Quality Assurance Procedures (QA-)	Site Quality Assurance Procedures (QAS-)	Construction Procedures			Quality Program Procedures (QPP-)
						Administrative Site Procedures (ASP-)	Construction Site Procedures (CSP-)	Construction Maintenance Instructions (CMI-)	
I	-21	-1.1	-001			-2			
II	-24	-2.1, -2.2, -6.3	-003, -012, -017, -018	-6.3	-1, -23	-14, -34			-4 through -7
V	-23	-6.1, -6.3	-002, -005, -017	-6.1, -6.2	-23	-1, -7, -10, -11, -12, -14, -17	-1 through -96 (as applicable)		
VI		-6.2	-002	-6.1, -6.2	-3, -9, -23	-6			
VIII		-9.1 through -13.3 (as applicable), -14.1, -17.2			-17 through -16, -18, -21, -22	-5, -13, -18, -32	-14, -25, -38, -39, -88		
IX		-9.1, -9.3, -9.4, -9.5, -10.1, -10.6, -002-1, -002-2, -005-1, -005-2, -005-3, -006-1, -007-1, -009-1, -100(A)	-014, -015		-14 through -20		-11, -81 through -96		
X		-2.1, -9.1 through -13.3 (as applicable)		-6.3.1					
XI		-11.1, -11.2		-6.3.1		-9	-5, -17, -32, -33		
XII		-12.1	-015		-8		-34, -96		
XIII		-10.22, -13.1, -13.2, -13.3			-5, -6	-4, -5, -32, -82	-3, -11, -12, -37, -60 through -65	-1	
XIV		-14.1				-9			
XV		-15.1, -15.3, -15.3	-004, -007, -011		-13, -33				
XVI		-15.2, -16.1	-007, -011	-6.3		-13, -16			
XVII		-17.1, -17.2	-010, -016, -019	-6.3, -6.4	-3, -4, -11	-8			
XVIII	-24		-003, -006, -013	-6.4, -6.5, 2, -6.3	-1 through -2, (except -7 and -10)				

R7

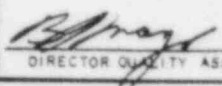
EBASCO SERVICES INCORPORATED		NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 QUALITY ASSURANCE PROGRAM	SECTION QA-I-1
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TABLE I-1.3

PRINCIPAL IMPLEMENTING PROCEDURES

Procedure
No.

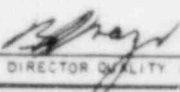
Title

NUCLEAR PROCEDURES (N)

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

QUALITY CONTROL PROCEDURES (QCP, NDE, AND QC)

QCP-1.1	Quality Control Organization and Responsibilities
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
QCP-6.1	Preparation, Review and Approval of Quality Control Procedures
QCP-6.2	Document Control
QCP-6.3	Quality Control Review of Incoming Revisions/Changes to Bechtel Specifications and Procedures
QCP-9.1	Weld Inspection, Piping - ASME
QCP-9.3	Inspection of Post-Weld Heat Treatment
QCP-9.4	Verification of Weld Filler Material Control
QCP-9.5	Weld Inspection (AWS)

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QUALITY CONTROL PROCEDURES (Cont'd)

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
QCP-10.8	Protective Coatings Inspection
QCP-10.9	General Inspection
QCP-10.10	Soils Inspection
QCP-10.11	Mechanical Equipment Installation Inspection
QCP-10.12	Pipe Support Installation Inspection
QCP-10.13	Mechanical Instrumentation Installation Inspection
QCP-10.14	System/Subsystem Walk-Down Inspection
QCP-10.15	Electrical Equipment Installation Inspection
QCP-10.16	Inspection of Electrical Raceways
QCP-10.17	Electrical Cable Installation Inspection
QCP-10.18	Electrical Cable Termination Inspection
QCP-10.19	Inspection of Concrete Expansion Anchors, Rock Bolts, and Core Drilling
QCP-10.20	Electrical Penetration Installation Inspection

| R7


| R7

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<u>No.</u>	<u>Title</u>	
<u>QUALITY CONTROL PROCEDURES</u> (Cont'd)		
QCP-10.21	HVAC Duct/Hanger Installation Inspection	R7
QCP-10.22	Receipt Inspection	R7
QCP-10.23	Waterstop/Joint Filler/Sealer Material Inspection	
QCP-10.24	Grouting Inspection	
QCP-10.25	Inspection of Bending and Fabrication of Reinforcing Steel	
QCP-10.26	Quality Control Verification of Equipment or Component Interchange	R7
QCP-10.27	Modification/Removal Control Procedure	
QCP-10.28	Control of Inspection Stamps	
QCP-11.1	Hydrostatic and Pneumatic Pressure Test Inspection	
QCP-11.2	Duct and Housing Leak Test Inspection	R7
QCP-12.1	Calibration and Control of Measuring and Test Equipment	
QCP-13.1	Storage and Maintenance Inspection/Verification	
QCP-13.2	Verification of Rigging and Handling Activities	
QCP-13.3	Housekeeping Inspections	
QCP-14.1	Status Control	
QCP-15.1	Identification and Control of Discrepancies and Nonconforming Conditions	
QCP-15.2	Stop Work Order	
QCP-15.3	Control and Processing of Transition Phase Deficiencies and Conditions	

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Procedure

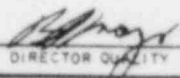
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TitleQUALITY CONTROL PROCEDURES (Cont'd)

QCP-16.1	Corrective Action
QCP-17.1	Quality Assurance Records
QCP-17.2	Preparation, Issuance, and Control of ASME Nameplates/Data Reports
NDE-002-1	Radiographic Standards for Welds and Components
NDE-002-2	Procedure for the Calibration and Operation of the Radiographic Densitometer
NDE-005-1	Ultrasonic Examination (Thickness Measurement)
NDE-005-2	Ultrasonic Examination of Pipe Welds and Components
NDE-005-3	Ultrasonic Examination of Structural Welds
NDE-006-1	Liquid Penetrant Examination
NDE-007-1	Magnetic Particle Examination Procedure
NDE-009-1	Visual Examination of NF Welds
QC-100	Preparation, Control and Distribution of NDE Procedures (with Addenda A)

SITE QUALITY ASSURANCE INSTRUCTIONS (QAI)

QAI-001	Site QA Organization and Responsibilities
QAI-002	Preparation, Review, Distribution and Control of Supplements to Quality Assurance Procedures
QAI-003	Indoctrination, Training, Qualification and Certification of Site Quality Assurance Audit Personnel
QAI-004	Issuance and Processing of Nonconformance Reports

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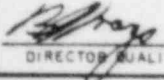
Title

SITE QUALITY ASSURANCE INSTRUCTIONS (Cont'd)

QAI-005	Review and Approval of Quality Control and Construction Procedures
QAI-006	Audit of Ebasco Site Organization by the Client, Bechtel, Ebasco Home Office, Code or Regulatory Agency
QAI-007	Reportable Deficiencies
QAI-010	Site Quality Assurance Records
QAI-011	Corrective Action and Stop Work Authority
QAI-012	General Surveillance Instruction
QAI-013	Preparation, Conducting, Documenting and Logging of Audits
QAI-014	Quality Assurance Review of Radiographs
QAI-015	Procedure for the Calibration and Operation of the Radiographic Densitometer
QAI-016	Control of Site Quality Records
QAI-017	QA Review of Incoming Revisions to Bechtel and Houston Lighting & Power QA Program Documents
QAI-018	Quality Assurance Indoctrination and Training Program
QAI-019	Safety-Related Documentation Turnover Packages

QUALITY ASSURANCE PROCEDURES (QA)

QA-G.1	Preparation and Control of Quality Assurance Engineering Department Procedures
QA-G.2	Control and Distribution of Project-Related Manuals


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<u>No.</u>	<u>Title</u>
<u>QUALITY ASSURANCE PROCEDURES (Cont'd)</u>	
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.3	Determination and Analysis of Quality Trends
QA-D.4	Resolution of External Audit Findings
QA-D.5.2	Site Audit Procedure

SITE QUALITY ASSURANCE PROCEDURES (QAS)

QAS-1	Planning of Site Quality Assurance Engineering Activities
QAS-2	General Audit Procedure
QAS-3	Processing of Quality Assurance Engineering Audit Reports
QAS-4	Quality Assurance Records Audit
QAS-5	Material Receipt Audit
QAS-6	Material and Component Storage Audit
QAS-8	Calibration and Gage Control Audit
QAS-9	Document Control Audit
QAS-11	System Turnover Audit
QAS-12	Civil Activities Audit
QAS-13	Structural Steel Audit
QAS-14	Reinforcing Steel Audit

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SITE QUALITY ASSURANCE PROCEDURES (Cont'd)

QAS-15	Protective Coating Audit
QAS-16	Welding Material Control Audit
QAS-17	Welding Qualification Audit
QAS-18	Mechanical and Welding Activities Audit
QAS-19	Nondestructive Examination Audit
QAS-20	Radiographic Review Audit
QAS-21	Electrical Activities Audit
QAS-22	Instrumentation Activities Audit
QAS-23	Quality Assurance Instructions

ADMINISTRATIVE SITE PROCEDURES (ASP)

ASP-1	Preparation of Site Procedures
ASP-2	Organization and Responsibility
ASP-3	Material Requisition
ASP-4	Heavy Handling and Rigging
ASP-5	Material Control
ASP-6	Document Control
ASP-7	Field Change Notice Procedure
ASP-8	Preparation and Transmittal of Quality Assurance Records
ASP-9	Construction Turnover/Release for Test
ASP-10	Configuration Control

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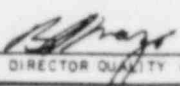
Title

ADMINISTRATIVE SITE PROCEDURES (Cont'd)

ASP-11	Field Change Request	
ASP-12	Development of Construction Field Sketches	
ASP-13	Start-up Work Request	R7
ASP-14	Impact Review of Bechtel/HL&P Issued Documents	
ASP-15	Stop Work Procedure	
ASP-16	Corrective Actions	
ASP-17	Design Change Package	 R7
ASP-18	Modification of Equipment/Component Tags	
ASP-32	Maintenance of Construction Equipment	
ASP-33	Nonconformances	
ASP-34	Indoctrination and Training	
ASP-82	Fire Prevention and Fire Protection	

CONSTRUCTION SITE PROCEDURES (CSP)

CSP-1	Excavation and Backfill	
CSP-2	Installation of Permanent Electrical and Mechanical Plant Equipment	
CSP-3	Control of Lifting Apparatus	
CSP-4	Concrete Placement	
CSP-5	Duct and Housing Leak Test	R7
CSP-6	Installation of HVAC Hangers	
CSP-7	Pipe Support Installation	

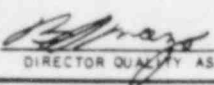
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CONSTRUCTION SITE PROCEDURES (Cont'd)

CSP-8	Cable Terminations and Splices
CSP-9	Installation of Duct and Duct Accessories
CSP-10	Erection and Bolt-up of Structural Steel
CSP-11	Storing, Installation, Cadwelding, Fabrication and Modification of Rebar
CSP-12	General Instructions for Housekeeping During Construction
CSP-13	Concrete Core Drilling
CSP-14	Control of Material for Temporary Construction
CSP-16	Piping Installation Procedure
CSP-17	Hydrostatic and Pneumatic Testing
CSP-18	Soil Test Fill Procedure
CSP-19	Safety and Non-Safety Related Cable Pulling
CSP-20	Construction Survey Activities
CSP-21	Field Preparation and Coating of Surfaces Outside the Reactor Containment Building
CSP-22	Valve/Pump Work
CSP-24	Reactor Coolant Pump Volute Final Setting
CSP-25	Temporary Equipment Site Tagging Procedure
CSP-26	Reactor Vessel Final Setting
CSP-27	Steam Generator Final Setting
CSP-29	Reactor Vessel Internals Handling and Assembly

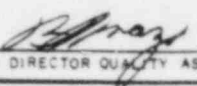
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CONSTRUCTION SITE PROCEDURES (Cont'd)

CSP-30	Field Preparation and Coating of Surfaces Inside the Reactor Containment Building	
CSP-31	Piping System Cleanliness	
CSP-32	Insulation Resistance Testing	
CSP-33	High-Potential Testing	R7
CSP-34	Control and Verification of Survey Equipment	
CSP-35	Installation of Post-Tensioning Trumplate Assemblies and Sheathing	
CSP-36	Data Collection to Support Geotechnical Monitoring Program	
CSP-37	Crane and Hoist Load Testing	
CSP-38	Equipment or Component Interchange	
CSP-39	Vendor's ASME Code Data Plate Modifications	
CSP-40	EE580 Electrical Installations	R7
CSP-41	Installation of Expansion Type Anchors	
CSP-43	Installation of Electrical Raceways	
CSP-44	Installation of Electrical Penetration Assemblies	
CSP-47	Instrumentation Installation	R7
CSP-48	Instrumentation Tubing and Supports Fabrication and Installation	
CSP-49	Permanent Plant Equipment Site Tagging Procedure	
CSP-54	On-Site Shop Fabrication	R7
CSP-55	Field Fabrication of Reinforcing Steel	

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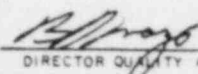
Procedure
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Title

CONSTRUCTION SITE PROCEDURES (Cont'd)

CSP-57	Shop Fabrication of ASME Section III Parts, Appurtenances, Piping Subassemblies and Component Supports
CSP-60	Rigging for Setting Steam Generator
CSP-61	Rigging for Setting Pressurizer
CSP-62	Rigging for Setting Reactor Vessel
CSP-63	Rigging for Setting Unit #2 Reactor Head
CSP-64	Rigging for Setting Unit #2 Reactor Internals
CSP-65	Reactor Coolant Pumps Rigging and Installation
CSP-81	Welder Qualification
CSP-82	AWS D1.1 Structural Welding
CSP-83	General ANSI B31.1 Welding Requirements for Piping and Hangers
CSP-84	General ASME Section III Welding Requirements for Piping and Hangers
CSP-85	Post-Weld Heat Treatment
CSP-86	Repairs of ASME Section III and ANSI B31.1 Piping and Components
CSP-87	Welding Procedure Specification Qualification
CSP-88	Weld Filler Material Control
CSP-89	Field Welding and Repair of Aluminum Bronze ECW [Essential Cooling Water] Piping
CSP-90	Welding Documentation
CSP-91	Issuance and Control of Purge Dams

| R7
| R7
| R7

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CONSTRUCTION SITE PROCEDURES (Cont'd)


CSP-92	Control of Aluminum Bronze Material for Backing Rings	R7
CSP-93	Control of Weld Filler Material For Non-Permanent Plant Maintenance	R7
CSP-94	Maintenance, Calibration and Repair Program for Dimetrics Automatic Welding Equipment	
CSP-95	General Welding Requirements for HVAC	
CSP-96	Request for NDE	

CONSTRUCTION MAINTENANCE INSTRUCTIONS (CMI)

CMI-1	Caring and Maintenance of Permanent Plant Items	R7
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QUALITY PROGRAM PROCEDURES (QPP)

QPP-4	Quality Program Coordinator - Description of Position, Duties, Responsibilities	R7
QPP-5	Deviating from the Corporate Ebasco Nuclear Quality Assurance Program Manual	R7
QPP-6	Assignment, Distribution and Control of the Ebasco Nuclear Quality Assurance Program Manual	R7
QPP-7	Revisions to the Ebasco Nuclear Quality Assurance Program Manual	R7

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1.0 SCOPE

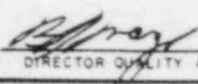
This Section of the Manual describes the organizational structure, functional responsibilities, levels of authority, and lines of internal and external communication for management, direction, and execution of the Ebasco Quality Program. It is recognized that quality assurance is an interdisciplinary 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 organization whose sole function is quality assurance.

2.0 GENERAL

2.1 The Ebasco operations organization consists of five independent quality-related principal divisions headed respectively by Group Vice Presidents of Engineering, Construction and Plant Services, Advanced Technology and Special Projects, and International Operations; and the Vice President of Corporate Quality Programs. Each of these officers of the company report to the Ebasco President and Chief Operating Officer. Quality-related subdivisions or subsidiary companies are headed by officers reporting to Group Vice Presidents. Reporting to the Engineering Group Vice President are the Senior Vice President of Corporate Engineering and Consulting Services; the Vice Presidents of Project Management Services, Project Procurement, and Project Engineering and Design; and the President of Envirosphere Company. Reporting to the Construction and Plant Services Group Vice President are the Presidents of Ebasco Constructors Inc, and Ebasco Plant Services Inc. Reporting to the Advanced Technology and Special Projects Group Vice President is the Vice President of Advanced Technology.

2.2 Representatives of the Ebasco Group Vice President International Operations; of the Ebasco Senior Vice President of Corporate Engineering and Consulting Services; of the Ebasco Vice Presidents of Advanced Technology, Project Procurement, Project Management Services, and Corporate Quality Programs; and of the Presidents of Ebasco subsidiaries Envirosphere Company, Ebasco Plant Services Inc, and Ebasco Constructors Inc, comprise the Quality Program Committee which is responsible for Ebasco Quality Assurance policy. This Committee is shown diagrammatically in Figure I-2.1 at the end of this Section.

2.3 The Ebasco organizational units most directly involved in the implementation of the Quality Assurance program for fabrication and installation are Corporate Quality Programs, and Ebasco Constructors Inc. The organizational structures of these are shown in Figures I-2.2 and I-2.4 at the end of this Section.

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The responsibilities of the individual Ebasco organizational units for quality assurance requirements applied to nuclear power stations are described herein.

3.0 CORPORATE QUALITY PROGRAMS

Primary responsibility for quality assurance rests with the Vice President Corporate Quality Programs who reports directly to the President.

Qualification requirements for the position of Vice President Corporate Quality Programs 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; and a thorough knowledge of the Ebasco Quality Assurance Program. The Corporate Quality Programs 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
- b) Materials Applications
- c) Vendor Quality Assurance
- d) Quality Assurance Consulting Engineer
- e) Materials Engineering Laboratory

3.1 Quality Assurance is administered by the Director Quality Assurance who reports to the Vice President Corporate Quality Programs.

Qualification requirements for the position of Director Quality Assurance 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; and a thorough knowledge of the Ebasco Quality Assurance Program. Quality Assurance is responsible to plan implementation of, evaluate, monitor, and enforce the Ebasco Quality Program. This responsibility is carried out by five functional subdivisions:

- a) Quality Assurance Projects
- b) Quality Assurance Site Services
- c) Quality Assurance Engineering

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- d) Inservice Inspection/Nondestructive Examination Services
- e) Quality Assurance Consulting

Managers in charge of the subdivisions report directly to the Director Quality Assurance. Engineers and Specialists are then assigned to specific projects from these subdivisions. The Quality Assurance Organization is shown in Figures I-2.6 and I-2.7 at the end of this Section. The organization and responsibilities of the four Quality Assurance subdivisions associated with the South Texas Project are described in the following paragraphs.

3.1.1 Quality Assurance Site Services - The Quality Assurance Site Services subdivision is headed by the Manager Quality Assurance Site Services who is responsible for all site-related Quality Assurance/Quality Control activities, including implementation of the site phase for all Ebasco project quality programs. A Manager Site Quality Assurance, who reports to the Manager Quality Assurance Site Services, and a Quality Program Site Manager, who reports to the Director Quality Assurance, are responsible for Quality Program implementation for the South Texas Project in accordance with the following:

3.1.1.1 Site Quality Assurance - The Manager Site Quality Assurance, who reports to the Manager Quality Assurance Site Services in New York, is responsible for the development, maintenance, and current status of Site Quality Assurance Procedures, for providing technical assistance and guidance to subordinate Quality Assurance 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.) The Manager Site Quality Assurance has delegated authority to the Quality Program Site Manager on the preparation, review, approval, and distribution control of Site Quality Control Procedures and project-related supplements to the Site Quality Assurance Procedures.


3.1.1.2 Site Quality Program - A Quality Program Site Manager is assigned to the construction site on a resident basis for the purpose of overall planning, direction, and implementation of the Ebasco Nuclear Quality Assurance Program Manual. The Quality Program Site Manager, who reports to the Director Quality Assurance, is subordinate to no individual on site and has the independent authority to identify site quality-related problems, to initiate or

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recommend solutions, to control 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 the Ebasco Quality Assurance organization with regard to South Texas Project activities, such as Client or his designee and/or Ebasco meetings, Client or his designee audits, 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 Director Quality Assurance has delegated authority to the Quality Program Site Manager on the preparation, review, approval, and distribution control of project-related supplements to the applicable Quality Assurance Procedures. The Site Quality Program function is divided into three groups: Quality Assurance, 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 - A Quality Assurance Site Supervisor and staff of engineers and representatives are assigned the following functions:


- a) Review and audit safety-related site construction and engineering activities and records on a continuing basis.
- b) Perform audits and surveillances of construction forces for adherence to prescribed approved procedures.
- c) Review and advise on quality control procedures, construction procedures, and nondestructive examination 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 quality control procedures.
- d) Generate records of all reviews and audits performed.

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- e) Review all radiographic film for site-related nondestructive examination.
- f) Audit records and documentation prior to turnover to the Client.
- g) Develop and implement Quality Assurance Instructions and project-related supplements to Site Quality Assurance Procedures and implement applicable Site Quality Assurance Procedures.
- h) Perform on-site distribution of those Quality Assurance procedures which are issued and controlled by the Manager Site Quality Assurance or his designee. |R7
- i) 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 the Client or his designee.

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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 Procedures, 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.

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 Ebasco site-generated quality assurance records until turnover to the Client or his designee.

R7

R7

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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.

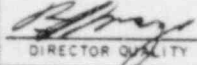
3.1.2 Quality Assurance Engineering - The Quality Assurance Engineering subdivision is headed by the Manager Quality Assurance Engineering. He is responsible for the following activities which are under the direction of supervisors reporting to him and are performed in accordance with Quality Assurance procedures:

- a) Administration of training and qualification programs for Quality Assurance audit and inspection personnel.
- b) Conducting Quality Assurance education, both internal and external to Quality Assurance. Quality Assurance Education Specialists from Quality Assurance Engineering are assigned to the construction site. These specialists report administratively and functionally to the Quality Program Site Manager, but receive technical direction from Quality Assurance Engineering at the Ebasco home office.
- c) Interdepartmental auditing of all individuals or groups responsible for activities covered by the Quality Program.
- d) Development and implementation of Trend Analysis programs.

3.1.2.1 Radiation Safety - Ebasco's Corporate Radiation Safety Officer reports to the Director Quality Assurance through the Manager Quality Assurance Engineering. He is responsible for auditing and enforcing the Ebasco Procedures for radiation safety.

3.1.3 Inservice Inspection/Nondestructive Examination Services - The Inservice Inspection/Nondestructive Examination Services subdivision is headed by the Manager of Inservice Inspection/Nondestructive Examination. He is responsible for the following activities which are under the direction of supervisors reporting to him:

- a) Establishment and/or interpretation of NDE requirements and acceptance criteria for fabricated and erected equipment as required.

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- b) Reviewing and commenting on NDE procedures and radiographic films submitted by site construction forces and/or clients. | R7
- c) Advising site construction forces as to proper NDE procedures, applications, techniques, equipment, and qualifications. | R7
- d) Qualification and certification of Ebasco NDE personnel.

3.1.4 Quality Assurance Consulting - The Quality Assurance Consulting subdivision is headed by the Senior Consulting Quality Assurance Engineer, who is responsible for the following activities: |

- a) Development of Quality Assurance standards and procedures. | R7
- b) Interpretation of quality assurance requirements as specified in national codes, standards, and regulatory documents, and incorporating these requirements in company documents. |

3.2 Materials Applications, under the supervision of the Chief Materials Engineer, includes two subdivisions: Materials Engineering and Welding Engineering. A Project Materials Engineer and Project Welding Engineer are assigned to the South Texas Project. These positions may be assigned to the same individual if properly qualified. A Site Welding Superintendent, who reports to the Chief Materials Engineer in New York, is assigned to the construction site and is responsible for the direction, supervision, and administration of a site welding operations staff. Quality-related activities of Materials Applications personnel include the following: | R7

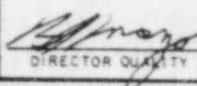
- a) Develop material and welding specifications.
- b) Develop and qualify welding procedures and fabrication techniques for use by Ebasco site construction forces.
- c) Prepare site welding operations implementation procedures for Ebasco site construction forces.
- d) Advise Ebasco Construction management as to the development and application of advanced welding techniques which would enhance quality. | R7

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- e) Prepare Process Data Checklists which provide comprehensive requirements for welding process and procedure selection, postweld thermal treatment, and inspection at the construction site.
- f) Review specifications and drawings provided by the Client or his designee for compliance with applicable codes and regulatory requirements for proper selection of materials, weld procedures, and joint details.
- g) Supervise the welder performance testing program at the construction site to assure that all code and regulatory requirements have been met.
- h) Provide technical assistance as required to resolve problems 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.
- j) Review, monitor, and provide recommendations for upgrading of Ebasco welder training programs and welder assignment practices.
- k) Prepare and monitor site filler material control procedures.
- l) Supervise and direct testing and applied research programs required to resolve site construction materials and welding problems.

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

3.4 The Materials Engineering Laboratory performs field nondestructive examination services. The Materials Engineering Laboratory is administered by a Manager who reports to the Vice President Corporate Quality Programs. The NDE Laboratory Supervisor reports administratively to the Materials Engineering Laboratory Manager or his designee and is responsible for the technical direction of nondestructive examination activities performed by the Site NDE Laboratory at the construction site. The NDE Laboratory Supervisor reports functionally to the Quality Control Site Supervisor or his designee.

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4.0 CONSTRUCTION AND PLANT SERVICES GROUP

Primary responsibility for construction and plant services rests with the Group Vice President Construction and Plant Services. The Construction organization has the prime responsibility for the performance of quality construction on the South Texas Project and is described in the following paragraphs.

4.1 The President Ebasco Constructors Inc reports to the Group Vice President Construction and Plant Services and is responsible for executive management of all construction activities and services. (See Figure I-2.4.)


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

4.1.2 The Manager of Construction Quality reports to the President Ebasco Constructors Inc, and is responsible for development of Construction Standard Procedures, keeping abreast of NRC and code requirements, and periodic reporting to Construction management of current Quality Program status and any required corrective actions.

4.1.3 The Site Manager reports to the Ebasco Construction Manager. The Site Manager has the responsibility for the direction and coordination of all on-site activities related to construction. The Site Manager has stop work authority.

4.1.4 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.

4.1.5 The Unit Superintendents reports 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.

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4.1.6 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 applicable installation specifications. The Assistant Superintendents have stop work authority.


4.1.7 The Discipline Superintendents report to the Assistant Superintendents. Each Discipline Superintendent will direct, coordinate, and monitor all work performance within the assigned discipline to assure that work proceeds in accordance with approved plans, specifications, and the Quality Assurance Program.

4.1.8 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.

4.1.9 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.

4.1.10 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.

4.1.11 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.

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4.1.12 The Safety Supervisor reports to the Site Manager. 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.

4.1.13 The Administrative Manager reports to the Site Manager. The Administrative Manager is responsible for providing the necessary accounting, timekeeping, and computer support, as required to support the construction effort.

4.1.14 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.


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

4.1.16 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.

4.1.17 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.

5.0 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.

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6.0 ORGANIZATION CHARTS

The following figures apply to this Section:

<u>Figure No.</u>	<u>Title</u>	<u>Revision</u>	
I-2.1	Operations Organization Showing Quality Program Committee Representation	5-STP	R7
I-2.2	Corporate Quality Programs Organization	6-STP	
I-2.3	Deleted	-	
I-2.4	Organization for Construction	4-STP	R7
I-2.5	Deleted	-	
I-2.6	Quality Assurance Organization	6-STP	R7
I-2.7	Quality Assurance Engineering Quality Assurance Specialists	6-STP	R7
I-2.8	Deleted	-	
I-2.9	Interface Between Houston Lighting & Power Company, Bechtel Energy Corporation, and Ebasco Services Incorporated	3-STP	R7

Ebasco Services Incorporated
OPERATIONS ORGANIZATION SHOWING QUALITY PROGRAM COMMITTEE REPRESENTATION

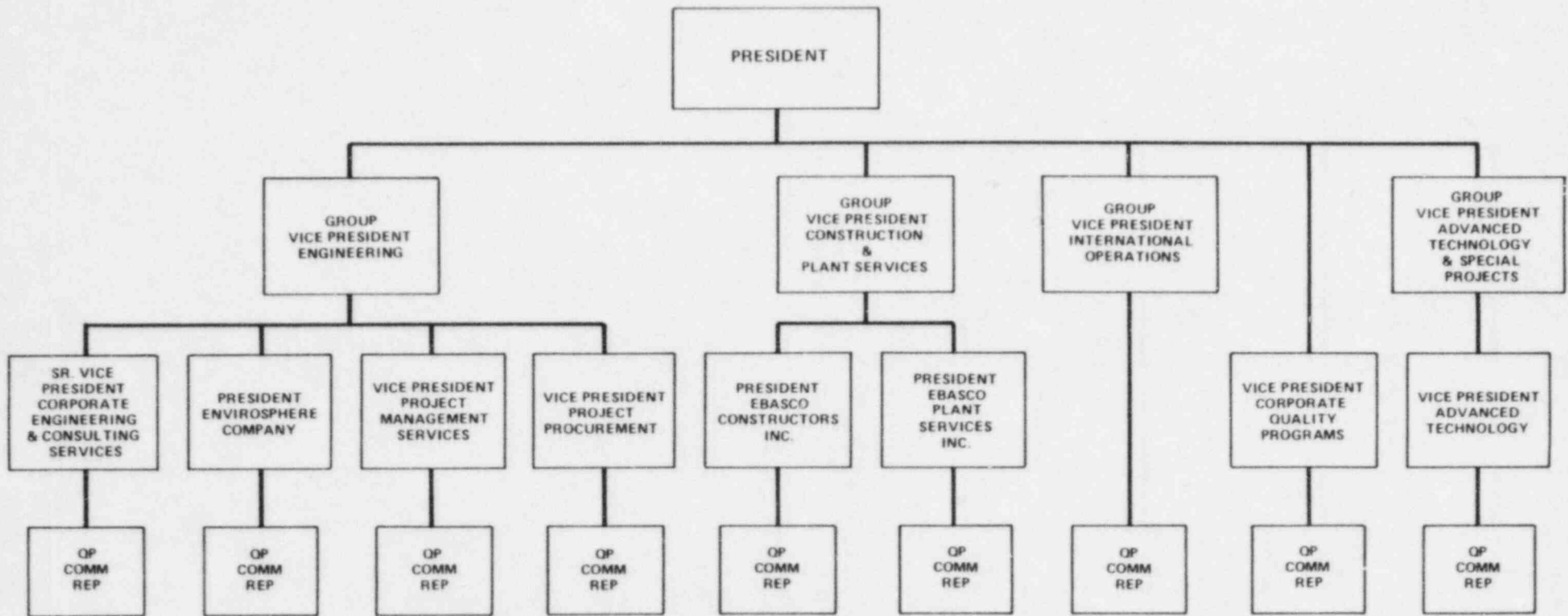
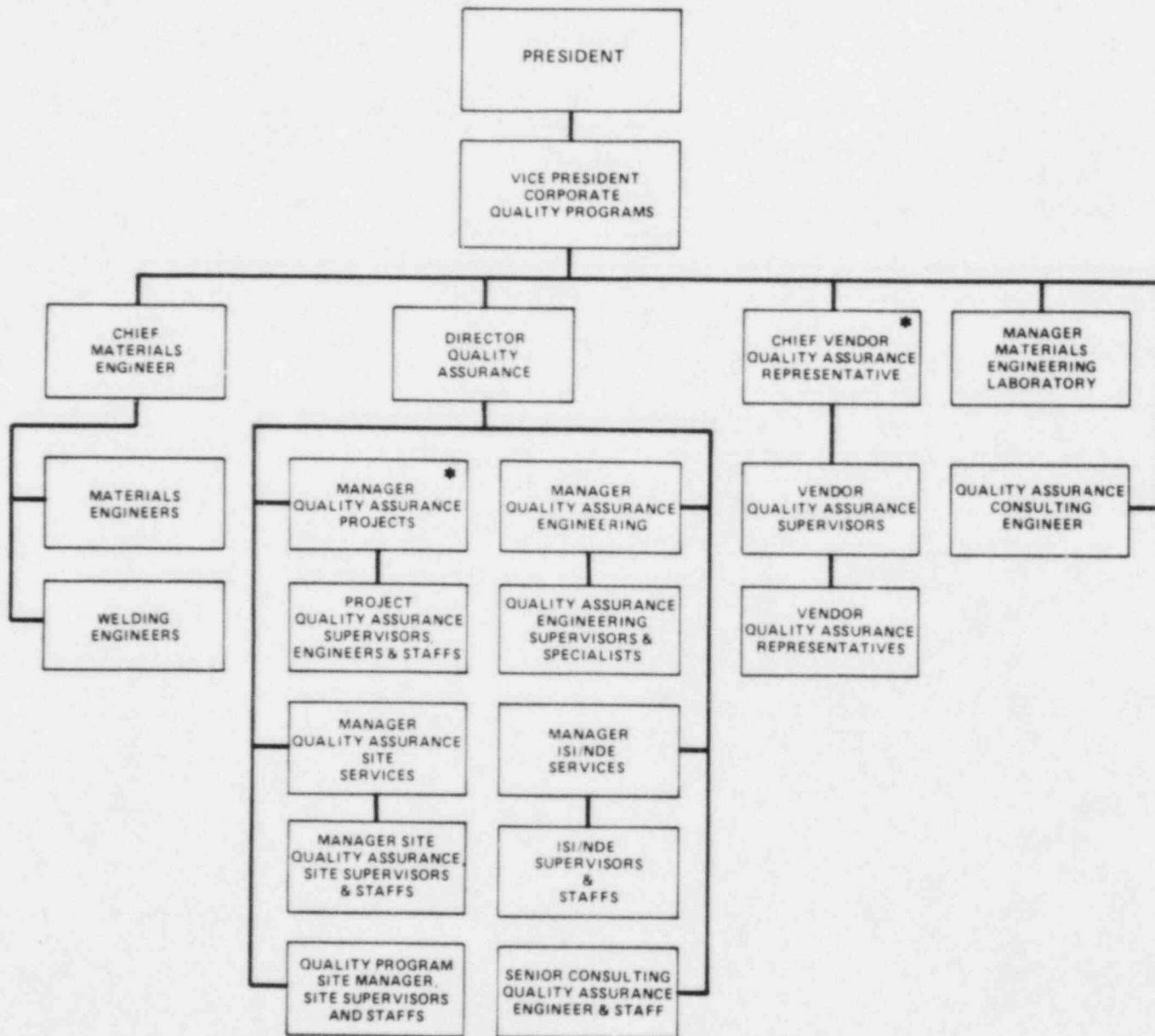


FIGURE I-2.1
 REV. 5-STP

Ebasco Services Incorporated

CORPORATE QUALITY PROGRAMS ORGANIZATION

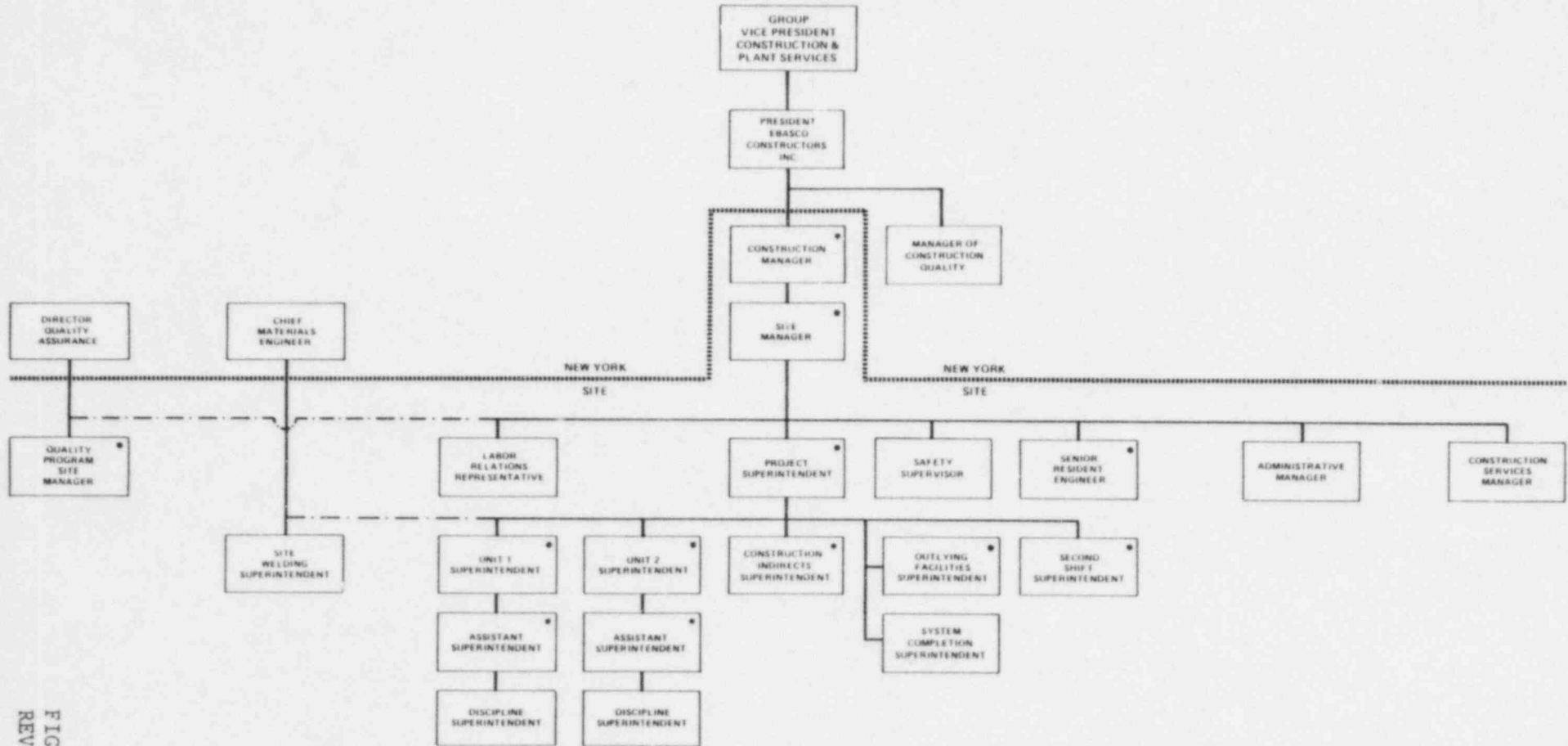


★ NOT APPLICABLE TO THE STP
QUALITY ASSURANCE ORGANIZATION

FIGURE I-2.2
REV. 6-STP

Ebasco Services Incorporated ORGANIZATION FOR CONSTRUCTION

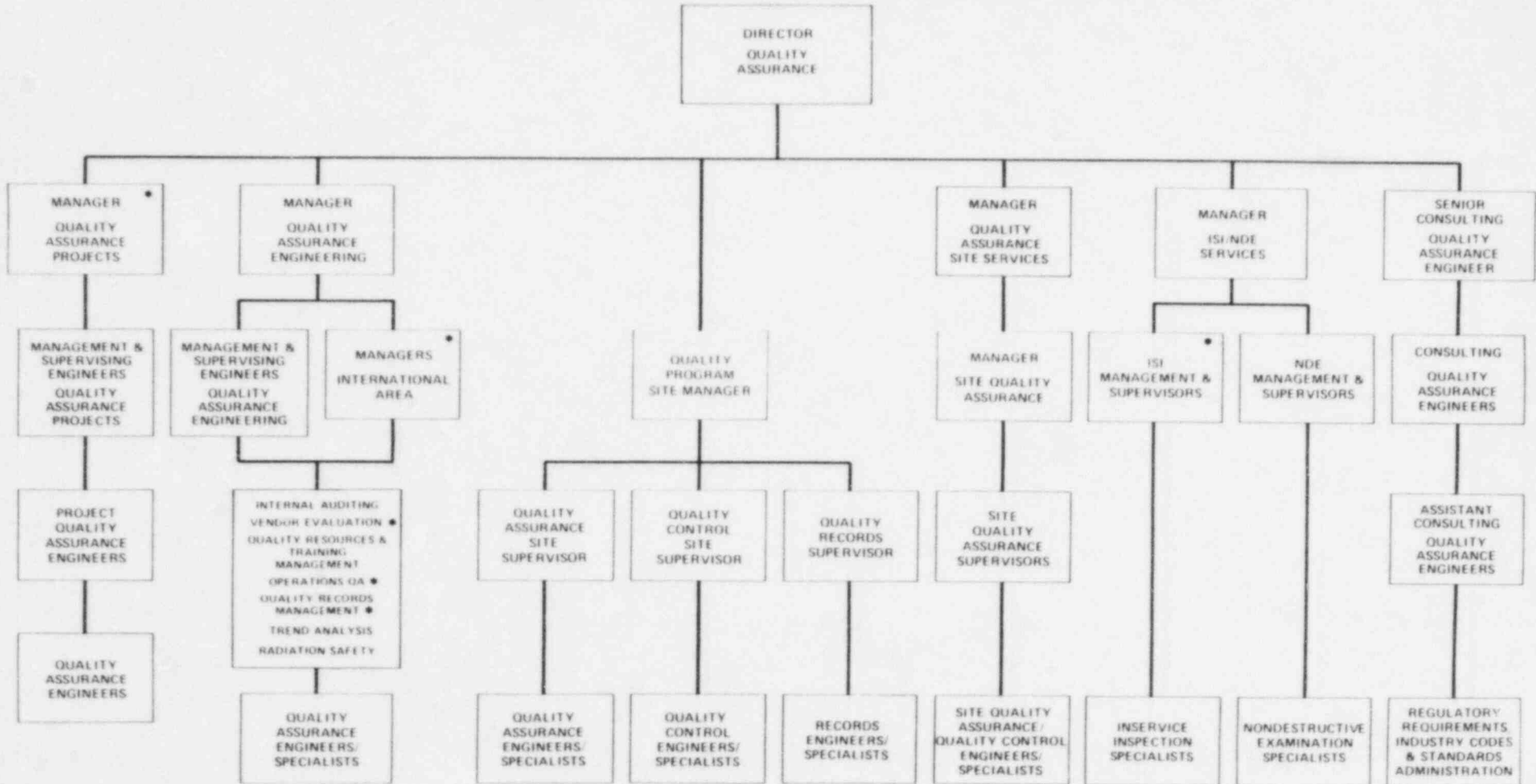
ADAPTED FOR
HOUSTON LIGHTING & POWER COMPANY
SOUTH TEXAS PROJECT
ELECTRIC GENERATING STATION UNITS 1 & 2



— LINE SUPERVISION
 - - COORDINATION
 • STOP WORK AUTHORITY

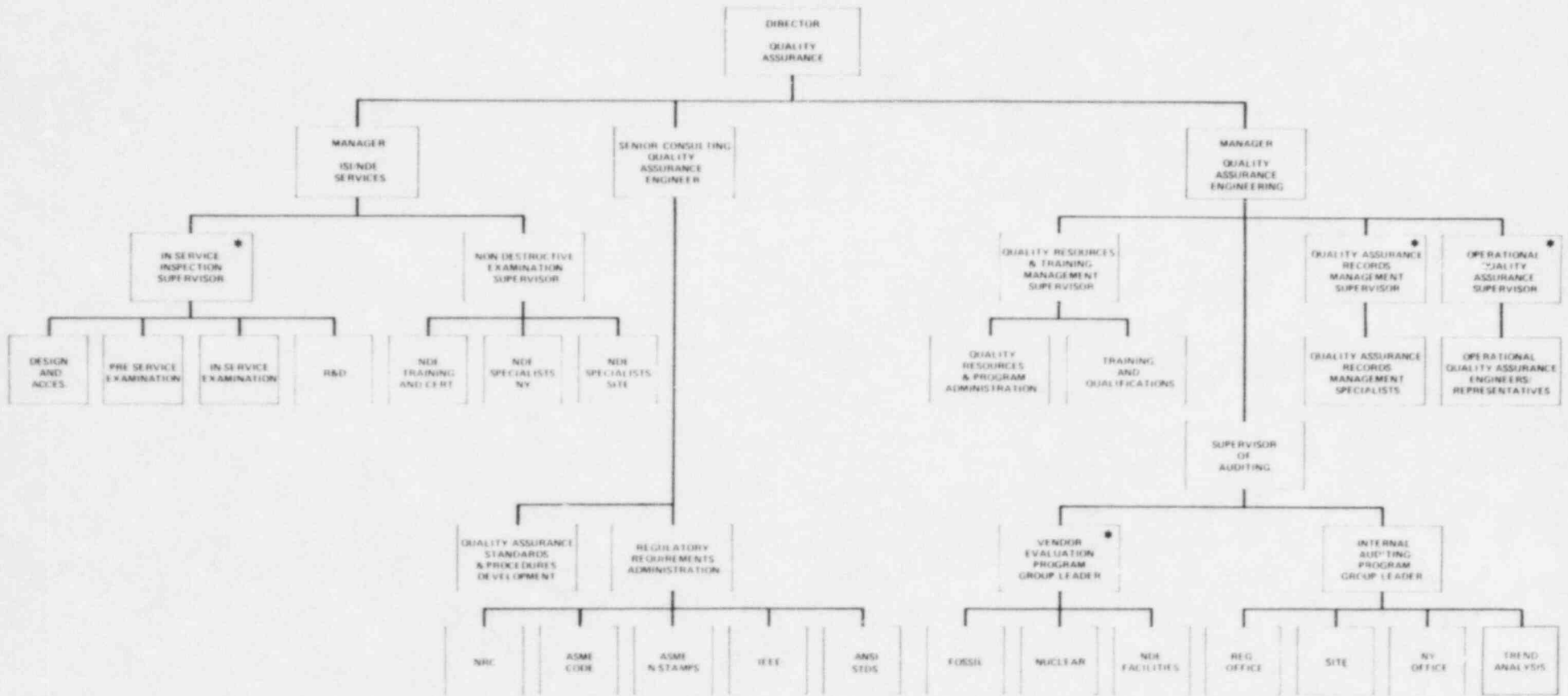
FIGURE I-2.4
REV. 4-STP

EBASCO SERVICES INCORPORATED QUALITY ASSURANCE ORGANIZATION



◆ NOT APPLICABLE TO THE STP QUALITY ASSURANCE ORGANIZATION

EBASCO SERVICES INCORPORATED QUALITY ASSURANCE ENGINEERING QUALITY ASSURANCE SPECIALISTS



● NOT APPLICABLE TO THE STP QUALITY ASSURANCE ORGANIZATION

FIGURE I-2.7
REV. 6-STP

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

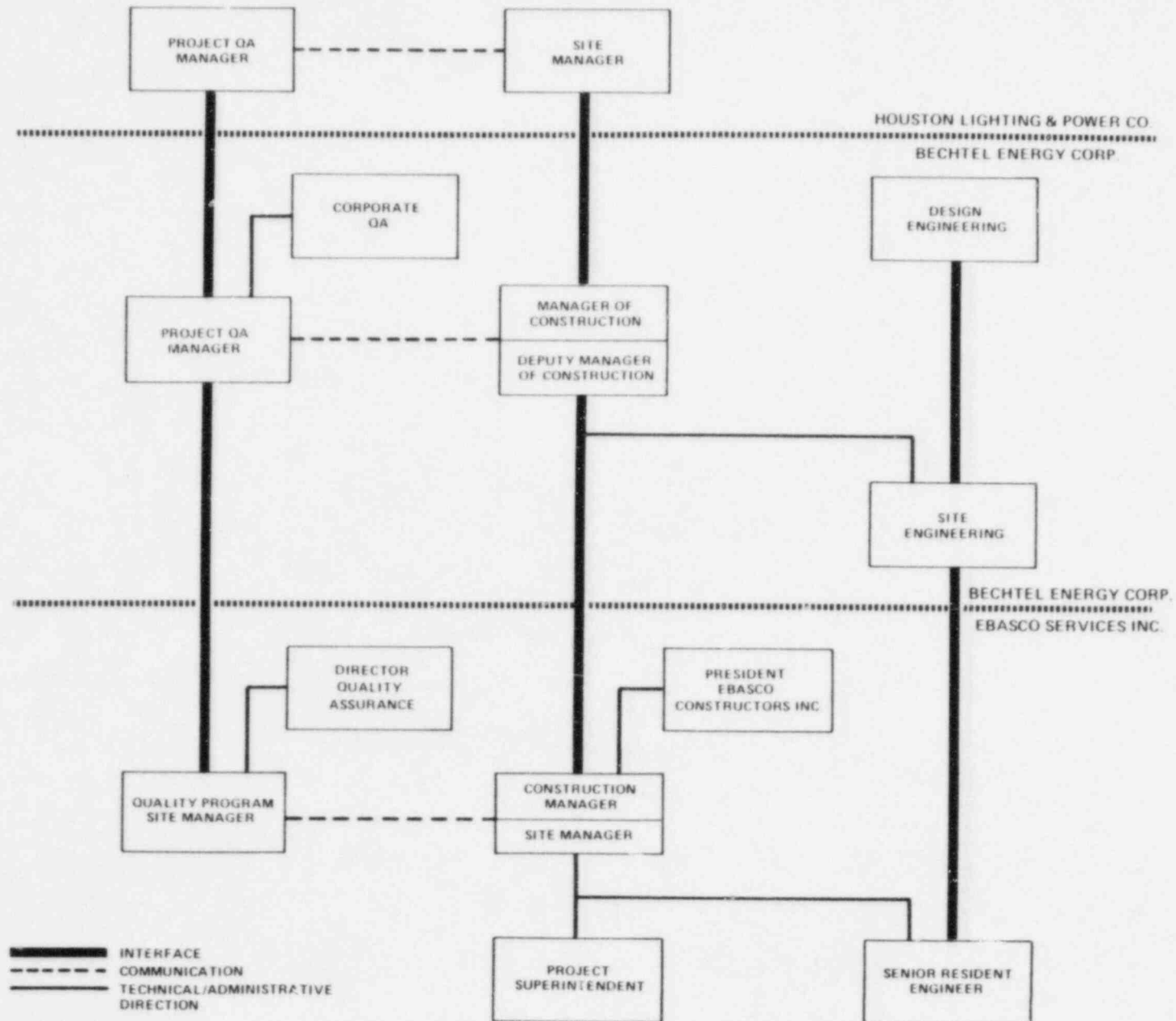



FIGURE I-2.9
 REV. 3-STP

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1.0 SCOPE


This Section describes the program for indoctrination and training of Ebasco personnel engaged in activities affecting quality with respect to the requirements of this Manual and its supporting principal implementing procedures. Ebasco personnel shall be indoctrinated and trained, as necessary, to assure that proficiency is achieved and maintained in those parts of the Quality Assurance Program as it applies to the individual's responsibility.

2.0 GENERAL

The Indoctrination and Training Program is a combined effort of the Ebasco organizations implementing any portion of this Manual and its principal implementing procedures, and the Quality Assurance organization. The Construction, Materials Applications, and Quality Assurance organizations are responsible to schedule, indoctrinate, and train their personnel, and to record this indoctrination and training, unless otherwise denoted by project commitments.

3.0 PROGRAM REQUIREMENTS

3.1 Preplanned written lessons shall contain the substance of the indoctrination and training program. These lessons shall address one or more quality-related topics, to achieve one or more stated educational objectives. The training will be conducted by trained supervisors or their designees within the Construction and Materials Applications organizations, and by a Quality Assurance Education Specialist or designee when the need arises. A Quality Assurance Education Specialist will be responsible for training the selected instructors within the other Ebasco organizations in methods of conducting required quality assurance training.

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3.2 For Construction, Quality Assurance, and Materials Applications, preplanned training lessons are maintained by each organization respectively. The preplanned training lessons relate to activities the personnel shall be performing. For Construction and Materials Applications, a responsible person within the respective organization shall determine the training requirements for each individual based on that individual's assigned responsibilities and past experience. Within the Quality Assurance organization, a Quality Assurance Education Specialist shall be responsible for determination of an individual's training requirements based upon that individual's assigned responsibilities and past experience, as applicable. Preplanned training lessons are updated, when required, and reflect any changes in the program. Copies of these preplanned training lessons shall be kept on file by the respective organization. Quality-affected training will reflect project requirements.

4.0 RECORDS


Individual training files for personnel in the Construction, Quality Assurance, and Materials Applications organizations receiving indoctrination and training in accordance with this program's requirements shall be maintained by each affected organization. These records will indicate, as applicable, the subject matter, the training received, attendance date, time duration, instructor, and special qualifications or restrictions, if any.

5.0 SCHEDULING

Scheduling training of applicable organization personnel will be coordinated with a Quality Assurance Education Specialist where necessary. As new personnel are added to the South Texas Project within an organization, appropriate indoctrination and training sessions will be scheduled based on the requirements of this Manual.

6.0 PROGRAM UPDATING

This indoctrination and training program is subject to continuous development to broaden and improve its effectiveness. A Quality Assurance Education Specialist will hold periodic discussions with those groups involved with the training program to coordinate recommendations for updating. A Quality Assurance Education Specialist is responsible for updating the program for the Quality Assurance organization.

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7.0 ADMINISTRATION

7.1 The Quality Assurance Engineering Quality Resources and Training Management Group shall have overall responsibility for administrating the quality assurance training program. It shall provide technical expertise for developing necessary programs and review existing programs for currency.


7.2 Management of each Ebasco organization is responsible to assure that the appropriate personnel attend the training program(s) for which they are scheduled.

8.0 TRAINING, QUALIFICATION, AND CERTIFICATION OF QUALITY CONTROL PERSONNEL

Training, qualification, and certification of Site Quality Control inspection personnel shall be in accordance with written procedures. The Quality Control Site Supervisor or his designee shall coordinate with a Quality Assurance Education Specialist regarding the training, qualification, and certification of Quality Control personnel. Qualification records for all Quality Control personnel assigned to the South Texas Project site shall be maintained by a Quality Assurance Education Specialist at the site. These records will be audited initially by the Director Quality Assurance, or his designee, for compliance with the qualification requirements, and thereafter on an annual basis by auditors from the Site Quality Assurance organization. Any deficiencies detected shall be reported in writing by the Quality Assurance Site Supervisor, or his designee, to the Quality Control Site Supervisor for resolution. Pending resolution of the deficiency, the individual shall be restrained from performing any Quality Control activities.

9.0 AUDITS

Audits of indoctrination and training activities shall be performed to assure compliance with this Program. Such audits shall be performed in accordance with the requirements of Section QA-III-9 of this Manual.

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1.0 SCOPE

This Section covers the requirements and guidelines for the collection, filing, storage, disposition, and maintenance of lifetime and nonpermanent quality assurance records associated with the construction and maintenance of nuclear power plants.

2.0 RESPONSIBILITY

It shall be the responsibility of Ebasco to maintain quality assurance (QA) records in accordance with the requirements of this Section until such time as those records are turned over to the Client or his designee for permanent storage. The HL&P STP - RMS Site Records Center is the principal and final records repository. All QA records shall be accessible to the Client or his designee until such time as they are turned over to the Client or his designee.

3.0 QUALITY ASSURANCE RECORDS SYSTEM

Each organization within Ebasco (including but not limited to the Construction and Quality Assurance organizations) that participates in the generation, collection, filing, storage, disposition, or maintenance of quality assurance records shall establish a written quality assurance record system applicable to the function(s) performed by that organization. These written procedures shall provide that each completed quality assurance record shall be transmitted by the organization generating the records to the Ebasco Site Quality Records group for final review and transmittal to the Client or his designee. This system shall be implemented and enforced in accordance with the requirements of the following paragraphs that apply to the function(s) of that organization.

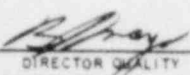
4.0 GENERATION OF QUALITY ASSURANCE RECORDS

4.1 The QA records to be generated shall be specified in the applicable design specifications, construction, maintenance, test, or inspection procedures, and other documents as necessary.

4.2 All QA records shall be dated and signed or otherwise authenticated.

4.3 QA records shall be indexed. The indexing system shall include as a minimum:

4.3.1 QA records retention times (retention period begins on date of satisfactory operation of items).

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4.3.2 Location of storage area.

4.3.3 Location of QA records within storage area.

4.4 All QA records shall be distributed and handled in accordance with written instructions.

4.5 There shall be sufficient information in the QA records to permit identification between the records and the item(s) or activity to which it applies. Identification of QA records may be by purchase order number, system, or any means that permits accurate traceability.

4.6 All QA records shall be classified as "lifetime" or "nonpermanent."

4.7 When QA records are corrected or supplemented they shall be reviewed or approved by the organization that originated the records. All corrections and supplements shall bear dates and authorized signatures or initials traceable to the authorized individual.


4.8 Inspection and test records shall contain the following, as applicable:

- a) The type of observation.
- b) Evidence of completing and verifying an inspection or test operation.
- c) The date and results of the inspection or test.
- d) Information related to nonconformances.
- e) Inspector or data recorder identification.
- f) Evidence of the acceptability of the results.

5.0 RECEIPT OF QUALITY ASSURANCE RECORDS

5.1 A system shall be established for receipt of QA records at the Site which shall include:

- 5.1.1 A checklist designating the required QA records.

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5.1.2 A record of QA records received.

5.1.3 Written procedures for receipt and inspection of incoming Site QA records.

These quality assurance records shall be maintained by Site Quality Records and audited by Site Quality Assurance to assure that they are maintained properly until turned over to the Client or his designee.

5.2 The system described in Paragraph 5.1 of this Section shall permit an accurate assessment of the status of the QA records during the receiving process.

6.0 TEMPORARY STORAGE, PRESERVATION, AND SAFEKEEPING

6.1 QA records shall be stored in accordance with a written procedure which shall require or include the following:

6.1.1 Description of storage facility, if other than a dual facility.

6.1.2 Description of filing system to be used.

6.1.3 Method for verifying that QA records received are in agreement with transmittal documents and pre-established records checklist and that the QA records are legible.

6.1.4 Rules governing access to files.

6.1.4.1 A list shall be generated designating those personnel who shall have access to the files.

6.1.5 Method for maintaining control of QA records removed from storage. Such method shall provide for signing out of QA records removed from storage or other appropriate means of maintaining control of the records removed.

6.1.6 Method of filing supplemental information and disposing of obsolete QA records. Supplemental information shall be filed with the original documents whenever practical.

6.2 A custodian (or custodians) shall be designated to implement the requirements of Paragraph 6.1 of this Section.

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6.3 QA records may be stored within a temporary storage facility if they are protected from damage and loss. This shall include:

6.3.1 Storage within fire-resistant cabinets with a four-hour Underwriters' rating or a satisfactory alternative.

6.3.2 Protection from condensation.

6.3.3 Disallowance of loose documents. Records shall be attached to binders, placed in folders, or similarly maintained.

6.3.4 Specially processed QA records such as radiographs, microfilm, etc, shall be stored and protected in accordance with the manufacturer's recommendations.

6.4 A satisfactory alternative to the requirements of Paragraph 6.3 of this Section is maintenance of duplicate QA records stored in a separate remote location. | R7

6.5 Audits shall be performed by Site Quality Assurance to assure the effectiveness of the storage system, and shall include:


6.5.1 Verification that QA records which have been processed into the records facility are available in their proper location and in good condition, including those records that have been logged-out and removed away from the storage system. | R7

6.5.2 Audit results shall be documented and discrepancies shall be reaudited to assure their correction.

6.6 The storage systems shall provide for accurate retrieval of QA records without undue delay.

7.0 DISPOSITION OF QA RECORDS

Upon transfer of QA records, the Client or his designee shall acknowledge in writing the receipt of the particular QA records.

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		INSTRUCTIONS, PROCEDURES, AND DRAWINGS	

1.0 SCOPE

Activities affecting quality performed at the construction site shall be described in written instructions, procedures, or drawings that have been developed in accordance with the requirements of this Section. Departmental procedures which describe the manner in which activities affecting quality are to be accomplished are part of the Ebasco Quality Program.

2.0 RESPONSIBILITIES

2.1 Where the Ebasco Nuclear Quality Assurance Manual designates an individual or organization with the responsibility of performing quality-related functions at the construction site, such functions shall be performed in accordance with written instructions, procedures, or drawings that have been developed by the organization performing the function. These instructions, procedures, and drawings shall establish the manner of performing the activity in accordance with the requirements of the Ebasco Nuclear Quality Assurance Program Manual and of the organization performing the activity.


2.2 When documented evidence is required for the satisfactory performance of particular activities, checklists, forms, and/or other appropriate means shall be utilized to provide this evidence. Such documents shall be signed and dated by the party performing the activity.

2.3 Ebasco procedures, instructions, or drawings describing activities affecting quality which are qualitative or quantitative in nature (ie, inspections or tests) shall contain or reference criteria for determining that such activities have been satisfactorily accomplished.

3.0 DEVELOPMENT OF INSTRUCTIONS, PROCEDURES, AND DRAWINGS

3.1 Instructions, procedures, or drawings for activities affecting quality at the construction site shall be developed by the Construction and Site Quality Assurance organizations for their respective quality-related functions. The Ebasco Nuclear Quality Assurance Program Manual shall be used as a guideline for their development. In addition, all Site Quality Control Procedures shall include at least the following:

- a) Identification of characteristics to be inspected.
- b) Identification of the individuals or groups responsible for performing the inspection operation.

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- c) Acceptance and rejection criteria.
- d) A description of the method of inspection.
- e) Verification of completion and certification of inspection.
- f) A record of the results of the inspection operation.

3.2 The Ebasco Engineering Development and Standards Department shall develop company instructions and procedures of categories, such as Nuclear (N), pertaining to quality-related functions.

3.3 Individual departments/disciplines shall be responsible for the development of their own intradepartmental/discipline instructions, procedures, or drawings that establish the methods for performing quality-related functions. The Ebasco Engineering Development and Standards Department will provide, upon request, guidance and assistance in developing the documents.


3.4 If so requested by a department, Quality Assurance Engineering shall act in an advisory capacity during the preparation of internal Ebasco procedures.

3.5 All procedures, instructions, and drawings for activities affecting quality shall be identified, dated, and shall provide authorized signature(s) of approval.

3.6 To assure that all Ebasco Quality Control and Construction procedures and instructions comply with this Manual, site-specific requirements, and applicable codes and regulatory requirements, they shall be submitted for review and acceptance to Ebasco Site Quality Assurance prior to implementation. When required by the Contract, quality assurance, quality control, special process, and construction procedures and instructions shall also be submitted to the Client or his designee for acceptance prior to implementation.

4.0 DISTRIBUTION AND CONTROL

4.1 Each Ebasco department shall be responsible for maintaining and enforcing a written system for the distribution and control of that organization's instructions, procedures, and drawings (other than design; ie, rigging drawings) for activities affecting quality. This system shall provide for at least the following:

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		INSTRUCTIONS, PROCEDURES, AND DRAWINGS	

4.1.1 Copies of these documents and revisions thereto shall be distributed to all appropriate department personnel in a timely manner.

4.1.2 Outdated and/or superseded documents shall either be collected or shall be clearly marked as superseded to avoid inadvertent use.

4.1.3 A file of the latest revision of these documents shall be maintained. Such a file shall be readily available to all affected personnel.

4.1.4 A log of the documents shall be maintained. The log shall indicate as a minimum:

- a) Title of document.
- b) Document identification number.
- c) Latest revision number and date of document presently in use.

4.2 A historical file of all revisions and changes to instructions, procedures, and drawings shall be maintained by the applicable organization responsible for such documents or as may be described in the applicable organization's procedures.

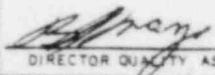
4.3 All approved Ebasco site-generated field sketches, construction procedures, quality control procedures, and special process procedures shall be transmitted to the Client or his designee for distribution and control in accordance with Section QA-III-2 of this Manual.

5.0 CHANGES TO DOCUMENTS

Changes to Ebasco documents shall be reviewed and approved by the same organization responsible for the original document when those changes affect the original reviewer, unless delegated in writing by the originating organization to another responsible organization. The reviewing organization shall have access to pertinent background information upon which to base their approval and shall have adequate understanding of the requirements and intent of the original document.

6.0 AUDITS

Audits shall be performed in accordance with Section QA-III-9 of this Manual to assure conformance to the requirements of this Section.

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		DOCUMENT CONTROL	

1.0 SCOPE

This Section of the Manual establishes the requirements for the control of all project documents used by Ebasco which have an effect on quality-related activities. These requirements apply to those documents such as specifications and drawings, as well as site instructions and site procedures, which control or direct activities affecting quality.

2.0 RESPONSIBILITIES

2.1 The corresponding Department Heads or their designees shall be responsible for furnishing the Client or his designee with the latest of all Ebasco site-generated field sketches, construction procedures, quality control procedures, and special process procedures.

2.2 The Client or his designee shall be responsible for the distribution and control of all construction site design documents, drawings, specifications, construction procedures, quality control procedures, and special process procedures.

2.3 The Quality Assurance Site Supervisor or his designee shall be responsible for the distribution and control of site-generated quality assurance procedures and instructions.


3.0 ISSUANCE OF CONTROLLED DOCUMENTS

3.1 Establishment of Document Control Stations

3.1.1 Document control stations shall be established and maintained by the Client or his designee.

3.1.2 Requests by Ebasco for the establishment of new or deletion of existing document control stations for the distribution of controlled documents shall be submitted by the corresponding Department Head, Unit Superintendents, or Project Superintendent to the Client or his designee.

3.1.3 Requests by Ebasco for additions or deletions of documents issued to an established document control station shall be submitted to the Client or his designee.

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		DOCUMENT CONTROL	

3.2 Design Documents, Drawings, and Specifications

3.2.1 The Client or his designee shall furnish, distribute, and control all design documents, drawings, and specifications to the established document control stations in accordance with the Client's or his designee's written procedures.

3.2.2 Ebasco personnel shall use during their work activities the latest design documents, drawings, and specifications as provided by the Client or his designee at the appropriate document control stations and comply with the approved Ebasco site document control procedure.

3.3 Ebasco Intradepartmental/Discipline Instructions and Procedures

3.3.1 Intradepartmental/Discipline instructions and procedures shall be issued and controlled in accordance with Section QA-III-1 of this Manual.

3.3.2 Quality Assurance procedures describing auditing responsibilities of Site Quality Assurance shall be distributed and controlled at the construction site in "book" form. A master file shall be maintained of all procedures and revisions. A master list shall be maintained indicating each person or organization to whom a book of procedures has been issued. New or revised procedures will be issued to each holder of a procedure "book." A receipt system shall be used which requires written acknowledgment of distributed procedures.

3.4 Ebasco Site-Generated Procedures and Instructions

Ebasco site-generated construction, special process, and quality control procedures and instructions shall be transmitted to the Client or his designee for distribution to the established document control stations.

3.5 Field Change Requests

3.5.1 A Field Change Request shall be submitted to the Senior Resident Engineer from applicable site personnel whenever conditions arise which may warrant consideration by the Client or his designee of a change in the specified design.

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3.5.2 The Senior Resident Engineer shall submit the proposed Field Change Request to the Client or his designee for evaluation, disposition, distribution, and control by the Client or his designee in accordance with the Client's or his designee's written procedures.

3.6 Field Change Notice

3.6.1 A "Field Change Notice" shall be generated by the Senior Resident Engineer as is allowed by the design specification and shall be approved, issued, and controlled by the Senior Resident Engineer in accordance with approved site procedures.


3.6.2 A Field Change Notice (FCN) is to provide construction with a method of documenting conditions (not tolerances) that are within criteria allowed by the applicable specifications. An FCN shall not be used in lieu of a Nonconformance Report (NCR) or a Field Change Request (FCR).

3.7 Field Sketches

3.7.1 Field sketches shall be prepared, reviewed, and approved by the Senior Resident Engineer or his designee in accordance with approved site procedures. Only the following two types of field sketches shall be permitted to be utilized by field personnel as a basis for the fabrication, installation, and inspection of safety-related items:

- a) Field sketches which have been approved by the Client or his designee.
- b) Field sketches which the Senior Resident Engineer has determined to be within standard detailing parameters established by specifications prepared by the Client or his designee.

3.7.2 Field sketches shall be transmitted by the Senior Resident Engineer to the Client or his designee for approval and/or distribution to the established document control stations by the Client or his designee.

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4.0 CHANGES TO DOCUMENTS

Changes to Ebasco documents shall be distributed in the same manner as the original document. Revised documents shall be controlled in accordance with the requirements of this Section and/or written procedures in order to avoid inadvertent use of outdated documents.


5.0 QUALITY ASSURANCE RECORDS

Quality Assurance records shall be maintained by Site Quality Records which shall be audited by Site Quality Assurance to assure that they are maintained properly.

5.1 The system for control and retrieval of Quality Assurance records at the site shall be in accordance with Section QA-I-6 of this Manual.

6.0 AUDITS

Ebasco Site Quality Assurance shall audit the Client's or his designee's control and distribution of Ebasco-generated construction, special process, and quality control procedures and instructions in accordance with the requirements of Section QA-III-9 of this Manual.

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1.0 SCOPE

This Section establishes the requirements for the identification, control, and disposition of items or services found to be in nonconformance with the applicable requirements at the construction site. All activities described in this Section shall be performed in accordance with written instructions and/or procedures.

2.0 CONSTRUCTION SITE NONCONFORMANCES

2.1 Nonconformances at the construction site may be detected by Ebasco Site Quality Control, Site Quality Assurance, or Construction. All nonconformances detected shall be reported to the Quality Assurance Site Supervisor and/or the Quality Control Site Supervisor or their designees.


2.2 Quality Control procedures shall require that all nonconforming items shall be clearly marked or tagged as nonconforming and shall be segregated when possible.

2.3 The Quality Assurance Site Supervisor, the Quality Control Site Supervisor, or their designees shall document nonconformances detected by or reported to them by issuing a South Texas Project Site Nonconformance Report. A preliminary assessment of the severity of the nonconformance shall be made in accordance with Company Procedure N-23 or approved site procedure. The final responsibility for evaluation of all nonconformances for possible reportability rests with the Client or his designee.

2.4 The Nonconformance Report shall then be reviewed and processed in accordance with Paragraph 4.0 of this Section of the Manual.

2.5 After processing of the Nonconformance Report, the Quality Assurance Site Supervisor or his designee shall distribute copies of the reviewed and evaluated report in accordance with internal Site Quality Assurance procedures.

2.6 The Quality Assurance Site Supervisor and the Quality Control Site Supervisor or their designees from the Site Quality Assurance organization shall verify by audits, reinspections, or other appropriate means that the necessary corrective actions are taken.

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3.0 REINSPECTION

3.1 For nonconformances detected at the construction site, the Quality Control Site Supervisor or his designee shall assure that reinspection is performed on all items and services reported as nonconforming. Reinspection shall be performed in accordance with the requirements of the governing code(s) and in accordance with requirements at least as stringent as those by which the nonconformance was detected. He shall document the satisfactory correction or resolution of all nonconformances on the dispositioned Nonconformance Report. This documentation shall provide sufficient detailed information for as-built records.

3.1.1 Nonconformances not corrected in accordance with the requirements of the approved disposition to the Nonconformance Report shall not be accepted by Site Quality Control. Items or services shall not be accepted by Site Quality Control until such time as the appropriate corrective action has been accomplished.

4.0 REVIEW OF NONCONFORMANCE REPORTS


4.1 Upon receipt or initiation of a Nonconformance Report, the Quality Assurance Site Supervisor or his designee from the Site Quality Assurance organization shall perform the following functions in accordance with QA procedures and/or instructions:

4.1.1 Log-in the report and record a unique identifying number on the report.

4.1.2 Route the report to the Client or his designee who shall disposition and approve the report.

4.1.3 Receive the report from the Client or his designee following approval of the dispositioned report.

4.1.4 Upon receipt of the approved Nonconformance Report from the Client or his designee, the Quality Assurance Site Supervisor or his designee shall log-in the results of the review and distribute copies of the report for implementation of the approved disposition as necessary in accordance with approved procedures.

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4.2 Dispositions for all nonconformances to the design specifications or other documents originally requiring review and approval of the Client or his designee, must have the review and approval of the Client or his designee prior to implementation unless otherwise permitted by approved procedures. |R7

4.3 The Quality Assurance Site Supervisor or his designee shall perform a final review for closure of Nonconformance Reports generated in accordance with the requirements of this Section. |R7

4.4 The Quality Assurance Site Supervisor or his designee shall maintain on file, copies of all open Nonconformance Reports generated in accordance with the requirements of this Section.


5.0 DEFICIENCY NOTICES

5.1 Deficiencies in the quality of items and services which either violate the restrictions of Paragraphs 5.2 and 5.3 of this Section of the Manual or are detected during final inspection at the construction site, and which can be corrected by reworking or by standard repair procedures (approved by the Client or his designee) during the normal course of construction, shall be documented on a Deficiency Notice. Copies of all Deficiency Notices shall be transmitted to the Quality Control Site Supervisor or his designee who will initiate Nonconformance Reports based on information given in the Deficiency Notices when he determines that this action is necessary. In this case, the Deficiency Notice becomes a part of the Nonconformance Report and only the Nonconformance Report is required to be resolved. |R7

5.2 Items discovered to be out-of-tolerance or not to specification at routine checkpoints of an inspection process shall not be considered as a nonconformance, provided:

- a) The condition is corrected prior to acceptance of the work.
- b) The work does not proceed beyond the checkpoint until the correction is made.
- c) The out-of-tolerance condition does not reflect on work previously accepted.
- d) No violation of procedures or code is evident.

Damage which would affect the integrity of an item shall be classified as a nonconformance and processed accordingly.

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5.3 An unacceptable ASME Code weld found during the normal welding/inspection process shall be processed and reported on a "Process Data Checklist" form in accordance with approved Site Quality Control procedures. Any unacceptable weld found after the normal welding/inspection process is completed shall be documented as nonconforming in accordance with this Section of the Manual.

5.4 The processing of Deficiency Notices shall be detailed in approved Site Quality Control procedures.

6.0 TREND ANALYSIS OF NONCONFORMANCE REPORTS AND DEFICIENCY NOTICES

6.1 Ebasco's Corporate Trending


Copies of Nonconformance Reports from the sources mentioned above shall be submitted to the Quality Assurance Engineering Supervisor of Auditing. The Quality Assurance Engineering Supervisor of Auditing subsequently receives the Nonconformance Report and makes an analysis of the available data with respect to quality trends. The trend analysis and distribution of subsequent reports shall be made in accordance with the requirements of Quality Assurance Procedure QA-D.3.

6.2 Client's Trending

Copies of Nonconformance Reports (NCR's) and Deficiency Notices (DN's) from the sources mentioned above shall be transmitted to the Client's Quality Systems/Administration (QS/A). The Client's QS/A is responsible for the South Texas Project Trend Program activity in accordance with their procedure(s).

7.0 RECORDS

Nonconformance Reports shall be maintained in accordance with Section QA-I-6 of this Manual and/or approved Site Quality Assurance Instructions.

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CORRECTIVE ACTION			

1.0 SCOPE

This Section establishes the requirements for the identification, analysis, and implementation of corrective action for safety-related items and services. The Section applies to activities performed at the construction site.

2.0 GENERAL

2.1 Corrective action shall be required for identified and documented nonconformance(s) associated with safety-related items and services.


2.2 The need for corrective action may be identified from the following sources:

- a) Inspection activities performed by Site Quality Control.
- b) Site Quality Records document reviews.
- c) Quality Assurance audits performed by the Quality Assurance organization in accordance with Section QA-III-9 of this Manual.
- d) Audits of Ebasco performed by the Client or his designee or regulatory bodies.
- e) Nonconformances detected at the construction site as described in Section QA-III-6 of this Manual.
- f) Audits of the Quality Assurance and Materials Applications organizations performed by the Management Audit Committee.
- g) Surveillances performed by Site Quality Assurance.

2.3 Determination and review of corrective action items shall be made as early as possible in order to preclude the possible repetition of deficiencies.

2.4 During the review of all corrective action items, consideration shall be given to the training of personnel if it is determined that this was a cause of the deficiency.

2.5 Dissemination of corrective action information to responsible individuals shall be performed in a minimum length of time.

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CORRECTIVE ACTION			

2.6 At the discretion of the Quality Assurance Site Supervisor or his designee from the Site Quality Assurance organization, for corrective action items identified per Paragraph 2.2 of this Section, a corrective action document may be issued. This document shall be used when deficiencies detected are not isolated cases and when they are of sufficient magnitude to warrant a documented supervisory review in accordance with approved Quality Assurance procedures or instructions. This document goes beyond the standard audit action response required by audit reports.

2.7 For programmatic deficiencies detected by Site Quality Assurance, the maximum length of time for corrective action response shall be 20 working days from the receipt of notice of deficiency or nonconformance. Nonconformance reports shall be initiated and processed in accordance with Section QA-III-6 of this Manual. The maximum implementation time shall be 20 working days from the acceptance of corrective action response, unless otherwise approved by the Director Quality Assurance or his designee from the Quality Assurance organization.

2.8 It shall be the responsibility of the Quality Assurance Site Supervisor or his designee from the Site Quality Assurance organization to assure that all required corrective action is implemented in a timely manner.


2.9 A preliminary assessment of the severity of deficiencies and nonconformances detected shall be made in accordance with Company Procedure N-23 or approved site procedures. The final responsibility for evaluation of all nonconformances for possible reportability rests with the Client or his designee. Reporting of nonconformances in accordance with 10 CFR 50.55e and its subsequent evaluation will be the responsibility of the Client or his designee.

3.0 DETERMINATION AND IMPLEMENTATION METHODS

3.1 Nonconformance Reports Generated at the Construction Site

3.1.1 Site Quality Control shall perform direct inspection of activities at the construction site as required by Section QA-III-11 of this Manual.

3.1.2 Nonconformances noted during these inspection activities shall be documented on a Nonconformance Report in accordance with Section QA-III-6 of this Manual. Site Quality Control shall verify that the corrective action which has been stipulated on the completed form is implemented. Site Quality Control shall maintain a log of all required corrective action and shall review this periodically to assure the resolution of deficiencies and implementation of required corrective action.

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3.2 Site Quality Assurance Audits

Site Quality Assurance shall perform audits of activities performed at the construction site as required by Section QA-III-9 of this Manual. Site Quality Assurance shall also perform follow-up action as described in Section QA-III-9 to assure that corrective action, if required, has been accomplished. If disagreement about the type or effectiveness of corrective action exists, the problem shall be reviewed by successively higher levels of management until satisfactory resolution is obtained.

3.3 Client or His Designee, or Regulatory Agency Audits

Audits of construction site activities may be performed by the Client or his designee and/or appropriate regulatory agencies. If corrective action is required as a result of one of these audits, the Quality Assurance Site Supervisor or his designee from the Quality Assurance organization shall be responsible for obtaining a response from the cognizant individual(s) for submittal to the auditing body.

4.0 FINAL VERIFICATION OF CORRECTIVE ACTION IMPLEMENTATION

In addition to his other duties, overall responsibility for verification of the implementation of required corrective action rests with the Quality Assurance Site Supervisor or his designee from the Quality Assurance organization. He shall be responsible for performing this verification for all items indicated in Paragraph 3.0 of this Section, and shall assure that the corrective action is implemented and in a timely manner. In the event that there is a disagreement between those individuals who detect a deficiency and those responsible for the function found to be deficient, the Quality Assurance Site Supervisor shall contact successively higher levels of management as necessary until resolution is obtained.

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		CORRECTIVE ACTION	


5.0 DETERMINATION AND ANALYSIS OF QUALITY TRENDS

5.1 Ebasco's Corporate Trending

In order to prevent the recurrence of quality problems, Ebasco has developed a method for the determination and analysis of quality trends. Copies of audit reports and Nonconformance Reports (or other appropriate documentation) mentioned above shall be submitted to the Quality Assurance Engineering Supervisor of Auditing. The Quality Assurance Engineering Supervisor of Auditing subsequently receives all reports and makes an analysis of the available data with respect to quality trends. The trend analysis and distribution of subsequent reports shall be made in accordance with Quality Assurance Procedure QA-D.3.

5.2 Client's Trending

Copies of Nonconformance Reports (NCR's), Quality Finding Reports (QFR's), and Management Corrective Action Requests (MCAR's) shall be transmitted by the Site Quality Assurance organization to the Client's Quality Systems/Administration (QS/A). The Client's QS/A is responsible for the South Texas Project Trend Program activity in accordance with their procedure(s).

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1.0 SCOPE

This Section of the Quality Assurance Manual establishes the requirements for the control of special processes at the construction site. Included herein are provisions for the establishment of critical process parameters, qualification of the processes, and training and qualification of personnel who perform the functions covered by this Section.

2.0 RESPONSIBILITIES

2.1 The Quality Assurance organization shall be responsible for the following:


- 2.1.1 Developing and implementing Site Quality Control procedures and for qualifying personnel to perform inspection of special processes.
- 2.1.2 Providing technical assistance for procedure review and development as required.
- 2.1.3 Qualifying personnel performing nondestructive examination.
- 2.1.4 Performance of audits in accordance with Section QA-III-9 of this Manual to assure conformance to the requirements of this Section.

2.2 The Materials Applications organization shall be responsible for the following:

- a) Development and qualification of welding procedures.
- b) Providing technical assistance for procedure review and development as required by Site Quality Assurance and Site Quality Control.
- c) Qualification of welders and welding operators.
- d) Development of heat treating procedures.

2.3 The Construction organization shall be responsible for the following:

- 2.3.1 Implementing welding and heat treating procedures.

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2.3.2 Developing and implementing procedures for other activities classified as special processes (eg, cadwelding, chemical cleaning, flushing) and for qualifying personnel to perform those functions.

2.4 The Ebasco Site NDE Laboratory, an extension of the Materials Engineering Laboratory, is responsible for developing and implementing nondestructive examination procedures.

3.0 METHODS FOR CONTROL OF SPECIAL PROCESSES

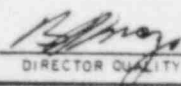
3.1 Site Special Process Procedures

3.1.1 Nondestructive examination procedures used at the construction site shall be developed by the Site NDE Laboratory and shall be reviewed and accepted by the Quality Assurance Site Supervisor or his designee, to assure compliance to the requirements of all applicable codes and standards, as a minimum. Conformance to these procedures and qualification requirements shall be verified through audits and surveillances performed by Site Quality Assurance.

3.1.2 All welding procedures used at the construction site shall be prepared by the New York Materials Applications organization. The weld procedures test material shall be prepared either at the home office or the construction site according to instructions for qualification provided by the New York Materials Applications organization.

3.1.3 Construction procedures for site implementation of welding and heat treating requirements shall be developed by the Site Welding Superintendent or his designee.


3.1.4 All welders installing safety-related components shall be qualified according to appropriate codes and standards. Welder qualification shall be performed by the Site Welding Superintendent or his designee. Verification of conformance to procedure and operator qualification requirements shall be performed in accordance with site procedures by Site Welding Superintendent (or his designee) surveillance, Site Quality Control inspection, and/or Site Quality Assurance audit and surveillance functions.

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3.1.5 All Construction procedures for site implementation of requirements for welding, heat treating, and other special processes shall be reviewed and accepted by the Quality Assurance Site Supervisor or his designee. All comments resulting from such reviews shall be resolved prior to procedure implementation.

4.0 RECORDS

Records pertaining to this Section shall be maintained in accordance with Section QA-I-6 of this Manual.

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		QUALITY ASSURANCE AUDITS	

1.0 SCOPE

Quality-related activities at the construction site and Ebasco home office are independently audited by the Quality Assurance organization. This Section establishes the requirements and guidelines for the preparation, performance, reporting, and follow-up of quality assurance audits as performed by Site Quality Assurance, home office Quality Assurance Engineering, and the Ebasco Management Audit Committee.

2.0 RESPONSIBILITIES

2.1 The Ebasco Quality Assurance Site Supervisor or his designee from the Site Quality Assurance organization shall assign qualified Site Quality Assurance personnel to perform audits of construction site activities.

2.2 The Quality Assurance Engineering Supervisor of Auditing shall assign qualified Quality Assurance personnel to perform home office audits of Ebasco site activities.

2.3 A committee chaired by the Quality Assurance Consulting Engineer shall conduct audits of the Ebasco Materials Applications and Quality Assurance organizations at the home office.

3.0 GENERAL REQUIREMENTS FOR AUDITS PERFORMED BY THE QUALITY ASSURANCE ORGANIZATION

3.1 Audit Personnel


3.1.1 Audit personnel shall be independent of direct responsibility for performance of the activity being audited.

3.1.2 Audit personnel shall be qualified to perform quality assurance audits based on experience and training as described in Quality Assurance Procedure QA-G.3.

3.2 Training and Orientation

3.2.1 Audit personnel shall have experience and training or orientation to assure their competence for performing audits. The competence of personnel to perform audits shall be developed by one or more of the following methods:

- a) Providing personnel with working knowledge of appropriate regulatory documents, practices, codes, and standards.

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- b) Training or orientation in general and specialized methods of planning and performing audits.
- c) On-the-job training under direct supervision of a Lead Auditor.

3.2.2 The requirements for training and orientation of auditors shall be in accordance with Quality Assurance procedures.

3.3 Proficiency of Lead Auditors

3.3.1 Lead Auditors performing audits shall maintain their proficiency through one or more of the following methods:

- a) Regular, active participation in the audit process.
- b) Review and study of codes, standards, and procedures related to Quality Assurance Programs and program auditing.
- c) Participation in orientation or training programs.

3.3.2 The Director Quality Assurance or his designee shall evaluate Lead Auditors in accordance with Quality Assurance Procedure QA-G.3 to assure that the Lead Auditors are maintaining their proficiency.


3.4 Scheduling of Audits

3.4.1 Audits shall be initiated as early in the life of the project or activity as practicable in order to assure timely implementation of the applicable Quality Assurance Program requirements, and to assure effective quality assurance during construction activities.

3.4.2 Audits shall be regularly scheduled on the basis of the status and safety importance of the activities to assure conformance to the Ebasco Nuclear Quality Assurance Program. Applicable elements of the Quality Assurance Program shall be audited at least annually or once within the life of the activity, whichever is shorter.

3.4.3 Supplemental audits shall be conducted when:

- a) Significant changes in the Quality Assurance Program are made.

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- b) There is evidence of significant noncompliance to the Quality Assurance Program.
- c) An assessment of the effectiveness of the Quality Assurance Program is requested.
- d) It is necessary to verify implementation of corrective action.
- e) It is considered necessary by the Quality Program Site Manager.

3.5 Planning of Audits


Preparation for audits shall include the development of a written audit plan of standard format which shall include or identify the following:

- a) Audit scope.
- b) Requirements and applicable documents.
- c) Activities to be audited.
- d) Organization to be audited.
- e) Tentative audit schedule.
- f) Approved written procedures and/or checklists which assure that the organization will be audited to the extent necessary. These procedures and/or checklists shall provide for verifying corrective action of deficiencies identified in previous audits. Audit procedures and/or checklists may be developed as part of a general audit program and need not be unique for each audit.

3.6 The Audit Team

3.6.1 The audit shall be performed by one or more individuals. A qualified Lead Auditor shall be established as the team leader for audits when teams are comprised of two or more auditors. When audits are performed by only one individual, that individual shall be a qualified Lead Auditor and considered to be the team leader. The team leader shall be responsible for:

- a) Orientation of the team.

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- b) Assuring communication between the team and the organization being audited.
- c) Coordinating the preparation and issuance of audit reports.
- d) Establishing the pace of the audit.

3.6.2 The team leader shall assure that the team is prepared prior to performing the audit. Information such as appropriate procedures, manuals and prior audit reports shall be made available to the team members. Each auditor shall be provided with any appropriate audit plans, procedures, or checklists necessary to performing the audit.

3.7 Audit Notification

The organization to be audited shall be notified of a scheduled audit and the scope of the audit. Such notification shall be given a reasonable time before the audit is to be performed.

3.8 Audit Performance

3.8.1 Checklists and/or written procedures prepared during audit planning shall be used to conduct the audit.

3.8.2 An informal pre-audit conference shall be arranged at the audit site in order to confirm audit scope and discuss the audit plan.


3.8.3 A post-audit conference shall be conducted to:

- a) Inform those audited of the audit results.
- b) Assure understanding of audit results.

3.9 Reporting of Audit Results

3.9.1 An audit report shall be compiled and shall be signed by the audit team leader. The audit report shall provide:

- a) Description of the audit scope.
- b) Identification of the auditors.

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- c) Persons contacted.
- d) A summary of the audit results, including an evaluation statement regarding the effectiveness of the Quality Assurance Program elements which were audited.
- e) Detailed description of Quality Assurance Program deficiencies and causes thereof where possible.
- f) Recommendations for correcting program deficiencies or improving the Quality Assurance Program, if possible.

3.9.2 The audit report shall be issued in a timely manner as defined in the applicable Quality Assurance procedure, but shall not exceed 30 days from the post-audit conference.

3.10 Audit Follow-Up


3.10.1 A response to the audit report shall be prepared by the responsible individual and submitted within the required time period as established in the audit report, but shall not exceed 30 days. The response shall state the corrective action taken or to be taken, and the date of completion. The audit team leader or another qualified Lead Auditor shall review the response for acceptance. As necessary, subsequent responses may be required to verify completion of corrective action.

3.10.2 Follow-up action shall be performed by a qualified Lead Auditor to:

- a) Assure that the written reply to the audit report is received.
- b) Assure that corrective action is identified and scheduled for each program deficiency.
- c) Confirm that deficiencies are resolved and corrective action, when necessary, is accomplished.

3.10.3 Follow-up action may be accomplished through written communication, re-audit, or other appropriate means.

3.10.4 Follow-up action taken shall be documented on the audit report.

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3.11 Trend Analysis of Audit Reports

The Quality Assurance Engineering Supervisor of Auditing shall make an analysis of the available data (such as the audit reports mentioned above) with respect to quality trends, and report the result of the analysis. Distribution of the trend analysis reports shall be made in accordance with the requirements of Quality Assurance Procedure QA-D.3.


4.0 SPECIFIC AUDIT REQUIREMENTS

4.1 Management Audits

4.1.1 A committee chaired by the Quality Assurance Consulting Engineer is responsible for conducting audits of Ebasco Materials Applications and Quality Assurance functions to determine compliance with the Ebasco Quality Assurance Program requirements. This committee is made up of personnel not in the Quality Assurance organization and who are qualified in accordance with criteria denoted in Ebasco Nuclear Procedure N-24. These audits will also include evaluating quality assurance policy effectiveness and assuring that appropriate implementing procedures are available and are being complied with.

4.1.2 This auditing shall be accomplished on an annual basis in accordance with the requirements of Ebasco Nuclear Procedure N-24. The management audit committee shall be comprised of at least two qualified representatives from either Ebasco Constructors Inc or Engineering, and the QA Consulting Engineer. Each committee representative shall be appointed by the respective group Vice President; however, no committee member can be directly engaged in any policy-making or administrative phase of the Ebasco Quality Assurance Program, but shall be knowledgeable in the general area of quality assurance. The committee shall be directly responsible to the Vice President Corporate Quality Programs.

4.1.3 The committee shall prepare an audit report for each audit performed. This report shall be submitted directly to the Vice President Corporate Quality Programs, with copies to other appropriate parties.

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4.1.4 The Vice President Corporate Quality Programs shall be responsible for informing the concerned Ebasco management of the results of the audits performed by the committee. He shall also be responsible for initiating the implementation of any changes or corrective action deemed necessary to improve the effectiveness of the Ebasco Nuclear Quality Assurance Program. |R7

4.2 Audits by the Quality Assurance Organization

4.2.1 Site Quality Assurance shall audit the various quality-related activities performed by Ebasco organizations on the construction site in accordance with the requirements of this Section and applicable Site Quality Assurance procedures and instructions.

4.2.2 Training and qualification records for Site Quality Control personnel shall be audited in accordance with Section QA-I-3, Paragraph 8.0, of this Manual.


4.2.3 Quality Assurance auditors shall have the authority to reject items, services, or work for nonconformance to the specification, drawing, or quality control requirements.

4.2.4 Home office Quality Assurance Engineering will conduct periodic audits and evaluations of the construction site annually in accordance with this Manual and Quality Assurance Procedure QA-D.5.2. |R7


5.0 AUDIT RECORDS

5.1 Records generated during audit preparation, performance, or follow-up shall be retained for all audits in accordance with the applicable requirements of Section QA-I-6 of this Manual and/or approved Quality Assurance procedures. Such records shall include:

- a) Audit plans and checklists.
- b) Audit reports.
- c) Written replies to audit reports.
- d) Status of required corrective action.
- e) Other documents which support audit findings and corrective action as appropriate.

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5.2 Records of training and experience of auditors shall be maintained for all personnel who are performing audits or who have previously performed audits. These shall be retained for the same period of time as required for the audit reports with which the auditors are associated. Maintenance and retention shall be in accordance with Quality Assurance Procedure QA-G.3.

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1.0 SCOPE

1.1 This Section establishes the requirements for the identification and control of safety-related items at the construction site.

1.2 The activities described herein shall be performed in accordance with written instructions, procedures, and/or drawings that have been developed and accepted in accordance with the requirements of Section QA-III-1 of this Manual.

2.0 RESPONSIBILITIES

2.1 Site Quality Control shall be responsible to perform the following functions in accordance with written procedures:


- a) Assure that items received from the Client or his designee at the construction site are properly identified and are accompanied by appropriate documentation traceable to the items.
- b) Assure that all items shall be physically identified in accordance with Paragraph 3.0 of this Section of the Manual, and appropriate written procedures. |R7
- c) Assure that identification of items shall be transferred to inspection and test records and as-built documents in a manner sufficient to provide the required traceability.
- d) Assure that items are handled and stored in accordance with the requirements of Section QA-III-14 of this Manual so as to maintain identification.

2.2 The Quality Assurance Site Supervisor or his designee from the Site Quality Assurance organization shall be responsible for the performance of reviews and audits in accordance with Section QA-III-9 of this Manual to assure compliance to the requirements of this Section.

3.0 GENERAL

3.1 Documented Quality Control procedures require that items shall be physically identified by the following means, as applicable: |R7

- a) Stenciled or etched markings
- b) Strip markings

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- c) Imprinted tape
- d) Tagging
- e) Stamping
- f) Color-coding
- g) Records traceable to the items
- h) Procedural control
- i) Other appropriate means in accordance with approved Site Quality Control procedures

3.2 When it is impractical to physically identify individual small items, these may be identified as to heat numbers, batch, lot, or specification by applying markings to bags, bins, tanks, or other suitable containers.

3.3 Identification of items shall provide the required degree of traceability to pertinent documents.


3.4 All markings shall be clear, unambiguous, and indelible and shall not affect the function of the item when applied.

3.5 When an item is subdivided, markings shall be transferred to each part of the item.

3.6 Markings shall not be obliterated or hidden by surface treatment or coatings unless other means of identification is substituted.


3.7 All safety related items and materials shall be controlled by one or more of the following;

- a) Uniquely identifiable and traceable.
- b) Physically marked items are not traceable but readily retrievable.
- c) Physically identified as to type and users tested
- d) Identifiable as to type, by some physical characteristic or other administrative control.

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4.0 RECORDS

Records pertaining to this Section shall be maintained in accordance with Section QA-I-6 of this Manual.

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		INSPECTION	

1.0 SCOPE

This Section establishes the requirements for the inspection of safety-related items and services at the construction site as necessary to assure compliance with documented instructions, procedures, specifications, drawings, codes, and regulatory requirements.

2.0 RESPONSIBILITIES

2.1 Site Quality Control shall be responsible for the following:

- a) Development of written procedures for the inspection of safety-related items and services which list the required inspection activities when existing inspection documents such as standard specifications and drawings do not provide an adequate basis for inspection.
- b) Submittal of inspection procedures to Ebasco Site Quality Assurance for review and acceptance in accordance with Section QA-III-1 of this Manual.
- c) Preparation of reports for all inspections made.
- d) Approval processing of inspection procedures and revisions thereto.


2.2 Site Quality Control shall be responsible for performing inspection activities in accordance with appropriate inspection documents.

2.3 Qualification of inspection personnel shall be in accordance with applicable Quality Assurance procedures and Paragraph 4.0 of this Section of the Manual.

2.4 The Quality Assurance Site Supervisor or his designee from the Site Quality Assurance organization shall be responsible for the performance of reviews and audits in accordance with Section QA-III-9 of this Manual to the extent necessary to assure compliance with the requirements of this Section.

3.0 GENERAL

3.1 Inspection documents shall be prepared based upon the quality requirements contained in specifications, quality control documents and procedures, and applicable codes and standards.

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3.2 If mandatory inspection hold points are required, the specific hold points shall be indicated on the inspection documents.

3.3 Inspection documents shall specify or reference as a minimum the activities to be performed, acceptance criteria, by whom activities are performed, and the sequence in which the activities are to be performed.

3.4 Where mandatory inspection hold points are indicated on inspection documents or procedures, work may continue beyond a hold point only with the written approval of the Quality Control Site Supervisor or his qualified designee.


3.5 Inspection reports shall indicate the acceptability status of the items or services inspected with respect to meeting the applicable quality requirements.

3.6 When inspections are to be performed by use of a sampling program (ie, to determine the acceptability of a group of like-items based upon the results of an inspection of a representative number of items from the group), the sample size shall be identified on the inspection documents. Justification for this sampling shall be based upon recognized standard construction practices and successful past experience, as well as the complexity and function of the activity, item, or service to be inspected.

4.0 TRAINING AND QUALIFICATION OF INSPECTION PERSONNEL

4.1 Inspection personnel shall have experience and training to assure their competence for performing inspection. The competence of personnel to perform inspections shall be developed by one or more of the following methods:

- a) Providing personnel with working knowledge of appropriate regulatory documents, practices, codes, and standards.
- b) Training or orientation in general and specialized methods of planning and performing inspections.
- c) On-the-job training under direct supervision of an experienced, qualified inspector.

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4.2 The requirements for training and qualification of inspectors shall be in accordance with applicable Quality Assurance procedures, and qualification of inspectors shall be based upon consideration of the following:

- a) Records of education and experience.
- b) Test results, where applicable.
- c) Results of capability determination.

4.3 Site Quality Control shall be responsible for scheduling and coordinating training for quality control personnel in advance of implementation of the applicable inspection documents. This training shall be conducted in sufficient detail and with sufficient frequency to assure that the personnel responsible for the inspection fully understand the requirements contained in the applicable inspection documents.

4.4 Inspectors performing inspections shall maintain their proficiency through one or more of the following methods:

- a) Regular, active participation in the inspection process.
- b) Review and study of codes, standards, and procedures related to Quality Assurance Programs and program inspection.

4.5 The Director Quality Assurance or his designee shall periodically evaluate inspectors in accordance with applicable Quality Assurance procedures to assure that the inspectors are maintaining their proficiency.

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5.0 RECORDS

5.1 All inspection documents shall be maintained in accordance with Section QA-I-6 of this Manual.

5.2 Records of training, experience, and certification of inspectors shall be maintained for all personnel who are performing inspection or who have previously performed inspections. These records shall be retained for the same period of time as required for the inspection reports with which the inspectors are associated.

EBASCO SERVICES INCORPORATED		NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2	SECTION QA-III-12
APPROVAL <i>[Signature]</i> DIRECTOR QUALITY ASSURANCE	TEST CONTROL		REVISION 4
			DATE 7/5/84

1.0 SCOPE

1.1 This Section describes the system employed at the construction site which assures that tests required to demonstrate that items will perform satisfactorily in service are identified and documented. The requirements of this Section apply to all phases of the testing program at the construction site, including, but not limited to: functional testing, proof testing, acceptance testing, and operational testing.

1.2 These tests shall be performed in accordance with written test procedures which include or reference the requirements and acceptance limits contained in applicable design documents.


2.0 RESPONSIBILITIES

2.1 Site Quality Control procedures shall provide for the following:

- a) Assuring that all prerequisites for the given test have been met.
- b) Use of trained personnel to witness tests.
- c) Identification of test equipment and the item to be tested.
- d) Checking the condition of test equipment and the item to be tested.
- e) Use of devices calibrated in accordance with Section QA-III-13 of this Manual for the performance of tests.
- f) Performance of tests under proper environmental conditions; eg, cleanliness.
- g) Documentation of test results.
- h) Acceptance criteria for test requirements.

2.2 Site Quality Assurance shall review and comment on the written procedures for tests covered by this Section. All comments shall be resolved prior to implementation of the procedures. These test procedures shall be reviewed in accordance with Site Quality Assurance procedures and/or instructions for the inclusion of:

- a) Provisions for assuring that all test prerequisites have been met.
- b) Identification of items to be tested.

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APPROVAL	 DIRECTOR QUALITY ASSURANCE		REVISION 4 DATE 7/5/84


- c) Identification of calibrated devices or equipment to be used during testing.
- d) Provisions for checking condition of test equipment and item to be tested.
- e) Proper environmental conditions under which test is to be performed.
- f) Test methods.
- g) Operations to be performed.
- h) Inclusion of, or reference to, acceptance criteria.
- i) Data to be recorded.
- j) Requirements for qualified and/or certified personnel.

2.3 Test reports shall be reviewed and signed-off by Ebasco Quality Control in accordance with written procedure requirements to assure that test requirements have been satisfied.

2.4 The Quality Assurance Site Supervisor or his designee from the Site Quality Assurance organization shall be responsible for the performance of reviews and audits in accordance with Section QA-III-9 of this Manual to the extent necessary to assure compliance to the requirements of this Section.

3.0 RECORDS

All records pertaining to this Section shall be maintained in accordance with Section QA-I-6 of this Manual.

EBASCO SERVICES INCORPORATED		NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 CONTROL OF MEASURING AND TESTING EQUIPMENT	SECTION QA-III-13
APPROVAL  DIRECTOR QUALITY ASSURANCE			REVISION 4 DATE 7/5/84

1.0 SCOPE

1.1 This Section describes the requirements for control, calibration, adjustment, and maintenance of measuring and testing devices used at the construction site for performing tests and inspections of safety-related items. These devices shall be calibrated and adjusted at specified, predetermined intervals using equipment having known valid relationships to nationally recognized standards.

1.2 The activities described herein shall be performed in accordance with written instructions, procedures, and/or drawings that have been developed and accepted in accordance with the requirements of Section QA-III-1 of this Manual.

2.0 RESPONSIBILITIES

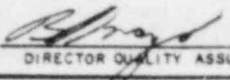
Site Quality Control shall be responsible for performance of the following:

2.1 Establish a list which includes the measuring and testing devices to be calibrated and the frequency of calibration of these devices. The method and interval of calibration shall be based on the type of device, stability characteristics, required accuracy, and other conditions affecting measurement control.

2.2 Assure that the measuring and testing devices used are of the proper range, type, and accuracy to verify conformance to established requirements.

2.3 Maintain a master calibration file for each measuring and testing device which includes at least the following information:

- a) Name of device.
- b) Device serial and/or identification number.
- c) Frequency of calibration.
- d) Date of last calibration.
- e) Name of party performing last calibration.
- f) Due date for next calibration.

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APPROVAL	 DIRECTOR QUALITY ASSURANCE		REVISION 4 DATE 7/5/84

- g) Condition of device at time of calibration and results of calibration.
- h) Standard used for calibration.
- i) Applicable calibration procedure.

2.4 Assure that all measuring and testing devices are marked with the identification number and when possible with calibration due dates. When this marking is not possible, alternative methods of tracing the device to its calibration due date (such as color-coding) shall be employed.

2.5 Assure that all measuring and testing devices are calibrated in accordance with the requirements of this Section and that the required documentation is provided.

2.6 Develop and maintain a system for issuance, collection, and return of all measuring and testing devices. This system shall provide for the identification of personnel withdrawing devices, methods for issuing devices, and methods for the collection and/or return of devices at prescribed calibration times or as otherwise required.

3.0 GENERAL


3.1 The standard of calibration shall be traceable to the National Bureau of Standards (NBS) or a nationally recognized standard. If no national standards exist, the basis for calibration shall be documented and traceable to the equipment manufacturer's recommended standards.

3.2 Measuring and test equipment (M&TE) shall be calibrated against working standards having tolerances not greater than one fourth (1/4) the tolerance of the M&TE. Tolerances greater than one fourth (1/4) shall be acceptable when limited by the state of the art. Reference standards shall be calibrated against higher-level standards of closer tolerance.

3.3 Methods shall be employed to assure proper handling, storage, and care of the M&TE in order to maintain its required accuracy.

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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 CONTROL OF MEASURING AND TESTING EQUIPMENT	SECTION QA-III-13
APPROVAL	 DIRECTOR QUALITY ASSURANCE		REVISION <u>4</u> DATE <u>7/5/84</u>

3.4 Any M&TE found to be out-of-calibration shall be recalibrated. When M&TE is found to be out-of-calibration, damaged, lost, or stolen, an evaluation shall be made to ascertain the validity of previous inspection or test results and the acceptability of components inspected and/or tested since the last calibration check. When it is necessary to assure the acceptability of suspect items, the original required inspections and/or tests shall be repeated using properly calibrated equipment. Suspect items on which a questionable device was used shall be listed on the Nonconformance Report (NCR) or Deficiency Notice (DN), as applicable.


3.5 If any of the M&TE is consistently found to be out-of-calibration, it shall be repaired or replaced.

3.6 Inspection and test reports shall include identification of M&TE used to perform the inspections and/or tests.

3.7 The Quality Assurance Site Supervisor or his designee from the Site Quality Assurance organization shall be responsible for the performance of reviews and audits in accordance with Section QA-III-9 of this Manual to the extent necessary to assure compliance with the requirements of this Section.

4.0 RECORDS

Records pertaining to this Section shall be maintained in accordance with Section QA-I-6 of this Manual.

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APPROVAL  DIRECTOR QUALITY ASSURANCE			REVISION 5 DATE 7/5/84

1.0 SCOPE

1.1 This Section describes the methods employed during receiving, handling, storage, and installation to assure that all safety-related items received by Ebasco at the construction site will be usable when needed. These requirements apply to both items received by Ebasco from the Client or his designee and Ebasco site-fabricated subassemblies which require temporary storage before assembly or installation. They also apply to both on-site and off-site facilities which are used for the storage of items under control of the construction forces.


1.2 The activities described herein shall be performed in accordance with written instructions, procedures, and/or drawings that have been developed and accepted in accordance with the requirements of Section QA-III-1 of this Manual.

1.3 The storage of safety-related items maintained in facilities under the direct control of the Client or his designee is excluded from the scope of this Manual.

2.0 RESPONSIBILITIES

2.1 The Ebasco Construction organization shall be responsible for the following:

- a) Performance of receiving, handling, storage, maintenance, and cleaning activities in accordance with specifications provided by the Client or his designee and/or code requirements.
- b) Development of methods for special handling (off-loading) in accordance with manufacturer's recommendations and/or specifications provided by the Client or his designee.
- c) Establishing storage areas to meet levels as briefly described below:
 - 1) Level A - Indoor, controlled environment.
 - 2) Level B - Indoor, heated and ventilation controlled.
 - 3) Level C - Indoor or equivalent, ventilation controlled.
 - 4) Level D - Outdoor.

EBASCO SERVICES INCORPORATED		NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 CONTROL OF RECEIVING, HANDLING, AND STORAGE	SECTION QA-III-14
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- d) Development of general storage plans which list types of items and their intended storage locations and levels. Such plans shall be prepared prior to receipt of items from the Client or his designee.

2.2 Ebasco Site Quality Control shall be responsible for the following:

- a) Qualification of personnel performing inspection functions applicable to receiving, handling, and storage.
- b) Assigning qualified quality control personnel for performance of inspection and/or surveillance of receiving, handling, storage, maintenance, and cleaning activities.
- c) Performing and documenting inspection and/or surveillance activities in accordance with approved checklists to verify that receiving, handling, storage, maintenance, and cleaning activities, as described in Paragraph 2.1 of this Section, are performed in accordance with project requirements.
- d) Establishing and implementing methods for rejection of nonconforming items which provide adequate means of identifying the item as nonconforming and physically segregating the item where practical. When segregation is not practical, a status type indicator shall be used. Application and removal of status type indicators shall be by quality control personnel only.

2.3 Ebasco Site Quality Assurance shall be responsible for the performance of audits in accordance with Section QA-III-9 of this Manual to the extent necessary to assure compliance to the requirements of this Section.

2.4 The Client or his designee is responsible for procurement and initial receiving inspection of all safety-related items. However, if requested in writing by the Client or his designee to perform initial receiving inspection of safety-related items upon their arrival at the job site, Ebasco will conduct a complete program that covers the full parameters of this Section. Otherwise, Ebasco shall conduct a receiving inspection program as is applicable and in accordance with approved site procedures.

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3.0 RECEIVING INSPECTION

3.1 Safety-related items utilized for fabrication, erection, installation, or modification shall be subjected to receiving inspection to assure conformance to the requirements of the applicable drawings, specifications, and other documents as required. Where source inspection is not performed, receiving inspection at site for acceptability will be performed.

3.2 Inspection Requirements

Receiving inspection procedures shall be prepared by the Quality Control Site Supervisor or his designee in accordance with the requirements of this Manual. These procedures shall provide instructions and checklists for performing receiving inspection and shall include at least the following activities:

- a) Documentation review to assure that the documentation package has been received and that a signed "Release for Shipment" form accompanies the items received, when applicable.
- b) Visual examination.
- c) Marking and tagging for traceability.
- d) Testing when specified.
- e) Preparation for storage.


4.0 HANDLING

4.1 Handling practices applied to safety-related items shall assure minimum possibility for damage or loss of environmental protection.

4.2 Inspection Requirements

Site Quality Control procedures shall provide for at least the following:

- a) Review of handling requirements for safety-related items.
- b) Performance of appropriate inspections to assure that handling operations have not jeopardized item integrity.

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APPROVAL  DIRECTOR OF QUALITY ASSURANCE			REVISION 5
			DATE 7/5/84

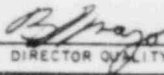
5.0 STORAGE AND IN-PLACE PROTECTION

5.1 All safety-related items shall be stored in locations and storage levels as outlined below except for those items released from storage and placed in their permanent locations which shall be cared for, maintained, and inspected in accordance with design specifications and the applicable approved procedures. In-place protection in permanent location is permitted for large items such as equipment, provided that the permanent location is ready for the item installation. If the permanent location does not afford the required level of protection, additional protection shall be provided to prevent degradation of the item. For in-place protection purposes, a permanent location shall be considered to be within the room and/or immediate vicinity in which the item is to be permanently installed.

5.2 Inspection Requirements

Site Quality Control procedures shall provide for at least the following:

- a) Monitoring of the storage levels listed below:
 - 1) Level A - Indoor, controlled environment.
 - 2) Level B - Indoor, heated and ventilation controlled.
 - 3) Level C - Indoor or equivalent, ventilation controlled.
 - 4) Level D - Outdoor.
- b) Monitoring maintenance of storage areas to control such items as the following:
 - 1) Physical condition of storage area.
 - 2) Access to storage area.
 - 3) Fire protection.
 - 4) Prohibited materials.


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- c) Inspection of stored items and items protected in-place to assure their integrity.
- d) Verification of general storage plans which list types of items and their intended storage locations and levels.
- e) Monitoring of storage areas to maintain proper segregation of materials. Items shall retain an appropriate identification for retrievability and inventory control, as applicable to the nature and use of the material.
- f) Monitoring of provisions for preservation of items, as required by special conditions.
- g) Verification that the withdrawal of any component, assembly, system, or materials from the Client's or his designee's warehouse or storage areas shall be by the Requisition for Stored Items completed by the responsible supervisor or his designated representative. The request shall identify the material and applicable references to a drawing or specification.

5.3 The Client or his designee shall be responsible for the establishment of storage levels, maintenance, and any other applicable handling and storage requirements. The Ebasco Construction organization is responsible for developing and implementing procedures addressing these requirements.

6.0 RECORDS

Records pertaining to this Section shall be maintained in accordance with Section QA-I-6 of this Manual.

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APPROVAL  DIRECTOR QUALITY ASSURANCE			REVISION 3 DATE 7/5/84
		INSPECTION, TEST, AND OPERATING STATUS	

1.0 SCOPE

1.1 This Section establishes requirements for identifying and documenting the status of inspections and tests performed on safety-related items at the construction site and the status of the readiness of these items for initial operation.

1.2 The activities described herein shall be performed in accordance with written instructions, procedures, and/or drawings that have been developed and accepted in accordance with the requirements of Section QA-III-1 of this Manual. Procedures and instructions shall include identification and authority of the individuals or groups responsible for application and removal of status indicators.

2.0 RESPONSIBILITIES

Site Quality Control shall be responsible for the following:

2.1 Develop and implement a system for maintaining the status of safety-related items through the use of status indicators such as physical location and tags, markings, work travelers, stamps, or inspection records. This system shall provide for the identification and maintenance of the status of inspections and tests performed on these items throughout fabrication, installation, and erection. This system shall provide methods which assure that only items that have passed the required inspections and tests are used, installed, or operated. Where physical tagging is either impractical or insufficient, procedural control or other appropriate means for maintaining item status shall be employed.

2.2 Control and maintain a log of the issuance and removal of status indicators such as tags.

2.3 Develop and implement plans for the witnessing and documenting the results of inspections and tests.

2.4 Provide methods for assuring that all required inspections and tests are performed (checklists, travelers, etc).

2.5 Develop and implement a system for marking and tagging to indicate the initial operating status of safety-related items which are in test, rework, or other initial operating status, so as to prevent inadvertent operation.

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APPROVAL <i>[Signature]</i> DIRECTOR QUALITY ASSURANCE	INSPECTION, TEST, AND OPERATING STATUS		REVISION 3
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2.6 Develop and implement a system for marking and tagging of all safety-related items during preoperational testing. This system shall provide for maintaining records of status indicators placed on boundaries or within systems turned over to the Client or his designee.

2.7 Maintain a log containing entries of all systems turned over from construction forces for preoperational testing. This log shall be maintained for quality status reference.

3.0 GENERAL

3.1 Quality Control procedures shall require that inspection and test status be maintained by the use of status indicators such as tags, markings, travelers, stamps, inspection records, work sequence plans, or other appropriate means.

3.2 The progress of fabrication, installation, erection, inspection, and test shall be entered on appropriate documents. Provisions shall be made for updating these documents to reflect current conditions.


3.3 Nonconforming safety-related items shall be clearly identified and marked and shall be processed in accordance with Section QA-III-6 of this Manual.

3.4 Records of tests and inspection results shall be prepared and maintained in an orderly and systematic manner.

3.5 The Quality Assurance Site Supervisor or his designee from the Site Quality Assurance organization shall be responsible for the performance of reviews and audits in accordance with Section QA-III-9 of this Manual to the extent necessary to assure compliance to the requirements of this Section.

4.0 RECORDS

Records pertaining to this Section shall be maintained in accordance with Section QA-I-6 of this Manual.

EBASCO SERVICES INCORPORATED		NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2	SECTION Appendix I
APPROVAL	 DIRECTOR QUALITY ASSURANCE		REVISION 3 DATE 7/5/84
		TERMS AND DEFINITIONS	

This Appendix contains certain terms and their definitions used in this Manual that are important to the uniform understanding of the Manual and its application. Where a term is used to convey a different intent than that related herein, clarification must be provided at the point of application:

ACTIVITIES AFFECTING QUALITY (Quality-related activities) - Activities affecting the quality of safety-related items, including designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, and testing.

AUDIT - A planned and documented activity performed in accordance with written procedures or checklists to verify, by examination and evaluation of objective evidence, that applicable elements of a quality assurance program have been developed, documented, and effectively implemented in accordance with applicable regulatory documents, guidelines, or requirements. An audit does not include surveillance or inspection for the purpose of process control or product acceptance.

AUDITS (INTERNAL) - Audits performed by Ebasco personnel on those Ebasco organizations that are governed by the Ebasco Quality Assurance Program.

CLIENT OR HIS DESIGNEE - "Client" is defined as Houston Lighting and Power Company and "his designee" as Bechtel Energy Corporation.


CONSTRUCTION OPERATION - Activities related to construction of a nuclear power station.

EBASCO HOME OFFICE - Office where project support and related functions are performed at Ebasco, New York.

INSPECTION - A phase of quality control which by means of examination, observation, or measurement determines the conformance of items or services to predetermined quality requirements.

INSTRUCTIONS - Written descriptions of activities to be performed, including job specifications, work instructions, shop construction drawings, job tickets, planning sheets, operating or procedure manuals, test procedures, or other written forms, to assure that the activity is adequately described.

ITEM - Any level of unit assembly, including structure, system, subsystem, component, part, or material.

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NONCONFORMANCE - A deficiency in characteristic, documentation, or procedure which renders the quality of an item or service unacceptable. Items discovered to be out-of-tolerance of specification at routine checkpoints of an inspection process shall not be considered as a nonconformance, provided:

- a) The conditions are corrected prior to acceptance of the work.
- b) The work does not proceed beyond the checkpoint until the correction is made.
- c) The condition does not affect work previously accepted.
- d) No violation of procedure or Code is evident.

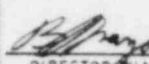
QUALITY ASSURANCE (QA) RECORDS - are those records which furnish documentary evidence of the quality of items and of activities affecting quality. A document is considered a quality assurance record when the document has been completed. QA records may be either the original or a reproduced copy.

QA RECORDS (LIFETIME) - are those records which meet one or more of the following criteria:

- a) Those which would be a significant value in demonstrating capability for proper functioning of safety-related items.
- b) Those which would be of significant value in maintaining, reworking, repairing, replacing, or modifying the item.
- c) Those which would be of significant value in determining the cause of an accident or malfunction of an item.
- d) Those which provide required baseline data for in-service inspection.

QA RECORDS (NONPERMANENT) - are those records which meet all of the following criteria:

- a) Those of no significant value in demonstrating capability for safe operation.
- b) Those of no significant value in maintaining, reworking, repairing, replacing, or modifying the item.

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		TERMS AND DEFINITIONS	


- c) Those of no significant value in determining the cause of malfunction of an item.
- d) Those which do not provide baseline data for in-service inspection.

QUALITY TREND - A consistent reporting of conformance or nonconformance with applicable criteria attributed to a specific organizational unit.

SAFETY-RELATED ITEM - Any item designated by the Client or his designee, in accordance with the guidelines established by the Licensing Department of the Client or his designee, to be Safety Class 1, 2, 3, Seismic Category I, or electrical Class IE and any other items as designated by the Licensing Department and indicated as safety-related in the PSAR or FSAR.

SERVICE - Performance of nuclear safety-related activities such as fabrication, inspection, nondestructive examination, installation, and test.

SPECIAL PROCESS - A special process is a fabrication, testing, or inspection operation whose correct performance is governed by parameters established during qualification testing for the operation, eg, welding and nondestructive testing.

EBASCO SERVICES INCORPORATED		NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL HOUSTON LIGHTING AND POWER COMPANY SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNITS 1 & 2 EBASCO EXCEPTIONS TO US NUCLEAR REGULATORY GUIDES AND ANSI STANDARDS INDICATED IN SECTION QA-I-1	SECTION Appendix II
APPROVAL  DIRECTOR QUALITY ASSURANCE			REVISION 4 DATE 7/5/84


EXCEPTIONS TO ANSI N45.2.5-1974:

1. ANSI N45.2.5-1974, Section 4.8, states "Pumped concrete must be sampled from the pump line discharge." In lieu of this statement, in-process strength samples of pumped concrete are taken at the delivery point. Correlation tests of air content, slump, and temperature are performed to verify these plastic properties of the concrete at the placement point in accordance with the following frequency requirements:
 - A. A minimum of two correlation tests are performed for each pumped placement exceeding 200 cu. yds.
 - B. Otherwise, a minimum of two correlation tests per week are performed when any individual pumped placement during a week requires delivery of more than one truckload of concrete.
 - C. During a week when a pumped placement exceeding 200 cu. yds. is made, the correlation tests performed on that placement will satisfy the weekly requirement for performing two correlation tests as specified in Item B above.

When any of the specified limits and/or tolerances on loss of air content, slump, or temperature are exceeded at the placement point, correlation tests between the delivery point and placement point will be accomplished for each 100 cu. yds. of concrete placed as long as limits and tolerances are exceeded. If two consecutive tests are out-of-tolerance, corrective action will be implemented to adjust the limits for the concrete entering the pump intake so that no concrete from the subsequent trucks will enter the pump intake as long as the tolerances are exceeded.

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

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

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EXCEPTIONS TO ANSI N45.2.1-1973:

3. Section 2.1, Planning. The required planning is frequently performed on a generic basis for application to many installations on one or more projects. This results in standard procedures or plans for installation and inspection and testing which meet the requirements of the standard. Individual plans for each item or system are not normally prepared unless the work operations are unique. However, standard procedures or plans will be reviewed for applicability in each case. Installation plans or procedures are also limited in scope to those actions or activities which are essential to maintain or achieve required quality. This is consistent with Section 2, Paragraphs 2 and 3, of ANSI N45.2-1971 which provides for examination, measurement, or testing to assure quality or indirect control by monitoring of processing methods. However, final cleaning or flushing activities will be performed in accordance with procedures specific to the system.
4. Section 4, Pre-Installation Cleanness. This section states, "Items should not be delivered to the point of installation site sooner than necessary unless the installation location is considered a better storage area." As an alternate to this requirement items may be delivered to the installation site sooner than absolutely necessary when determined to be advantageous for other considerations, for example, reduced handling or easier access, thereby reducing susceptibility to handling damage. In all such cases, equipment stored in place will be protected in accordance with Section 5 of ANSI N45.2.1-1973.
5. Section 3.1.2, Cleanness Classifications - Class B. Ebasco interprets the lighting level of 100 footcandles to be guidance. It is Ebasco's normal practice that the lighting level for determining "metal clean" of accessible surfaces of piping and components is determined by the inspector. Typically he uses a standard two-cell flashlight supplemented by other lighting as he deems necessary.

EXCEPTIONS TO ANSI N45.2.2-1972:

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

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

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

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

8. Section 5.5, Correction of Nonconformances. This section provides for "rework" and "use-as-is" dispositions for nonconforming items. As an alternate, the "repair" disposition (as defined in ANSI N45.2.10-1973) will also be used.
9. Section 6.2.4, Storage of Food and Associated Items. Controlled areas, within storage areas, will be established for the storage of food, drink, and salt tablets. These areas will be controlled through normal supervision and inspection.
10. In Section 8, the control of documentation and records shall be in accordance with Section QA-I-6 of the Ebasco Nuclear Quality Assurance Program Manual for the South Texas Project.
11. Appendix A3.4.2, Inert Gas Blankets. There may be cases involving large or complex shapes for which an inert or dry air purge flow is provided rather than a static gas blanket in order to provide adequate protection due to difficulty of providing a leakproof barrier. In these cases a positive pressure purge flow may be utilized as an alternative to the leakproof barrier.

EXCEPTIONS TO ANSI N45.2.3-1973:

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

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


EXCEPTIONS TO ANSI N45.2.4-1972:

14. Section 1.2, Applicability. The standard is applied to the items and systems identified in Paragraph 1.1.1 and to additional systems depending on the nature and scope of the work to be performed and the importance of the item or service involved.
15. Section 2.1, Planning. The required planning is frequently performed on a generic basis for application to many installations on one or more projects. This results in standard procedures or plans for installation and inspections and testing which meet the requirements of the standard. Individual plans for each item or system are not normally prepared unless the work operations are unique. However, standard procedures or plans will be reviewed for applicability in each case. Installation plans or procedures are also limited in scope to those actions or activities which are essential to maintain or achieve required quality.

EXCEPTIONS TO ANSI N45.2.8-1975:

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

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

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

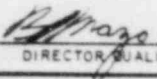
- a) "Installation site" or "site" will be interpreted the same as "construction site." When applied to documents, these may be at the central office or work area document control station.
- b) Installation area - Immediate proximity of location where work is to be performed.

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

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

EXCEPTIONS TO ANSI N45.2.9-1974:

19. Section 1.4, Definitions. Quality Assurance Records - A document is considered complete when it has finished full processing and has been issued for use in design, procurement, construction, or manufacturing.
20. Section 1.4, Definitions. Authenticated Records - Those records which are clearly identified as a statement by the individual or organization holding responsibility. Handwritten signatures are not required if the document or printout is clearly identified as a statement by the reporting individual or organization.
21. For Appendix A, an installation shall be considered to be in an "as constructed" condition if it is installed within the tolerances established by Project Engineering indicated in the design output documents.

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EXCEPTIONS TO ANSI N45.2.12-1977:

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

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