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EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION
APPROVAL: CHAIRMAN QUAL. PROGRAM COMM. / DIRECTOR, QUALITY ASSURANCE	THIS TABLE OF CONTENTS ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 TABLE OF CONTENTS	REVISION 4 DATE 11/1/83

Part I - General

Section	Title	Rev No.	Date
QA-I-1	Quality Assurance Program	4	11/1/83
QA-I-2	Organization and Responsibilities	5	7/31/81
QA-I-3	Personnel Indoctrination and Training Program in Quality Assurance	3	6/18/82
QA-I-4	Design Control	1	8/11/77
QA-I-5	Quality Assurance Evaluation of Suppliers/Contractors	2	10/8/82
QA-I-6	Quality Assurance Records	0	3/14/75

Part II - Engineering Offices 4*

Section	Title	Rev No.	Date
QA-II-1	Instructions, Procedures & Drawings	2	3/4/81
QA-II-2	Document Control	2	3/4/81
QA-II-3	Procurement Document Control	0	3/14/75
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QA-II-5	Supplier Surveillance	2	3/4/81
QA-II-6	Nonconformances	2	6/18/82
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QA-II-8	Control of Special Processes	2	3/4/81
QA-II-9	Quality Assurance Audits	4	6/18/82

* PART II - ENGINEERING OFFICES ADDED TO MANUAL 11/1/83

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL THIS TABLE OF CONTENTS ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 TABLE OF CONTENTS	SECTION

Part III - Construction Site

EBASCO SERVICES INCORPORATED

Two World Trade Center New York, N Y 10048

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EBASCO

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 Materials Engineering and Quality Assurance as delegated to him by the Executive Vice President - Operations. The Quality Program Committee has been established under the auspices of the Exectuve Vice President - Operations, consisting of representatives of designated Vice Presidents. The committee is permanent and its Chairman shall be the Vice President Materials Engineering and Quality Assurance.

W Wallace III
President

April 24, 1981

EBASCO SERVICES
INCORPORATED

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FOREWORD

This manual represents Ebasco Quality Program policy and requirements for the design and construction of nculear power stations under the jurisdiction or in accordance with the requirements of the United States Nuclear Regu'atory 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 Engineering Department 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 docment 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 Materials Engineering and Quality Assurance as delegated to him by the Executive Vice President - Operations. The Chief Quality Assurance Engineer 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 Materials Engineering and Quality Assurance or the Executive Vice President - Operations.

The Chief Quality Assurance Engineer 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 Chief Quality Assurance Engineer 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 Chief Quality Assurance Engineer, 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.

EBASCO SERVICES
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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 purporse 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

B E Tenzer
Vice President Materials Engineering
and Quality Assurance

April 27, 1981

FOR INFORMATION ONLY

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.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-I-1
APPROVAL CHAIRMAN, QUAL. PROGRAM COMM. / DIRECTOR, QUALITY ASSURANCE	THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 QUALITY ASSURANCE PROGRAM	REVISION 4 DATE 11/1/83

1.0 SCOPE

The purpose of this section is to describe the Quality Assurance Program Ebasco Services Incorporated and its applicability to safety-related activities and services performed by Ebasco in the design and construction of nuclear power stations. This Program has been designed to meet the requirements of the United States Nuclear Regulatory Commission 18 Quality Assurance Criteria of 10 CFR 50, Appendix B, and ANSI N45.2, "Quality Assurance Requirements for Nuclear Power Plants," and is structured in accordance with the guidance contained in WASH-1283, "Guidance on Quality Assurance Requirements During Design and Procurement Phase of Nuclear Power Plants" (Gray Book), Revision 1, dated May 24, 1974 and WASH-1309 "Guidance on Quality Assurance Requirements During the Construction Phase of Nuclear Power Plants" (Green Book), Revision 0, dated May 10, 1974. It has also been designed to meet the regulatory position of the following US NRC Regulatory Guides:

1. Reg Guide 1.28 Rev 0 (6-72)
2. Reg Guide 1.30 Rev 0 (8-72)
3. Reg Guide 1.37 Rev 0 (3-73)
4. Reg Guide 1.38 Rev 2 (5-77)
5. Reg Guide 1.39 Rev 2 (9-77)
6. Reg Guide 1.58 Rev 0 (8-73)
7. Reg Guide 1.64 Rev 2 (6-76)
8. Reg Guide 1.70 Rev 2 (9-75)
9. Reg Guide 1.74 Rev 0 (2-74)
10. Reg Guide 1.88 Rev 2 (10-76)
11. Reg Guide 1.94 Rev 1 (4-76)

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 US NRC Regulatory Guide 1.28, Rev 0. The Ebasco Quality Assurance Program is comprised of: The Ebasco Nuclear Quality Assurance Program Manual, written corporate policies, procedures, departmental instructions, and drawings related to quality. Table I-1.2 provides a matrix of the principal implementing procedures with 10 CFR 50, Appendix B. Table I-1.3 is a listing of these procedures by title.

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 references as provided by 10 CFR 50.32.

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

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

2.0 QUALITY ASSURANCE ENGINEERING

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

3.0 QUALITY PROGRAM COMMITTEE

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

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

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

The Committee shall be responsible for and shall have authority to make any changes to the policies and procedures of the Ebasco Quality Program. All changes or revisions to the Ebasco Quality Program shall be processed through the Quality Program Committee by the Quality Program Coordinator.

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

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

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

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

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

4.0 GENERAL

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

4.2 It shall be the responsibility of each Ebasco department and the individual personnel of that department to adhere to the requirements of this Program. Sections QA-II-1 and QA-III-1 of this Manual require 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 used to implement the Ebasco QA Program are:

4.2.1 Company Procedures Manual - Administrative

4.2.2 Company Procedures Manual - Engineering

4.2.3 Company Procedures Manual - Nuclear

4.2.4 Company Procedures Manual - Procurement

4.2.5 Company Procedures Manual - Projects

4.2.6 Quality Assurance Engineering Department - Quality Assurance Procedures Manual

4.2.7 Quality Assurance Engineering Department - Site Quality Assurance Procedures Manual

4.2.8 Nuclear Licensing Department Procedures Manual

4.2.9 Manual of Vendor Quality Assurance Procedures

4.2.10 Administrative Site Procedures

4.2.11 Site Quality Control Procedures

The above documents 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, which procedures for a specific project will be included in a project manual of procedures and/or a site manual. In this case, the changed procedure shall be designated a Project Procedure. These procedures will be subject to controls similar to those applicable to the original documents.

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

4.4 In order to extend the control of activities affecting quality to the supplier level, suppliers of Ebasco-purchased items and services shall be evaluated with respect to quality assurance capability in accordance with the requirements of Section QA-I-5. QA-I-5 requires Ebasco suppliers to have in effect quality programs that meet the requirements of 10 CFR 50 Appendix B and ANSI N45.2 that are applicable to the items being purchased. Items shall not be purchased from suppliers that do not meet the applicable requirements of Section QA-I-5.

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

5.0 INDOCTRINATION AND TRAINING

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

6.0 REVIEW OF QUALITY PROGRAM ADEQUACY

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

6.2 Audits performed by Quality Assurance Engineering are designed to evaluate the Quality Program effectiveness on a project basis. When corrective action is necessary, reaudits are scheduled to assure implementation of corrective action. Section QA-II-9 defines review activities and reports involved in the auditing function.

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

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

TABLE I-1.1

10 CFR 50 Appendix B Criteria	ANSI N45.2 Paragraph	Ebasco Nuclear Quality Assurance Program Manual Section
I	3	QA-I-2
II	2	QA-I-1, QA-I-3
III	4	QA-I-4
IV	5	QA-II-3, QA-III-3
V	6	QA-II-1, QA-III-1
VI	7	QA-II-2, QA-III-2
VII	8	QA-I-5, QA-II-2, QA-II-4, QA-III-2, QA-III-4
VIII	9	QA-III-10
IX	10	QA-II-8, QA-III-8
X	11	QA-II-5, QA-III-5, QA-III-11
XI	12	QA-III-12
XII	13	QA-III-13
XIII	14	QA-III-14
XIV	15	QA-III-15
XV	16	QA-II-6, QA-III-6
XVI	17	QA-II-7, QA-III-7
XVII	18	QA-I-6
XVIII	19	QA-II-9, QA-III-9

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WATERFORD SES UNIT 3
QUALITY ASSURANCE PROGRAM

TABLE I-1.2

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

Crit	Administrative (A)	Engineering (E)	Licensing (L)	Nuclear (N)	Purchasing Dept (PD)	Project Dept (PJ)	Quality Assurance (QA)	Quality Program (QP)	Vendor Quality Assurance Dept (VQAD)	Administrative Site (ASP)	Site Quality Control (WQC)
I				-21						I-2	
II								-4 -5 -6 -7		I-1 I-3	-121
III		-1 -9 -45 -72 -2 -15 -52 -74 -82 -7 -21 -68 -76 -86 -8 -30 -69 -77	0 3 1 7 2 8				D.1, D.2			I-4	
IV		-8 -19			-3 -11 -5 -6 -10		D.1, D.2 P.6			III-3	-3
V	-1	-7		-23			G.1, G.2 P.1			III-1	
VI	-1	-2 -8 -65 -88 -3 -9 -73 -89 -6 -15 -52 -7 -21 -86					G.1, G.2 S.3, S.9			III-2	-3, -73, -82
VII		-89			-6		G.3 P.1, P.5, P.9 S.10		1 - 13 15, 17, 18, 19	III-4 I-5	
VIII							S.12, S.13 S.14, S.16 S.18, S.21 S.22				

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QUALITY ASSURANCE PROGRAM

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

Crit	Administrative (A)	Engineering (E)	Licensing (L)	Nuclear (N)	Purchasing Dept (PD)	Project Dept (PJ)	Quality Assurance (QA)	Quality Program (QP)	Vendor Quality Assurance Dept (VQAD)	Administrative Site (ASP)	Site Quality Control (WQC)
IX		-73					P.1,P.7,P.12 S.16,S.17, S.18,S.19, S.20			III-8	-76 -103
X							G.3.1 G.3.2 P.5,P.12			III-5	-74, -77, -80, -83, -85, -87, -100, -108, -110, -111, -113, -120, -150, -168, -169
XI						-2	G.3.2 P.1 P.5				-72
XII							S.8				-4 -105
XIII							P.1 S.5,S.6				-1, -2, -84, -104
XIV							P.1,P.5				
XV		-72					P.3 S.7			III-6	
XVI		-72					D.3 P.3 S.7			III-7	

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WATERFORD SES UNIT 3
QUALITY ASSURANCE PROGRAM

TABLE I-1.2

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

Crit	Administrative (A)	Engineering (E)	Licensing (L)	Nuclear (N)	Purchasing Dept (PD)	Project Dept (PJ)	Quality Assurance (QA)	Quality Program (QP)	Vendor Quality Assurance Dept (VQAD)	Administrative Site (ASP)	Site Quality Control (WQC)
XVII						-1	D.5 P.12 G.3 S.3 G.4 S.4 P.9 S.10				73
XVIII							D.4 G.3 S.5 D.5 P.9 S.6 D.5.1 S.2 D.5.2 S.3 S.8-S.22				

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TABLE I-1.3

PRINCIPAL IMPLEMENTING PROCEDURES

Procedure No.	Title
A-1	Procedures - Authorization and Preparation
E-1	Review of Vendors' Drawings
E-2	Release of Drawings for Fabrication and Construction
E-3	Procedure for Controlling Original Drawings Requisitioned from the Drawing Files Room
E-6	EMDRAC System
E-7	Processing Drawings for Review and Approval
E-8	Approval Signatures Required on Ebasco Drawings
E-9	Processing Conceptual Design Documents for Review and Approval
E-15	Preparation of Ebasco Standard Specifications
E-19	Documentation, Processing and Resolution of Specification Technical Questions from Bidders
E-21	Preparation of Project Equipment Specifications
E-30	Preparation of Calculations
E-45	Preparation of Safety Analysis Reports and Establishment of Design Bases for Nuclear Projects
E-52	Coordination of NSSS Interfaces
E-65	Control of Project-related Design Documents
E-68	Division of Responsibility Between Disciplines
E-69	Design Change Notice/Field Change Request
E-72	Control of a Nonconformance by a Vendor
E-73	Microfilming Project-related Drawings and Documents

TABLE I-1.3 (Cont'd)

Procedure No.	Title
E-74	The Use and Documentation of Sketches
E-76	Guidelines for Design Verification
E-77	Selection, Identification and Documentation of Design Inputs
E-82	Ebasco Site Support Engineering (ESSE) Group
E-86	Processing Inquiry Memorandum, Purchase Requisition, Contract and Supplements
E-88	Preparation, Approval and Distribution of Engineering and Design Guides
E-89	Expanded Purchasing Program Including Proposal Evaluation
L-0	Preparation and Control of Nuclear Licensing Department Procedures
L-1	SAR Preparation
L-2	SAR Amendment Preparation
L-3	Processing SAR Change Requests
L-7	Nuclear Safety Design Review
L-8	Preparation of Radiological Impact Assessments
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
PD-3	Development of Project Bidders List
PD-6	Early Procurement of Critical Materials
PD-10	Quotation Evaluation and Recommendation to Purchase
PD-11	Purchase Orders and Supplements

TABLE I-1.3 (Cont'd)

Procedure No.	Title
PJ-1	Filing System - Nuclear Projects
PJ-2	Project Communications
QA-G.1	Preparation and Control of Quality Assurance Engineering Department Procedures
QA-G.2	Control and Distribution of Project-related Manuals
QA-G.3	Qualification of QA Audit Personnel
QA-G.3.1	Requirements for the Qualification/Experience Review and Certification of Designated Level III QC Individuals
QA-G.3.2	Qualification of QA/QC Personnel to ANSI N45.2.6 Requirements
QA-G.4	Quality Assurance Engineering Records
QA-D.1	Review of Safety-related Component Specifications
QA-D.2	Review of Engineering Drawings
QA-D.3	Determination and Analysis of Quality Trends
QA-D.4	Resolution of External Audit Findings
QA-D.5	Internal Audits
QA-D.5.1	Internal Auditing of Vendor Quality Assurance Representatives
QA-D.5.2	Site Audit Procedure
QA-P.1	Review of Vendor's Procedures
QA-P.3	Review of Nonconformances
QA-P.5	Requirements for Preparation, Implementation and Control of QA Plans
QA-P.6	Evaluation of Bid Exceptions
QA-P.7	Review of Nondestructive Examination (NDE) Procedures

TABLE I-1.3 (Cont'd)

Procedure No.	Title
QA-P.9	Quality Assurance Vendor Evaluations
QA-P.12	Procedure for Review of Radiographic Film Submittals
QA S-1	Planning of Site QA Engineering Activities
QA S-2	General Audit Procedure
QA S-3	Processing of QA Engineering Audit Reports
QA S-4	Quality Assurance Records Audit
QA S-5	Material Receipt Audit
QA S-6	Material and Component Storage Audit
QA S-7	Processing of Nonconformance Reports
QA S-8	Calibration and Gage Control Audit
QA S-9	Document Control Audit
QA S-10	Vendor Documentation Audit
QA S-11	System Turnover Audit
QA S-12	Civil Activities Audit
QA S-13	Structural Steel Audit
QA S-14	Reinforcing Steel Audit
QA S-15	Protective Coating Audit
QA S-16	Welding Material Control Audit
QA S-17	Welder Qualifications Audit
QA S-18	Mechanical and Welding Audit
QA S-19	Nondestructive Examination Audit
QA S-20	Radiographs Review Audit

TABLE I-1.3 (Cont'd)

Procedure No.	Title
QA S-21	Electrical Activities Audit
QA S-22	Instrumentation Activities Audit
QA S-23	Quality Assurance Instructions
QP-4	Quality Program Coordinator - Description of Position, Duties, Responsibilities
QP-5	Deviating Ebasco Project-related Quality Assurance Programs from the Ebasco Nuclear Quality Assurance Program Manual
QP-6	Assignment, Distribution and Control of the Ebasco Nuclear Quality Assurance Program Manual
QP-7	Revisions to the Ebasco Nuclear Quality Assurance Program Manual
VQAD-1	Procedure for Assignment of Purchase Orders and Suborders for Examination Nuclear Safety Related Equipment and Designated Equipment
VQAD-2	Procedure for Assignment of Purchase Orders and Suborders for Examination Fossil Fuel Plants and Nonnuclear Safety Class Equipment
VQAD-3	Transmittal, Distribution and Use of Quality Assurance Plan for Vendors, Manufacturers, Contractors and Associated Quality Assurance Forms
VQAD-4	The Use of Form 719-QA-W "Quality Assurance Report"
VQAD-5	Setting Up and Maintaining Purchase Order File
VQAD-6	Processing Quality Assurance Nonconformance Report Form 6009-11 Follow-up of Nonconformance and Review of Vendor Rework Records
VQAD-7	Use of "Problems that Require Resolution" Form
VQAD-8	Preparation and Control of Vendor Quality Assurance Report Release for Shipment Form No. 1305
VQAD-9	Review and Processing Quality Assurance Reports Form 719-QA-W
VQAD-10	Preparation and Control of Implementing Procedures

TABLE I-1.3 (Cont'd)

Procedure No.	Title
VQAD-11	Review of Radiographs by Vendor Quality Assurance Representatives
VQAD-12	Notification of Material Shipped Without Release
VQAD-13	Review of Vendor Documentation
VQAD-15	Setting up and Maintaining Purchase Order Files in New York Office
VQAD-17	Interface Between Vendor Quality Assurance and Quality Assurance Engineering Departments
VQAD-18	Interface Between Vendor Quality Assurance and Materials Application Departments
VQAD-19	Qualification of Inspection, Examination and Testing Personnel for Nuclear Facilities
ASP-I-1	Quality Assurance Program
ASP-I-2	Organization and Responsibilities
ASP-I-3	Indoctrination and Training
ASP-I-4	Design Control
ASP-I-5	Quality Assurance Evaluation of Suppliers
ASP-III-1	Preparation of Site Procedures
ASP-III-2	Site Document Control
ASP-III-3	Procurement Document Control
ASP-III-4	Purchasing/Contracted Services
ASP-III-5	Supplier Surveillance
ASP-III-6	Nonconformances
ASP-III-7	Corrective Action
ASP-III-8	Control of Special Processes

TABLE I-1.3 (Cont'd)

Procedure No.	Title
WQC-1	Control of Receiving, Handling and Storage
WQC-2	Receiving, Handling & Storage Inspection of NSSS Equipment
WQC-3	Use and Control of Document Stamps
WQC-4	Calibration & Control of Measuring & Testing Equipment
WQC-72	Duct and Housing - Leak Pressure Test
WQC-73	Control of Quality Related Records
WQC-74	Inspection of Drilled Concrete in Expansion Anchors
WQC-76	Receipt, Storage, Issue, and Control of Weld Filler Metals
WQC-77	Duct Installation Inspection
WQC-80	Structural Support Hanger Fabrication & Installation Inspection
WQC-82	Inspection and Test Status Field Quality Control Manual
WQC-83	Rework & Reinspection Procedure
WQC-84	Receiving of HVAC Equipment
WQC-85	Inspection of Flexible Connections
WQC-87	Inspection of HVAC Duct Fabrication
WQC-100	Erection, Bolt-up Inspection of Structural Steel & Calibration of Torque Wrench
WQC-103	Control of Welding Electrode & Filler Metals in the Field
WQC-104	Handling & Storage of Items Outside the Ebasco Warehouse
WQC-105	Ebasco QC Interface with the NDE Testing Agency
WQC-108	Inspection of Concrete Repair - Structural

TABLE I-1.3 (Cont'd)

Procedure No.	Title
WQC-110	Inspection of Waterproofing
WQC-111	Procedure for Inspection of Drilled - In Concrete Expansion Anchors
WQC-113	Inspection of Cadwelds
WQC-114	Visual Inspection of Welds on Fire Protection Water Storage Tanks
WQC-115	Concrete Preplacement Inspection
WQC-116	Concrete Core Drilling Inspection - Exploratory
WQC-117	Inspection & Test Status
WQC-118	Inspection of the Grouting of Base Plates & Foundations
WQC-119	Inspection for Load Testing of Cranes
WQC-120	Batch Plant Inspection
WQC-121	Qualification of QC Personnel
WQC-150	Inspection & Test Status - Piping Systems
WQC-168	Inspection of Instrumentation Installation
WQC-169	General Quality Control Inspections

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-I-2
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	ORGANIZATION AND RESPONSIBILITIES	REVISION 5 R5 DATE July 31, 1981 R5

1.0 SCOPE

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

2.0 GENERAL

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

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

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

2.3 The divisions or departments most directly involved in the implementation of the quality assurance program for design, engineering, fabrication, and installation are Materials Engineering and Quality Assurance, Engineering, Construction, and Procurement. The organizational structures of these are shown on Figure I-2.2, I-2.3, I-2.4 and I-2.5 at the end of this section. The Projects Department provides overall contractual administration of a project, coordinating the efforts of involved departments and serving as a line of communication between Ebasco and its Clients. The Consulting Engineering, Plant Operations and Betterment, and Advanced Technology Departments are involved in the implementation of Quality Program requirements through the supplemental services they provide.

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

3.0 MATERIALS ENGINEERING AND QUALITY ASSURANCE

3.1 Primary responsibility for Quality Assurance rests with the Vice President Materials Engineering and Quality Assurance who reports directly to the Executive Vice President Operations. Qualification requirements for the position of Vice President Materials Engineering and Quality Assurance are: Bachelor of Science Degree in Engineering; 10 to 15 years of experience in quality related work or equivalent experience in the engineering or construction of a nuclear power plant, including at least 10 years experience in responsible managerial project positions; thorough knowledge of the Ebasco Quality Assurance Program. The Materials Engineering and Quality Assurance Unit is comprised of the following organizations, each of which contributes directly to the implementation of the Quality Program (see Figure I-2.2): R5

a) Quality Assurance Engineering

b) Materials Application

c) Vendor Quality Assurance

d) Consulting Quality Assurance Engineer

e) Materials Engineering Laboratory

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

enforce the Ebasco Quality Program. This responsibility is carried out by five functional subdivisions:

(a) Project Quality Assurance Engineering

(b) Site Quality Assurance/Quality Control R4

(c) Site Quality Program

(d) Quality Assurance Specialists which provide various other quality-related services and functions

(e) Nondestructive Examination (NDE) Quality Assurance

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

3.1.1.1 Project Quality Assurance Engineering - A Project Quality Assurance Engineer (PQAE) is assigned to each Nuclear Project to plan, coordinate and oversee the implementation of the Quality Assurance Program for that particular project. This PQAE, who reports to a Project Quality Assurance Engineering Supervisor, coordinates the Quality Assurance implementation efforts of Materials Engineering and Quality Assurance personnel (quality assurance engineers, materials engineers, welding engineers, nondestructive examination specialists, vendor quality assurance representatives and site quality assurance personnel assigned to his project). R4

The PQAE has the authority and responsibility to identify quality related problems, to initiate or recommend solutions, to control existing nonconformances until properly dispositioned, and to verify implementation of approved dispositions. Principal tasks performed by the PQAE and those assisting include:

(a) Review Ebasco specifications and drawings for inclusion of quality assurance requirements

(b) Evaluate quality assurance programs of suppliers

(c) Prepare quality assurance plans for the surveillance of activities in suppliers' shops

(d) Review or coordinate the review of suppliers' nondestructive examination and test procedures R4

(e) Conduct audits of Site Quality Assurance and Vendor Quality Assurance personnel, as applicable.

(f) Direct efforts to obtain ASME Certificates of Authorization for Ebasco as may be required for the particular project

(g) Represent Ebasco Quality Assurance Engineering with regard to all project-related activities, such as Owner, Ebasco and/or Vendor meetings, Owner audits and management audits

(h) Distribute and control quality assurance manuals, as well as changes thereto, for the assigned project

3.1.1.2 Site Quality Assurance - The Manager Site Quality Assurance, who reports to the Chief Quality Assurance Engineer in New York, is responsible for the direction, supervision, and administration of site quality assurance/quality control operations at those nuclear construction sites where a Quality Program Site Manager is not assigned. The Manager Site Quality Assurance is responsible for the development, maintenance and current status of Site Quality Assurance Engineering Procedures, and for providing technical assistance and guidance to subordinate Quality Assurance Engineering Site Supervisors and staff. (See Fig. I-2.2 and Fig. I-2.6). In addition, he is responsible for the review and acceptance of Quality Control procedures. R4 R4

3.1.1.3 Site Quality Program - A Quality Program Site Manager is assigned to each nuclear project construction site on a resident basis for the purpose of overall planning, direction and implementation of the Ebasco Nuclear Quality Program Manual. The Quality Program Site Manager who reports to the Chief Quality Assurance Engineer in New York, is subordinate to no individual on site and has the independent authority to identify site quality related problems, to initiate or recommend solutions, to control existing nonconformances, to verify implementation of approved dispositions, and when necessary, to stop work. He is responsible to assure that all personnel working for him are qualified for their respective positions and properly trained. The Site Quality Program function is divided into three groups: Quality Assurance Engineering, Quality Control and Quality Records, each reporting through a respective supervisor to the Quality Program Site Manager. (See Fig. I-2.6) R4

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

(a) Review and audit quality related site construction and engineering activities and records on a continuing basis

(b) Audit construction forces for adherence to prescribed approved procedures

(c) Review and/or coordinate review of site suppliers' fabrication and test procedures

(d) Review site-generated purchase orders for inclusion of quality assurance requirements

(e) Review and advise on Quality Control Procedures for compliance with this Manual and code and regulatory requirements. When necessary, the Quality Assurance Site Supervisor may request the PQAE to assist in the review of these procedures

(f) Maintain records of all reviews and audits performed

(g) Review all radiographic film for site-related nondestructive examination

(h) Audit final records and documentation prior to turn over to the Client

3.1.1.3.2 Site Quality Control - A Quality Control Site Supervisor and staff of engineers and inspectors are assigned the following functior 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 R4

(c) Establishing and enforcing quality control documentation and inspection requirements based upon specifications, codes, standards, and drawings as established by Engineering

(d) Performance or monitoring of site NDE, soils and concrete testing activities

(e) Assisting in organizing and administering training seminars as required to assure proper level of training and engaging in the certification of Quality Control personnel to the required level of qualification

(f) Identification and control of the quality status of items

(g) Development and implementation of applicable Quality Control Plans, and generation of inspection reports covering mandatory inspection activities at the construction site

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

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

(a) Develop, establish and implement a system for the collection, storage and maintenance of Quality Assurance Records at the project construction site

(b) Responsible for review for completeness, control, storage, preservation and safekeeping of vendor/contractor and site generated quality assurance records

(c) Establishment and implementation of a records indexing system to permit proper traceability and retrieval

(d) Establishment of a procedure for access to the records storage area, and removal and retrieval of quality records

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

(a) Performance of Inservice Inspection R4

(b) Qualification and certification of personnel as required by applicable codes or standards

(c) Development of Quality Assurance standards and procedures

(d) Review, evaluation and summarization of Code and Regulatory Quality Assurance Requirements

(e) Evaluation of suppliers' Quality Assurance Program

(f) Conducting Quality Assurance education, both internal and external to Quality Assurance Engineering R4

(g) Interdepartmental auditing of all individuals or groups responsible for activities covered by the Quality Program R4

(h) Development of Quality Assurance Records Programs

(i) Development of Quality Assurance Programs for Power Plant Operations R4

3.1.1.5 Nondestructive Examination Quality Assurance: This group, under the Assistant Chief Quality Assurance Engineer in charge of Inservice Inspection and Nondestructive Examination provides expertise with regard to conducting various forms of NDE and includes the following functions: R4

(a) Establish and/or interpret NDE requirements and acceptance criteria for fabricated and erected equipment as required

(b) Review and comment on NDE procedures and radiographic films submitted by manufacturers, site construction forces and/or clients

(c) Advise manufacturer and site construction forces as to proper NDE procedures, applications, techniques, equipment and qualifications

3.1.1.6 Radiation Safety - Ebasco's Corporate Radiation Safety Officer reports to the Chief Quality Assurance Engineer He is responsible for auditing and enforcing the Ebasco procedures for radiation safety. R4

3.1.2 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 each project. These positions may be assigned to the same individual if properly qualified. Quality-related activities of Materials Applications personnel include the following: R4 R4

(a) Develop material and welding specifications

(b) Develop and qualify welding procedures and fabrication techniques for use by Ebasco site construction forces, engineered equipment suppliers and erectors.

(c) Advise Ebasco Construction Management as to the development and application of advanced welding techniques which would enhance quality.

(d) Review Ebasco specifications and drawings for compliance with applicable codes and regulatory requirements for proper selection of materials, weld procedures and joint details R4

(e) Review suppliers' material specification and fabrication procedures for compliance with project specifications and codes

(f) Assist in welder performance testing to assure that all code and regulatory requirements have been met.

(g) Participate in quality assurance evaluations of suppliers in the area of welding, materials and fabrication

(h) Provide technical assistance as required to resolve problems in suppliers' shops and at the construction site in the areas of welding, materials, heat treatment and other related areas.

(i) Provide technical assistance concerning material properties under service conditions involving stress, radiation, temperature, corrosive media, etc., to determine capability of specific materials to perform in such environments.

3.1.3 Vendor Quality Assurance is administered by the Chief Vendor Quality Assurance Representative who reports to the Vice President Materials Engineering and Quality Assurance. The primary function of this department is to establish and maintain confidence that purchase order and documented Quality Assurance Program requirements are complied with during fabrication in Suppliers' shops and in those of their subsuppliers, and to document results of shop surveillance visits made to carry out this function. Specific details of this department's responsibilities are included in Section QA-II-5 of this Manual.

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

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

4.0 ENGINEERING

Primary responsibility for design and engineering rests with the Vice-President of Engineering (see Figure I-2.3).

4.1 Chief Engineers of the various engineering desciplines report directly to the Vice-President of Engineering, and are responsible for technical and administrative aspects of the engineering and design phases of their disciplines. R5 R5

4.2 A Project Engineer is assigned to each Nuclear Project. Project Engineers lead and coordinate the various technical functions performed in connection with their projects and assure that the requirements of Section QA-I-4 of this Manual relating to Engineering are implemented.

4.3 A Lead Discipline Engineer from each engineering discipline is responsible for project commitments to the Project Engineer and is technically responsible to a Supervising Engineer, who reports to an Assistant Chief Engineer or to a Director, who in turn reports to a discipline Chief Engineer. One Lead Discipline Engineer from each engineering discipline is continuously assigned to each nuclear project. Additional engineers are assigned to assist the Lead Discipline Engineer, as needed. R5

4.4 Design Supervisors report to a Group Supervisor or Supervising Design Engineer who reports to a Division Chief, who reports to the Chief Engineer. Design Supervisors supervise the work of draftsmen and designers in the preparations of drawings. R5

4.5 The Engineering Department is responsible for performance of the following activities in accordance with approved written instructions and/or procedures:

(a) Preparing equipment specifications and drawings as well as revisions thereto in accordance with the requirements of Section QA-I-4 of this Manual

(b) Providing stress analyses of piping systems

(c) Reviewing bids to determine whether specifications are met technically

(d) Evaluating Bidders' and Suppliers' deviations and/or proposed alternatives

(e) Reviewing Suppliers' drawings or other Suppliers' design criteria in accordance with specification requirements.

4.6 Primary responsibility for stress analysis of piping systems rests with the Vice-president of Engineering as administered by the Chief Engineer Mechanical

4.6.1 Engineers in the Stress Analysis Department report to the Assistant Chief Engineer, Applied Mechanics, who in turn reports to the Chief Mechanical Engineer. R5

4.6.2 The Stress Analysis Department responsible for the calculation of stresses in piping systems assure full compliance with applicable codes and to assure full liance with regulatory requirements as contained in licensing documentation and applicable NRC Rules and Regulations.

4.7 Primary responsibility for engineering standards and procedures rests with the Vice-President of Engineering. The Standards and Procedures Department is responsible for administrative control of Ebasco's Standard Specifications (i.e., materials specifications, engineering specifications), Design Guides, and Engineering Department Guides.

4.7.1 Engineers in the Standards and Procedures Department report to the Manager - Standards and Procedures who in turn reports to the Vice-President of Engineering.

4.7.2 Engineers performing the specific functions in this department are responsible for coordinating the technical input from the responsible engineering disciplines.

4.7.3 The Standards and Procedures Department is responsible for obtaining and documenting approvals for the initial issues and all subsequent revised issues of the Ebasco Standard Specifications. Administrative control of the specifications is maintained by this department with an up-to-date index (reissued once every three months) listing the latest issue of each specification.

4.7.4 Administrative control of Ebasco Engineering and Design Guides is performed in the Standards and Procedures Department. Technical input is performed by the responsible engineering disciplines, while the issuance and control of distribution of the Design Guides and Engineering department Guides are performed in the Standards and Procedures Department. Administrative control is maintained by means of an up-to-date index for each numbered Manual which dates each guide on the index as revisions are issued. Records are maintained to substantiate internal review and approval required for each document. R4

4.7.5 The Standards and Procedures Department is responsible for the coordination of preparation and control of departmental implementing procedures.

5.0 CONSTRUCTION

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

5.1 Construction Managers report to the Vice-President of Construction and are responsible for overall supervision and coordination of all construction activities and services.

5.2 The Manager of Construction Services reports to the Vice-President of Construction and is responsible for general supervision of Construction Department Quality Program activities and of the Construction Engineering Group.

5.2.1 The Manager of Quality Control, reporting to the Manager of Construction Services, is responsible for development of Quality Control Standard Procedures and Construction Department Standard Procedures, coordination and direction of training and qualification of personnel, keeping abreast of NRC and all Code requirements and periodic reporting to Construction Department Management of current Quality Program status and any required corrective actions.

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

5.3 For individual projects, the Site Manager reports to a Construction Manager and has the responsibility for direction and coordination of all on-site activities associated with the construction of the plant.

5.4 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.

5.5 The Construction Superintendent reports to the Project Superintendent and has the responsibility of assuring that jobsite fabrication and installation is in accordance with drawings, specifications and other prevailing documents.

5.6 Area Superintendents report to the Project Superintendent and are responsible for area planning and scheduling, area construction control and is responsible for all phases of field office and field engineering.

5.7 The Senior Resident Engineer reports to the Project Superintendent and is responsible for all phases of field office and field engineering.

5.8 The Administration Manager reports to the Site Manager, and is responsible for management of site office services, including purchasing, materials administration, data processing and accounting.

5.9 The Purchasing Administrator reports to the Administration Manager and is responsible for the issuance and control of purchasing documents between vendors and personnel at the jobsite.

5.10 The Material Adminstrator reports to the Administration Manager and is responsible for commerical receiving inspection, storage and issue of materials at the site.

6.0 ENVIROSPHERE COMPANY

Primary responsibility for nuclear licensing and environmental matters rests with the President and Chief Executive Officer of Envirosphere Company.

6.1 Nuclear Licensing - Nuclear Licensing is administered by the Manager Nuclear Licensing who reports to the Vice President Envirosphere, who in turn reports to the President of Envirosphere. Each nuclear project is assigned a Project Licensing Engineer who reports to the Manager Nuclear Licensing through a Nuclear Licensing Supervisor. Nuclear Licensing is responsible for performing the following in accordance with approved written instructions and/or procedures:

a) Establishing the guidelines for the identification and classification of structures, systems and equipment important to safety

b) Preparation of safety design bases and criteria for structures, systems and equipment important to safety

c) Overall coordination and review of preparation of safety analysis reports, amendments and other licensing documents as well as control of distribution thereof

d) Advising engineering as to the acceptability of implementation of design bases and criteria as contained in drawings and specifications

e) Review and interpretation of regulatory agency requirements and advising Engineering of same

f) Establish and maintain records of the generation and approval of licensing documents including revisions thereto

6.2 Nuclear Safety Review - Nuclear safety review is administered by the Manager Nuclear Licensing, who reports to the Vice President Envirosphere, who in turn reports to the President of Envirosphere. Each nuclear project is assigned a Project Licensing Engineer who is responsible for implementation of safety review activities. He directs the activities of the licensing engineers assigned to the project in performing safety review. Nuclear licensing is responsible for performing the following safety review activities in accordance with approved written instructions and or procedures.

a) Safety review of selected drawings and specifications (see Section QA-I-4) to assure compliance with NRC Regulations, SAR and the intent of applicable Regulatory Guides.

b) Interpreting safety design bases and criteria for structures, systems and components important to nuclear safety

c) Establishing and maintaining records substantiating (a) and (b) above.

6.3 For environmental matters, the responsible Envirosphere Vice Presidents report to the President of Envirosphere Company, who in turn reports to the Senior Vice President Consulting Engineering. They are responsible for providing Environmental Consultation services of their respective departments as the need arises. R4

7.0 CONSULTING ENGINEERING

Primary responsibility for consulting engineering rests with the Vice-President Consulting Engineering. For environmental matters, primary responsibility rests with the President of Envirosphere Company. R4 R4 R4

7.1 Chief Consulting Engineers of the various engineering disciplines report directly to the Vice-President Consulting Engineering and are responsible for consultation provided by their respective disciplines R4

7.2 Consulting Engineers, who report to the Chief Consulting Engineers of their respective disciplines are assigned to nuclear projects to provide consulting services as the need arises. R4

7.3 The Consulting Engineering Department works with the Engineering Department in the development of new concepts relating to engineering and design criteria, equipment specifications, plant cycles and equipment arrangements and assists the Engineering Department in the resolution of special problems. Such activities are to be performed in accordance with Section QA-I-4 of the Manual. R4

8.0 PROJECTS R4

Primary responsibility for project administration rests with the Senior Vice-President Projects and Procurement:

8.1 Managers of Projects report to the Senior Vice President Projects and Procurement and are responsible for overall supervision of the various projects. R4

8.2 Each nuclear project is assigned a Project Manager who reports to a Manager of Projects. A "project team" consisting of a Project Engineer, Project Superintendent and other assigned engineers and representatives from each discipline as appropriate is assembled for each project. The overall coordination of the activities of this team is the responsibility of the Project Manager. R4

8.3 The Project Manager maintains close liaison with the Project QA Engineering in order to assure that contractual quality assurance requirements are satisfied. R4

8.4 The Project Manager is the prime point of contact between Ebasco and the Client. However, the project Quality Assurance Engineer has the right of establishing independent lines of communication regarding quality assurance with the client and suppliers, while keeping the Project Manager (and Purchasing, in the case of suppliers) apprised of any such contacts. R5

8.5 The Project Manager is responsible for establishing, at the earliest possible point, the Project Distribution Schedule. This is a complete listing of the various forms of communication such as letters, purchase orders and reports, as well as all of the various organizations, both internal and external to Ebasco. The Project Distribution Schedule is a matrix which provides a uniform distribution system for the overall project in order to assure an orderly, consistent flow of communication. A sample of the Project Distribution Schedule is provided at the end of this section as Figure I-2.8.

9.0 PLANT OPERATIONS AND BETTERMENT

Primary responsibility for operational engineering for equipment systems and total plant rests with the Vice-President Plant Operations and Betterment.

9.1 The Chief Engineer of Operations Engineering, the Manager of Reliability Engineering, and the Director of Engineering and Construction Retrofit Services report directly to the Vice-President Plant Operations and Betterment and are responsible for technical and administrative aspects of the respective groups.

9.2 Lead Engineers from each group, who report to their Director or an intermediate Supervisor, are assigned to nuclear projects as required.

9.3 Operations Engineering Group provides engineers for consulting and advising on starting and testing of nuclear power plants, writing pre-operational test procedures, review of plant design and resolving equipment and system operating problems.

10.0 PURCHASING AND TRAFFIC

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

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

10.2 The Purchasing Department is responsible for the following: R4

10.2.1 Obtaining prequalification quality assurance information from prospective Bidders. R4

10.2.2 Transmitting technical and quality assurance requirements to qualified prospective Bidders by inquiry. R4

10.3 The Manager of Traffic and Freight Forwarding reports to the Vice-President of Procurement and is responsible for the overall transportation activities, project related, and purchased equipment from vendors' plants to jobsite as required under contract provisions. R4

11.0 ADVANCED TECHNOLOGY

Primary responsibility for Advanced Technology rests with the Vice President Advanced Technology.

R4

11.1 Chemical Engineering Group - The Chemical Engineering Group is administered by the Chief Engineer - Chemical Engineering who reports to the Vice-President Advanced Technology. The Chemical Engineering Group has the prime responsibility for Radwaste design engineering on all nuclear and fossil plants.

(a) Engineers performing Radwaste services are technically responsible to Radwaste Supervisors. These Supervisors report to the Chief Engineer-Chemical Engineering.

(b) Lead Discipline Radwaste Engineers are assigned to each nuclear project. Additional Engineers are assigned to assist the Lead Discipline Engineer as required

(c) The Chemical Engineering Group is responsible for performance of the following in accordance with approved instructions and/or procedures:

(1) Preparing Radwaste process system designs, piping and instrumentation flow diagrams, applicable safety analysis reports and environmental reports sections, general arrangements, equipment and systems specifications in accordance with the requirements of Section QA-I-4 of this Manual R4

(2) Reviewing vendor proposals to determine whether they meet technical requirements of the specifications

(3) Evaluating bidder's deviations and/or proposed alternatives

(4) Reviewing supplier's drawings or other design criteria in accordance with specification requirements

(5) Establishing and maintaining records substantiating (1), (2), (3), and (4) above

11.2 Applied Physics - Applied Physics is administered by the Chief Engineer-Applied Physics who reports to the Vice-President Advanced Technology. The Applied Physics Section has the prime responsibility for containment analysis, shielding physics and radiation criteria for design. R4

(a) Engineers in the Applied Physics Section report to the Supervising Engineers, who in turn report to the Chief Engineer-Applied Physics. R4 R4

(b) Applied Physics is responsible for performance of the following in accordance with written approved instructions and/or procedures:

(1) Developing design criteria for reactor containment pressure and temperature transient analysis

(2) Developing shielding design criteria

(3) Developing radiation effects analysis and radiation monitoring criteria; preparing purchase specifications and evaluating bids for radiation monitoring equipment

(4) Providing support services to other departments by analyzing and developing modes for special problems, such as jet forces and pipe whip

(5) Establishing and maintaining records substantiating (1), (2), (3), and (4) above.

11.3 Nuclear Engineering - Nuclear Engineering is administered by the Chief Engineer - Nuclear Engineering who reports to the Vice President Advanced Technology. The Nuclear Engineering Department has the prime responsibility for engineering and management services for the nuclear fuel cycle, and for nuclear plant engineering analyses associated with fuel handling, storage, and reactor in-core operation. R4

(a) Engineers in the Nuclear Engineering Section report to the Supervising Engineer, who reports to the Assistant Chief Engineer Nuclear Engineering, who in turn reports to the Chief Engineer-Nuclear Engineering. R4

(b) The Nuclear Engineering Section is responsible for performance of the following:

(1) Determining spent fuel fission product decay heat release rates for spent fuel pool cooling system sizing, spent fuel storage rack design, and pool heat-up calculations

(2) Developing spent fuel storage rack design criteria; preparing purchase specifications and evaluating bids for spent fuel racks

(3) Providing support services to other departments on spent fuel rack interfacing systems, such as spent fuel handling machine requirements

(4) Preparing and reviewing sections of Safety Analysis Reports pertaining to spent fuel storage racks and interfacing systems

(5) Developing nuclear criticality analyses

(6) Obtaining nuclear fuel meeting specified operational and performance requirements for clients

(7) Establishing and maintaining records substantiating 1 through 6 above

11.4 Plant Security - Plant Security is administered by the Chief Engineer Nuclear Engineering, who reports to the Vice President Advanced Technology. Plant Security has the prime responsibility for engineering design considerations and criteria associated with the design and installation of a plant security system. R4 R4

(a) Engineers in Plant Security report to the Manager of Plant Security who in turn reports to the Chief Nuclear Engineer. R4

(b) Plant Security is responsible for performance of the following:

(1) Minimizing the vunerability of the plant to radiological sabotage that may result in a hazard to the public. (The Code of Federal Regulations postulates that the act of sabotage may be initiated by an insider or a group of outsiders or a combination of both.)

(2) Developing plant arrangements and layouts such that access to redundant safety related components are precluded during normal operation, such as the use of structural walls and doors.

(3) Providing access during emergency conditions, such as fire

(4) Providing and complying with criteria for all security vital equipment that is required to isolate the public from a radiological release, or that is required to mitigate the results of radiological sabotage

11.5 Dynamics and Systems - Dynamics and Systems Engineering is administered by the Director - Dynamics and Systems who reports to the Vice President Advanced Technology. Dynamics and Systems Engineering provides continuing analysis of any aspect of operational engineering and deemed economically valid and attainable. R4

Ebasco Services Incorporated
OPERATIONS AND ADVANCED TECHNOLOGY ORGANIZATION
SHOWING QUALITY PROGRAM COMMITTEE REPRESENTATION

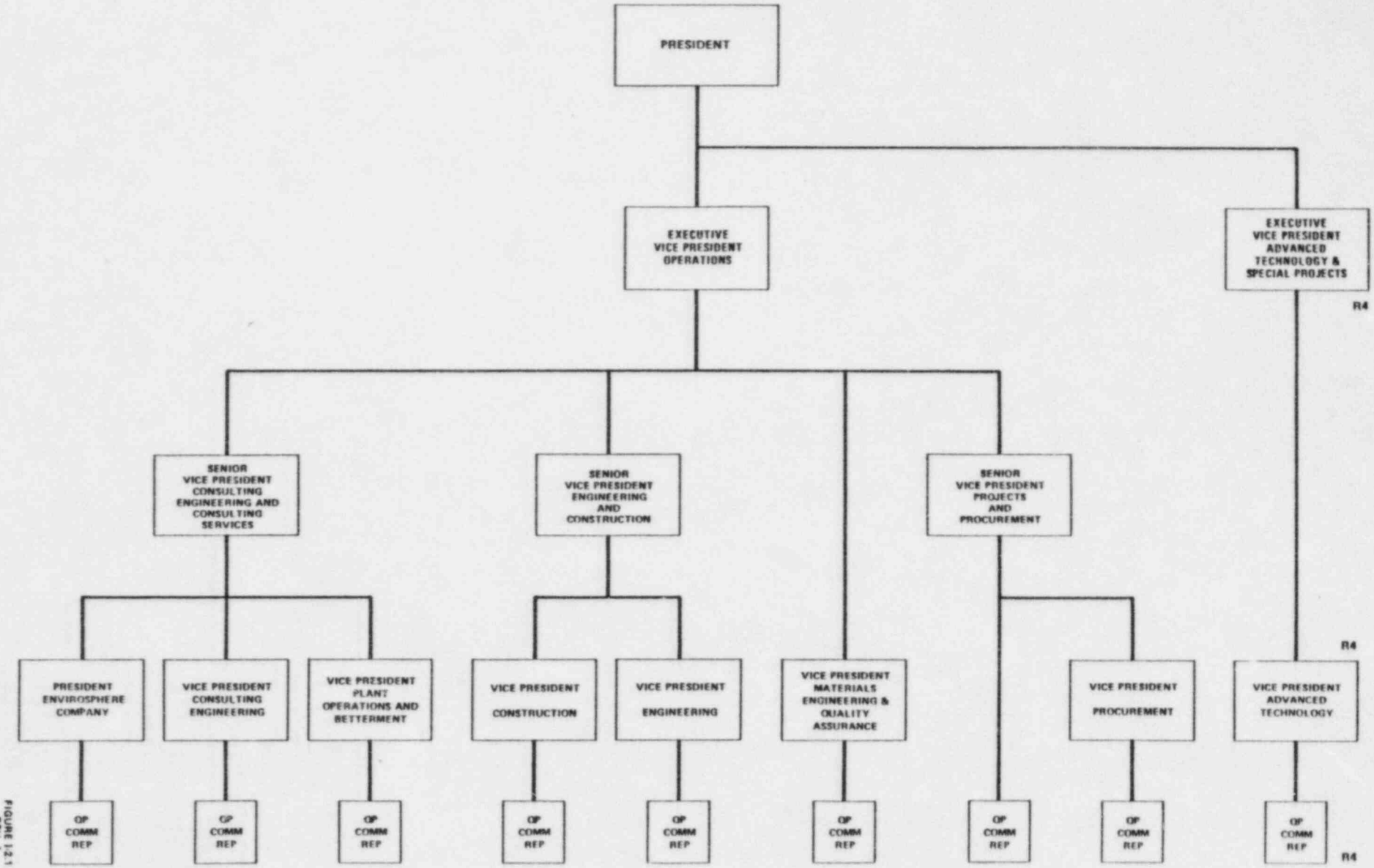


FIGURE 12.1
REV. 4

Ebasco Services Incorporated

MATERIALS ENGINEERING & QUALITY ASSURANCE ORGANIZATION

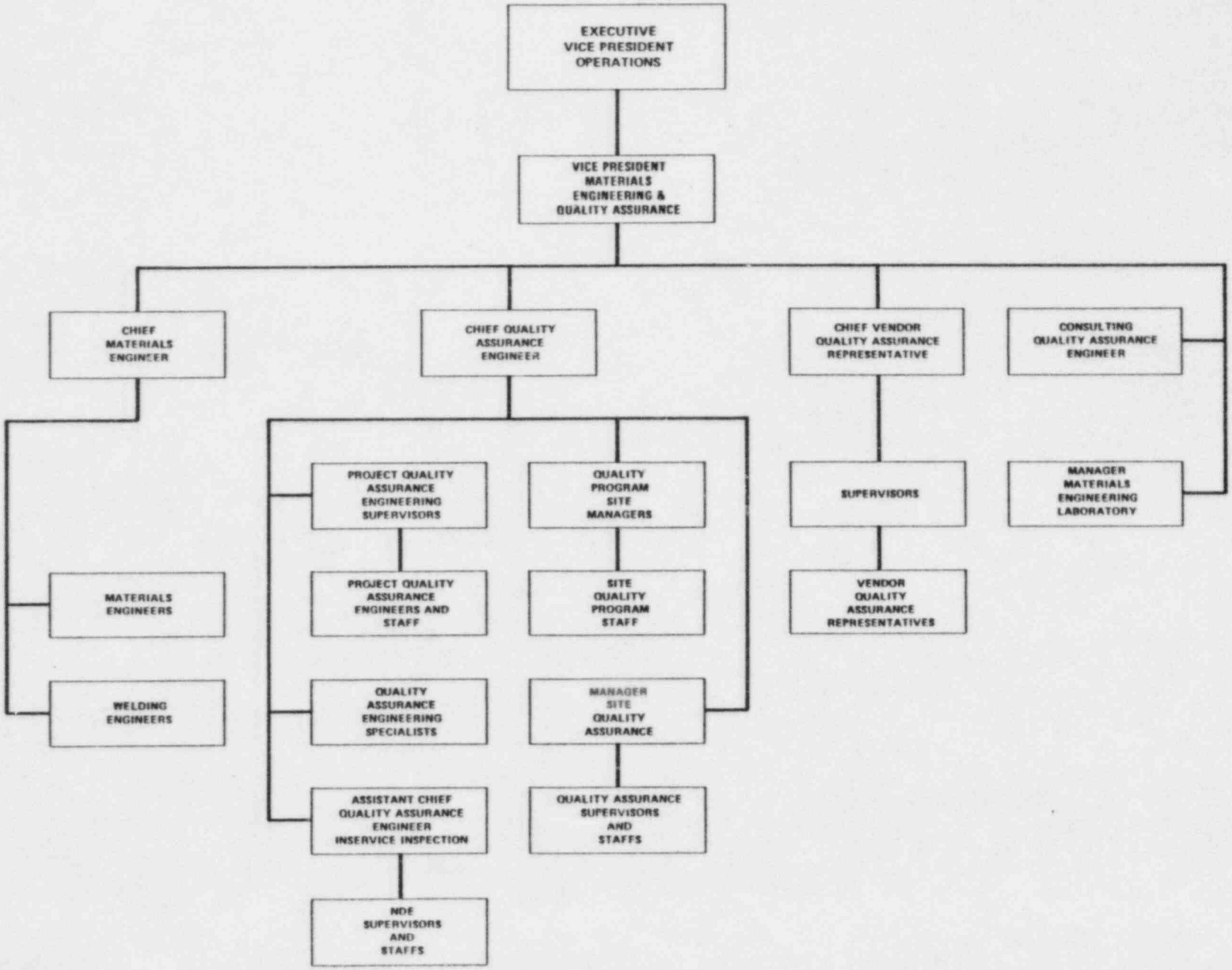


FIGURE 1.2.2
REV. 4

Ebasco Services Incorporated
ENGINEERING DEPARTMENT ORGANIZATION

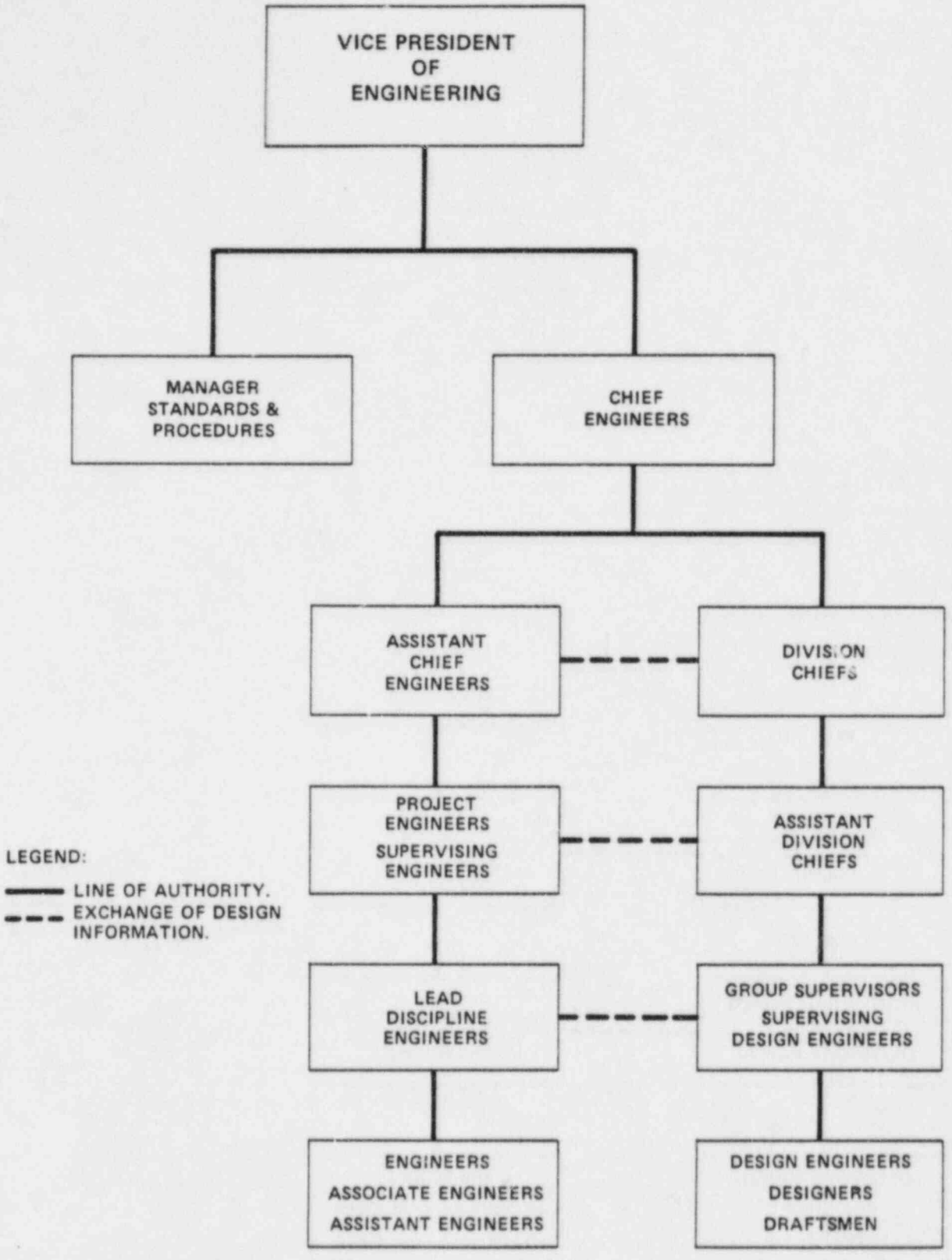
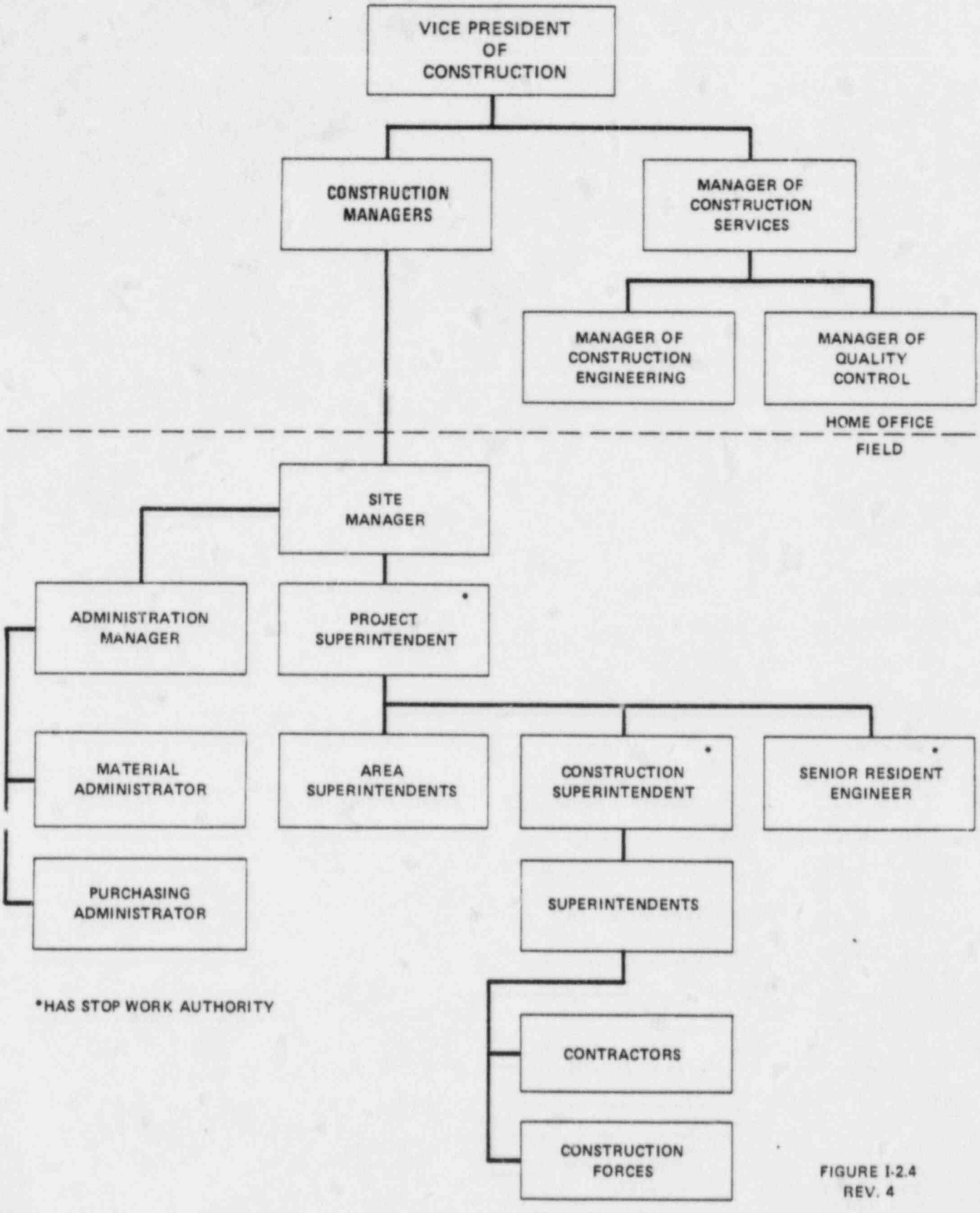


FIGURE I-2.3
REV. 4

Ebasco Services Incorporated
ORGANIZATION FOR CONSTRUCTION



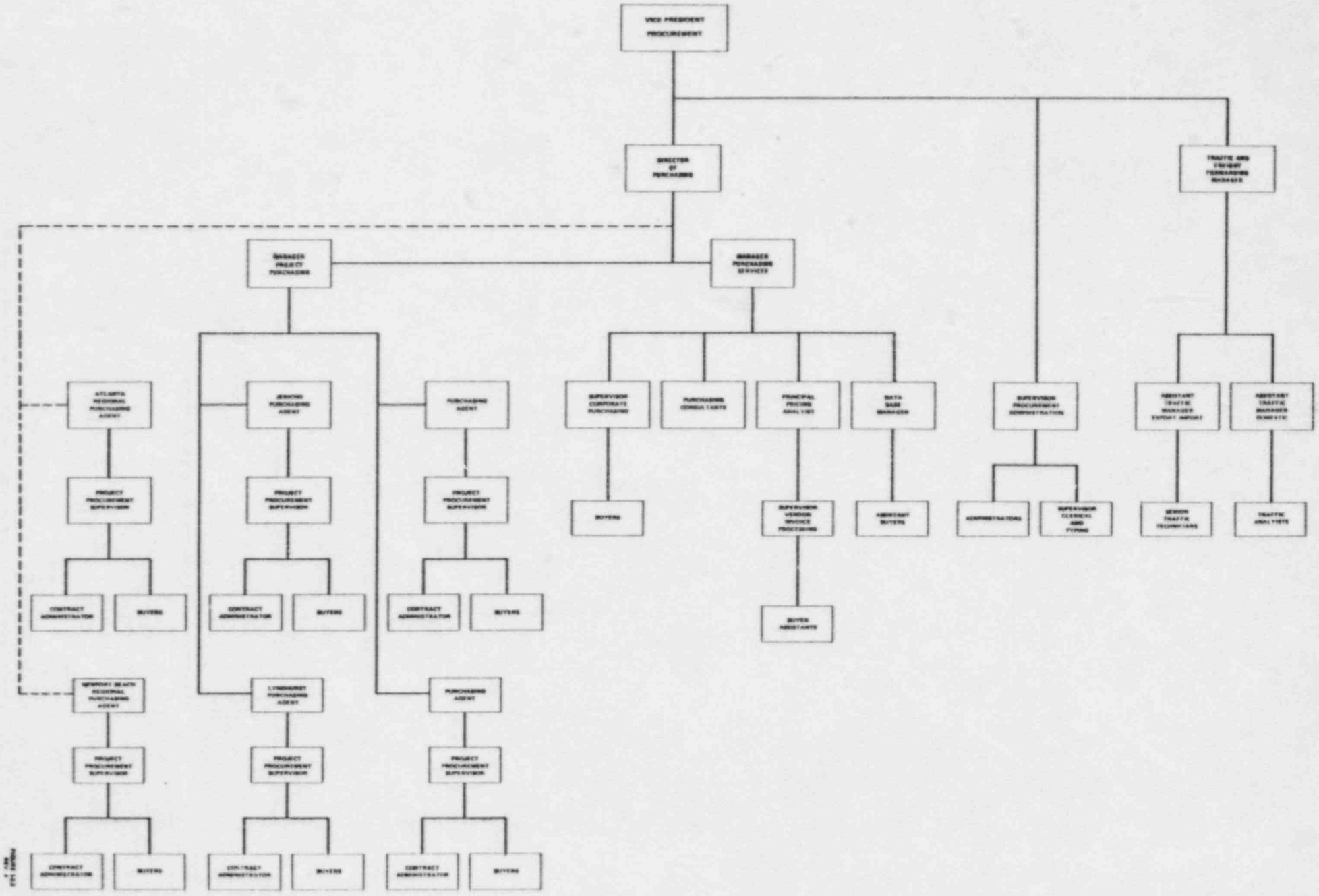
*HAS STOP WORK AUTHORITY

FIGURE I-2.4
REV. 4

Ebasco Services Incorporated

PURCHASING & TRAFFIC DEPARTMENTS

ORGANIZATION CHART



EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING

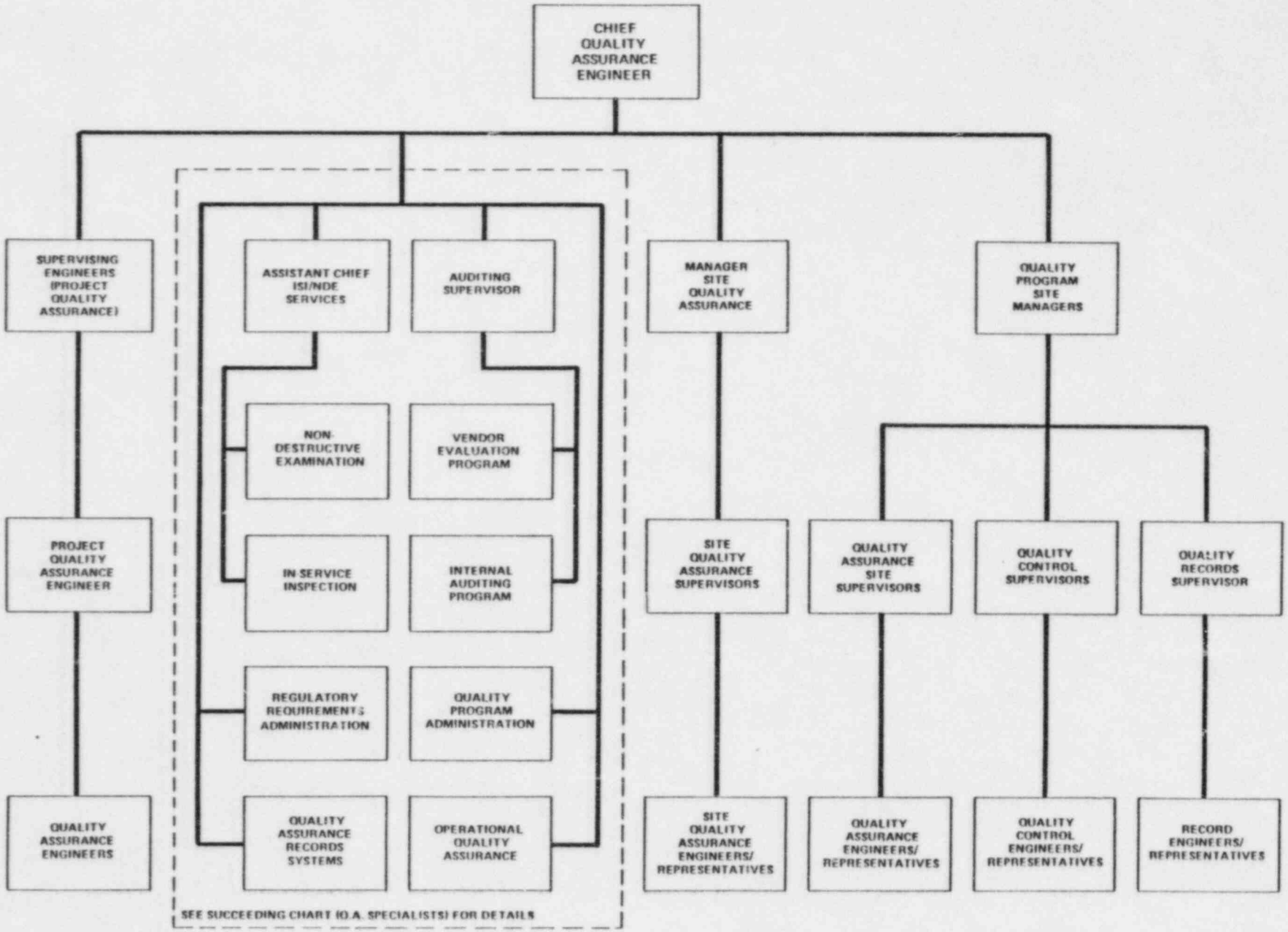
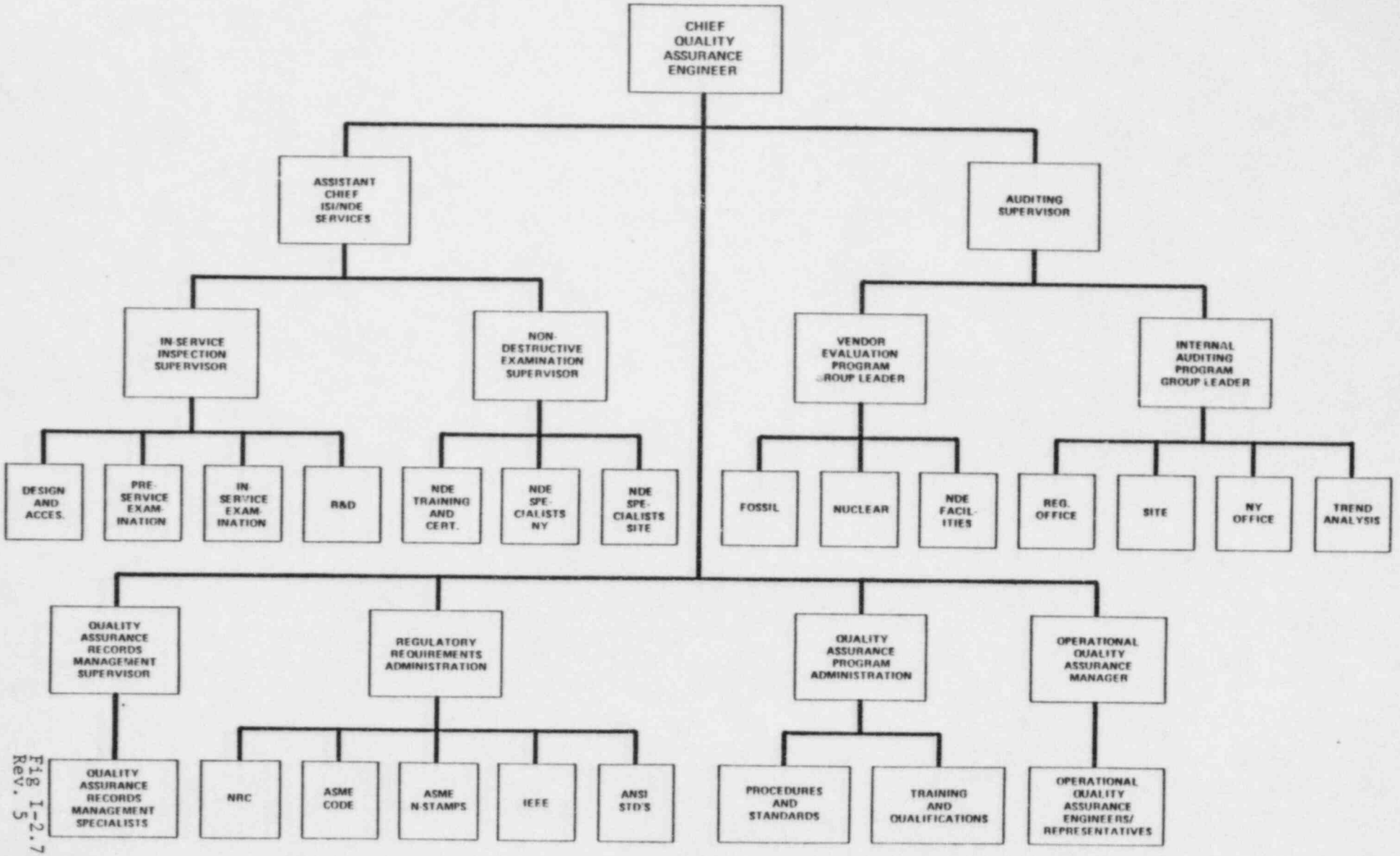


Fig I-2.6
Rev. 5

EBASCO SERVICES INCORPORATED
QUALITY ASSURANCE ENGINEERING
QUALITY ASSURANCE SPECIALISTS



FORM 039 REV 8-70

EBASCO SERVICES INCORPORATED

DISTRIBUTION SCHEDULE

ISSUE DATE

REV DATE

CLIENT SYMBOL   OFS NO.   ____________ CLIENT   ____________ PROJECT

FUEL LOADING OR TRIAL OPERATION DATE

	CORRESPONDENCE						NEW YORK PURCHASE ORDERS						DRAWINGS				PROJECT STATUS (*)	FIELD CONSTRUCTION CONTRACTS			
													EBASCO		MANUFACTURERS					CONTRACTS	
							INQUIRIES & ENG. SPECS. EBASCO TO MFR.	MANUFAC-TURER'S BIDS	EBASCO BID COM-PARISON & PURCH. RECOM.	ORDERS, SPECS. & SUPP'S	EBASCO Q.C. REP. & EXPED. REPORTS	INSTRUC-TION MANUALS	PRELIM-NARY	FINAL	PRELIM-NARY	FINAL		INVITA-TIONS	BIDS & COM-PARISON	EXECUTED	CONFORMED

(*) *Includes Status of Engineering, Drawing Schedules, Status of Equipment and EASE Analysis.*

LEGEND: 0 - Indicates original to person designated; 1, 2, 3, etc., indicates number of copies.

A - Indicates selected items of interest as determined by Client or originating engineer.

B - 1/4 size prints (15 X 21).

C - Direct reading reproducible.

D - Letter only.

E - Relating to shop test scheduling and shop test data on all rotating equipment and other major equipment.

F - Covering erection or erection options only.

G - Plot plan, general arrangements and flow diagrams only.

H - Copy to be retained by originating engineer.

FIGURE I-2.8
(FORMERLY I-2.7)

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-I-3
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	PERSONNEL INDOCTRINATION AND TRAINING PROGRAM IN QUALITY ASSURANCE	REVISION R3 R3 DATE 6/18/82 R3

1.0 SCOPE AND PURPOSE

1.1 This Section describes the Program for indoctrination and training of Ebasco personnel engaged in activities affecting quality with respect to the requirements of the Ebasco Nuclear Quality Assurance Program Manual ETR-1001 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

2.1 The Indoctrination and Training Program is a combined effort of the disciplines/departments implementing any portion of the Manual and its principal implementing procedures, the Corporate Training and Development Department and the Quality Assurance Engineering Department. Each project which is comprised of personnel from various disciplines/departments, is responsible to assure the indoctrination and training for the project except for the personnel from the Construction, Quality Assurance Engineering and Vendor Quality Assurance Representative Departments. These Departments are responsible to schedule, indoctrinate and train their personnel, and to record this indoctrination and training, unless otherwise denoted by project committments. R3

3.0 PROGRAM REQUIREMENTS

3.1 Written preplanned lessons shall comprise 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 each applicable discipline/department), or Project Engineers or their designees, or a Quality Assurance Engineering Education Specialist or designee when the need arises. The Quality Assurance Engineering Department will primarily be responsible for training the selected instructors within the discipline/department in methods of conducting the required training. Since the Quality Assurance Engineering (home office and site) and Vendor Quality Assurance Representative Departments are responsible for the preparation and approval of their own procedures, training of affected personnel will be conducted by supervisors or their designees within these departments or by the Quality Assurance Engineering Education Specialist, consistent with project requirements.

PROGRAM REQUIREMENTS (cont'd)

3.2 For Engineering Disciplines, Purchasing and Licensing, a list of the principal implementing procedures which affected personnel are required to be familiar with is maintained by the Quality Assurance Engineering Department. This list is used as a reference with respect to what required training lessons must be developed, revised or deleted from the program. This list is approved by the Quality Assurance Engineering Education Specialist or designee. It will be updated, as required, to reflect any changes in implementing procedures status. All training lessons and their revisions shall be reviewed and approved by the Quality Assurance Engineering Department, to assure compliance with the Ebasco Nuclear Quality Assurance Program Manual ETR-1001 requirements. Copies of the training lessons and other training material shall be kept on file in the Quality Assurance Engineering Department. On a project, when a principal implementing procedure has been replaced by an equivalent project unique procedure, an addendum or modification to subject list will be written by the Quality Assurance Engineering Education Specialist.

3.3 For Quality Assurance Engineering and Vendor Quality Assurance Representative Departments, training lessons are maintained by each respective department. The training lessons relate to activities the personnel shall be performing. A responsible person within the respective department shall determine the training requirements for each individual based on that individual's assigned responsibilities and past experience. Training lessons are updated when required and reflect any changes in the program. Copies of these training lessons shall be kept on file in the respective Departments. Quality-affected training will reflect project requirements. R3

4.0 RECORDS

4.1 The Corporate Training and Development Department maintains a computerized employee history training file of Ebasco Personnel. It identifies the type of training that an employee receives, including the indoctrination and training received in accordance with this Program's requirements, when applicable. The Corporate Training and Development Department maintains the original attendance records of applicable personnel for imput to the computer on a monthly basis. The computerized records shall identify the participant, the course given and the attandance date. The original attendance records shall identify the instructor and time duration.

4.2 Individual training files for each person receiving indoctrination and training other than those identified on the computerized file shall be maintained by each affected department. 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

5.1 Scheduling training of applicable discipline/department personnel will be coordinated with the Quality Assurance Engineering Education Specialist where necessary. As new personnel are added to a Project or within a department, appropriate indoctrination and training sessions will be scheduled based on the requirements of this Manual.

6.0 PROGRAM UPDATING

6.1 This indoctrination and training program is subject to continuous development to broaden and improve its effectiveness. The Quality Assurance Education Specialist will hold periodic discussions with those groups involved with the t aining program to coordinate recommendations for updating. The Quality Assurance Education Specialist is responsible for updating the Program for the Quality Assurance Engineering Department. R3

7.0 ADMINISTRATION

7.1 The Quality Assurance Engineering Department shall have overall responsibility for administrating the training program. It shall provide technical expertise for developing necessary programs, and review existing programs for currency.

7.2 Each Department Head is responsible to see that the appropriate people attend the training program(s) they are scheduled for.

8.0 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-II-9 of this Manual.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-I-4
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	DESIGN CONTROL	REVISION 1 / DATE 8/11/77

1.0 SCOPE

This section of the Manual describes the system of controls governing design activities for which Ebasco is responsible. "Design activities" shall include technical and management processes which lead to and include issuance and revision of specifications, drawings or other documents which define technical requirements for items of a Nuclear Power Plant. Also included is the development of criteria upon which the designs are to be based. Design activities described in this Section of the Manual shall be detailed in, and performed in accordance with, written instructions or procedures.

2.0 GENERAL

The area of design control encompasses the activities of several organizations within Ebasco in addition to the Engineering Department. A brief description of the organizations and responsibilities of each group within Ebasco participating in design activities is provided in Section QA-I-2 of this Manual and as follows:

2.1 The Consulting Engineering Department, in conjunction with the Engineering and Nuclear Departments, performs conceptual design activities such as establishing general plant paramenters (i.e., capacity, equipment types, plant cycles) and executing various techno-economic studies as further described in paragraph 3.0 herein. R1 R1

2.2 Consulting Nuclear Engineering which includes: Applied Physics Group (prime responsibility for containment analyses, shielding physics and radiation criteria); Chemical Engineering (prime responsibility for radioactive waste systems design and engineering); and Plant Security. R1

2.3 Nuclear Licensing is responsible for preparation and control (including amendment) of safety analysis reports (SAR's) for each nuclear power plant. The SAR contains descriptions of each plant system, including the criteria governing the design thereof, as well as the nuclear safety classification. Nuclear Licensing also provides interpretations as to safety design bases, and performs a review of safety-related drawings and specifications for compliance with applicable NRC Regulations, the SAR and the intent of Regulatory Guides. R1

2.4 The Engineering Department establishes and translates the applicable design criteria into specifications and drawings, taking into consideration the appropriate design interfaces and required design verifications. R1

R1

2.5 Quality Assurance Engineering performs independent reviews of specifications and drawings to assure that appropriate quality requirements have been included, e.g., inspectability, required performance tests, control of measuring and test equipment. R1

3.0 CONCEPTUAL DESIGN

3.1 Activities related to the development of conceptual design documents shall be detailed in, and performed in accordance with, written procedures or instructions, as required by Section QA-II-1 of this Manual.

3.2 The Project Engineer is responsible for the preparation of a list of safety-related engineering reports, studies, or other activities to be performed during the conceptual stages of plant design.

3.3 This list is distributed to the responsible Consulting Engineer, Project Licensing Engineer, Nuclear Consulting Engineer and other appropriate discipline engineers for review and comment. The Project Engineer shall reconcile all comments and re-distribute a copy of the list for sign-off by all reviewers. The Project Engineer shall update the list as required, and re-distribute for review, comment and sign-off. R1

3.4 The originating Engineer responsible for preparation of a particular (conceptual) study or report delineates the preliminary criteria from available sources such as the Project Specification, Federal Regulations and Regulatory Guides, Power Plant Industry Codes and Standards, Ebasco Standard Specifications and design guides, state and local regulations, information available from existing current projects with similar requirements and assumptions, literature searches, as well as other available sources. R1

3.5 The originating Engineer shall be responsible for submitting a draft of the prepared document to the disciplines concerned for review and comment. Reviewer's comments shall be reconciled by the originating Engineer, who shall obtain written concurrence from all reviewers. A history file shall be maintained by the originating engineer to substantiate the resolution of all comments as well as ultimate concurrence by reviewers.

3.6 Calculations relating to engineering studies, reports, analyses (including reactor physics, stress, thermal, hydraulic, radiation and accident analyses) shall be performed and documented in accordance with approved written procedures or instructions. Calculations which are to be incorporated into a final design are reviewed and signed by an individual or organization (checker) attesting to the accuracy of the calculations and compliance with the applicable criteria.

3.7 Conceptual design phase drawings developed for the PSAR (e.g., Flow Diagrams, General Arrangement, One-line Diagrams) shall be prepared, approved and documented in the manner prescribed for "Design Drawings" as described in Paragraph 7 of this section of the Manual. R1

3.8 Where computer programs are used, the provisions of Paragraph 8 of this section of the Manual shall apply. R1

4.0 SAFETY ANALYSIS REPORTS (SAR's)

4.1 Activities involved with the preparation, approval and amendment SAR contents shall be detailed in, and performed in accordance with written instructions or procedures, as required by Section QA-II-1 of this manual.

4.2 Within the Nuclear Licensing Department (under the direction of the Chief Nuclear Licensing Engineer) a Project Licensing Engineer is assigned to coordinate the preparation of a Preliminary Safety Analysis Report (PSAR). Contents of the PSAR include: R1

a) System Description - functions, operating parameters

b) Design Criteria - Codes, standards, regulations, regulatory guides

c) Nuclear Safey Classification of terms in the power plant

4.3 Technical content of the design-related sections of the PSAR (Structural sections and Systems sections) are the responsibility of the respective Lead Discipline Engineers, who shall prepare the sections under the guidance of the Project Licensing Engineer. Each prepared section shall be reviewed and approved by the respective Discipline Supervising Engineers as to technical content and sound engineering practice. Each section shall then be reviewed by the Project Licensing Engineer for conformance to required NRC design bases and overall Licensing requirements. Review, comment and resolution of comment shall be fully documented , including signatures of all concerned. Amendments to SAR Sections shall be subject to the same review and approval requirements as applied to the original Section. R1 R1

4.4 All items of a nuclear power plant important to safety shall be identified in the SAR and assigned a safety classification. Guidelines for classification are primarily the responsibility of the Project Licensing Engineer. Detailed classification in accordance with those guidelines is the responsibility of the Project Engineer, with written concurrence by the Chief Licensing Engineer. R1

5.0 INTERFACE CONTROL

5.1 Activities related to identification and performance of required design interfacing shall be detailed in, and performed in accordance with, written instructions or procedures, as required by Section QA-II-1 of this Manual.

5.2 In order to define the requirements for interdisciplinary (interface) review of specifications and drawings within Ebasco, the Project Engineer shall prepare a "Document Review List". R1

5.2.1 The list shall contain the number and title of applicable specifications and drawings known to be required for a particular project. The Project Engineer, together with the Project Licensing Engineer, shall be responsible that a Nuclear safety and seismic classification is assigned, where appropriate, to each specification and drawing on the list. R1 R1

5.2.2 The list of specifications and drawings shall be distributed by the Project Engineer to all Lead Discipline Engineers, the Project Quality Assurance Engineer, Manager of Construction Engineering, and Project Licensing Engineer in order that each responsible individual may review the list for his particular discipline and indicate those specifications and drawings which will require his review. R1 R1

5.2.3 The Project Engineer shall reconcile all comments by reviewing parties and shall distribute the finalized "Document Review List" to all disciplines for written concurrence by the responsible discipline engineers. Once this has been done the Project Engineer shall issue the list as a controlled document to all disciplines. All originators of specifications or drawings shall use the "Document Review List" to assure that all required internal reviews are performed. R1 R1

5.3 In order to define the requirements for design interface review between Ebasco and the Nuclear Steam Supply Supplier, the Lead Mechanical-Nuclear NSSS Engineer shall be responsible for implementing paragraph 5.4 for all NSSS drawings and specifications. R1

5.4 Design interface review between Ebasco and a supplier is accomplished through each respective Lead Discipline Engineer. Drawings and other design documents received from suppliers are entered into Ebasco's computerized EMDRAC (Ebasco Manufacturer's Drawings, Records and Control) system, where they are distributed to the various engineering disciplines for review and comment. Comments are resolved through the Lead Discipline Engineer and returned to the supplier through the EMDRAC System. R1 R1

5.5 Design interface review between Ebasco and the Client is accomplished by providing copies of all specifications, drawings, and any other design information to the client as required by contractual agreement. R1

6.0 SPECIFICATIONS

6.1 Activities related to the generation, approval and revision of specifications shall be detailed in, and performed in accordance with written instructions or procedures, as required by Section QA-II-1 of this Manual.

6.2 A flow chart outlining the specification generation process is included in applicable Engineering Department implementing procedures. R1 R1

6.3 The Lead Discipline Engineer in each discipline shall be responsible for the preparation of written design criteria for specifications, to be approved in writing by the respective discipline Supervising Engineer. Sources of these criteria include:

a) Project Specification

b) PSAR

c) Federal, State and Local Regulations

d) Regulatory Guides

e) Power Plant Industry Codes and Standards

f) Ebasco Standard Specifications, Engineering and Design Guides

g) Other Ebasco projects with similar requirements

h) Owner requirements

6.4 The Lead Discipline Engineer or his designee shall be responsible for the required design analyses (such as physics, stress, thermal, hydraulic and/or accident analyses) necessary for the development of a particular specification. Design analyses shall be performed in accordance with detailed written procedures which include provisions for:

a) Indexing and dating documents to permit ready reference and retrieval

b) Defining the objective of the analysis

c) Defining design criteria

d) Identifying and justifying assumptions; identifying those assumptions which must be verified as the design proceeds.

6.5 The Lead Discipline Engineer shall be responsible to assure that provisions are made for required design verification activities. Design verification shall be performed by individuals or groups other than those who performed the original design but who may be from the same organization. The Supervising Engineer shall specify the manner of design verification to be applied, documenting this decision. R1

6.6 Specifications which become part of the procurement document are distributed for documented review by those individuals or organizations so designated on the "Document Review List". Each Specification must clearly indicate the safety classification(s) involved. R1

6.6.1 The specification shall be reviewed by the Project Quality Assurance Engineer or his designee in accordance with departmental procedures to assure inclusion of the following:

a) Applicable regulatory, code and design requirements

b) Quality Assurance program requirements, including inspectability, required performance tests, and control of measuring and test equipment

c) Requirement for submittal of supplier documents such as procedures, drawings, specification, inspection and test records and other documents to be provided by the supplier prior to, during or upon completion of execution of the procurement contract.

d) Requirements for retention, control and maintenance of supplier QA records

e) Provisions for Ebasco, Owner and NRC right of access to supplier's facilities and work documents for surveillance, inspection and audit. R1

f) Provisions for supplier reporting and disposition of non-conformances from procurement documents.

6.6.2 The specification shall be reviewed by Nuclear Licensing for adherence to applicable nuclear licensing safety criteria and specific criteria as established by the PSAR. R1 R1

6.6.3 The specification shall be reviewed by the Manager of Construction Engineering or his designee from the viewpoint of construction practicality.

6.7 Comments shall be resolved between the various reviewers and specification originator. A re-draft of the specification, incorporating required changes, is to be redistributed to concerned reviewers for written concurrence. Having received this written concurrence the specification, must receive the approval and signature of the Supervising Engineer of the originating discipline. Completed specifications are submitted to the client, as required, for review prior to being released for procurement or construction site use.

6.8 Changes to specifications must be reviewed and approved by the same individuals or organizations responsible for original review and approval and affected by the area requiring revision as determined by its Lead Discipline Engineer or his designee. All changes must be fully documented, including signatures of approving parties. Field originated requests are to be processed in accordance with applicable implementing procedures. R1

6.9 A backup file (history file) shall be maintained by the originator of each specification, which shall provide a complete record of the development of specification beginning with the design criteria and including design verification records, records of interdisciplinary and intradisciplinary review and approval, client approval and records substantiating any subsequent changes to the specification. R1

7.0 DRAWINGS

7.1 Activities related to the generation, approval and revision of design drawings shall be detailed in and performed in accordance with, written instructions or procedures, as required by Section QA-II-1 of this Manual.

7.2 A flow chart outlining the drawing generation and approval process is included in applicable Engineering Department implementing procedures. R1

7.3 The Lead Discipline Engineer in each discipline shall be responsible for the preparation of documented design criteria to be used as as basis for drawing preparation. Such criteria are to be signed by the Lead Discipline Engineer, and the respective Design Group Supervisor (Electrical, Mechanical, or I & C Departments) or Supervising Design Engineer (Civil Departments), and approved in writing by the Supervising Engineer. Sources of these criteria include:

a) Project Specification

b) PSAR

c) Federal, State, and Local regulations

d) Regulatory Guides

e) Power Plant Industry Codes and Standards

f) Ebasco Standard Specifications, Engineering and Design Guides

g) Other Ebasco Projects with similar requirements

h) Owner requirements

7.4 The Lead Discipline Engineer shall be responsible for assuring the performance of the required design analyses (such as physics, stress, thermal, hydraulic, accident). Design analyses shall be performed in accordance with detailed written procedures which include provisions for:

a) Indexing and dating documents to permit ready reference and retrieval

b) Defining objective of the particular analysis

c) Defining design criteria

d) Identifying and justifying assumptions; identifying those assumptions which must be verified as the design progresses.

7.5 Preparation of each drawing or set of drawings is performed by a Designer, under the close supervision of a Design Supervisor (in the case of Electrical, Mechanical and I & C Departments) or a Senior Design Engineer (in the case of civil departments). Activities of the Designer are monitored on a continuous basis by the Lead Discipline Engineer to assure adherence to prescribed procedures and criteria. All activities involved with the preparation, review, approval and release of drawings shall be clearly defined in procedures, instructions and/or checklists.

7.6 Each drawing containing safety-related information (in whole or in part) and/or Seismic Class I information shall be clearly indicated as such by the designer by marking the drawing accordingly. R1 R1

7.7 The Lead Discipline Engineer shall assure that provisions are made for required design verification activities, to be performed by individuals or groups other than those who performed the original design. The Supervising Engineer shall specify the methods of design verification to applied, documenting this decision. R1 R1

7.8 Prepared drawings are to be distributed by the originator, for documented review, to those individuals or organizations so designated on the "Document Review List". Reviewer's comments shall be resolved by the Designer, going to successively higher levels of authority as necessary to obtain resolution. Disposition of comments shall be documented as part of the file for the particular drawing or set of drawings. Drawings revised to incorporate reviewer's comments shall be redistributed to concerned reviewers for documented concurrence. Drawings which have completed the internal review and approval process are submitted by the Lead Discipline Engineer to the client for review as required. R1 R1

7.9 Major changes to drawings, those which affect safety related aspects of the drawing, whether originated in the Home Office or the Field, must be reviewed and approved by the same individuals or organizations responsible for the original review and affected by the area requiring revision as determined by the Lead Discipline Engineer or his designee. All changes shall be fully documented including required reviews and approvals. Field change requests are transmitted to the Lead Discipline Engineer or his designee and processed in accordance with applicable implementing procedures. R1

7.10 Minor changes to drawings, those which do not affect safety related aspects of the drawing, whether originated in the Home Office or the Field, do not require the review and approval of those organizations reviewing the original drawing. The decision as to whether a change is major or minor must have the concurrence of the Lead Discipline Engineer or his designee. All changes shall be fully documented, to include the basis for approval of the change. Field change requests are transmitted to the Lead Discipline Engineer or his designee and processed in accordance with applicable implementing procedures. R1 R1 R1

7.11 A backup file (history file) shall be maintained by the originating discipline for each drawing or set of drawings, which shall provide a complete record of review and approval, beginning with design criteria and including design verification, records of interdisciplinary and intradisciplinary review, client review and records substantiating all changes.

8.0 COMPUTER PROGRAMS

8.1 Where commercially available computer programs are used in the development or verification of design drawings or specifications, the basis for acceptability of such programs shall be documented.

8.2 Where Ebasco - developed computer programs are used, the acceptability of such programs shall be demonstrated by comparison to proven programs, comparison with hand-calculations or other suitable means, with complete records maintained to substantiate this acceptability.

9.0 AUDITS

Periodic audits of design activities shall be performed to assure compliance with established procedures. Such audits shall be performed in accordance with the requirements of Section QA-I-6 of this Manual.

10.0 RECORDS

Complete records shall be maintained of all design activities and shall be filed and retained in accordance with the requirements of Section QA-I-6 of this Manual.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-I-5
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 QUALITY ASSURANCE EVALUATION OF SUPPLIERS/CONTRACTORS	REVISION 2 DATE 10/8/82

1.0 SCOPE

The purpose of this section is to establish the criteria for evaluating suppliers/contractors of safety-related items and services procured, either by means of purchase orders issued through the Engineering and Site Offices or by means of Construction Contracts issued at the various construction sites. Such suppliers/contractors shall be evaluated for their adherence to the portions of 10CFR50 Appendix B, ANSI N45.2 and applicable daughter standards, and other Ebasco requirements that are applicable to the items or services supplied.

2.0 RESPONSIBILITIES

Quality Assurance Engineering shall be responsible to assure, through implementation of departmental procedures, that safety-related items and services procured by Ebasco at Engineering Offices and Construction Sites are procured only from vendors and contractors who meet the applicable requirements of this section.

3.0 QUALIFICATION REQUIREMENTS

△2

3.1 Qualification of a supplier/contractor shall be determined from results of the following:

3.1.1 A review of the supplier's/contractor's Quality Assurance Manual.

3.1.2 A facility or site audit of the supplier's/contractor's Quality Assurance program to assure satisfactory implementation of that program. (Facility audits of Contractors' Quality Assurance programs shall be performed at the site after contract award but prior to start of installation of safety related items or performance of safety related work.)

3.1.3 Evidence of manufacturer's Certificate of Authorization (i.e., ASME N-type stamp), if applicable.

3.0 QUALIFICATION REQUIREMENTS (Cont'd)

3.1.4 For Contractors who have provided unique or special services (i.e., laboratories, consultants, research facilities, etc.) evidence based upon historical data substantiating their capability on other Ebasco projects or industry demonstrated and/or recognized technical expertise.

3.2 For purchase orders issued by the Engineering and Site Offices, a supplier, to be considered qualified to be awarded a purchase order, must have satisfactorily met the requirements of Paragraph 3.1 above. For Construction Contracts issued by the Construction Department, a contractor may be awarded a construction contract before meeting the requirements of Paragraph 3.1 above, but this is contingent upon his satisfactorily meeting the requirements before starting any safety-related work.

3.3 For Engineering and Site Offices purchase orders, Quality Assurance Engineering shall maintain and issue, to appropriate department heads, a list of Vendors considered qualified with regard to Quality Assurance capability in accordance with Quality Assurance Engineering procedures. This list is revised every 6 months and redistributed to those parties on original distribution. Interim changes to this list are issued via qualified suppliers list. Only Vendors who have satisfactorily met requirements of Paragraph 3.1 above shall be included on this list. Safety-related items and services shall be purchased only from Vendors included on this list. A Vendor may be removed from this list if it is found that unresolved conditions adverse to quality may have developed and remain unresolved. 2

For Construction Department Construction Contracts, the Manager of Construction Engineering will maintain a file of Contractors who have satisfactorily met the requirements of Paragraph 3.1.

3.0 QUALIFICATION REQUIREMENTS (Cont'd)

3.4 A supplier may be issued a purchase order without being required to have a Quality Assurance program or being subject to a facility audit for "off-the-shelf" items. Off-the-shelf items are those that do not have unique design or specification requirements, and do not require the manufacturer to perform a separate or special operation or test to qualify the item for use in a specific nuclear power plant facility. Documentation of qualification for "off-the-shelf" items, when applicable, shall be requested and obtained prior to purchase order award for evaluation so as to provide auditable evidence of review and acceptance thereof. Receiving inspection in accordance with Section QA-III-11 shall be documented to include evidence that these items are in conformance with the purchase order requirements.

4.0 SUPPLIER QUALITY ASSURANCE MANUALS

4.1 For Engineering and Site Offices purchase orders, vendor Quality Assurance manuals shall be submitted to Ebasco for review at the time the vendors submit their bid, provided a previous submittal of the manual has not been made. For Construction Department Construction Contracts, the Quality Assurance manuals shall be submitted either before or after award of a contract, but prior to performance of any safety-related work.

4.2 All Quality Assurance manuals shall be reviewed by Quality Assurance Engineering in accordance with departmental procedures and check lists, which includes the requirements for independence of supplier inspection personnel.

5.0 SUPPLIER/CONTRACTOR FACILITY AUDITS

5.1 For purchase orders issued at the Engineering and Site Offices, the Quality Assurance Engineering Department, prior to award of a purchase order, shall conduct a Quality Assurance audit of the prospective supplier's facility in accordance with departmental procedures and checklists.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL THIS PAGE ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 QUALITY ASSURANCE EVALUATION OF SUPPLIERS/CONTRACTORS	SECTION QA-I-5

5.0 SUPPLIER/CONTRACTOR FACILITY AUDITS (Cont'd)

For Construction Contracts issued by the Construction Department, the Quality Assurance Engineering Department shall conduct a Quality Assurance audit of the prospective contractor's site facility either before or after award of contract but prior to start of any safety-related work. 2

5.2 Section QA-II-9 establishes the requirements for the performance of supplier/contractor facility or site audits. These requirements are satisfied by the implementation of departmental procedures which include provisions for the following:

(a) Training and Qualification of Auditors

(b) Proficiency of Audits

(c) Audit Planning

(d) Audit Notification

(e) Audit Performance

(f) Reporting of Audit Results

(g) Audit Follow-Up

(h) Audit Records

(i) Trend Analysis of Audit Records

6.0 PERIODIC RE-AUDITS

6.1 Qualified suppliers/contractors shall have their Quality Assurance manual re-evaluated and their facility re-audited in accordance with an established schedule to determine continued compliance to applicable NRC, ANSI and Ebasco requirements. All re-audits shall be performed and documented as specified in this section for initial audits. 2

6.0 PERIODIC RE-AUDITS (Cont'd)

6.2 The periodic re-audit schedule shall be determined by the Chief Quality Assurance Engineer or his designee. The frequency shall be established utilizing pre-award audit findings, supplier/contractor history and supplier trend analysis. Maximum time for re-evaluation shall not exceed three years.

7.0 TREND ANALYSIS OF SUPPLIER/CONTRACTOR AUDIT REPORTS

The Quality Assurance Engineering Internal Audit Supervisor shall make an analysis of the available Quality data, such as supplier/contractor audit reports and other appropriate documentation 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 Engineering Procedure QA-D.3.

8.0 RECORDS

All documents and records relating to a supplier's/contractor's quality program and audit status shall be secured and maintained by the Quality Assurance Engineering Department at the Engineering Office for Engineering Offices purchase orders and by the Quality Assurance Site Supervisor at the Site for site purchase orders, all in accordance with departmental procedures and the applicable requirements of Section QA-I-6 of this manual.

Documents and records relating to Construction Contracts shall be secured through the Contracts Administrator and distributed to the Quality Assurance Site Supervisor for filing, all in accordance with departmental procedures and Section QA-I-6 of this manual. A copy of the contractors audit reports and any trend analysis should be sent to the Manager of Construction Engineering for future reference. 2

FOR INFORMATION ONLY

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-I-6
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	QUALITY ASSURANCE RECORDS	REVISION 0 DATE 3/14/75

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 design, construction and maintenance of nuclear power plants. In addition to the requirements of this Section, Ebasco maintains, on a project basis, a Nuclear Project Filing System for the retention and retrieval of a predetermined list of project-related documents.

2.0 RESPONSIBILITY

2.1 It shall be the responsibility of Ebasco to maintain Quality Assurance records in accordance with the requirements of this section until such time as those records are turned over to the Owner for permanent storage. All QA Records shall be accessible to the Owner until such time as they are turned over to the Owner.

3.0 QUALITY ASSURANCE RECORDS SYSTEM

Each organization within Ebasco (including but not limited to the Engineering, Purchasing, Construction and Quality Assurance departments) that participate in the generation, collection filing, storage, dispostion or maintenance of Quality Assurance Records shall establish a written quality assurance record system applicable to the function(s) performed by that organization. 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 specs, procurement documents, 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 listed in an index which includes as a minimum:

4.1.1 QA Records retention times (retention period begins on date of satisfactory operation of items).

4.1.2 Location of storage area.

4.1.3 Location of 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 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.

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

a. A description of the type of observation.
b. Evidence of completing and verifying a manufacturing, 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. A statement as to the acceptability of the results.

5.0 RECEIPT OF QUALITY ASSURANCE RECORDS

5.1 QA Records to be furnished by suppliers, contractors or other external agencies shall be submitted to Ebasco in accordance with the requirements of the purchase order.

5.1.1 The purchase order shall make provisions for records to be accessible to Ebasco or the Owner if the records are maintained by the Supplier at his facility.

5.2 A system shall be established for receipt of QA records at the site which shall include:

5.2.1 A checklist designating the required QA Records.

5.2.2 A record of QA Records received.

5.2.3 Written procedures for receipt and inspection of incoming QA Records.

These Quality Assurance records shall be maintained by Quality Assurance Engineering or monitored by Quality Assurance Engineering to assure that they are maintained properly.

5.3 The system described in paragraph 4.2 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 includes the following:

6.1.1 Description of storage area

6.1.2 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

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 Methods of maintaining control of QA Records removed from storage. Such methods shall provide for signing out of QA Records removed from storage or other appropriate means of maintaining control of the location of the QA 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 shall be designated to implement the requirements of paragraph 6.1.

6.3 Records stored within a temporary storage facility shall be protected from damage and loss. This includes:

6.3.1 Storage within fire resistant cabinets with a four hour under-writer's 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 Special 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 is maintenance of duplicate QA Records stored in a separate remote location.

6.5 Audits shall be performed by each organization to assure the effectiveness of its storage system, and shall include:

6.5.1 Surveys to assure that logged in QA Records are available in their proper location and in good condition.

6.5.2 Audit results shall be documented and discrepancies shall be re-audited 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

7.1 Upon transfer of QA Records, the Owner shall acknowledge in writing the receipt of the particular QA Records.

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EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-II-1
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	INSTRUCTIONS, PROCEDURES AND DRAWINGS	REVISION 2 R2 DATE 3/4/81 R2

1.0 SCOPE

1.1 Activities affecting quality performed by the Engineering Office 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. R2

2.0 RESPONSIBILITIES

2.1 Where the Ebasco Nuclear Quality Assurance Program Manual designates an individual or organization with the responsibility of performing quality related functions, such functions shall be performed in accordance with written instructions, procedures or drawings that have been developed by the department 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.

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 (i.e., inspections or tests) shall contain or reference criteria for determining that such activities have been satisfactorily accomplished.

2.4 Ebasco purchase orders shall designate those Supplier test and/or inspection procedures to be submitted to Ebasco for review. The procedures required by the purchase order shall be reviewed by Quality Assurance Engineering and/or other Ebasco disciplines as required.

3.0 DEVELOPMENT OF INSTRUCTIONS, PROCEDURES AND DRAWINGS

3.1 Instructions, procedures or drawings for activities affecting quality shall be developed by the Ebasco department having the responsibility of performing the quality related function. The Ebasco Nuclear Quality Assurance Program Manual shall be used as a guideline for their development.

3.2 The Ebasco Standards and Procedures Department shall be responsible to develop company procedures of categories, such as Administrative (A), Engineer (E), Nuclear (N), Purchasing (PD), and Projects (PJ), as listed in Tables I-1.2 and I-1.3 of Section QA-I-1, pertaining to quality-related functions performed by the Engineering Department. R2

3.3 Individual/Disciplines departments shall be responsible for the initial development of their own intradepartmental/discipline instructions, procedures or drawings that establish the methods for performing the quality related function. The Ebasco Standards and Procedures Department will provide, upon request, guidance and assistance in developing these documents. R2

3.4 Quality Assurance Engineering shall act in an advisory capacity during the preparation of the company procedures as described in 3.2 of this section. R2

3.5 Intradepartmental/discipline procedures and revisions to existing procedures for activities affecting quality will, upon request, be reviewed by the Standards and Procedures Department with regard to standardization of format and assignment of identification number. A master list shall be maintained by the Standards and Procedures Department of all departmental/discipline procedures. R2

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

3.7 To assure that quality assurance related Engineering Procedures (E-procedures) comply with this manual, applicable codes and regulatory requirements those E-procedures which are included in Tables I-1.2 and I-1.3 of this manual (including revisions thereto) shall be submitted for review and acceptance to Quality Assurance Engineering prior to implementation. R2

4.0 DISTRIBUTION AND CONTROL

4.1 Each Ebasco department head shall be responsible for maintaining and enforcing a written system for the distribution and control of that department's instructions, procedures and drawings for activities affecting quality. This system shall provide for at least the following:

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 be destroyed or clearly marked as superseded or designated void.

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

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

(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 written procedures and drawings shall be maintained by the department responsible for the issuance of the procedure or drawing.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-II-2
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	DOCUMENT CONTROL	REVISION 2 R2 DATE 3/4/81 R2

1.0 SCOPE

1.0 This section of the Quality Assurance Manual establishes the requirements for the control of all Engineering Office documents which have an affect on quality related activities. These requirements apply to those documents prepared for each individual project (such as specifications and drawings) as well as to instructions and procedures which control or direct activities affecting quality (such as operation descriptions and program outlines, including the Ebasco Nuclear Quality Assurance Program Manual).

2.0 RESPONSIBILITIES

2.1 Corporate Ebasco Nuclear Quality Assurance Program Manuals shall be issued and controlled by the Ebasco Quality Program Coordinator. Project related Ebasco Nuclear Quality Assurance Program Manuals shall be issued and controlled by the respective Ebasco Project Quality Assurance Engineer.

2.2 Ebasco Intradepartmental/Discipline instructions, procedures and drawings shall be issued and controlled by each responsible department or discipline head as described in Section QA-II-1 of this Manual. R2

2.3 Ebasco company procedures, of categories such as Administrative (A), Engineering (E), Nuclear (N), Purchasing (PD), and Projects (PJ), as listed in Tables I-1.2 and I-1.3 of Section QA-I-1, shall be issued and controlled by the Ebasco Standards and Procedures Department. R2

2.4 Project specifications and drawings generated by Ebasco Engineering shall be issued and controlled by each appropriate Lead Discipline Engineer assigned to the project. R2

2.5 Supplier drawings related to engineering on specific projects shall be controlled by the Lead Discipline Engineer assigned to the project, using the EMDRAC system. R2

2.6 Supplier procedures related to special processes, such as nondestructive examination and welding, shall be controlled by the Project Quality Assurance Engineer. R2 R2

2.7 The Ebasco Purchasing Department shall be responsible for the issuance and control of purchase contracts. R2 R2

3.0 CONTROLLED DOCUMENTS AND METHODS

3.1 Corporate Ebasco Nuclear Quality Assurance Program Manuals

Distribution and control of Ebasco Nuclear Quality Assurance Program Manuals shall be in accordance with Quality Program Procedure No. 6. Implementation of modifications and/or revisions to these manuals shall conform to Quality Program Procedure No. 7. The Ebasco Quality Program Coordinator is responsible for proper execution of these procedures.

Updating Status Memoranda shall be published semi-annually by the Quality Program Coordinator to summarize all revisions that have been made to corporate Ebasco Nuclear Quality Assurance Program Manuals during preceeding six months. This serves primarily as a check for each manual assignee as to whether his manual is current.

3.2 Project-Related Ebasco Quality Assurance Manuals

Project-related Ebasco Nuclear Quality Assurance Program Manuals may be compliled for individual nuclear projects to reflect the needs of the particular project and the associated Cleint. These manuals shall be assigned to all concerned project personnel, with their distribution and control the responsibility of the applicable Project Quality Assurance Engineer and in conformance with Quality Assurance Engineering Procedure No. QA-G.2. Deviation of project-related Manuals from the corporate Ebasco Nuclear Quality Assurance Program Manuals shall be made in accordance with Quality Program Procedure No. 5. R2

3.3 Ebasco Departmental Instructions, Procedures and Drawings

Intradepartmental/Discipline instructions, procedures and drawings shall be developed as required by the department/disciplines responsible for performing the Quality related functions to which they apply. The Ebasco Standards and Procedures Department will provide, upon request, guidance and assistance in developing these documents. R2

Instructions, procedures and drawings shall be issued and controlled in a timely manner. Outdated and/or superceded documents shall be destroyed or clearly marked as supeseded or designated void. The development and control of these documents shall be in accordance with Section QA-II-1 of this Manual.

3.4 Ebasco Project Specifications and Drawings

Project specifications and drawings developed by the various Ebasco engineering disciplines shall be controlled as described in Section QA-I-4 of this Manual. In addition to the independent checking of design bases performed within the engineering groups, interdisciplinary reviews of required specifications and drawings shall be performed by appropriate groups at Ebasco as indicated in Section QA-I-4. The reviews shall be documented, and all comments resolved prior to final issuance of the specification or drawing. A copy of this final specification or drawing is maintained on file by each engineer or designer as applicable. Any changes to the specification or drawing after its final issuance shall be documented and reviewed in the same manner as the original by those who are affected by the area requiring the revision. The lead discipline engineer shall issue copies of the change to those engineers affected by the changes. R2

3.5 Supplier Drawings Related to Engineering R2

All supplier drawings, which pertain to design and engineering for a project shall be controlled by each responsible lead discipline engineer. This shall be accomplished using the computerized Ebasco Manufacturers' Drawings, Records and Control (EMDRAC) system. Suppliers' drawings shall be reviewed for applicability by the appropriate lead discipline engineer or his designee and forwarded to the EMDRAC center for identification and entry into the computerized system and subsequent distribution for review. R2

Once a drawing has been entered into the EMDRAC system, a monthly report on the status of the drawing will be issued. This report will be issued for each supplier on a project basis and will indicate the status of all drawings he has submitted. In addition, the report contains submittal period requirements to assure that information is processed on a timely basis by both Ebasco and suppliers.

3.6 Supplier Special Process Procedures

When required by Ebasco purchase order specifications, suppliers shall submit procedures to Ebasco which relate to the control of special processes such as welding, nondestructive examination and heat treatment. These procedures shall be transmitted to the Ebasco Project Quality Assurance Engineer (PQAE) unless otherwise stipulated by project requirements. The PQAE will transmit the procedures to appropriate individuals (nondestructive testing specialist, welding engineers, etc.) for review and comments. R2

The responsible engineer within the Quality Assurance Engineering and Materials Application Departments shall return the procedures to the supplier with one of the following dispositions: R2

a) Reviewed without comment
b) Reviewed with comments as noted; incorporate comments and resubmit; proceed with order
c) Reject; revise and resubmit

Any resubmitted procedures shall be reviewed by appropriate cognizant individuals.

In the suppliers' shops, Ebasco Vendor Quality Assurance Representatives shall verify that only Ebasco-approved procedures are used in the performance of special process operations. R2

3.7 Purchase Contracts R2

After a specification or drawing which ahs been prepared for procurement purposes is in its final form, it shall be forwarded to the Purchasing Department together with the purchase requisition. The Purchasing Department shall attach all appropriate terms and conditions to each specification or drawing and issue it to the suggested suppliers, the client and cognizant project personnel at Ebasco. If any changes to the final purchase documents are required, these shall be controlled and issued in the same manner as the original documents, so that all responsible individuals will be aware of the new requirements.

4.0 Ebasco Nuclear Project Filing System (NPFS)

4.1 In addition to the previously mentioned document control methods, Ebasco shall emply a Nuclear Project Filing System (NPFS) for nuclear projects. The NPFS is a central filing system which allows timely recall of correspondence.

4.2 The NPFS employs a document classification system which allows each discipline to categorize their correspondence in accordance with established groupings, permitting each department to maintain a consistent approach to document retention and can easily retrieve any required correspondence for reference.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-II-3
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	PROCUREMENT DOCUMENT CONTROL	REVISION 0
		DATE 3/14/75

1.0 SCOPE

This Section of the Manual describes the system of control which governs the preparation, review, approval and revision of documents used for procurement of items and services by an Engineering Office.

2.0 PROCUREMENT DOCUMENT CONTENTS

2.1 Procurement documents shall make provision for the following:

a) Supplier Quality Assurance Program

b) Technical requirements

c) Accessability to suppliers and suppliers' facilities for source inspection and audit

d) Documentation requirements

e) Extension, as required, of procurement document requirements to lower tier suppliers.

2.2 Inclusion of the requirements of paragraph 2.1 above is assured during the review by the Project Quality Assurance Engineer of the component specification as described in Section QA-I-4 of this Manual.

2.3 Control of the procurement documents after release to purchasing via the "Inquiry Memorandum" and prior to purchase order, is described in Section QA-II-4 of this Manual.

2.4 Changes to procurement documents are subject to the same system of control as was the original document. This requirement is as described in Section QA-II-4 of this Manual.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-II-4
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	PURCHASING	REVISION 1 DATE 4/16/76

1.0 SCOPE

This Section of the Manual describes the system of controls under which the purchase of safety-related items is accomplished by the Ebasco Engineering Office. All activities described in this Section of the Manual shall be performed in accordance with written instructions and/or procedures.

2.0 RESPONSIBILITIES

2.1 Engineering Department (Lead Discipline Engineer) is responsible for:

a) Preparation of Inquiry Memorandum, initiation of inquiry process, informing Purchasing of the safety-related status of the item.

b) Technical Evaluation of Bidder's Proposal; including exceptions to inquiry package.

c) Requesting QA Evaluation of Bidders.

d) Preparation of recommendation to purchasing.

e) Revision of specification to accommodate acceptable exceptions prior to issuance of purchase order.

f) Maintenance of backup file for bid evaluations.

g) Obtaining Client concurrence through Project Manager (where required).

h) Maintenance of appropriate records.

2.2 Purchasing Department (Buyer) is responsible for:

a) Review Inquiry Memoranda for safety-related status of item.

b) Preparation of Inquiry.

c) Selection of Bidders.

d) Commercial review of Bidder's proposal, including exceptions to inquiry.

e) Obtaining technical evaluations.

f) Performing final review to assure that prerequisites are satisfied.

g) Preparation of Purchase Order for approval and issuance by Purchasing Agent.

h) Maintenance of appropriate records.

2.3 Project Quality Assurance Engineer is responsible for the performance and coordination of:

a) Evaluation of Bidder's proposed quality-related exceptions.

b) Evaluation of Bidders; documented QA Program and Manufacturing/ Service facility.

c) Audits of related Engineering and Purchasing activities to assure compliance with the requirements of this Section of the Manual.

d) Maintenance of appropriate records.

3.0 BID INQUIRIES

3.1 After a specification has been reviewed in accordance with the requirements of Section QA-I-4 of this Manual, the Lead Discipline Engineer initiates the purchasing process by preparing an "Inquiry Memorandum" form 698, which is sent to the Purchasing Department.

3.2 A Buyer is assigned within the Purchasing Department to prepare an inquiry, consisting of the specification(s) and attachments, commercial terms, conditions and other aspects and instructions to the Bidders. The Buyer shall review the Inquiry to assure that the specification and attachments are as specified and on the Inquiry Memorandum.

3.3 Inquiries are sent to prospective suppliers selected from the Bidders' List for the particular item. Such Bidders' Lists are compiled and maintained by the Purchasing Department. Prospective suppliers are included on such lists on the basis of any one of the following: RI

a) Favorable past experience (within the past three years).

b) Satisfactory evaluation in accordance with Ebasco Company Procedure No. 16, entitled "Qualification of Prospective Bidders."

c) Client directive.

Inclusion on a Bidders' List does not establish a supplier as being qualified with respect to quality assurance. Such qualification may only be obtained by satisfactory evaluation as described in Section QA-I-5 herein, entitled "Quality Assurance Evaluation of Suppliers."

3.4 Distribution of the Inquiry package shall be made to individuals and/or organizations as shown on the Project Distribution Schedule for each project.

4.0 BID PROPOSALS

4.1 Bidders' proposals are received by the Purchasing Department (Buyer). Copies are distributed internally to the appropriate Lead Discipline Engineer for technical evaluation and bid analysis, as well as resolution of Bidders' proposed exceptions to the Inquiry. The Purchasing Department performs a commercial bid analysis of the Bidders' proposals and documents disposition of bidders' proposed exceptions.

4.2 The appropriate Lead Discipline Engineer has responsibility for the performance of technical evaluations of the Bidder's proposals in accordance with written departmental procedures.

4.2.1 Bidders' proposals must be reviewed, dispositioned and documented, with such reviews performed by all concerned disciplines, including those which may be external to the discipline originating the specification.

4.2.2 All exceptions relating to materials, testing, special processes, inspection. records and documentation, quality assurance program or other areas important to quality must be processed through the appropriate Project Quality Assurance Engineer. The Project Quality Assurance Engineer will then review and/or obtain the necessary review(s) within the Materials Engineering and Quality Assurance Department, returning the results of this review to the Lead Discipline Engineer. RI

4.2.3 Disposition of proposed technical exceptions are to be documented, including signatures of persons granting exceptions. It is the responsibility of the Lead Discipline Engineer to maintain a complete back-up file for proposals which substantiates acceptance of any technical differences between the proposal and the Inquiry package. The Project Quality Assurance Engineer shall maintain records of evaluated QA-related exceptions.

4.2.4 The Purchasing Department Buyer has the overall responsibility for assuring that required Bid evaluations, both technical and commercial, are performed and completed prior to issuance of a Purchase Order.

4.2.5 Prior to the issuance of a Purchase Order the Lead Discipline Engineer shall revise the specification as necessary, including interdisciplinary review as may be required by Section QA-I-4 of this Manual, in order to incorporate any changes resulting from the Bid evaluation.

4.3 The Lead Discipline Engineer shall through the Project Quality Assurance Engineer, request Quality Assurance Program evaluations of Bidders as required for individual Inquiries. Quality Assurance evaluations of Bidders shall be performed in accordance with the requirements of Section QA-I-5 of this Manual. Where a current evaluation is on file for a particular Bidder, the Lead Discipline Engineer need only request the Project Quality Assurance Engineer to provide written confirmation that the Bidder is satisfactory with regard to quality assurance. In all cases, a release from the Project Quality Assurance Engineer must be obtained in writing prior to the issuance of the Purchase Requisition by the Lead Discipline Engineer.

5.0 PURCHASE ORDER

5.1 Upon completion of all prerequisites, the Purchasing Department shall prepare the Purchase Order which includes component specification(s) and attachment(s), drawing(s) and, commercial terms and conditions. The Purchase Order shall be prepared by the responsible Buyer in accordance with Purchasing Department procedures and/or instructions which shall include as a minimum, provisions for the following:

a) Quality Assurance approval of the Bidder.

b) Commercial evaluation, including reconciliation of Bidder exceptions.

c) Technical evaluation, including reconciliation of Bidder exceptions.

d) Special considerations (such as Client approval).

e) Package completeness (assure that specifications and attachments thereto are present and of the proper revision).

5.2 Purchasing shall transmit the Purchase Order package to the selected Supplier and shall distribute copies to those individuals or organizations as indicated on the Project Distribution Schedule. The Project Quality Assurance Engineer shall receive copies of all Purchase Order packages and shall check to assure that the specification(s) and attachment(s) are present and of the proper revision.

5.3 Supplements to Purchase Orders are subject to the same review process as the original Purchase Orders. A change to the technical content of a Purchase Order may only be made by revision of the subject specification, which may only be made in accordance with the requirements of Section QA-I-4 of this Manual. Supplements to Purchase Orders receive the same distribution as the original Purchase order.

5.4 Purchase Orders for spare or replacement parts must be processed in accordance with the same requirements which applied to the Purchase Order for the original item.

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EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-II-5
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	SUPPLIER SURVEILLANCE	REVISION 2 R2 DATE 3/4/81 R2

1.0 SCOPE

This Section of the Manual describes the system of control which assures that items purchased by the Ebasco Engineering Office are supplied in accordance with the requirements of the applicable procurement documents. The system of control is implemented through a combination of activities of Vendor Quality Assurance Representatives and Quality Assurance Engineering. These organizations, which are described in this Section provide surveillance over the supplier from the issuance of a purchase contract through shipment of the item. R2
The extent of surveillance to be performed by the purchaser on suppliers and on their sub-tiers depends on the criticality and complexity of the material or equipment being fabricated by the suppliers or their sub-tiers.

2.0 RESPONSIBILITIES

2.1 Responsibilities for the administration of the Vendor Quality Assurance Representation Program rest with the Chief Vendor Quality Assurance Representative (CVQAR). The CVQAR or his designated representative assigns Vendor Quality Assurance Representatives (VQARs) to each Purchase Contract according to the particular area of expertise required (electrical, mechanical, etc.) and assures that the Vendor Quality Assurance Representative is adequately trained and indoctrinated. R2

2.2 The Vendor Quality Assurance Representatives are responsible for the implementation of the requirements of the Vendor Quality Assurance Representation Program for the particular purchase order. Their specific responsibilities are defined in approved written procedures and instructions. These procedures and instructions address the following, as applicable: R2

a. Witness inspections and special processes, including mandatory hold points.

b. Review suppliers' personnel qualification records

c. Review material certifications

d. Review records of tests and inspections

e. Review suppliers' procedures for indication of Ebasco review

f. Complete forms and procedures as required by the QA plan R2

g. Ascertain inspections and tests will be performed with appropriate equipment and under suitable environmental conditions.

2.3 The Project Quality Assurance Engineer (PQAE) is responsible for the overall implementation of the QA program for a particular project and his responsibilities with regard to vendor surveillance include the following: R2

a. Prepare QA plan for specific items

b. Review appropriate supplier procedures

c. Audit the supplier Quality Assurance Program R2

d. Reivew of VQAR Reports

3.0 VENDOR QUALITY ASSURANCE REPRESENTATION PROGRAM

3.1 The Chief Vendor Quality Assurance Representative assures that all Vendor Quality Assurance Representatives receive adequate training and indoctrination. A written program defines the manner in which such indoctrination and training is accomplished. R2 R2

3.2 The Chief Vendor Quality Assurance Representative is responsible for providing Vendor Quality Assurance Representatives with the instructions and procedures necessary for the performance of their duties. In addition to instructions and procedures, certain specific information is assembled for transmittal to, and use by, the Vendor Quality Assurance Representative with regard to each assigned purchase order. This specific information includes the following: R2

a. Purchase order and supplement, including specification and appropriate attachments

b. Quality Assurance Plan (described in Paragraph 3.4 of this Section of the Manual).

c. Transmittal letters of Ebasco reviewed suppliers' drawings R2

d. Transmittal letters of Ebasco reviewed supplier's procedures R2

3.3 Where information is transmitted to the Vendor Quality Assurance Representatives, evidence is retained to document such actions.

3.4 After issuance of a purchase contract and prior to start of fabrication, the Project Quality Assurance Engineer prepares and forwards to the Chief Vendor Quality Assurance Representative or his designated representative the Quality Assurance Plan for use by the Vendor Quality Assurance Representative. The function of this plan is to indicate to the Vendor Quality Assurance Representative those operations, tests, records or other activities over which the Vendor Quality Assurance Representative is to provide surveillance. R2 R2 R2

3.4.1 The QA Plan consists of a check list indicating those operations the Vendor Quality Assurance Representative is required to witness or observe, as well as the records and documentation he is to review such as: fabrication, inspection and test records; personnel qualifications; material certifications; fabrication and test procedures (to be checked for indication of Ebasco review).

3.4.2 Depending on the nature of the items being supplied, the QA Plan may specify additional Ebasco forms which are required to be completed by the Vendor Quality Assurance Representative to document the witnessing of welding, nondestructive examination, electrical testing and other specific activities.

3.5 The Vendor Quality Assurance Representative is required to document each surveillance visit to a supplier's facility on a Quality Assurance Report in which he includes the names and titles of Supplier's personnel contacted, a description of his activities, including nonconformances noted, as well as any other discrepant areas to be checked during future surveillance visits. Quality Assurance Reports are distributed in accordance with the Project Distribution Schedule.

3.6 All nonconformances to Ebasco Purchase Contract requirements which render the quality of an item or service unacceptable or indeterminate shall be reported to Ebasco Quality Assurance Engineering by one of following means: R2

3.6.1 When a nonconformance is detected by an Ebasco Vendor Quality Assurance Representative, he shall initiate a Quality Assurance Engineering Nonconformance Report, detailing the description of the nonconformance on the form and obtaining a recommended disposition from the appropriate Supplier personnel. The report shall then be forwarded to the Project Quality Assurance Engineer for processing.

3.6.2 If the Supplier detects a nonconformance when the Vendor Quality Assurance Representative is not in the shop, the Supplier shall initiate his own nonconformance report. If the nonconforming item or service is dispositioned as "repair", "rework" or "use-as-is", and will not conform to Ebasco Specification and Drawing requirements after corrective action has been taken, the Supplier shall report the nonconformance to Ebasco by forwarding copies of this nonconformance report to the Project Quality Assurance Engineer. The Supplier shall not initiate corrective action until receipt of written approval or other appropriate disposition from Ebasco.

3.6.3 The Vendor Quality Assurance Representative maintains a log by Purchase Contract number of all nonconformances and other discrepancies noted. This log enables the Vendor Quality Assurance Representative to maintain close control to assure that all outstanding items are cleared prior to release of the items for shipment. Follow-up of nonconformances shall be described in Section QA-II-6 of this Manual. R2

3.7 The Vendor Quality Assurance Representative has the authority to reject work being performed in the Supplier's shop which does not comply with the Purchase Contract requirements and to inform the Supplier that unless the unsatisfactory condition is corrected, the material or equipment will not be accepted by Ebasco R2

3.8 The Vendor Quality Assurance Representative shall review appropriate documentation prior to release of the items for shipment. For those records requiring Engineering Office review (i.e., seismic reports, radiographic film, design reports, special process procedures) the Vendor Quality Assurance Representative shall assure that the required reviews have been performed prior to releasing the items for shipment. The Vendor Quality Assurance Representative shall use an appropriate means of marking, stamping and/or initialing supplier's documentation he has reviewed. These reviews shall be conducted in accordance with written procedures and instructions. The completed QA Plan and Documentation Checklist shall be returned to the Project Quality Assurance Engineer for transmittal to the site, if specified by project requirements. R2 R2 R2

3.9 Prior to shipment of items, the Vendor Quality Assurance Representative shall complete and sign a "Release for Shipment" form indicating that he has determined that the items satisfy the Purchase Contract requirements, except in cases where a "Release for Shipment" form is not imposed by the specification. Items shall not be released for shipment by the Vendor Quality Assurance Representatives unless the above has been satisfied. A signed copy of the "Release for Shipment" form shall accompany shipment of the items where practicable; otherwise forwarded under separate cover. The requirement for a "Release for Shipment" form need not be imposed by the Project Quality Assurance Engineer where, in his judgement, the nature and quantity of the material makes the requirement unnecessary or impractical, e.g., reinforcing steel, cadweld sleeves. Where the requirement for a "Release for Shipment" form has been imposed, it may be waived for such cases as defined above, if documented by memorandum from the Project Quality Assurance Engineer to the Vendor Quality Assurance Department, with copies to other affected parties. R2

3.10 The Vendor Quality Assurance Representative, although performing his assigned functions with respect to specific items of material or equipment, is to consider the operation of the Supplier's overall Quality Assurance program. Errors, nonconformances or any other discrepancies are to be evaluated to determine, if possible, whether or not there may be a weakness in the Supplier's Quality Assurance program. This program-oriented function is described in written procedures.

4.0 QUALITY ASSURANCE ENGINEERING

4.1 Depending upon the complexity of the item and extent of surveillance contemplated by the purchaser, the supplier shall be required to submit (via Purchase Contract requirements) a detailed fabrication sequence showing required tests and inspections. Based upon this sequence, the Project Quality Assurance Engineer or his designee from the Quality Assurance Engineering Department will establish "witness" points which may not be performed by the vendor unless the operation is either witnessed by a representative of Ebasco or the requirement for witnessing is waived by Quality Assurance Engineering. The Project Quality Assurance Engineer or his designee shall prepare a QA plan for use by the Vendor Quality Assurance Representative based on inspections and tests as required by the Purchase Contract. This plan is described in Paragraph 3.4 of this Section. Details as to how the plan is prepared, to whom it is distributed, directions for implementation and sign-off are included in written departmental procedures. R2

4.2 The system by which Suppliers' procedures (required for Ebasco review by the Purchase Contract) are controlled is described in written departmental procedures which require the following: R2

4.2.1 The Project Quality Assurance Engineer or the Responsible Discipline Engineer in the EMDRAC System shall foreward each procedure requiring review to the individual or group in Ebasco having expertise in the subject area. R2

4.2.2 Disposition of Suppliers' procedures may be reviewed without comments, reviewed with comment, or rejected. The Project Quality Assurance Engineer or, the Responsible Discipline Engineer shall assure that each reviewed procedure is clearly marked and checked as to disposition and that the reviewing party has signed and dated the appropriate spaces. Responsibilities for review of special process procedures are described in Section QA-II-8. R2

4.2.3 The Project Quality Assurance Engineer or the Responsible Discipline Engineer shall summarize the results of Ebasco's review of Supplier's procedures on a transmittal letter which accompanies the return of the procedures to the Supplier. Copies of the transmittal letter (and procedures as applicable) are distributed in accordance with a standard distribution list as prescribed by written departmental procedures. R2

4.3 The Project Quality Assurance Engineer shall process nonconformances reports in accordance with written departmental procedures which require the following:

a. Report shall be logged in.

b. Cognizant personnel shall review and evaluate the nonconformance report, decide on the suitability of the recommended disposition

c. Results of the review shall be logged in and copies of the reports shall be distributed to pertinent individuals and organizations.

4.4 The Quality Assurance Engineering Internal Audit Group shall perform periodic audits of the Vendor Quality Assurance Representative in Supplier's facilities. The audits will be performed in accordance with Quality Assurance Engineering Procedure QA-D.5.1 on a sampling basis. R2 R2

4.5 When deemed necessary by the Project Quality Assurance Engineer or the Chief Quality Assurance Engineer, in-process system Quality Assurance audits may be performed during the life of the Purchase Order. Such audits may be initiated as a result of Supplier performance, significant changes in Supplier's personnel responsible for implementing the Quality Assurance program, or new developments in code or regulatory Quality Assurance requirements. Where such audits are deemed necessary, they shall be performed in accordance with Section QA-II-9 of this Manual.

Such audits may be directed a a Supplier's overall Quality Assurance program or may involve only a specific area of the program.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-II-6
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	NONCONFORMANCES	REVISION 2 R2 DATE 6/18/82 R2

1.0 SCOPE

1.1 This section establishes the requirements for the identification, control and disposition of materials, parts, components or services found to be in nonconformance with Ebasco requirements. Nonconformances may be either detected by an Ebasco Vendor Quality Assurance Representative, by the Supplier or others. All activities described in this Section of the manual shall be performed in accordance with written instructions and/or procedures.

2.0 CONTROL OF SUPPLIER NONCONFORMANCES

2.1 Section QA-I-5, "Evaluation of Suppliers" requires suppliers to have procedures which control nonconforming items and services to prevent their inadvertent use or installation. These procedures shall require, as appropriate, identification, documentation, segregation, review and disposition of nonconformances.

3.0 REPORTING OF NONCONFORMANCES R2

3.1 All nonconformances to Ebasco Purchase Order requirements which render the quality of an item or service unacceptable or indeterminate shall be reported to Ebasco Quality Assurance Engineering by one of the following methods:

3.1.1 When a nonconformance is detected by an Ebasco Vendor Quality Assurance Representative, he shall initiate a Quality Assurance Engineering Nonconformance Report by detailing the description of the nonconformance on the form and obtaining a recommended disposition from the appropriate Supplier personnel. The report shall then be forwarded to the Project Quality Assurance Engineer (PQAE) for processing in accordance with Paragraph 4.0 below.

3.1.2 All nonconformances detected by the supplier that are dispositioned as repair, rework or use as is and will not conform to Ebasco specification and drawing requirements after corrective action has been taken shall be reported to Ebasco. The Supplier shall report these nonconformances to Ebasco by forwarding copies of his nonconformance reports to the Project Quality Assurance Engineer. The Supplier shall not initiate corrective action until receipt of written approval or other appropriate disposition from Ebasco.

3.2 Reporting of nonconformances as they pertain to compliance with the requirements of this Quality Assurance Program Manual when detected by others than Vendor Quality Assurance Representatives shall fall under the auspices of Section QA-II-9, Section QA-III-9 and applicable implementing procedures. R2

4.0 REVIEW OF NONCONFORMANCE REPORTS

4.1 Upon receipt of a nonconformance report, the PQAE shall:

a) Log in the report.

b) Review the report to determine the nature of the nonconformance.

c) The PQAE shall then transmit the report to the appropriate engineer(s) for review and evaluation.

4.2 Appropriate engineer(s) shall review and evaluate the nonconformance report, decide on the suitability of the Supplier's recommended disposition and enter details of the evaluation on the report. The report shall then be returned to the PQAE.

4.3 Upon receipt of the reviewed and evaluated report, the PQAE shall log in results of the review and distribute copies of the report to the Vendor Quality Assurance Department and others, as necessary.

5.0 NOTIFICATION

5.1 Upon receipt of the reviewed and evaluated report, the Project Quality Assurance Engineer or his designee from the Quality Assurance Engineering Dept. shall notify the Supplier of the results of Ebasco's review by issuing a copy of the reviewed and evaluated report to the Supplier. R2 R2

6.0 REINSPECTION

6.1 The Vendor Quality Assurance Representative shall verify, if indicated on the Nonconformance Report, that the recommended disposition has been accomplished and that reinspection, when required, was performed.

6.2 The Vendor Quality Assurance Representative shall assure that reinspection when required 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. The completed nonconformance report form shall provide sufficient detailed information for as-built records and shall be included in the documentation package sent to the jobsite.

6.3 Nonconformances not corrected in accordance with the requirements of the Nonconformance Report shall not be accepted by the Vendor Quality Assurance Representative. Items or services shall not be accepted by the Vendor Quality Assurance Representative until such time as the appropriate corrective action has been accomplished.

7.0 TREND ANALYSIS OF NONCONFORMANCES

The Quality Assurance Internal Audit Supervisor shall make an analysis of the available quality data, such as nonconformance reports from the sources 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 Engineering Procedure QA-D.3,"Determination and Analysis of Quality Trends." R2

8.0 RECORDS

8.1 Nonconformance Reports shall be maintained in accordance with Section QA-I-6. R2

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-II-7
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	CORRECTIVE ACTION	REVISION 2 R2 DATE 6/18/82 R2

1.0 SCOPE

1.1 This section establishes the requirements for the identification, analysis and implementation of corrective action for safety-related items and services. This section applies to activities performed at the Engineering Office.

2.0 GENERAL

2.1 Corrective action shall be required for identified and documented nonconformances associated with safety-related items or services.

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

2.2.1 Ebasco management audits performed in accordance with Section QA-II-9 of this Manual.

2.2.2 Quality Assurance audits performed by Quality Assurance Engineering in accordance with Section QA-II-9 of this Manual.

2.2.3 Nonconformances detected at a supplier's facility as described in Section QA-II-6 of this Manual.

2.2.4 Audits of Ebasco performed by the Client or regulatory bodies.

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.

3.0 DETERMINATION AND IMPLEMENTION AND IMPLEMENTATION METHODS

3.1 Ebasco Management Audits

3.1.1 Ebasco Management Audits of Quality Assurance Engineering Functions shall be performed in accordance with section QA-II-9 of this Manual. The purpose of these audits is to verify compliance with the Ebasco Nuclear Quality Assurance Manual.

3.0 DETERMINATION AND IMPLEMENTATION METHODS (Cont'd)

3.1.2 Any deficiency in performance shall be reported and resolved in accordance with section QA-II-9. R1

3.2 Quality Assurance Engineering Audits

3.2.1 Quality Assurance Engineering shall perform internal audits as required by Section QA-II-9. These audits are designed to verify that responsible groups within Ebasco are complying with the requirements of the Ebasco Quality Program. Quality Assurance Engineering shall also perform follow-up action as described in Section QA-II-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.

3.2.2 Audits of potential Ebasco suppliers shall be performed as described in Sections QA-II-9 and QA-I-5 of this Manual. If any aspect of a supplier's quality assurance program does not meet the Ebasco requirement and the supplier is being considered for award, he must implement corrective action to rectify the problem areas disclosed by the Ebasco evaluation. Supplier corrective action items shall be administered in accordance with Section QA-I-5. R1

3.3 Supplier Nonconformance R1

3.3.1 Section QA-II-6 requires the initiation of a nonconformance report for nonconformances detected at the supplier's facility. These reports shall be submitted to Ebasco and processed in accordance with Section QA-II-6 of this Manual. Section QA-II-6 also assures that reinspection of nonconforming safety-related items and services is performed and that deficiencies have been resolved and appropriate corrective action has been taken prior to acceptance of these items or services by Ebasco. R1

3.3.2 During the review of nonconformance reports, a determination of the adequancy and effectiveness of inspection and test procedures, process controls and sampling plans shall be made. If it is ascertained that an improvement in inspection techniques and procedures or an increased sampling rate will improve quality, the vendor shall be notified of the corrective action required to upgrade his system. R1

3.4 Client or Regulatory Agency Audits R1

3.4.1 Audits of Ebasco Engineering Office activities may be performed by the Client and/or appropriate regulatory agencies. If corrective action is required as a result of one of these audits, Ebasco Quality Assurance Engineering shall be responsible for obtaining a response from the cognizant individual(s) at Ebasco for submittal to the auditing body. R1

4.0 DETERMINATION AND ANALYSIS OF QUALITY TRENDS

In order to identify the recurrence of quality problems, Ebasco has developed a method, specified in Quality Assurance Engineering procedures, for the determination and analysis of quality trends. Quality data, such as Quality Assurance Engineering Audits, Supplier Nonconformances and Client or Regulatory Agency Audits, shall be utilized. The Quality Assurance Engineering Internal Audit Supervisor shall make an analysis of the available Quality data 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 Engineering Procedure QA-D.3. R2

5.0 RESOLUTION OF CONFLICTS

In the event that disagreement exists between the individual(s) who detect a deficiency and those persons responsible for the function found to be deficient, methods exist at Ebasco for resolution of these conflicts. If no agreement can be reached, successively higher levels of management shall be contacted until the conflict is resolved.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-II-8
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	CONTROL OF SPECIAL PROCESS	REVISION 2 R2 DATE 3/4/81 R2

1.0 SCOPE

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

2.0 RESPONSIBILITIES

2.1 Suppliers shall be responsible for submitting procedures which control special processes to Ebasco in accordance with purchase order requirements.

2.2 The Ebasco Project Quality Assurance Engineer or the Responsible Discipline Engineer shall be responsible for the coordination of all review functions associated with supplier special process procedures. R2 R2

2.3 The Materials Applications and Quality Assurance Engineering Department shall be responsible for the review functions associated with supplier special process procedures, such as welding, heat treatment, and nondestructive testing. R2

3.0 METHODS FOR CONTROL OF SPECIAL PROCESSES

3.1 The Ebasco purchase order shall indicate to a supplier which procedures are required for submittal to Ebasco for review. This shall be developed by the Project Quality Assurance Engineer or his designee from the Quality Assurance Engineering Department and shall reflect, as a minimum, the procedures which must be used in the fabrication and inspection of the item. The methods for input of this information into the purchase orders are described in Section QA-I-4 and in internal Quality Assurance Engineering procedures. R2 R2 R2

3.2 Procedures which describe the methods used in performing special processes shall be sent to the Ebasco Project Quality Assurance Engineer (PQAE) or processed through the Ebasco EMDRAC System. The PQAE or the Responsible Discipline Engineer shall then briefly review each procedure to determine its application and then route it to the appropriate individual for review. R2 R2

3.3 The reviewing individual shall assure that each procedure is in compliance with appropriate codes and standards, and shall indicate any comments directly on the procedure, or on a separate sheet attached thereto. He shall then return the procedure to the PQAE or the Responsible Discipline Engineer for final processing. The details of the methods involved are described in appropriate procedures. R2

3.4 In the supplier's shops, the Ebasco Vendor Quality Assurance Representatives shall verify that only procedures which have been reviewed by Ebasco are used in the processing of the safety related items and services purchased by Ebasco. In addition, the Vendor Quality Assurance Representatives shall also verify by review of records that only qualified personnel are using these procedures. No component shall be considered acceptable if Ebasco has not reviewed the procedures required for review, unless specifically waived by the PQAE, or if an unqualified individual is using a procedure for which a qualification is required. R2

FOR INFORMATION ONLY

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-II-9
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	QUALITY ASSURANCE AUDITS	REVISION R4 R4 DATE 6/18/82 R4

1.0 SCOPE

1.1 This section establishes the requirements and guidelines for preparation, performance, reporting and follow-up of Quality Assurance audits, both internal and external, as performed by Ebasco Quality Assurance Engineering, and internal audits of the Quality Assurance Engineering and Materials Applications functions as performed by the Management Audit Committee. These requirements apply to audits performed on activities affecting safety-related items and services.

2.0 GENERAL REQUIREMENTS FOR ALL INTERNAL AND EXTERNAL AUDITS

2.1 Audit Personnel

2.1.1 Shall be independent of direct responsibility for performance of the activity being audited.

2.1.2 Shall be qualified to perform Quality Assurance Audits based on experience and training.

2.2 Training and Orientation

2.2.1 Audit personnel shall have experience or be given 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.

(b) Training or orientation in general and specialized methods of planning and performing audits.

(c) On-The-Job training under direct supervision of an experienced qualified auditor.

2.2.2 The requirements for training and orientation of auditors shall be developed by Quality Assurance Engineering for their audit functions.

2.3 Proficiency of Auditors

2.3.1 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 training or orientation programs

2.4 Audit Planning

2.4.1 Audits shall be planned in advance to assure adequate coverage of the program being audited.

2.4.2 Both internal and external audits shall be prepared and conducted in accordance with written procedures. These procedures shall require the use of preplanned documents which will assure that organizations are audited to the extent necessary and that the reports include the necessary information. R4

2.5 The Audit Team

2.5.1 The audit shall be performed by one or more individuals at least one of whom shall be qualified. A qualified auditor shall be established as the team leader for audits conducted by all teams comprised of two or more auditors. The team leader shall be responsible for:

(a) Orientation of the team

(b) Assure communication between the team and the Ebasco Department organization or Supplier being audited

(c) Coordinating preparation and issuance of audit reports

2.5.2 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.

2.6 Audit Notification

2.6.1 The appropriate Ebasco departmental personnel or Supplier 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. R2

2.7 Audit Performance

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

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

2.7.3 A post-audit conference shall be conducted to:

(a) Inform those audited of the audit results, which shall include all nonconformances.

(b) Assure understanding of audit results.

(c) Establish the course of corrective action if necessary.

(d) Draw special management attention to any nonconformances identified that need immediate corrective action.

2.8 Reporting of Audit Results

2.8.1 An audit report shall be compiled by one or more members of the audit team and shall be signed by all the audit team members. The audit report shall provide:

(a) Description of the audit scope

(b) Identification of the auditors

(c) Persons contacted

(d) A Summary of audit results including an evaluation statement regarding the effectiveness of the Quality Assurance Program elements which were audited.

(e) Detailed description of nonconformances and causes thereof where possible. R4

(f) Recommendations for correcting nonconformance or improving the Quality Assurance Program, if possible. Such recommendations may be those of the audited party, provided they meet with the approval of all audit team members.

2.8.2 The audit group shall prepare an audit report for each audit performed. Reports shall be distributed in accordance with Quality Assurance Engineering Procedures QA-D.5 and QA-P.9, and Company Procedure N-24, for Internal, Vendor Evaluation and Management Audits, respectively. Recipients shall include at least the individual audited and his supervisor or Lead Discipline Engineer, and the Project Quality Assurance Engineer for internal audits; and the vendor audited and the Project Quality Assurance Engineer for Vendor Evaluation Audits.

2.8.3 The audit report shall be issued in a timely manner as defined in the Quality Assurance implementing procedures.

2.9 Audit Follow-Up

2.9.1 Similarily, a response to the audit report shall be prepared and submitted in a timely manner as defined in the Quality Assurance implementing procedures. The response shall clearly state the corrective action taken and the date of completion

2.9.2 Follow-up action shall be performed by one or more members of the audit team to:

(a) Assure that the written reply to the audit report is received.

(b) Assure that corrective action is identified and scheduled for each nonconformance.

(c) Confirm that nonconformances are resolved and corrective action when necessary, is accomplished.

2.9.3 Follow-up action may be accomplished through written communication, reaudit, or other appropriate means.

2.9.4 The Quality Assurance Engineering Audit Group shall perform a quarterly review of their audits to assure that corrective action has been taken in a timely manner. A quarterly Review Report on the resolution of deficiencies and corrective action will be prepared by the Quality Assurance Engineering Audit Group and forwarded to the Chief Quality Assurance Engineer and Vice President Materials Engineering and Quality Assurance.

2.10 Audit Records

2.10.1 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 written implementing 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 document which support audit findings and corrective actions as appropriate

2.10.2 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.

2.11 Semi-Annual Reports to Management

2.11.1 As individual internal audit reporting is accomplished and internal audit information accumulates over a six months period, the Chief Quality Assurance Engineer will issue a summary report of Quality Assurance Engineering audit results of that period, including the resolution of deficiencies and corrective action where known and applicable, to the following: R3

(a) Vice President Materials Engineering and Quality Assurance R3

(b) Heads of departments audited

2.11.2 The Vice President Materials Engineering and Quality Assurance shall be responsible for analyzing the results of the audits performed as provided for by this section and the Ebasco Quality Assurance program except as indicated in QA-II-9 paragraph 3.4. The Vice President Materials Engineering and Quality Assurance shall also directly inform applicable line Vice Presidents in their areas of individual responsibility and the concerned Ebasco Senior Officers of the audit results. The Chief Quality Assurance Engineer shall be responsbile for initiating the implementation of any changes or corrective action deemed necessary by the Officers to improve the effectiveness of the Ebasco Nuclear Quality Assurance Program. R3

2.12 Trend Analysis of Audit Reports

The Quality Assurance Engineering Internal Audit Supervisor shall make an analysis of the available Quality data, such as audit reports, 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 the Quality Assurance Engineering Procedure QA-D-3. R4

3.0 SPECIFIC AUDIT REQUIREMENTS

3.1 Internal Quality Assurance Engineering Audits

3.1.1 Ebasco Quality Assurance Engineering performs internal audits of the various activities within Ebasco that affect safety-related structures, systems, components and services. These audits are generally performed on a project basis by the Internal Audit Group of the Quality Assurance Engineering Department in conjunction with the Project Quality Assurance Engineer in accordance with departmental implementing procedures.

3.2 Scheduling of Internal Audits

3.2.1 Internal 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 requirements, and to assure effective Quality Assurance during design, procurement and contracting activities.

3.2.2 Internal 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 semi-annually or once within the life of the activity, whichever is shorter.

3.2.3 Supplemental internal audits should be conducted when:

(a) Significant changes in the Quality Assurance Program are made

(b) There is a suspicion or evidence of deficiencies or nonconformance in the Quality Assurance Program

(c) An assessment of the effectiveness of the Quality Assurance Program is necessary

(d) It is necessary to verify implementation of corrective action

3.3 External Quality Assurance Engineering Audits

3.3.1 Audits of prospective suppliers of safety-related structures, systems components and services shall be performed in accordance with the applicable requirements of this section when such audits are required by Section QA-I-5 of this Manual. Such audits shall be scheduled as early as practicable to assure timely implementation of the applicable Quality Assurance requirements.

3.3.2 Supplemental audits of Suppliers or prospective Suppliers may be performed when:

(a) Significant changes are made in the Supplier's Quality Assurance Program, or when warranted by new requirements of Ebasco or the client.

(b) There is suspicion or evidence of deficiencies or nonconformances in the Quality Assurance Program.

(c) An assessment of the effectiveness of the Suppliers' Quality Assurance Program is necessary.

(d) It is necessary to verify implementation of corrective action.

(e) It is necessary to verify proper implementation of the suppliers' Quality Assurance Program.

3.3.3 Personnel performing external Audits shall be selected by the Chief Quality Assurance Engineer or his designee and shall be qualified in accordance with Quality Assurance Engineering Procedure QA-G.3. R4 R4

3.3.4 These audits may be performed on a supplier's overall Quality Assurance Program or selected areas thereof.

3.4 Management Audits

3.4.1 A committee chaired by the Consulting Quality Assurance Engineer is responsible for conducting audits of the Ebasco Materials Applications and Quality Assurance Engineering functions to determine compliance with the Ebasco Quality Assurance Program requirements. These audits will also include evaluating Quality Assurance policies and assuring that appropriate implementing procedures are available and are being complied with.

3.4.2 This auditing shall be accomplished on an annual basis in accordance with Ebasco Procedure A-45. The auditing shall be conducted by a committee with the Consulting Quality Assurance Engineer designated as the committee chairman. The committee shall be comprised of at least two qualified representatives from either the Construction or Engineering Departments and the Consulting QA Engineer. Each committee Representative shall be appointed by his respective 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 Materials Engineering and Quality Assurance R3 R3

3.4.3 The committee shall prepare an audit report for each audit performed. This report shall be submitted directly to the Vice President Material Engineering and Quality Assurance with copies to other appropriate parties. R3

3.4.4 The Vice President Materials Engineering and Quality Assurance 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. R3 R3

3.4.5 The Corporate Radiation Safety Office is responsible for auditing the company for conformance to radiation safety procedures as mandated by the United States Nuclear Regulatory Commission and State Regulatory Agencies. R3

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-1
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 INSTRUCTIONS, PROCEDURES AND DRAWINGS	REVISION 1 DATE 10/8/82

1.0 SCOPE

1.1 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 including Ebasco Force account 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 or Ebasco department 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. 1

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.

2.4 Ebasco field purchase orders shall designate those supplier test and/or inspection procedures to be submitted to Ebasco for review. The procedures required by the field Purchase Order will be reviewed by Ebasco Site Quality Assurance Engineering and/or other Ebasco disciplines as required.

3.0 DEVELOPMENT OF INSTRUCTIONS, PROCEDURES AND DRAWINGS

3.1 Implementing instructions, procedures or drawings for activities affecting quality at the construction site shall be developed by the Design Engineering Department, Construction Department and Site Quality Assurance 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: △1

a) Identification of characteristics to be inspected

b) Identification of the individuals or groups responsible for performing the inspection operation

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 Standards and Procedures Department shall be responsible to develop company procedures of categories, such as Administrative (A), Engineering (E), Nuclear (N), Purchasing (PD), and Projects (PJ), as listed in Tables I-1.2 and I-1.3 of Section QA-I.1, pertaining to quality-related functions performed by Engineering Department's Design or other home office based group at the construction site. △1

3.3 Individual departments/disciplines (including, Construction Contractor) 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 Standards and Procedures Department will provide, upon request, guidance and assistance in developing the documents. △1

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 Quality Control procedures and instructions comply with this manual, applicable codes and regulatory requirements, they shall be submitted for review and acceptance to Quality Assurance prior to implementation. The Quality Program Site Manager or designee is responsible for the establishment and maintenance of corporate Quality Control Program Standard Procedures. General review of site-originated quality control documents shall be performed by the Quality Program Site Manager, or his designee. 1

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 for activities affecting quality. This system shall provide for at least the following:

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 procedures and drawings shall be maintained by the department responsible for the issuance of the original procedure or drawing.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 DOCUMENT CONTROL	SECTION QA-III-2
APPROVAL CHAIRMAN QUAL. PROGRAM COMM. CHIEF QUALITY ASSURANCE ENGINEER		REVISION 2 DATE 10/8/82

1.0 SCOPE

1.1 This section of the Manual establishes the requirements for the control of all construction site documents which have an effect on quality-related activities. These requirements apply to those documents prepared for each individual project, such as specifications and drawings, as well as to instruction and procedures which control or direct activities affecting quality.

2.0 RESPONSIBILITIES

2.1 The Senior Resident Engineer shall be responsible for the distribution of Ebasco drawings, specifications, construction procedures, special process procedures and quality control procedures and plans at the construction site.

2.2 The Quality Assurance Site Supervisor shall be responsible for verifying compliance to the requirements of this section in accordance with the provisions of QA III-9. 2

2.3 The Quality Assurance Site Supervisor shall be responsible for the distribution and control of Quality Assurance Engineering Procedures at the construction site.

2.4 The Field Purchasing Agent shall be responsible for the issuance and control of purchase documents.

3.0 DRAWINGS AND SPECIFICATIONS

Distribution and control of design drawings and specifications whether generated by the Engineering Office, at the construction site or by suppliers for field purchase orders, shall be accomplished by means of a drawing and specification File Card system. Construction Procedures and Administrative Site Procedures require that each drawing and specification be recorded on a File Card, showing all pertinent information regarding the document such as title, revision number and the individuals or organizations to which the document has been distributed. A document receipting system shall be sued which requires written acknowledgement of receipt of the distributed document. 2

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL THIS PAGE ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 DOCUMENT CONTROL	SECTION QA-III-2

4.0 PROCEDURES-CONSTRUCTION DEPARTMENT

Distribution and control of Ebasco construction procedures, quality control procedures and special process procedures shall be accomplished by means of a procedure File Card System. Each procedure shall be recorded on file card showing the procedure title and revision, and indicating the individuals or organizations to which the document has been distributed. A document receipting system shall be used which requires written acknowledgement of receipt of the distributed document. 2

5.0 PROCEDURES-QUALITY ASSURANCE ENGINEERING

Quality Assurance Engineering 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 acknowledgement of distributed procedures. 2

6.0 FIELD PURCHASE ORDERS

Distribution of field purchase orders and supplements thereto shall be in accordance with an established distribution schedule prepared at the site. A master file shall be maintained by the Field Purchasing Agent of all field purchase orders and supplements thereto. A status list shall be distributed periodically indicating the purchase orders and supplements which have been issued at the construction site.

7.0 CHANGES TO DOCUMENTS

Changes to documents shall be reviewed and approved by the same organizations as for the orginal documents, unless delegated in writing by the originating organization to another responsible organization. Changes to drawings, specifications or procedures shall be distributed in the same manner as the

original document and the superceded document shall be destroyed or designated void to avoid inadvertent use, or shall be returned to the distributor for such disposition.

8.0 AUDITS

Periodic audits shall be performed by Site Quality Assurance in accordance with Section QA-III-9 of this Manual to assure that controlled documents are being properly distributed and maintained current.

FOR INFORMATION ONLY

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-3
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	PROCUREMENT DOCUMENT CONTROL	REVISION 1 DATE 2/29/80

1.0 SCOPE

This Section of the Manual describes the system of control which governs the preparation, review, approval and revision of documents used for procurement of items and services by Ebasco at the construction site.

2.0 PROCUREMENT DOCUMENT CONTENTS

2.1 Procurement documents shall make provision for the following:

a) Supplier Quality Assurance Program.

b) Technical requirements (including classification).

c) Accessability to suppliers' and suppliers' facilities for source inspection and audit.

d) Documentation requirements.

e) Extension, as required of procurement document requirements to lower tier suppliers.

2.2 Inclusion of the requirements of paragraph 2.1 above is assured during the review by the Quality Assurance Site Supervisor, or his designee from the Quality Assurance Engineering Department, of the Purchase requisition package as described in Section QA-III-4 of this Manual. Where a specification developed by the Engineering Office is to be used for site procurement, inclusion of the requirements of Paragraph 2.1 above is assured during the review of the specification by the Project QA Engineer as described in Section QA-I-4. R1 R1

2.3 Control of the procurement documents after release to purchasing and prior to purchase order, is described in Section QA-III-4 of this Manual.

2.4 Changes to procurement documents are subject to the same system of control as was the original document. This requirement is as described in Section QA-III-4 of this Manual.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-4
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT CO WATERFORD SES UNIT 3 CONSTRUCTION SITE PROCUREMENTS	REVISION 2 DATE 10/8/82

1.0 SCOPE

This section of the manual describes the system of controls under which Field Purchase Orders and Construction Contracts for safety-related items and/or services is accomplished by the Construction Department.

2. RESPONSIBILITIES

2.1 The Field Purchasing Agent coordinates activities related to the purchases of items for which purchases orders are issued at the construction site.

2.2 The Manager of Construction Engineering prepares the bidding and contract documents for major construction contracts and the Project Superintendent for minor construction contracts.

2.3 The Senior Resident Engineer, Assistant Construction Superintendent or their deisgnees from the Construction Department prepares the initial requisition package, which includes a technical description of the items required to be purchased. 2

2.4 The Senior Resident Engineer is also responsible for the technical adequacy of the requisition package, as well as technical evaluation of bidders' proposals.

2.5 The Quality Assurance Site Supervisor or his designee, from the Quality Assurance Engineering Department reviews the purchase order and construction contract documents when prepared by the site. 2

2.6 The Project Quality Assurance Engineer or his designee from the Quality Assurance Engineering Department reviews quality-related aspects of construction contracts prepared under the direction of the Manager of Construction Engineering. 2

2.7 The Quality Assurance Site Supervisor is responsible for the following:

2.7.1 Review of requisition packages and site-prepared construction contract documents to assure that they contain all quality-related requirements

2.0 RESPONSIBILITIES (Cont'd)

2.7.2 Review of proposed exceptions to quality assurance requirements made by bidders

2.7.3 Providing quality assurance evaluation of bidders by either direct evaluation or by requesting such evaluation through the Ebasco Engineering Office Quality Assurance Engineering Staff, or a combination thereof

2.8 Performance of activities by those individuals and organizations in Paragraphs 2.1 through 2.7 above shall be in accordance with approved written procedures and/or instruction.

3.0 PROCUREMENT PROCESS - FIELD PURCHASE ORDERS

3.1 The Senior Resident Engineer, Assistant Construction Superintendent, or their designees shall prepare the requisition package for submittal to the Field Purchasing Agent.

3.1.1 The requisition package will identify the item(s) required as well as the safety and/or seismic classification thereof, and will include a technical description of the item(s). The technical description may consist of:

(a) Specification(s) and/or drawing(s) developed and approved in accordance with the requirements of Section QA-I-4 of this manual.

(b) "Commercially Available Material" or "Unique Order Method" description:

Where the items to be purchased are of such a nature that a formal design specification or drawing may be warranted (commercially available, raw material, gas stock, nuts and bolting, weld rod) a technical description will be written by the Senior Resident Engineer or his designee including the appropriate ASME, ASTM, AWS, IEEE or other designations as may be required to adequately define the item and applicable USNRC or other regulatory requirements regarding quality assurance programs. This description shall be supplemented with

3.0 PROCUREMENT PROCESS - FIELD PURCHASE ORDERS (Cont'd)

3.1.1 (Cont'd)

appropriate quality-related requirements (ie, tests, inspection, documentation) by the originator of the requisition, and reviewed by the Quality Assurance Site Supervisor or his designee. 2

3.1.2 The proposed site requisition package shall be submitted by the Senior Resident Engineer to the following for review, prior to being released to the Field Purchasing Agent. 2

(a) Site Engineering, where applicable, for technical adequacy 2

(b) Quality Assurance Site Supervisor for review to assure that the following Quality Assurance Requirements are included: 2

(1) Classification (Safety, Seismic)

(2) Applicable regulatory, code and design requirements

(3) Quality Assurance Program requirements

(4) Requirements for submittal of supplier documents such as drawings, specifications, procedures, inspection and test records, and other documents to be provided to Purchaser prior to, during or upon completion of execution of the purchase order

(5) Requirements for retention control and maintenance of supplier QA records

(6) Provisions for Ebasco, Client and NRC right of access to supplier's facilities and work documents for surveillance, inspection and audit

(7) Provision for supplier reporting and disposition of nonconformances from the purchase order

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3.0 PROCUREMENT PROCESS - FIELD PURCHASE ORDERS (Cont'd)

3.1.3 Comments resulting from the above reviews shall be documented and all comments shall be resolved to the satisfaction of the reviewing party and written concurrence shall be obtained prior to release for Inquiry. A history file shall be maintained by the Senior Resident Engineer for each requisition package initiated, and shall provide written evidence of required reviews as well as reconciliation of comments from such reviews.

3.2 Prospective Vendors are selected by the Field Purchasing Agent from one or more of the following sources:

(a) Project vendors' lists, provided by Quality Assurance Engineering

(b) Favorable Past Experience (within past three years)

(c) Satisfactory evaluation in accordance with Ebasco Company Procedure A-16, entitled "Qualification of Prospective Bidders" 2

(d) Client preference

(e) Other Vendors who demonstrate adequate qualification

3.3 The Field Purchasing Agent shall inform the Quality Assurance Site Supervisor of any quality assurance program evaluations of vendors that may be required. Where a current acceptable evaluation is on file for the particular vendor, this fact need only be confirmed in writing by Quality Assurance Engineering. If such is not the case, an evaluation shall be performed by Quality Assurance Engineering in accordance with the requirements of Section QA-I-5 of this Manual. The Quality Assurance Site Supervisor shall advise cognizant Construction Department Personnel of the results of all evaluations. 2 2

3.4 The Field Purchasing Agent shall assemble the Inquiry package for transmittal to selected prospective vendors in accordance with written procedures. Other copies shall be distributed in accordance with the Project Distribution Schedule.

The Inquiry package shall include a requirement that the Vendor submit with his proposal a controlled copy of his Quality Assurance Manual. This requirement may only be waived when it has been determined that a controlled copy of the Manual is already on file with Ebasco Quality Assurance Engineering and has been verified to be current.

3.0 PROCUREMENT PROCESS - FIELD PURCHASE ORDERS (Cont'd)

3.5 The review and evaluation of vendor's proposals shall be coordinated by the Field Purchasing Agent. Vendors' proposals shall be reviewed, dispositioned and documented as described below.

3.5.1 The Field Purchasing Agent is responsible for evaluation of the commercial aspects of vendors' proposals.

3.5.2 The Senior Resident Engineer is responsible for technical evaluation.

3.5.3 All proposed exceptions relating to materials, testing, special processes, inspection, records and documentation, QA program or other areas important to quality shall be reviewed by the Quality Assurance Site Supervisor. Comments resulting from this review shall be resolved prior to award of a contract.

3.5.4 Evaluation of proposed technical exceptions shall be made by the Senior Resident Engineer. Any technical changes shall be approved by the Senior Resident Engineer and/or the Design Engineering discipline responsible for the original technical content. 2

3.5.5 Dispositions of all proposed technical exceptions are to be fully documented. The Senior Resident Engineer shall maintain a backup file which substantiates acceptance of any technical differences between the proposals and the Inquiry. In addition, the Quality Assurance Site Supervisor shall maintain a backup file documenting the results of evaluation of proposed exceptions. 2

3.5.6 The Field Purchasing Agent has the overall responsibility for assuring that all required proposal evaluations, both technical and commercial, are performed and resolved and documented prior to issuance of a purchase order.

3.6 If technical exceptions are to be made and accepted, the Senior Resident Engineer, prior to issuance of a Purchase Order, shall initiate a Field Change Request to Design Engineering, who in turn shall revise the specification and/or drawing(s) as necessary to incorporate any 2

3.0 PROCUREMENT PROCESS - FIELD PURCHASE ORDERS (Cont'd)

3.6 (Cont'd)

changes resulting from the proposal evaluation. Such revisions shall be made in accordance with the requirements of Section QA-I-4 of the Manual. Where no formal specification or drawing is involved, the Senior Resident Engineer shall be responsible for incorporating approved changes to the technical description.

3.7 A checklist shall be used by the Field Purchasing Agent to assure that all prerequisites have been satisfied. This checklist shall include provisions for the following:

(a) Reconciliation of bidder exceptions

(b) Technical evaluations, including reconciliation of bidder exceptions and Field change request(s)

(c) QA approval of the Bidder

(d) Special considerations (such as Client approval)

(e) Concurrence of Project Superintendent

(f) Package completeness (specification, attachments, drawings, etc)

3.8 Upon completion of all prerequisites, the Field Purchasing Agent shall prepare the Purchase Order Package, transmit the Purchase Order Package to the successful bidder, and distribute copies of the purchase orders for safety-related items and services in accordance with the Project Distribution Schedule.

3.9 Supplements to purchase orders which involve changes to technical requirements are subject to the same review and approval process as the original purchase order. A change to the technical content of a purchase order may only be approved by the Senior Resident Engineer and/or the organization responsible for the original technical content. Supplements to purchase orders involving only commercial changes do not require this approval process.

3.10 Purchase Orders for spare or replacement parts must be processed in accordance with the same requirements which applied to the purchase order for the original item.

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4.0 PROCUREMENT PROCESS - CONSTRUCTION CONTRACTS

4.1 Evaluation of lists of prospective bidders will be made by the Project Superintendent and the Construction Manager. The Manager of Construction Engineering will maintain a file of qualified bidders. Preparation of the invitation to bid will be the responsibility of the Manager of Construction Engineering for major items of work and the Project Superintendent for minor items of work, both with the approval of the Construction Manager. Evaluation of bids will be the responsibility of the Senior Resident Engineer. The Quality Assurance Site Supervisor is responsible for evaluation of Quality Assurance requirements. 2

4.2 Prior to issuance of bidding documents to Bidders, Quality Assurance Engineering shall review the quality-related aspects of the bid invitations to assure that the documents contain or reference the requirements necessary for safety-related items and services. In cases where it becomes necessary to issue bidding documents simultaneously to Bidders and Quality Assurance Engineering, all comments and exceptions made by Quality Assurance Engineering regarding Quality Assurance requirements shall be resolved prior to award of a contract. Exceptions taken by Bidders to quality-related aspects of a Bid shall also be reviewed by Quality Assurance Engineering and resolved before award of a contract.

4.3 A contract award may be made prior to and contingent upon acceptance of the Contractor's Quality Assurance Program. In such cases, prior to start of any safety-related work, a site evaluation of the Contractor's Quality Assurance Programs shall be performed by Quality Assurance Engineering in accordance with the requirements of Section QA-I-5 of this Manual.

4.4 Supplemental Orders to Construction Contracts which involve change to or add technical requirements are subject to the same review and approval process as the original contract. A change to the technical content of a Construction Contract may only be approved by the Senior Resident Engineer and/or the organization responsible for the original technical content. Supplements to Construction Contracts involving only commercial changes do not require this approval process. 2

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-5
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 SUPPLIER/CONTRACTOR SURVEILLANCE	REVISION 3 DATE 10/8/82

1.0 SCOPE

This section of the manual describes the system of control which assures that safety-related items and services procured by the Ebasco Construction Department by means of purchase orders and/or construction contracts are supplied in accordance with the requirements of the purchase order or construction contract. At Ebasco's discretion, supplier/contractor surveillance may be performed on safety-related items procured by Site Contractors as a part of construction contracts.

2.0 GENERAL

2.1 Where items to be procured are of such a nature that determination as to whether or not the procurement requirements have been satisfied may not be readily accomplished during a receiving inspection or site inspection, surveillance shall be required at the supplier's/contractor's facility in accordance with the requirements of this section of the manual.

2.2 Where purchased or contracted items are of such a nature that determination as to whether or not the procurement documents requirements have been satisfied may be accomplished during a receiving inspection, surveillance may not be required at the supplier's/contractor's facility. Examples of such instances may include purchase of raw material, bar stock, nuts and bolting.

3.0 RESPONSIBILITIES

3.1 The Field Purchasing Agent shall distribute copies of all safety-related Ebasco field purchase orders in accordance with the Project Distribution Schedule. The Project Superintendent, or his designee, shall distribute copies of all safety-related Ebasco Construction contracts in accordance with the Project Distribution Schedule.

3.2 The Quality Assurance Site Supervisor shall be reponsible for performance of the following functions:

3.2.1 Determine whether or not the item to be procured shall require surveillance.

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3.0 RESPONSIBILITIES (Cont'd)

3.2.2 A notation is to be made in the respective purchase order/contract as to whether or not surveillance is required, including the basis for the decision. 3

3.2.3 Where surveillance is to be performed by Vendor Quality Assurance Representatives, the Quality Assurance Site Supervisor or his designee shall:

(a) Prepare Quality Assurance Plan for items and transmit it to Chief, Vendor Quality Assurance.

(b) Review those supplier's/contractor's procedures required by the purchase order or construction contract.

(c) Review Quality Assurance Reports. 3

(d) Process nonconformance reports relating to site purchase orders and construction contracts as described herein. 3

3.3 Where supplier/contractor surveillance is to be performed by Vendor Quality Assurance Representatives, the Chief, Vendor Quality Assurance, or his designee, assigns Vendor Quality Assurance Representatives to field purchase orders and construction contracts according to the particular area of expertise required (electrical, mechanical, etc) and assures that each is adequately trained and indoctrinated. Resporsibilities of the Vendor Quality Assurance Representative may include the following:

(a) Witness inspections and special processes.

(b) Review supplier's/contractor's personnel qualification records.

3.0 RESPONSIBILITIES (Cont'd)

(c) Review material certification.

(d) Review records of tests and inspections.

(e) Review supplier's/contractor's procedures for indication of Ebasco review.

(f) Complete forms and reports as required by Quality Assurance Plan.

(g) Review supplier's/contractor's radiographs, as required. 3

3.4 The Quality Assurance Site Supervisor may elect to provide Ebasco Quality Control Personnel to perform a supplier/contractor surveillance. When supplier/contractor surveillance is performed by Ebasco Quality Control personnel in lieu of Vendor Quality Assurance Representatives, the surveillance activities shall be performed by qualified personnel in accordance with the same written instructions and procedures used by the Vendor Quality Assurance Representatives, and shall be performed in accordance with all the requirements of this section. 3

4.0 VENDOR QUALITY ASSURANCE REPRESENTATION PROGRAM

4.1 The Chief, Vendor Quality Assurance, assures that all Vendor Quality Assurance Representatives receive adequate training and indoctrination. A written approved program defines the manner in which such indoctrination and training is accomplished.

4.2 The Chief, Vendor Quality Assurance or his designee, is responsible for providing Vendor Quality Assurance Representatives with the instructions and procedures necessary for the performance of their duties. In addition to instructions and procedures, certain specific information is assembled for transmittal to, and use by, the Vendor Quality Assurance Representative with regard to each assigned purchase order or contract. This specific information includes the following:

(a) Purchase order or construction contract and supplements, including specification and appropriate attachments

(b) Quality Assurance Plan

4.0 VENDOR QUALITY ASSURANCE REPRESENTATION PROGRAM (Cont'd)

(c) Transmittal letters for Ebasco review of supplier's/contractor's procedures

4.3 Where information is transmitted to the Vendor Quality Assurance Representatives, evidence is retained to document such actions.

4.4 After issuance of a purchase order or construction contract and prior to start of fabrication; the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department prepares and forwards to the Chief, Vendor Quality Assurance, the Quality Assurance Plan for use by the Vendor Quality Assurance Representatives. The function of this plan is to indicate to the Vendor Quality Assurance Representative those operations, tests, records or other activities over which the Vendor Quality Assurance Representative is to provide surveillance.

4.4.1 The Quality Assurance Plan consists of a checklist indicating those operations the Vendor Quality Assurance Representative is required to witness or observe, as well as the records and documentation he is to review such as: fabrication, inspection and test records; personnel qualifications; material certifications; fabrication and test procedures (to be checked for indication of Ebasco review).

4.4.2 Depending on the nature of the material or equipment being supplied, the Quality Assurance Plan may specify additional Ebasco forms which are required to be completed by the Vendor Quality Assurance Representative to document the witnessing of welding, nondestructive examination, electrical testing and other specific activities. The Quality Assurance Plan provides for sign-off and dating by the Vendor Quality Assurance Representative for each required operation.

4.5 The Vendor Quality Assurance Representative is required to document each surveillance visit to a supplier's/contractor's facility on a Quality Assurance Report in which he includes the names and titles of supplier's personnel contracted, a description of his activities, including nonconformances noted, as well as any other discrepant areas to be checked during future surveillance visits. The Project Distribution Schedule provides for the distribution of Quality Assurance Reports for Site-purchased and contracted items.

4.0 VENDOR QUALITY ASSURANCE REPRESENTATION PROGRAM (Cont'd)

4.6 All nonconformances to purchase order or construction contract requirements which render the quality of an item or service unacceptable shall be reported to the Ebasco Quality Assurance Site Supervisor.

4.6.1 When a nonconformance is detected by an Ebasco Vendor Quality Assurance Representative in the supplier's/contractor's shop, he shall initiate a Quality Assurance Engineering Nonconformance Report form, detailing the description of the nonconformance on the form and obtaining a recommended disposition from the cognizant supplier/contractor personnel. This report shall then be forwarded to the Quality Assurance Site Supervisor for processing.

4.6.2 All nonconformances detected by the supplier/contractor that are dispositioned as "repair", "rework" or "use-as-is" and will not conform to Ebasco specification and drawing requirements after corrective action has been taken shall be reported to Ebasco. The supplier/contractor shall report these nonconformances to Ebasco by forwarding copies of the nonconformance reports to the Quality Assurance Site Supervisor and a copy to the cognizant Vendor Quality Assurance Representative. The supplier/contractor shall not initiate corrective action until receipt of written approval or other appropriate disposition from Ebasco. 3

4.6.3 The Vendor Quality Assurance Representative shall maintain a log by purchase order and construction contract number of all nonconformances and other discrepancies noted. This log enables the Vendor Quality Assurance Representative to maintain close control to assure that all outstanding items are cleared prior to release of the item for shipment. Follow-up of nonconformances shall be as described in Section QA-III-6 of this manual.

4.7 The Vendor Quality Assurance Representative has the authority to reject work being performed in the supplier's/contractor's shop which does not comply with the purchase order or construction contract requirements and to inform the supplier/contractor that unless the unsatisfactory condition is corrected, the material or equipment will not be accepted by Ebasco.

4.0 VENDOR QUALITY ASSURANCE REPRESENTATION PROGRAM (Cont'd)

4.8 The Vendor Quality Assurance Representative shall review all required documentation in the supplier's/contractor's shop prior to release of the items for shipment. For those records requiring Engineering office review (ie, Seismic reports, radiographic film, stress reports, special process procedures) the Vendor Quality Assurance Representative shall assure that the required reviews have been performed prior to releasing the items for shipment. The Vendor Quality Assurance Representative shall use an appropriate means of marking, stamping and/or initialing supplier/contractor documentation he has reviewed. These reviews shall be conducted in accordance with written procedures and instructions. The completed Quality Assurance Plan and Documentation Checklist shall be returned to the Project Quality Assurance Engineer for transmittal to the site.

4.9 Prior to shipment of items, the Vendor Quality Assurance Representative shall complete and sign a "Release for Shipment" form indicating that he has determined that the material or equipment satisfies the purchase order or construction contract requirements, except in cases where a "Release for Shipment" form is not imposed by the specification. Equipment shall not be released for shipment by the Vendor Quality Assurance Representatives unless the above has been satisfied and that all required documentation is acceptable and has been transmitted to the site. A signed copy of the "Release for Shipment" form shall accompany shipment of the item where practicable; otherwise forwarded under separate cover. The requirement for a "Release for Shipment" form need not be imposed by the Project Quality Assurance Engineer or his designee from the Quality Assurance Engineering Department where, in his judgement, the nature and quantity of the material makes the requirement unnecessary or impractical, eg, reinforcing steel, cadweld sleeves. Where the requirement for a "Release for Shipment" form has been imposed, it may be waived for such cases as defined above, if documented by memorandum from the Project Quality Assurance Engineer to the Vendor Quality Assurance Department with copies to other affected parties.

4.0 VENDOR QUALITY ASSURANCE REPRESENTATION PROGRAM (Cont'd)

4.10 The Vendor Quality Assurance Representative, although performing his assigned functions with respect to specific items of material or equipment, is to consider the operation of the supplier's/contractor's overall Quality Assurance Program. Errors, nonconformance or any other discrepancies are to be evaluated to determine, if possible, whether or not there may be a program weakness. This program-oriented function is described in written procedures.

5.0 QUALITY ASSURANCE SITE SUPERVISOR AND STAFF

5.1 The supplier/contractor shall be required to submit where applicable, (via purchase order or construction contract requirements) a detailed fabrication sequence showing required tests and inspections. Based upon this sequence the Quality Assurance Site Supervisor will establish "witness" points beyond which work may not be performed by the supplier/contractor unless the operation is either witnessed by a representative of Ebasco, or the requirement for witnessing is waived by the Quality Assurance Site Supervisor. Based on the purchase order or construction contract and supplier's/contractor's fabrication sequence, the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall prepare a Quality Assurance Plan for use by the Vendor Quality Assurance Representative. This plan is described in Paragraph 4.4 of this Section. Details as to how the plan is prepared, to whom it is distributed, directions for implementation and sign-off are included in approved written departmental procedures.

5.2 The system by which supplier's/contractor's procedures (required for Ebasco review by the purchase order or construction contract) are controlled is described in approved written procedures which require the following:

5.2.1 The Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department is responsible for obtaining review and comments on each required procedure from the individual or group in Ebasco having expertise in the subject area.

5.0 QUALITY ASSURANCE SITE SUPERVISOR AND STAFF (Cont'd)

5.2.2 Disposition of supplier's/contractor's procedures may be "Reviewed without Comment", "Reviewed with Comment" or "Rejected." The Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department is responsible for assuring that each reviewed procedure is clearly stamped and checked as to disposition, that the reviewing party has signed and dated the appropriate space and that the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department has initialed this space when the review was performed by other than himself.

5.2.3 The Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department is responsible for summarizing the results of Ebasco's review of supplier's/contractor's procedures on a transmittal letter which accompanies the return of the procedures to the supplier/contractor. Copies of the transmittal letter (and procedures as applicable) are distributed in accordance with a standard distribution list as prescribed by written departmental procedures.

5.3 The Quality Assurance Site Supervisor shall process reports of nonconformances to field purchase orders and/or construction contracts in accordance with the requirements of Section QA-III-6 of this manual.

5.4 When deemed necessary by the Quality Assurance Site Supervisor or the Chief Quality Assurance Engineer, in-process system Quality Assurance audits of suppliers/contractors may be performed during the life of the purchase order/construction contract. Such audits may be initiated as a result of supplier/contractor performance, significant changes in supplier's/contractor's personnel responsible for implementing the Quality Assurance program, or new developments in code or regulatory Quality Assurance requirements. Where such audits are deemed necessary, they shall be performed in accordance with Section QA-III-9 of this Manual. Such audits may be directed at a supplier's/contractor's overall quality assurance program or may involve only a specific area of the program.

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APPROVAL: CHAIRMAN QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 NONCONFORMANCES	REVISION 2 DATE 10/8/82

1.0 SCOPE

1.1 This section establishes the requirements for the identification, control and disposition of items or services found to be in nonconformance with the applicable requirements. Nonconformances at the construction site fall into two categories: (a) nonconformances to Ebasco site purchase order requirements (b) nonconformances detected at the construction site. All activities described in this section shall be performed in accordance with written instructions and/or Procedures.

2.0 CONTROL AND REPORTING OF SUPPLIER NONCONFORMANCES

2.1 Section QA-I-5, requires suppliers to have and implement procedures which control nonconforming items and services to prevent their inadvertent use or installation. These procedures shall require as appropriate, identification, documentation, segregation, review and disposition of nonconformances.

2.2 All nonconformances to Ebasco construction site purchase order requirements which render the quality of an item or service unacceptable shall be reported to the Ebasco Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department by one of the following methods:

2.2.1 When a nonconformance is detected by an Ebasco Vendor Quality Assurance Representative, he shall initiate a Quality Assurance Engineering Nonconformance Report by detailing the description of the nonconformance on the form and obtaining a recommended disposition from the appropriate Supplier personnel. The report shall then be forwarded to the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department for processing in accordance with Paragraph 5.0 below.

2.2.2 All nonformances detected by the Supplier that are dispositioned as repair, rework or use as is and will not conform to Ebasco specification and drawing requirements after corrective action has been taken shall be reported to Ebasco. The Supplier shall report these nonconformances to Ebasco by forwarding copies of his nonconformance reports to the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department. The Supplier shall not initiate corrective action until receipt of written approval or other appropriate disposition from Ebasco.

3.0 CONSTRUCTION SITE NONCONFORMANCE

3.1 Nonconformances at the construction site may be detected by Ebasco Quality Assurance Engineering, Construction, Design Engineering staff members. All nonconformances detected shall be reported to the Quality Assurance Site Supervisor, or his designee from the Quality Assurance Engineering Department. 2

3.2 The Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall document nonconformances by issuance of a Quality Assurance Engineering Nonconformance Report. A determination of whether review to company procedure N-23 (50.55e) is required shall be made in accordance with Company Procedure N-23. If a site contractor detects a nonconformance, it shall be processed as per approved site contractor procedures. 2 2

3.3 The Nonconformance Report shall then be sent to the cognizant department for recommended disposition. If contractor services are involved, the recommended disposition shall be completed by the contractor. 2

3.4 After processing of the Nonconformance Report, the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall distribute copies of the reviewed and evaluated report in accordance with site Quality Assurance procedures. 2 2

3.5 The Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall verify by audit or other appropriate means that the necessary corrective actions are taken. 2

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2

4.0 REINSPECTION

2

4.1 For nonconformances to Ebasco Site Purchase order requirements, the Vendor Quality Assurance Representative 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. The completed nonconformance report form shall provide sufficient detailed information for as-built records and shall be available at the site.

2

2

4.1.1 Nonconformances not corrected in accordance with the requirements of the Nonconformance Report shall not be accepted by the Vendor Quality Assurance Representative. Items or services shall not be accepted by the Vendor Quality Assurance Representative until such time as the appropriate corrective action has been accomplished.

2

4.2 For nonconformances detected at the construction site, the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department 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 in accordance with quality assurance procedures. This documentation shall provide sufficient detailed information for as-built records.

2

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

5.0 REVIEW OF NONCONFORMANCE REPORTS

5.1 Upon receipt or initiation of a nonconformance report, the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall perform the following functions in accordance with the applicable QA Procedure. 2

5.1.1 Log in the report 2

5.1.2 Review the report to determine the nature of nonconformance. 2

5.1.3 Where design integrity is involved, the report shall be routed to the ESSE Project Engineer who will review the report, and where necessary, contact cognizant Design Engineers to discuss the suitability of the recommended disposition. 2

5.1.4 Transmit the report to the cognizant engineer(s) for review and evaluation. 2

5.2 Cognizant engineer(s) shall review and evaluate the nonconformance, decide on the suitability of the recommended disposition, determine if the nonconformance is a deviation which is significant and therefore potentially reportable under 10CFR50.55(e) and/or 10CFR21, and notify the QA Site Supervisor. The report shall then be returned to the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department. 2

5.3 Upon receipt of the reviewed and evaluated report, the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall assure proper disposition of the review and distribute copies of the report in accordance with Site QA procedures. 2

5.4 The Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall maintain on file all nonconformance reports generated in accordance with the requirements of this section. 2

6.0 EVALUATION OF DISPOSITION

6.1 Nonconformance Reports may be evaluated on site if there is a cognizant departmentally authorized member of the Engineering Department, Construction Engineering Department, or other authorized personnel as applicable. 2

6.2 Nonconformances which require review by cognizant authorized members of the Engineering Department who are not assigned to the construction site shall be forwarded to the Home Office for processing in accordance with applicable implementing procedures. 2

7.0 DEFICIENCY NOTICES

7.1 Deficiencies in the quality of items and services detected at the construction site which do not require an engineering evaluation or can be corrected by approved standard repair procedures during the normal course of construction shall be recorded on a Deficiency Notice. Copies of all Deficiency Notices shall be transmitted to the Quality Assurance Site Supervisor 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. 2

7.2 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: 2

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 Procedure 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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7.3 The processing of Deficiency Notices shall be detailed in approved Site Quality Control Procedures. 2

8.0 TREND ANALYSES OF NONCONFORMANCE REPORTS 2

The Quality Assurance Engineering Internal Audit Supervisor shall make an analysis of the available Quality data, such as nonconformance reports from the sources mentioned above (ie, supplier and construction site), 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 Engineering Procedure QA-D.3.

9.0 RECORDS

10.1 Nonconformance Reports shall be maintained in accordance with Section QA-I-6. 2

2

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-7
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 CORRECTIVE ACTION	REVISION 2 DATE 10/8/82

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 by Ebasco construction forces and contractors. 2

2.0 GENERAL

2.1 Corrective action shall be required for identified and documented nonconformances associated with safety-related items and services.

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

2.2.1 Inspection activities performed by Site Quality Control

2.2.2 Site Quality records document reviews

2.2.3 Quality Assurance audits performed by Quality Assurance Engineering in accordance with Section QA-III-9 of this manual

2.2.4 Audits of Ebasco performed by the Client or regulatory bodies

2.2.5 Nonconformances detected at a supplier's facility and at the construction site as described in Section QA-III-6 of this Manual

2.2.6 Audits of Quality Assurance Engineering performed by the Consulting Quality Assurance Engineer

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.

2.6 At the discretion of the Quality Program Site Manager and the Quality Assurance Site Supervisor or their designees from the Quality Assurance Engineering Department, for corrective action items identified per Paragraph 3.2 of this section, a corrective action document may be issued. This document shall be used when problems are not isolated cases and when they are of sufficient magnitude to warrant a documented supervisory review per written QA procedures. This document goes beyond the standard audit action response required for all audits. 2

2.7 The maximum length of time for corrective action response shall be 20 working days from the receipt of notice of deficiency or nonconformance. The maximum implementation time shall be 20 working days from the acceptance of corrective action response, unless otherwise indicated by the Quality Assurance Engineering Department. 2

2.8 It shall be the responsibility of the Quality Program Site Manager and the Quality Assurance Site Supervisor or their designees from the Quality Assurance Engineering Department to assure that all required corrective action is implemented in a timely manner. 2

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-II of this Manual. 2

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 Assurance shall verify that the corrective action which has been stipulated on the completed form is implemented. Site Quality Assurance shall maintain a file of all required corrective action and shall review this at time of closure to assure the resolution of deficiencies and implementation of required corrective action. 2

3.2 Site Quality Assurance Audits

3.2.1 Site Quality Assurance shall perform internal and external 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.

3.2.2 Audits of potential Ebasco suppliers shall be performed as described in Sections QA-III-9 and QA-I-5 of this Manual. If any aspect of a supplier's quality assurance program does not meet the Ebasco requirements and the supplier is being considered for award, he must implement corrective action to rectify the problem areas disclosed by the Ebasco evaluation. Supplier corrective action items shall be administered in accordance with Section QA-I-5.

3.3 Supplier Nonconformance

3.3.1 Nonconformance reports shall be issued at a supplier's facility as required in Section QA-III-6 of this Manual. Section QA-III-6 requires the issuance of a nonconformance report for nonconformances detected at the supplier's facility. These reports shall be submitted to Ebasco and processed in accordance with Section QA-III-6 of this Manual. Section QA-III-6 also assures that reinspection of nonconforming safety-related items and services is performed and that deficiencies have been resolved and appropriate corrective action has been taken prior to acceptance of these items or services by Ebasco.

3.3.2 During the reviews of nonconformance reports, a determination of quality trends shall be made. If it is ascertained that an improvement in inspection techniques and procedures or an increased sampling rate will improve quality, the vendor or Site Quality Assurance, as appropriate, shall be notified of the corrective action required to upgrade the system. 2

3.4 Client or Regulatory Agency Audits

3.4.1 Audits of construction site activities may be performed by the client and/or appropriate regulatory agencies. If corrective action is required as a result of one of these audits, the Quality Program Site Manager is responsible for obtaining a response from the cognizant individual(s) for submittal to the auditing body. (2)

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 Engineering Department. He shall be responsible for performing this verification for all items indicated in Paragraph 3.0 above, 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.

5.0 DETERMINATION AND ANALYSIS OF QUALITY TRENDS

In order to prevent the recurrence of quality problems, Ebasco has developed a method, specified in QA Procedures, for the determination and analyis of quality trends. The Quality Assurance Engineering Internal Audit Supervisor shall make an analysis of the available Quality data, such as audit reports and nonconformance reports (or other appropriate documentation) 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 Quality Assurance Engineering Procedure QA-D.3.

FOR INFORMATION ONLY

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-8
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 CONTROL OF SPECIAL PROCESSES	REVISION 2 DATE 10/8/82

1.0 SCOPE

1.1 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 For site-purchased items, suppliers shall be responsible for submitting procedures which control special processes to Ebasco in accordance with purchase order or contract requirements.

2.2 The Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall be responsible for the coordination of all review functions associated with supplier special process procedures submitted on site purchase orders. 2

2.3 The Materials Application Department under Quality Assurance Engineering Department shall be responsible for the following:

2.3.1 Development of specifications for supplier Site Contractors and Ebasco construction forces 2

2.3.2 Providing technical assistance for procedure review and development as required

2.3.3 Development of welding procedures and assisting in their qualifications 2

2.4 Site Contractor and Ebasco Construction forces shall be responsible for writing and implementing procedures for nondestructive examination, and for qualifying personnel to perform these operations. 2

2.5 Site Contractors and Ebasco Construction forces shall be responsible for writing and implementing welding and heat treatment procedures, and for qualifying personnel who will be performing these functions. 2

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL THIS PAGE ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 CONTROL OF SPECIAL PROCESSES	SECTION QA-III-8

3.0 METHODS FOR CONTROL OF SPECIAL PROCESSES

3.1 Site Purchase Orders and Contracts

3.1.1 The Ebasco purchase orders for safety related-items shall indicate which special process procedures are required for submittal to Ebasco for review. The Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall review all purchase orders for these items to assure the inclusion of requirements for submittal of these procedures as indicated in Section QA-I-4 of this Manual. 2

3.1.2 Procedures which describe the methods used in performing special processes shall be sent to Site Quality Assurance. The Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall review each procedure to determine its application and then route it to the appropriate cognizant individual for a detailed review. This review may be performed either at the site or by Engineering office personnel depending on the type of procedure submitted. 2

3.1.3 The reviewing individuals shall assure that each procedure is in compliance with appropriate codes and standards, and shall indicate any comments directly on the procedure or on separate sheet(s) attached thereto. He shall then return the procedure to the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department for final processing. The details of the methods involved are described in Quality Assurance Engineering procedures. 2

3.1.4 In the supplier's shops, the Ebasco Vendor Quality Assurance Representatives shall verify that only procedures which have been reviewed without comment by Ebasco are used in the processing of the safety-related items and services purchased by Ebasco. In addition, the Vendor Quality Assurance Representatives shall also verify that only qualified personnel are using these procedures. No item shall be considered acceptable if Ebasco has not reviewed the procedures as established by project requirements or if an unqualified individual is using a procedure for which a qualification is necessary. 2 2

3.2 Site Special Procedures

3.2.1 Construction Contractors shall develop procedures which will be used in the performance of nondestructive examination at the construction site. These procedures shall conform to the guidelines established by the Quality Assurance Engineering Department, and shall reflect the requirements of all applicable codes and standards. Conformance to these procedures and qualification requirements shall be verified through audits performed by Site Quality Assurance Engineering. 2

3.2.2 All welding and heat treating procedures used at the construction site shall be reviewed by the Materials Applications Department. Ebasco welding procedures shall be qualified either at the Materials Engineering Laboratory or at the construction site by the Construction Department and assistance in the qualification shall be provided by the Materials Applications Department as required. Construction Contractors and Ebasco Construction forces shall be responsible for writing their own welding and heat treatment procedures. These shall be implemented only after review by Site Quality Assurance and resolution of any comments. All welders installing safety-related items at the site shall be qualified in accordance with appropriate codes and standards. Verification of conformance to procedure and operator qualification requirements shall be provided by contractor and Ebasco Quality Control Inspection functions. 2 2 2

FOR INFORMATION ONLY

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-9
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 QUALITY ASSURANCE AUDITS	REVISION 2 DATE 10/8/82

1.0 SCOPE

1.1 Quality-related activities at the construction site are independently audited by the Site Quality Assurance group of the Ebasco Quality Assurance Engineering Department. This section establishes the requirements and guidelines for the preparation, performance, reporting and follow-up of quality assurance audits, both internal and external, as performed by Site Quality Assurance.

2.0 RESPONSIBILITIES

2.1 The Ebasco Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall assign qualified Site Quality Assurance Representatives to perform audits covered by this section.

2.2 Qualification of auditors will be based on the requirements of Paragraphs 5.2 and 5.3 herein and Quality Assurance Engineering procedures.

3.0 INTERNAL AUDITS

3.1 The Site Quality Assurance Representatives shall audit the various quality-related activities performed by Ebasco departments on the construction site.

3.2 These audits shall be performed in accordance with the requirements of this section and Quality Assurance Engineering procedures.

3.3 Qualifications and certification records for site quality control personnel shall be audited by Site Quality Assurance Representatives.

3.4 The Site Quality Assurance Representatives shall have the authority to reject items, services or work for nonconformance to the specification, drawing or quality control requirements. 2

4.0 EXTERNAL AUDITS

4.1 The Site Quality Assurance Representatives shall audit the various quality-related activities performed by site construction forces.

4.2 These audits shall be performed in accordance with the requirements of this section and Quality Assurance Engineering procedures.

4.3 Prior to the award of a contract, required Audits of prospective suppliers or suppliers of site purchased safety-related items and services shall be performed by the Quality Assurance Site Supervisor or his designee(s) in accordance with the requirements of Quality Assurance Engineering procedures, and Section QA-I-5 and QA-II-9, paragraphs 2.0 and 3.4.

At the discretion of the chief Quality Assurance Engineer, audits of suppliers or prospective suppliers may be performed by Quality Assurance Engineering personnel assigned to other Ebasco Engineering Offices.

4.4 Audits of prospective suppliers may not be necessary if the suppliers have been previously audited and found satisfactory in accordance with the requirements of Section QA-I05.

4.4.1 When prospective site contractors of items or services are audited by Quality Assurance Engineering personnel, the Quality Assurance Site Supervisor or his designee shall attend and participate in the evaluation as described in Ebasco Site Procedures. 2

4.4.2 Reports of audits covered by paragraph 4.4.1 above shall be written by Quality Assurance Engineering. 2

5.0 GENERAL REQUIREMENTS FOR ALL ON-SITE INTERNAL AND EXTERNAL AUDITS

5.1 Audits Personnel

5.1.1 Shall be independent of direct responsibility for performance of the activity being audited.

5.1.2 Shall be qualified to perform quality assurance audits based on experience and training.

5.2 Training and Orientation

5.2.1 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.

(b) Training or orientation in general and specialized methods of planning and performing audits.

(c) On-the-job training under direct supervision of an experienced qualified auditor.

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

5.3 Proficiency of Auditors

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

(a) Regular, active participaton in the audit process.

(b) Review and study of codes, standards and procedures, related to Quality Assurance Programs and program auditing.

5.3.2 The Chief Quality Assurance Engineer or his designee shall periodically evaluate auditors in accordance with Quality Assurance Engineering procedures to assure that the auditors are maintaining their proficiency.

5.4 Audit Planning

5.4.1 Preparation for audits shall include the development of a written audit plan of standard format which includes:

(a) Audit scope

(b) 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 nonconformance identified in previous audits. Audits

procedures and/or checklists may developed as part of a general audit program and need not be unique for each audit.

(c) Activities to be audited

5.5 Audit Performance

5.5.1 Checklists and/or written procedures of standard format shall be used to conduct the audit.

5.6 Reporting of Audit Results

5.6.1 An audit report shall be compiled and shall be signed by those performing the audit. tHe audit report shall provide:

(a) Description of the audit scope

(b) Identification of the auditors

(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 descriptin of nonconformances and causes thereof where possible.

(f) Recommendations for correcting nonconformances or improving the Quality Assurance Program, if possible.

5.6.2 The audit report shall be issued within 10 working days.

5.7 Audit Follow-Up

5.7.1 The audited department or individual shall be required to respond to the audit report in writing within 20 working days after receipt of the audit. The Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall have the authority to require shorter response times when necessary. The shorter response time shall be stated on the specific audit reports to which they pertain. As necessary, subsequent responses may be required to verify completion of corrective action.

5.7.2 Follow-up action shall be performed by Site Quality Assurance Representatives to:

(a) Assure that the written reply to the audit report is received.

(b) Assure that corrective action is identified and scheduled for each nonconformance.

(c) Confirm that nonconformances are resolved and corrective action when necessary, is accomplished.

5.7.3 Follow-up action may be accomplished through written communication, reaudit, or other appropriate means.

6.0 TREND ANALYSIS OF AUDIT REPORTS

The Quality Assurance Engineering Internal Audit Supervisor shall make an analysis of the available quality 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 Engineering Procedure QA-D.3.

7.0 AUDIT RECORDS

7.1 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 and written Quality Assurance Engineering 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.

7.2 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.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL THIS PAGE ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 IDENTIFICATION AND CONTROL OF ITEMS	SECTION QA-III-10

3.0 GENERAL

3.1 Approved Site Contractor and/or Ebasco Construction force procedures require that items shall be physically identified by any of the following means: 2

(a) Stenciled or etched markings

(b) Strip markings

(c) Imprinted tape

(d) Tagging

(e) Color coding.

(f) Records traceable to the items.

(g) Procedural control.

(h) Other appropriate means in accordance with approved Site Quality Control Procedures.

3.2 When it is impractical to physically identify 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.

4.0 RECORDS

4.1 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	SECTION QA-III-10
APPROVAL: CHAIRMAN QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 IDENTIFICATION AND CONTROL OF ITEMS	REVISION 2 DATE 10/8/82

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 The Quality Control materials Supervisor shall be responsible to perform the following in accordance with written procedures for items maintained by Ebasco. 2

(a) Assure that items received are properly identified and are accompanied by appropriate documentation as required by the purchase order or construction contract.

2.2 Site Contractors and Ebasco Construction forces shall be responsible to perform the following functions in accordance with approved procedures: 2

(a) Assure that all items shall be physically identified in accordance with paragraph 3.0 below and appropriate written procedures.

(b) 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.

(c) Assure that items are handled and stored in accordance with the requirements of Section QA-III-14 so as to maintain identification.

2.3 The Quality Assurance Site Supervisor 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.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-11
APPROVAL CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT CO WATERFORD SES UNIT 3 INSPECTION	REVISION 2 DATE 10/8/82

1.0 SCOPE

This section establishes the requirements for the performance of 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 contractor and/or Ebasco Construction forces shall be responsible for the following: 2

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) Submital 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 in accordance with approved procedures.

d) Control of inspection procedures and revisions thereto.

e) Scheduling and coordinating on-the-job training for inspection 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.

2.2 The Quality Control Site Supervisor shall be responsible for performing receiving inspection activities in accordance with appropriate inspection documents. 2

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL THIS PAGE ADAPTED FOR LOUISIANA POWER & LIGHT CO WATERFORD SES UNIT 3 INSPECTION	SECTION QA-III-11

2.0 RESPONSIBILITIES (Cont'd)

2.3 Qualification of inspection personnel shall be in accordance with applicable Quality Assurance procedures and Article 4.0 herein. 2

2.4 The Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department 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. 2

3.0 GENERAL

3.1 Inspection documents shall be prepared based upon the quality requirements contained in purchase orders, specifications, quality control documents, nonconformance reports, procedures and applicable codes and standards. 2

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 Assurance Site Supervisor or his qualified designee. 2

3.5 Inspection reports shall certify that the items or services inspected meet the applicable quality requirements.

3.6 When inspections are to be performed by use of a sampling program the sample size shall be identified on the inspection documents. Justification for this sampling shall be based upon recognized standard construction practices, successful past experience, as well as the complexity and function of the activity, item or service to be inspected.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL THIS PAGE ADAPTED FOR LOUISIANA POWER & LIGHT CO WATERFORD SES UNIT 3 INSPECTION	SECTION QA-III-11

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.

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: 2

a) Records of education and experience

b) Test results, where aplicable

c) Results of capability determination

4.3 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.

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

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL THIS PAGE ADAPTED FOR LOUISIANA POWER & LIGHT CO WATERFORD SES UNIT 3 INSPECTION	SECTION QA-III-11

5.0 RECORDS

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

2

5.2 Records of training, experience and qualification of inspectors shall be maintained for all personnel who are performing inspection or who have previously performed inspection.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-12
APPROVAL CHAIRMAN, QUAL. PROGRAM COMM. CHIEF QUALITY ASSURANCE ENGINEER	THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 TEST CONTROL	REVISION 2 DATE 10/8/82

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 contractor and Ebasco Construction Force procedures shall provide for the following: 2

(a) training of personnel assigned to witness tests.

(b) methods for evaluating the condition of test equipment and the item to be tested.

(c) assure that only devices calibrated in accordance with Section QA-III-13 of this manual are used for the performance of tests.

(d) assure that tests are performed under proper environmental conditions.

(e) documentation of test results.

(f) methods for reviewing test reports to assure that test requirements have been satisfied.

(g) preparation of a final report (turnover package) on items which covers test results, results of preventive maintenance, and operational checkout prior to start-up.

(h) review of written test procedures by the organization that prepared the applicable design document.

2.2 Ebasco Quality Assurance Engineering 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 Quality Assurance Engineering procedures for the inclusion of:

(a) identification of items to be tested

(b) identification of devices or equipment to be used during testing

(c) test methods

(d) operations to be performed

(e) inclusion or reference of acceptance criteria

(f) data to be recorded

(g) 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 procedures to assure that test requirements have been satisfied.

2.4 The Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department 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

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

EBASCO SERVICES INCORPORATED	FOR INFORMATION ONLY NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT CO WATERFORD SES UNIT 3 CONTROL OF MEASURING AND TESTING EQUIPMENT	SECTION QA-III-13
APPROVAL CHAIRMAN, QUAL. PROGRAM COMM. CHIEF QUALITY ASSURANCE ENGINEER		REVISION 2 DATE 10/8/82

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 contractors and Ebasco Construction Forces shall be responsible for performance of the following: 2

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

2.4 Assure that all measuring and testing devices are marked with calibration due dates when possible. When this marking is not possible, alternative methods of tracing the device to its calibration date (such as serialization) 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 utilized by those performing the calibration shall be in accordance with recognized criteria such as Departments of Weights and Measures, ASTM standards or others which are traceable to the National Bureau of Standards. If no national standards exist, the basis for calibration shall be documented.

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.

For projects with Preliminary Safety Analysis Reports docketed on or before October 19, 1977, M&TE shall be calibrated against working standards having tolerances not greater than the tolerance of the M&TE. 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.

3.4 Any M&TE found to be out of calibration shall be recalibrated. When M&TE is found to be out of calibration, 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.

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 Program Site Manager shall be responsible for the performance of reviews and audits in accordance with Section QA-III-9 of the Manual to the extent necessary to assure compliance with the requirements of this Section. 2

4.0 RECORDS

4.1 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 THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT CO WATERFORD SES UNIT 3 CONTROL OF RECEIVING, HANDLING AND STORAGE	SECTION QA-III-14 REVISION 2 DATE 10/8/82
APPROVAL CHAIRMAN, QUALITY PROGRAM COMM. CHIEF QUALITY ASSURANCE ENGINEER		

1.0 SCOPE

1.1 This section describes the methods employed during receiving, handling and storage to assure that all safety-related items received at the construction site will be available and usable when needed. These requirements apply to both incoming items and site fabricated sub-assemblies 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 Ebasco Construction forces and contractors. 2

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 RECEIVING INSPECTION

2.1 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.

2.2 Requirements 2

2.2.1 Site Procedures shall provide for at least the following:

a - Establish designated material receiving areas and segregated holding areas for non-conforming items.

b - Assignment of quality control personnel to administer the system for inspection of storage areas and surveillance of maintenance activities to verify conformance with the system criteria.

c - Performance of receiving inspection activities in accordance with approved receiving inspection procedures.

d - Provisions for rejection of unsatisfactory items.

e - Adequate record maintenance system.

2.3 Receiving Inspection Procedure

2.3.1 Receiving inspection procedures shall be written by the Quality Control Staff 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

b - Visual Examination

c - Marking & Tagging for Traceability

d - Testing when specified

e - Preparation for Storage

3.0 HANDLING

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

3.2 Requirements

3.2.1 Site Quality Control and Administrative Site Procedures shall provide for at least the following: 2

a - Review of handling requirements for safety-related items.

b - Performance of appropriate inspections to assure that handling operations have not jeopardized item integrity.

4.0 STORAGE

4.1 All safety-related items shall be stored in predetermined locations and storage levels as outlined below. In-place storage in permanent location is permitted for large items provided that the permanent location is ready for the equipment installation. If the permanent location does not afford the required level of protection, additional protection shall be provided to meet the requirements of the required storage level.

4.2 Requirements

2

4.2.1 Site Quality Control and Administrative Site Procedures shall provide for at least the following:

a - Establishment 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 - Maintenance of storage facilities to provide safeguards for the control of items such as the following:

1) Physical condition of storage area

2) Access to storage area

3) Fire protection

4) Prohibited materials

c - Surveillance of stored items to assure their integrity

d - Preparation 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 on site.

e - Organization 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 - Provisions for preservation of items in storage, as required by special conditions.

g - Storage records for items going into storage on the appropriate inventory, storage and Quality Control records. These records shall be so maintained that each individual item can be located and examined or released for use with a minimum of delay.

h - Material Withdrawal Request - The withdrawal of any component, assembly, system, or materials from the warehouse or storage areas shall be by material withdrawal request initialed by the responsible supervisor or his designated representative. The request shall identify the material and applicable references to a drawing or specification.

i - Materials Release - Warehouse or storage area personnel shall issue the material, confirming or indicating the applicable material identification inventory, production

control, and traceability of materials required by project specifications and applicable codes.

j - Qualification of personnel performing receiving inspection, storage and handling functions.

5.0 QUALITY ASSURANCE ENGINEERING

5.1 The Quality Assurance Site Supervisor shall be responsible for the following:

a - Assigning Site Quality Assurance personnel to audit documentation for items received on the construction site. This shall be performed in accordance with Site Quality Assurance procedures.

b - 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.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-15
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	THIS SECTION ADAPTED FOR LOUISIANA POWER & LIGHT COMPANY WATERFORD SES UNIT 3 INSPECTION, TEST & OPERATING STATUS	REVISION 2 DATE 10/8/82

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. 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 contractors and Ebasco Construction Forces shall be responsible for the following: 2

2.1 Develop and maintain a system for marking and tagging safety-related items. This system shall provide for the identification and maintenance of the status of inspections and tests performed on these items throughout fabrication, installation, erection and operation. 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 all status indicators.

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.

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.

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 references.

3.0 GENERAL

3.1 Contractor and Ebasco Construction Force 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. 2

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.

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 Quality Assurance Engineering Department 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

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

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION Appendix I
APPROVAL CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	TERMS AND DEFINITIONS	REVISION 1 / DATE 9/30/76

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 (EXTERNAL) - Audits of any Supplier's Quality Assurance Program or portions thereof.

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

BIDDER - An individual organization requested to submit a quotation or proposal for furnishing specified items or services. A bidder is not under contract to provide such items or services. R1

EBASCO ENGINEERING OFFICE - An integral engineering unit where design, engineering, procurement and related functions are performed.

CONSTRUCTION CONTRACTS - A contractual agreement, including specification(s), attachment(s), drawing(s) and commercial terms and conditions. Construction Contracts are awarded by the Site offices and cover the furnishing of services and materials required to erect/or install a facility or component. In some cases the furnishing of equipment procured from a manufacturer may be included. R1

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

INQUIRY - Collective term describing an invitation to bid (consisting of specifications(s) and attachment(s), as well as drawings and commercial terms and conditions) sent to prospective suppliers; not a contractual document.

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. R1

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

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 check points of an inspection process shall not be considered as a nonconformance provided:

a) The conditions is corrected prior to acceptance of the work.

b) The work does not proceed beyond the check point until the correction is made.

c) The condition does not affect work previously accepted.

d) No violation of Procedure or Code is evident.

PROJECT PROCEDURES MANUAL - Manual developed for a project which contains procedures and/or instructions for implementing contract obligations.

PURCHASE ORDER - Collective term describing a contractual agreement, including specification(s) and attachment(s), drawing(s), and commercial terms and conditions. Purchase Orders may be issued by the Engineering and Site Offices and generally cover the furnishing of materials, equipment and/or services by a supplier. In some cases erection labor may be included. R1

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 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 inservice inspection.

QA RECORDS (NONPERMANENT) - are those 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.

c) Those of no significant value in determining the cause of malfunction of an item.

d) Those which do not provide baseline data for inservice 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 Ebasco Engineering, in accordance with the guidelines established by the Ebasco Licensing Department, 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. R1 R1 R1

SAFETY-RELATED SERVICE - Any service performed that directly affects the quality of a safety-related item.

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

SOURCE SURVEILLANCE - review, observation and/or examination at the location of material or equipment procurement for the purpose of verifying that purchased items are supplied in accordance with purchase order requirements.

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, e.g., welding and nondestructive testing.

SUPPLIER - Any individual or organization under contract for furnishing items or services, including the terms Vendor, Seller, Contractor, Subcontractor, Fabricator, Consultant, and subtier levels of these where appropriate.

FOR INFORMATION ONLY

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION APPENDIX II
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	EBASCO POSITIONS ON US NUCLEAR REGULATORY COMMISSION REGULATORY GUIDES	REVISION 1 R1 DATE 6/18/82 R1

REGULATORY GUIDE 1.28 — QUALITY ASSURANCE PROGRAM REQUIREMENTS (DESIGN AND CONSTRUCTION) (SAFETY GUIDE 28, REVISION 2, 2/79) R1

EBASCO POSITION

Ebasco commits to comply with the regulatory position as written, with no exceptions or clarifications to the guide.

REGULATORY GUIDE 1.30 — QUALITY ASSURANCE REQUIREMENTS FOR THE INSTALLATION, INSPECTION, AND TESTING OF INSTRUMENTATION AND ELECTRIC EQUIPMENT (SAFETY GUIDE 30, REVISION 0, 8/72)

EBASCO POSITION

Ebasco commits to comply with the regulatory position as written with no exceptions or clarifications to the guide.

REGUALTORY GUIDE 1.37 — QUALITY ASSURANCE REQUIREMENTS FOR CLEANING OF FLUID SYSTEMS AND ASSOCIATED COMPONENTS OF WATER-COOLED NUCLEAR POWER PLANTS (REVISION 0, 3/73)

EBASCO POSITION

Ebasco commits to comply with the regulatory position as written, with no exceptions or clarifications to the guide.

REGUALTORY GUIDE 1.38 — QUALITY ASSURANCE REQUIREMENTS FOR PACKAGING, SHIPPING, STORAGE AND HANDLING OF ITEMS FOR WATER-COOLED NUCLEAR POWER PLANTS (REVISION 2, 5/77)

EBASCO POSITION

Ebasco commits to comply with the regulatory position with the following clarifications:

CLARIFICATION

Item-ANSI N 45.2.2-1972 Subdivision 2.7	Ebasco believes the intent of the ANSI classification of protection levels is met if equipment identified in Level B and C categories which was specifically designed for outdoor environment is stored at Level D (outdoor) conditions.

REGULATORY GUIDE 1.38 (cont.)

Regulatory Position C.1.c and C.2.c

Ebasco believes that storage conditions should be such that desiccants, their bags and tapes should not be subjected to leaching or radiation. Even if accidental leaching or radiation occurs, desiccants and tapes are removed prior to component installation. Subsequent routine flushing and/or cleaning would remove any harmful residues.

Ebasco will impose the more readily interpretable requirements of 0.25% maximum halogens for desiccants (C.1.c) and 0.10% halogen and sulfur content for tape (C.2.c)

REGULATORY GUIDE 1.39 HOUSEKEEPING REQUIREMENTS FOR WATER-COOLED NUCLEAR POWER PLANTS (REVISION 2, 9/77)

EBASCO POSITION

Ebasco commits to comply with the regulatory position with the following clarification:

CLARIFICATION

Item-General

Ebasco acceptance applies only to the regulatory requirements for controls at the site during the construction phase and not to the operational aspects of this guide or the referenced documents.

REGULATORY GUIDE 1.58 QUALIFICATION OF NUCLEAR POWER PLANT INSPECTION, EXAMINATION, AND TESTING PERSONNEL (REVISION 1, 9/80) R1

EBASCO POSITION

Ebasco commits to comply with the regulatory position as written, with no exceptions or clarifications to the guide.

REGULATORY GUIDE 1.64 QUALITY ASSURANCE REQUIREMENTS FOR THE DESIGN OF NUCLEAR POWER PLANTS (REVISION 2, 6/76)

EBASCO POSITION

Ebasco commits to comply with the regulatory position as written, with no exceptions or clarifications to the guide.

REGULATORY GUIDE 1.70 (Chapter 17) — STANDARD FORMAT AND CONTENT OF SAFETY ANALYSIS REPORTS FOR NUCLEAR POWER PLANTS (REVISION 3, 11/78) R1

EBASCO POSITION

The Quality Assurance Program and its applicability to safety related activities and services performed by Ebasco in the design and construction of nuclear power plants is fully delineated in this topical report (ETR-1001).

REGULATORY GUIDE 1.74 — QUALITY ASSURANCE TERMS AND DEFINITIONS (REVISION 0, 2/74)

EBASCO POSITION

Ebasco commits to comply with the regulatory position as written, with no exceptions or clarifications to the guide.

REGULATORY GUIDE 1.88 — COLLECTION, STORAGE, AND MAINTENANCE OF NUCLEAR POWER PLANT QUALITY ASSURANCE RECORDS (REVISIONS 2, 10/76)

EBASCO POSITION

Ebasco commits to comply with the regulatory position as written, with no exceptions or clarifications to the guide.

REGULATORY GUIDE 1.94 — QUALITY ASSURANCE REQUIREMENTS FOR INSTALLATION, INSPECTION AND TESTING OF STRUCTURAL CONCRETE AND STRUCTURAL STEEL DURING THE CONSTRUCTION PHASE OF NUCLEAR POWER PLANTS (REVISION 1, 4/76)

EBASCO POSITION

Ebasco commits to comply with the regulatory position as written, with no exceptions or clarifications to the guide for projects with Preliminary Safety Analysis Reports docketed on or after October 19, 1977. For prior projects, Ebasco will comply with the applicable Safety Analysis Report and other associated commitments as approved by the NRC.

REGULATORY GUIDE 1.116 QUALITY ASSURANCE REQUIREMENTS FOR INSTALLATION, INSPECTION, AND TESTING OF MECHANICAL EQUIPMENT AND SYSTEMS (REVISION O-R, 5/77)

EBASCO POSITION

Ebasco commits to comply with the regulatory position with no exceptions or clarifications to the guide.

REGULATORY GUIDE 1.123 QUALITY ASSURANCE REQUIREMENTS FOR CONTROL OF PROCUREMENT OF ITEMS AND SERVICES FOR NUCLEAR POWER PLANTS (REVISION 1, 7/77)

EBASCO POSITION

Ebasco commits to comply with the regulatory position with no exceptions or clarifications to the guide.

REGULATORY GUIDE 1.144 AUDITING OF QUALITY ASSURANCE PROGRAMS FOR NUCLEAR POWER PLANTS (REVISION 1, 9/80)

EBASCO POSITION

Ebasco commits to comply with the regulatory position with no exceptions or clarifications to the guide.

REGULATORY GUIDE 1.146 QUALIFICATION OF QUALITY ASSURANCE PROGRAM AUDIT PERSONNEL FOR NUCLEAR POWER PLANTS (REVISION 0, 8/80) R1

EBASCO POSITION

Ebasco commits to comply with the regulatory position with no exceptions or clarifications to the guide.

SECTION III QUALITY ASSURANCE MANUAL

(QC Inspector Qualification Requirements are an integral part of QA Manual, Subcontractor QC Inspector Qualification Requirements are available on request.

A. LP&L Quality Assurance Manual
B. Ebasco Quality Assurance Manual