EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION
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1.0 SCOPE

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

2.0 GENERAL

2.1 The Ebasco Operations organization consists of four independent quality-related principal divisions headed respectively by the Senior Vice Presidents of Engineering and Construction, Consulting Engineering and Projects and Procurement, and the Vice President Materials Engineering and Quality Assurance. Each of these officers of the company 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. R4

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. R4 R4

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 Executive Vice President Operations. This is administered by 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): R4

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 R4

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 Assrurance 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). 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 functions consistent with the scope of work assigned to Ebasco:

(a) Planning and performance of inspection activities during the construction phase.

(b) Identifying and initiating correction of nonconforming conditions to requirements indicated by drawings, specifications, codes or procedures and performance of reinspection to verify corrective action taken 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. R4

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. R4

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. R4

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 adminsitered by a Manager who reports to the Vice President Materials Engineering and Quality Assurance. R4

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 departments report directly to the Vice-President of Engineering, and they are responsible for technical and administrative aspects of the engineering and design phases of their disciplines. R4

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. R4

4.3 Lead Discipline Engineers within each department are responsible for project commitments to Project Engineers and are technically responsible to their Supervising Engineer, who reports to an Assistant Chief Engineer or to a Director, who in turn reports to a department Chief Engineer. Lead Discipline Engineers from each department are assigned to portions of each project as required. At least one Lead Discipline Engineer from each engineering discipline is continuously assigned to each nuclear project. Additional engineers are assigned to each nuclear project to assist the Lead Discipline Engineer, as needed.

4.4 Design Supervisors report to a Group Supervisor or Supervising Design Engineer who in turn reports to Division Chiefs, reporting to the Chief Engineer. Design Supervisors supervise the work of draftsmen and designers in the preparations of drawings. R4

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 Nuclear

4.6.1 Engineers in the Stress Analysis Department report to the Assistant Chief Engineer, Stress Analysis, who in turn reports to the Chief Mechanical-Nuclear Engineer. R4

4.6.2 The Stress Analysis Department is responsible for the calculation of stresses in piping systems to assure full compliance with applicable codes and to assure full compliance 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,

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 Procurements 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 contracts. R4

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. R4

9.0 PLANT OPERATIONS AND BETTERMENT R4

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 Director of Engineering and Special Projects, 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. R4

9.2 Lead Engineers from each group, who report to their Director or an intermediate Supervisor, are assigned to nuclear projects as required. R4

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. R4

10.0 PURCHASING AND TRAFFIC R4

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 Supervisor, are responsible for the phases of purchasing to which they are assigned. R4

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.

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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 Applied 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

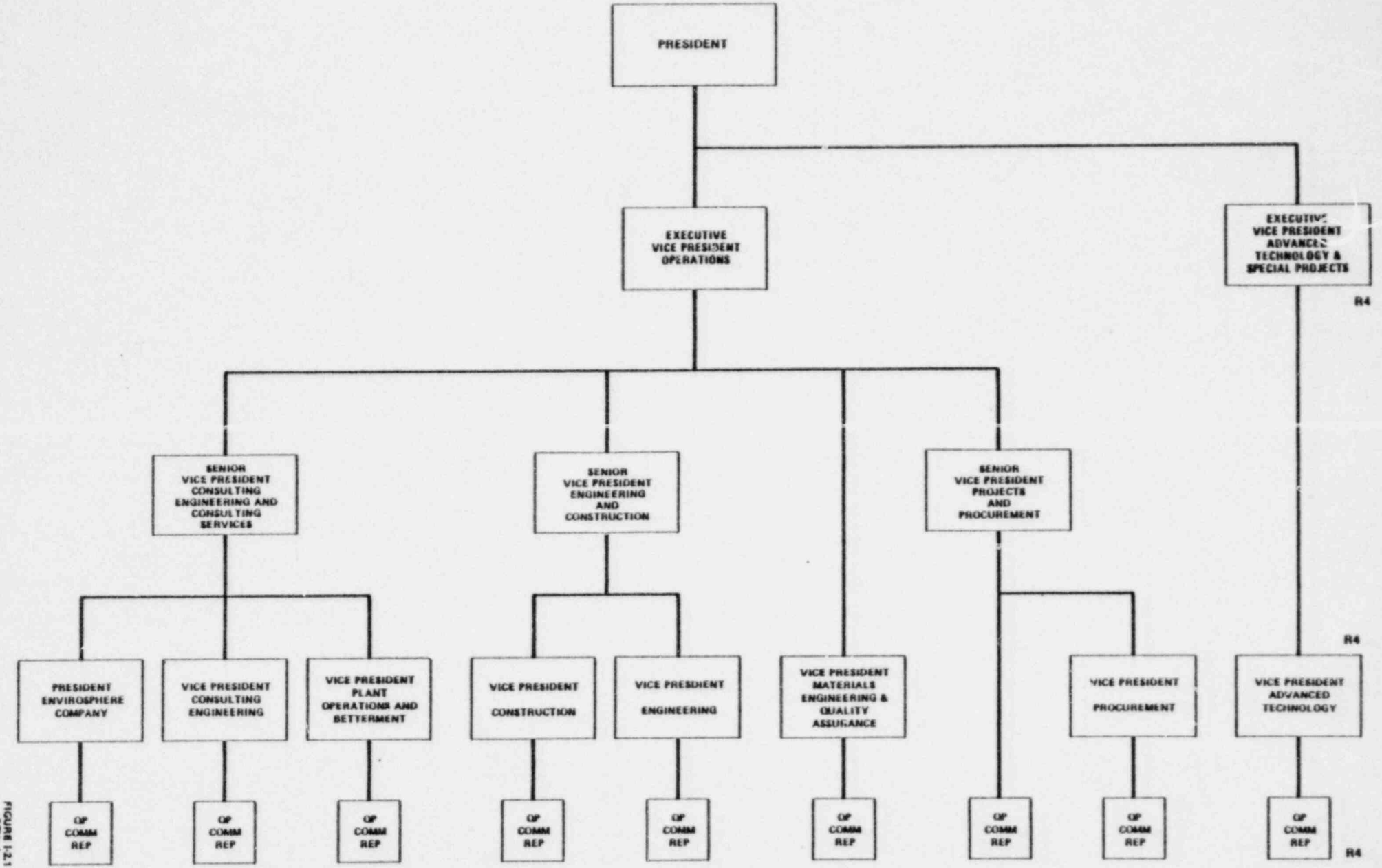

FIGURE 1.2.1
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Ebasco Services Incorporated

MATERIALS ENGINEERING & QUALITY ASSURANCE ORGANIZATION

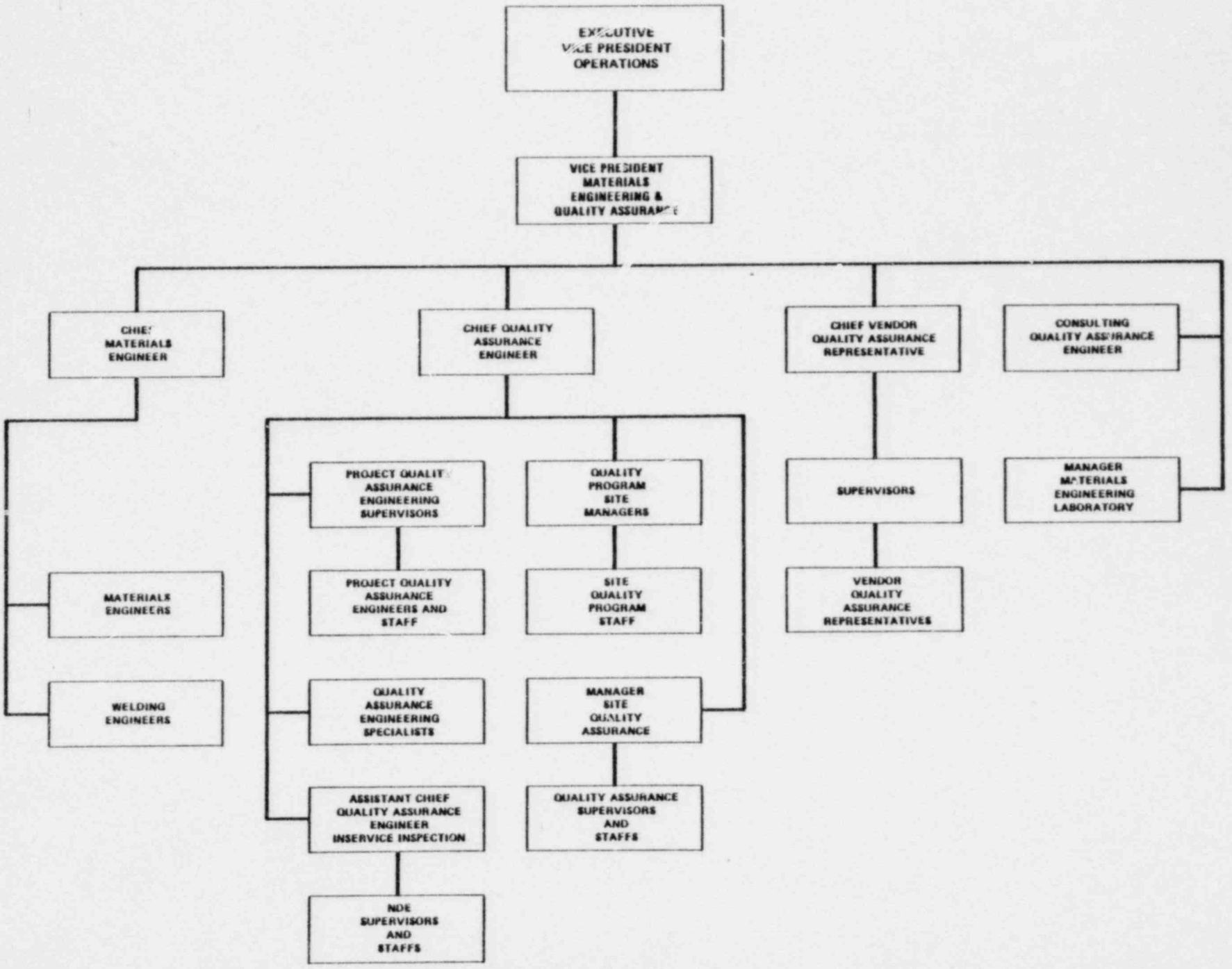

FIGURE 1-2.2
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Ebasco Services Incorporated
ENGINEERING DEPARTMENT ORGANIZATION

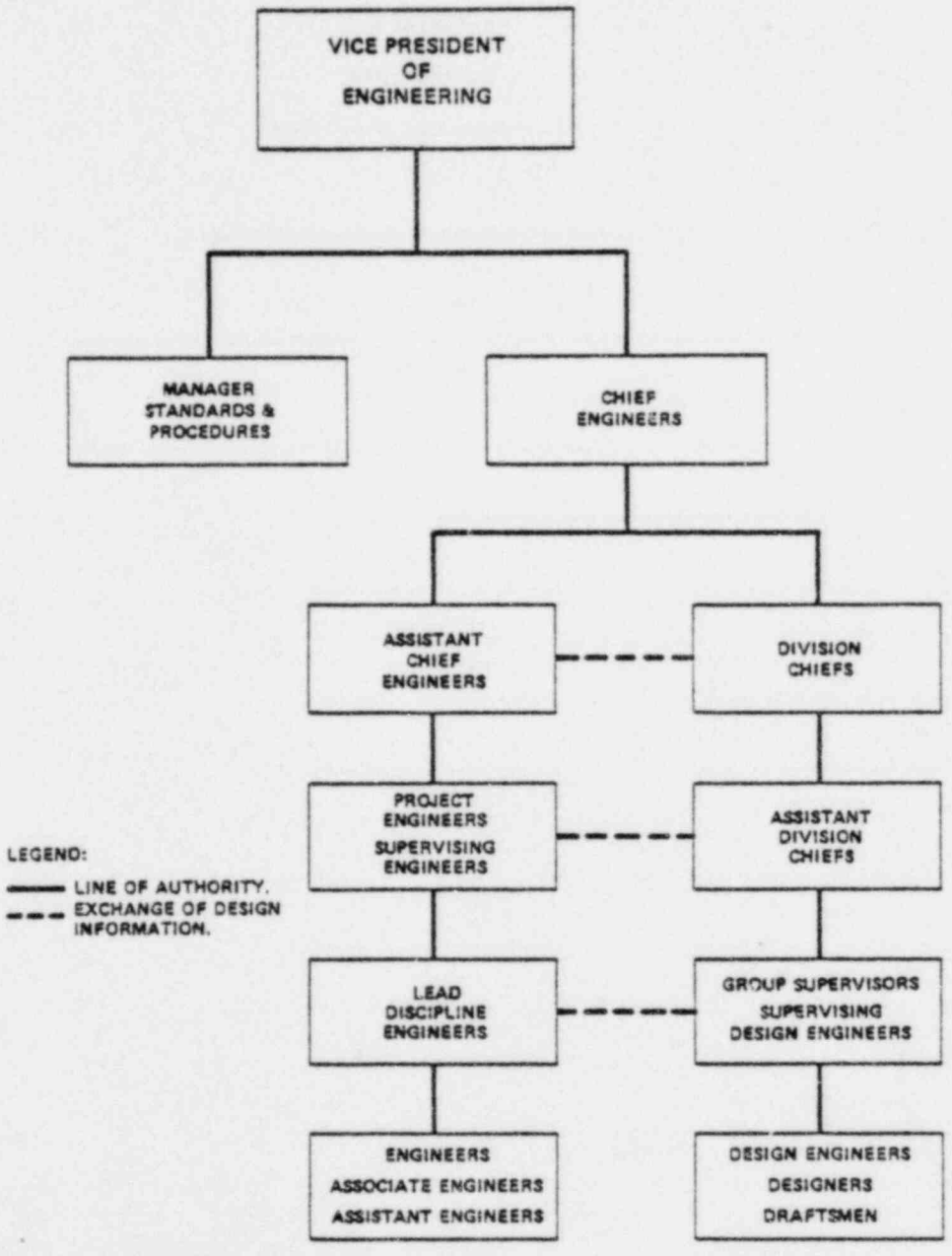
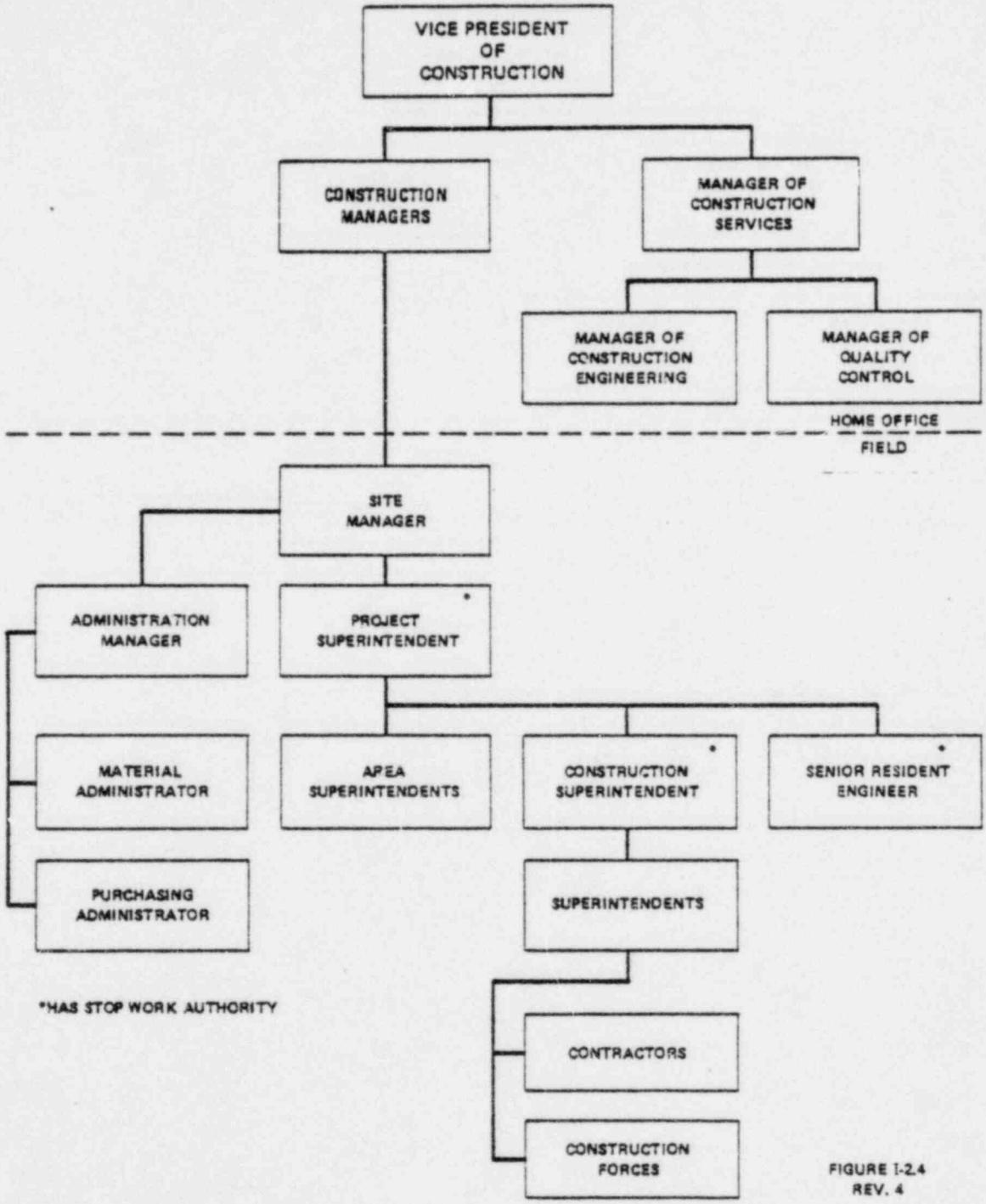


FIGURE I-2.3
REV. 4

Ebasco Services Incorporated
ORGANIZATION FOR CONSTRUCTION

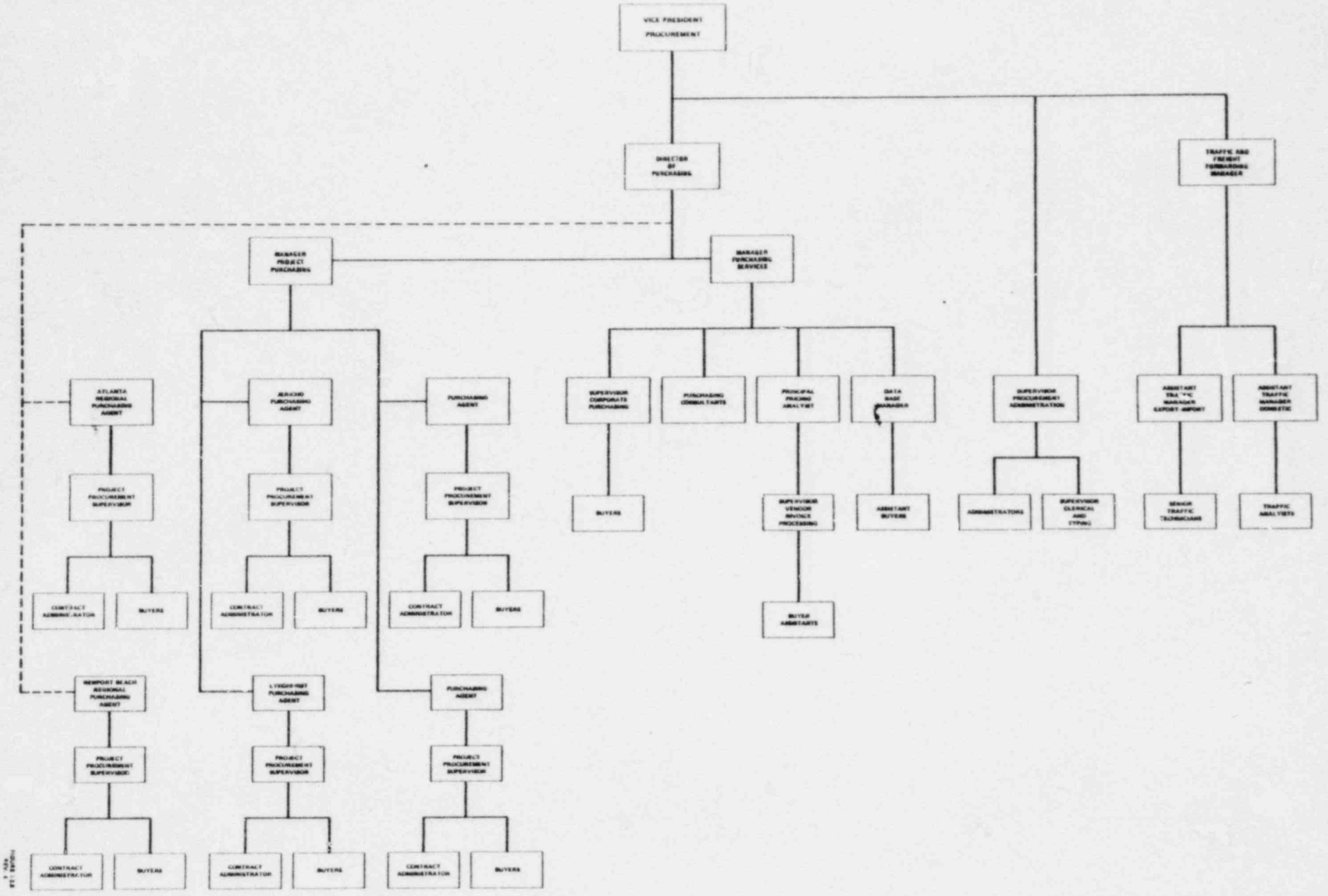


*HAS STOP WORK AUTHORITY

FIGURE I-2.4
REV. 4

Ebasco Services Incorporated

PURCHASING & TRAFFIC DEPARTMENTS
ORGANIZATION CHART



Ebasco Services Incorporated

QUALITY ASSURANCE ENGINEERING

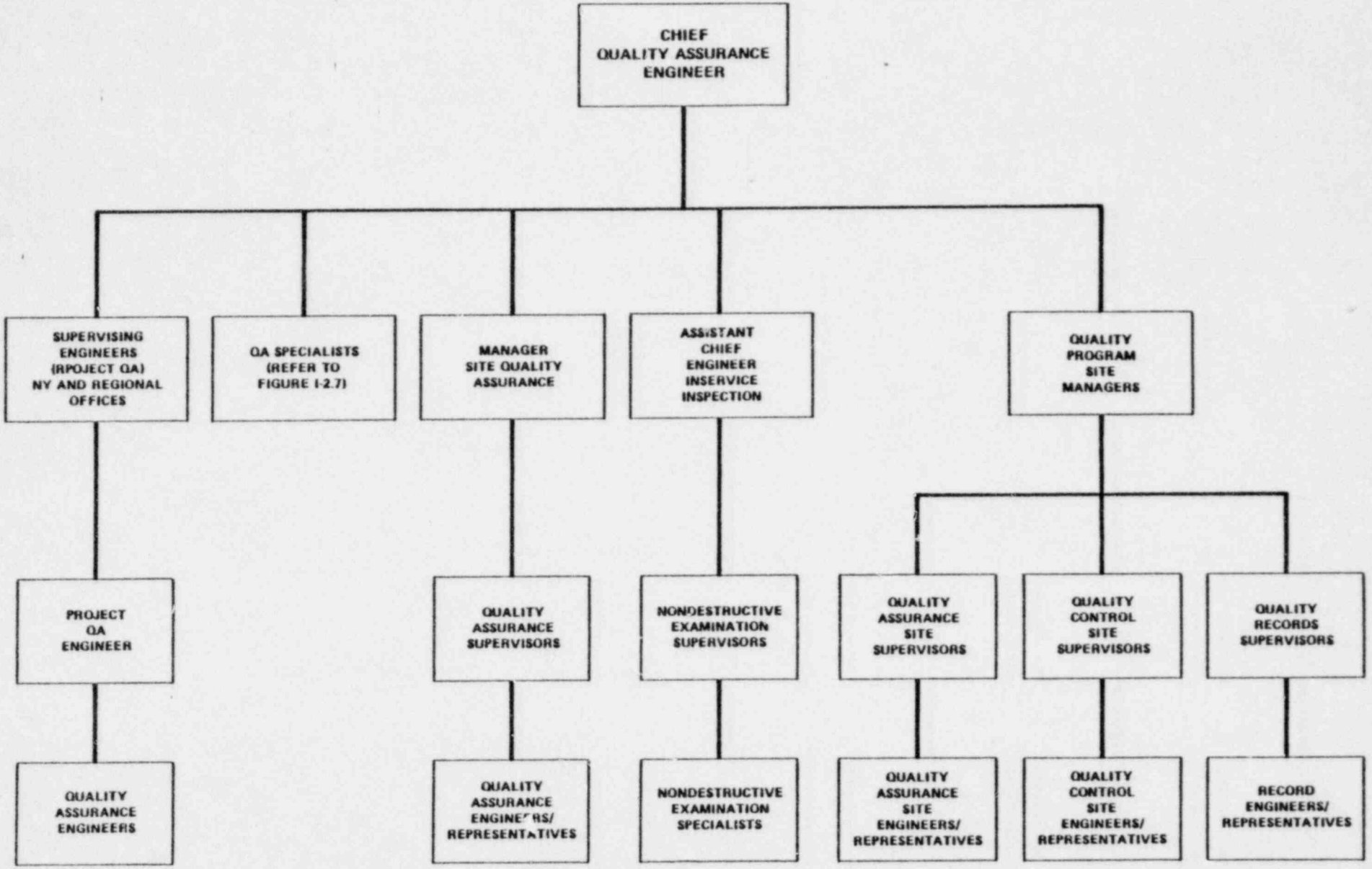


FIGURE I-2.6
REV. 4

Ebasco Services Incorporated

QUALITY ASSURANCE ENGINEERING
QA SPECIALISTS

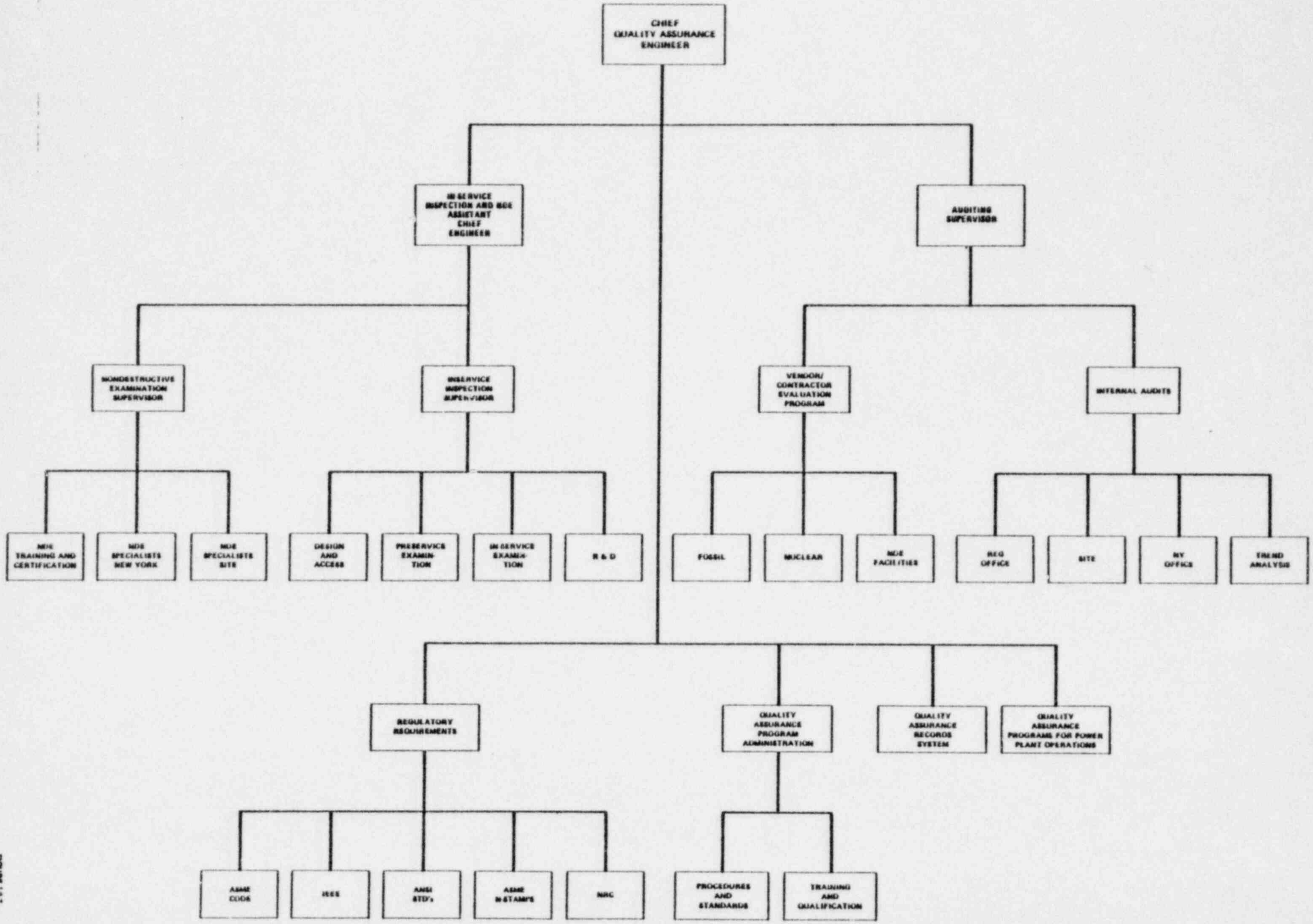


FIGURE 1-2.7
FORMERLY 1-2.8
REV. 4

FORM 636 REV 9-79

EBASCO SERVICES INCORPORATED

DISTRIBUTION SCHEDULE

ISSUE DATE

REV DATE

CLIENT

CLIENT SYMBOL

OFS NO.

PROJECT

FUEL LOADING OR TRIAL OPERATION DATE

	CORRESPONDENCE						NEW YORK PURCHASE ORDERS						DRAWINGS				PROJECT STATUS (*)	FIELD CONSTRUCTION CONTRACTS			
													EBASCO		MANUFACTURERS			INVITATIONS	BIDS & CONFORMATION	CONTRACTS	
							SUBMITTED & INCL. SPECS. EBASCO TO MFR.	MANUFACTURER'S BIDS	EBASCO BID COMPARISON & PURCH. RECOM.	BASEAS, SPECS. & SUPP'S	EBASCO Q.C. REP. & EXPED. REPORTS	ERECTION TYPE MANUALS	PRELIMINARY	FINAL	PRELIMINARY	FINAL				EXECUTED	CONFORMED

(*) *Includes Status of Engineering, Erecting Schedules, Status of Equipment and Risk 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-II-1
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	INSTRUCTIONS, PROCEDURES AND DRAWINGS	REVISION 2 R2 / DATE 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 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 with comments
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 Venuor 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-5
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	SUPPLIER SURVEILLANCE	REVISION 2 R2 / DATE 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. 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. R2

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 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-8
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	CONTROL OF SPECIAL PROCESS	REVISION 2 R2 / DATE ____ 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

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL CONTROL OF SPECIAL PROCESS	SECTION QA-II-8

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

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

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 with the responsibility of performing quality related functions at the construction site, such functions shall be performed in accordance with written instructions, procedures or drawings that have been developed by the organization performing the function. These instructions, procedures and drawings shall establish the manner of performing the activity in accordance with the requirements of the Ebasco Nuclear Quality Assurance Program Manual and of the organization performing the activity. R2

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 determing 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: R2

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 Departments' Design or other home office based group at the construction site. R2

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. R2

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 Manager of Quality Control is responsible for the establishment and maintenance of corporate Quality Control Program Standard Procedures. R2 R2
General review of site originated quality control documents shall be performed by the Manager of Quality Control, or his designee.

4.0 DISTRIBUTION AND CONTROL R2

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 An 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	SECTION QA-III-2
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	DOCUMENT CONTROL	REVISION 2 R2 / DATE R2

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 Control Site Supervisor shall be responsible for the control or Ebasco Quality Control procedures and plans at the construction site. R2

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 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 used which requires written acknowledgement of receipt of the distributed document. R2

4.0 PROCEDURES-CONSTRUCTION DEPARTMENT

Distribution and control of Ebasco construction procedures and special process procedures shall be accomplished by means of a procedure File Card System. Each procedure shall be recorded on a 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. R2

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. R2

Quality Control and Record Control procedures describing implementation and responsibilities of Quality Control and Records Control activities shall be developed, reviewed, approved, distributed and controlled using the existing documents control system established at the construction site. R2

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 Agnet 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 original 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.

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-4
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	CONSTRUCTION SITE PROCUREMENTS	REVISION 4 R4 / DATE R4

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.

2.0 RESPONSIBILITIES

2.1 The Field Purchasing Agent coordinates activities related to the purchase of items for which purchase 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 designees from the Construction Department prepares the initial requisition package, which includes a technical description of the items required to be purchased. R4

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 Control Site Supervisor or his designee, from the Quality Assurance Engineering Department reviews quality-related aspects of purchase order and construction contract documents when prepared by the site. R4 R4

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. R4 R4

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.

2.7.2 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.

2.0 RESPONSIBILITIES (cont'd)

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 appropriate quality-related requirements (i.e. tests, inspection, documentation) by the originator of the requisition, subject to review by the Quality Control Site Supervisor or his designee. R4

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

(a) Site Design Engineering, where applicable, for technical adequacy R4 R4

(b) Quality Control Site Supervisor for review for the quality-related aspects of the package. R4

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

3.1.2 (cont'd)

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

(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

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 Propspective 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" R4

(d) Client preference

(e) Other Vendors who demonstrate adequate qualification.

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

3 3 The Field Purchasing Agent shall inform the Quality Assurance Site Supervisor and the Quality Control 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 Control Site Supervisor may participate in the evaluation and in either case shall be informed in writing as to the results of such an evaluation. The Quality Assurance Site Supervisor shall advise cognizant Construction Department Personnel of the results of all evaluations. R4 R4 R4 R4 R4

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.

3.5 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. R4 R4

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

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

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 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. R4

3.7 A check list shall be used by the Field Purchasing Agent to assure that all prerequisites have been satisfied. This check list 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.)

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

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.

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. R4

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.

4.0 PROCUREMENT PROCESS - CONSTRUCTION CONTRACTS (cont'd)

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. R3

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-5
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	SUPPLIER/CONTRACTOR SURVEILLANCE	REVISION 3 R3 / DATE R3

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 descretion, 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 responsible for performance of the following functions:

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

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

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

3.0 RESPONSIBILITIES (cont'd)

(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 supplier's/contractor's radiographs, as required.

(d) Review Quality Assurance Reports.

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

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. Responsibilities 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

(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

3.4 The Quality Control 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. R3

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

(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. R3

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.

4.0 VENDOR QUALITY ASSURANCE REPRESENTATION PROGRAM (cont'd)

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.

4.6 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 shll 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 who shall provide 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. R2

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. R2

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 (i.e., 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 AssuranceRepresentative 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. R3 R3

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

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

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. R3 R3

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. R3 R3

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. R3 R3 R3 R3

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. R3 R3

5.3 The Quality Assurance Site Supervisor shall process reports of non-conformances 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.

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

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 inadvertant 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: R2 R2

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. R2 R2

2.2.2 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 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. R2 R2

3.0 CONSTRUCTION SITE NONCONFORMANCES

3.1 Nonconformances at the construction site may be detected by Ebasco Quality Assurance Engineering, Construction or Design Engineering staff members. All nonconformances detected shall be reported to the Quality Assurance Site Supervisor and the Quality Control Site Supervisor, or their designees from the Quality Assurance Engineering Department. R2 R2 R2

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

3.3 The Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall document nonconformances detected by or reported to him by issuing a Quality Assurance Engineering Nonconformance Report. A determination of the seriousness of the nonconformance shall be made, including reportability per Company Procedure N-23. If a site contractor R2 detects a nonconformance, it shall be processed as per approved site contractor procedures.

3.4 The Nonconformance Report shall then be sent to the cognizant department for completion of Part II - Recommended Disposition. If contractor services are involved, the recommended disposition shall be completed by the contractor.

3.5 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 internal Quality Assurance procedures.

3.6 The Quality Assurance Site Supervisor or his designee from the Quality R2 Assurance Engineering Department shall verify by audit or other appropriate R2 means that the necessary corrective actions are taken.

4.0 MATERIAL REVIEW BOARD

4.1 A Material Review Board shall be set up on site and shall consist of the following individuals: Quality Program Site Manager, Senior Resident Engineer or his designee, ESSE Engineer, and Client Quality Assurance Engineer. All Nonconformance Reports with the disposition of "accept-as-is" or "repair" shall R2 be evaluated by the Material Review Board. Final disposition shall be by unanimous decision. The Quality Program Site Manager will coordinate the activities of the Material Review Board's actions and act as chairman.

5.0 REINSPECTION R2

5.1 For nonconformances to Ebasco Site Purchase order requirements, the R2 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 non-conformance was detected. He shall document the satisfactory correction or resolution of all nonconformances on a Quality Assurance Report. These forms shall provide sufficient detailed information for as-built records.

5.1.1 Nonconformances not corrected in accordance with the requirements R2 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.

5.2 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 requirments of the governing Code(s) and in accordance with requirments 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. R2 R2 R2

5.2.1 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. R2

6.0 REVIEW OF NONCONFORMANCE REPORTS

6.1 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 QA procedures:

6.1.1 Log in the report

6.1.2 Review the report to determine the nature of the nonconformance

6.1.3 Where design integrity is involved, the report shall be routed to the Senior Resident Engineer who will review the report, and where necessary, contact cognizant Design Engineers to discuss the suitability of the reccommended disposition.

6.1.4 Transmit the report to the cognizant engineer(s) for review and evaluation R2

6.2 Cognizant engineer(s) shall review and evaluate the nonconformance report, decide on the suitability of the recommended disposition and enter details of the evaluation on the report. The report shall then be returned to the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department.

6.3 Upon receipt of the reviewed and evaluated report the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall log in results of the review and distribute copies of the report to the Quality Control Site Supervisor or his designee from the Quality Assurance Engineering Department and others as necessary in accordance with internal QA procedures.

6.4 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. R2

7.0 EVALUATION OF DISPOSITON

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

7.2 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. R2

8.0 DEFICIENCY NOTICES

8.1 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 in 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. R2

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

a. the condition is corrected prior to acceptance of the work

b. the work does not proceed beyond the checkpoint until the correction is made

c. the out-of-tolerance condition does not reflect on work previously accepted R2

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.

8.3 The processing of Deficiency Notices shall be detailed in approved Site Quality Control Procedures.

9.0 TREND ANALYSES OF NONCONFORMANCE REPORTS

9.1 Copies of nonconformance reports from the sources mentioned above shall be submitted to the Quality Assurance Engineering Internal Audit Supervisor or the Ebasco Quality Program Coordinator. The Quality Assurance Engineering Interal Audit Supervisor subsequently receives all reports and makes an analysis of the available Quality Assurance data with respect to Quality trends in accordance with Quality Assurance Engineering Procedures QA-D.3 and formally reports his findings to the Chief Quality Assurance Engineer and the Chairman of the Quality Program Committee. R2

9.2 The trend analysis and distribution of subsequent reports shall be made in accordance with the requirements of Quality Assurance Engineering Procedure QA-D.3.

10.0 RECORDS R2

10.0 Nonconformance Reports and Quality Assurance Reports shall be maintained in accordance with Section QA-I-6.

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

1.0 SCOPE

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

2.0 GENERAL

2.1 Corrective action shall be required for identified and documented nonconformance 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 R2

2.2.2 Site Quality Control document reviews R2

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 Assurance Site Supervisor or his designee R2
from the Quality Assurance Engineering Department, for corrective action items R2
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.

2.7 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 approved by the Chief Quality Assurance Engineer or his designee from the Quality Assurance Engineering Department. R2 R2

2.8 It shall be the responsibility of the Quality Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department to assure that all required corrective action is implemented in a timely manner. R2

2.9 Need for reporting non-conformances at the site to the U S Nuclear Regulatory Commission shall be determined in accordance with Company Procedure N-23. Where a nonconformance is judged to be reportable or potentially reportable to the U S Nuclear Regulatory Commission in accordance with 10 CFR 50.55e, the provisions of Company Procedure N-23 shall be followed regarding notification and performance of corrective action. R2 R2

3.0 DETERMINATION AND IMPLEMENTATION METHODS

3.1 Nonconformance Reports Generated at the Construction Site

3.1.1 Site Quality Control shall perform direct inspection of activities at the construction site as required by Section QA-III-11 of this Manual. R2

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

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. R2

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 indication 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 the adequacy and effectiveness of inspection and test procedures, process controls and sampling plan 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 Control, as appropriate, shall be notified of the corrective action required to upgrade the system.

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 Assurance Site Supervisor or his designee from the Quality Assurance Engineering Department shall be responsible for obtaining a response from the cognizant individual(s) for submittal to the auditing body. R2 R2

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. R2

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 analysis of quality trends. Copies of audit reports and nonconformance reports (or other appropriate documentation) mentioned above shall be submitted to the Quality Assurance Engineering Internal Audit Supervisor or the Ebasco Quality Program Coordinator. The Quality Assurance Engineering Internal Audit Supervisor subsequently receives all reports and makes an analysis of the available Quality Assurance data with respect to quality trends. The trend analysis and distribution of subsequent reports shall be made in accordance with Quality Assurance Engineering Procedure QA-D.3. R2

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-11
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	INSPECTION	REVISION 2 R2 / DATE R2

1.0 SCOPE

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

2.0 RESPONSIBILITIES

2.1 Site Quality Control shall be responsible for the following:

a) Development of written procedures for the inspection of safety-related items and services which list the required inspection activities when existing inspection documents such as standard specifications and drawings do not provide an adequate basis for inspection.

b) Submittal of inspection procedures to Ebasco Site Quality Assurance for review and acceptance in accordance with Section QA-III-11 of this Manual.

c) Preparation of reports for all inspections made.

d) Control of inspection procedures and revisions thereto.

e) Scheduling and coordinating on-the-job training for quality control personnel in advance of implementation of the applicable inspection documents. This training shall be conducted in sufficient detail and with sufficient frequency to assure that the personnel responsible for the inspection fully understand the requirements contained in the applicable inspection documents.

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

2.3 Qualification of inspection personnel shall be in accordance with applicable Quality Assurance procedures and Article 4.0 herein. R2 R2

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. R2 R2

3.0 GENERAL

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

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

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

3.4 Where mandatory inspection hold points are indicated on inspection documents or procedures, work may continue beyond a hold point only with the written approval of the Quality Control Site Supervisor or his qualified designee. R2

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.

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: R2

a) Records of education and experience

b) Test results, where applicable

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.

5.0 RECORDS

5.1 All inspection documents shall be maintained in accordance with Section QA-I-6. R2

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

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL	SECTION QA-III-14
APPROVAL: CHAIRMAN, QUAL. PROGRAM COMM. / CHIEF QUALITY ASSURANCE ENGINEER	CONTROL OF RECEIVING, HANDLING AND STORAGE	REVISION 2 R2 / DATE R2

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 Construction forces.

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

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. Site Quality Control 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 Procedures shall provide for at least the following:

a) Review of handling requirements for safety-related items.

b) Performance of appropriate inspections to assure that handling operations have not jeopardized item integrity.

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 permited for large items provided that the permanent location is ready for the quipment 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

4.2.1 Site Quality Control procedures shall provide for at least the following: R2

a) Establishment of the storage levels listed below:

1) Level A - Indooor 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 on the release form. Such records shall be used for maintaining 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. R2

EBASCO SERVICES INCORPORATED	NUCLEAR QUALITY ASSURANCE PROGRAM MANUAL CONTROL OF RECEIVING, HANDLING AND STORAGE	SECTION QA-III-14

5.0 QUALITY ASSURANCE ENGINEERING

5.1 The Quality Assurance Site Supervisor shall be responsible for the following: R1

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. R1 R1

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 requiremetns of this Section.