



**Burns and Roe, Inc.**

800 Kinderkamack Road ■ Oradell, New Jersey 07649 ■ Tel. N.J. (201) 265-2000 — N.Y. (212) 563-7700

Telex 13-4224 ■ TWX 710-990-6623 ■ Cable BURNS ROE ORA

July 26, 1983

Main Office  
550 Kinderkamack Road  
Oradell, New Jersey 07649  
(201) 265-2000

U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: W. P. Haass, Chief Quality Assurance  
Branch Division of Engineering

Dear Mr. Haass:

As required by the Burns and Roe, Inc. Topical Report (B&Roe-COM4-1-NP-2A) the attached, marked-up copy of Chapter I, Organization, depicting recent changes within the company, is submitted for your information.

Briefly, the changes have been:

1. The consolidation of the Power Technology and Engineering and Design Divisions into a single entity entitled, Engineering Technology Division.
2. The consolidation of the Procurement and Support Services and Quality Assurance Divisions into a single division entitled, Support Services. Mr. W. P. Rausch who was the Director of both of these divisions remains the Director of Support Services. Mr. Rausch is responsible for providing personnel systems, and facilities, he is devoid of responsibility for cost and schedules control which is vested in the individual Project Manager.
3. Mr. J. DeLooper has been appointed as the Manager, Corporate Quality Assurance, reporting to Mr. W. P. Rausch, Director, Support Services.

These organizational changes were implemented on 6/24/83 and have been instituted to give stronger support and coordination to our production related divisions and to assure that the requirements of our Topical Report are effectively implemented.

Revision 3 to the Burns and Roe Topical Report was submitted on 6/9/83 to

9001  
1/1

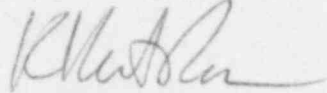
*Advancements in Engineering and Construction Since 1932*

July 26, 1983

the NRC and is currently in the review cycle. Burns and Roe will formally revise the attached Chapter I and submit it to amend Revision 3 shortly.

If you should have any questions, please feel free to call Mr. W. P. Rausch at 201-265-2000, Extension 2655.

Very truly yours,



K. Keith Roe  
Executive Vice President

mm

Attachment

cc: P. Sears, Region IV (with attachment)  
D. Fox, Region IV (with attachment)  
P. Costello, Region IV (with attachment)



**BURNS AND ROE, INC.**  
ENGINEERS AND CONSTRUCTORS  
700 KINDERKAMACK ROAD  
ORADELL, NEW JERSEY 07649

## NUCLEAR QUALITY ASSURANCE MANUAL

No. B&ROE-COM4-1-NP

Revision 3

Page 1 of 7

Subject

### CHAPTER I -- ORGANIZATION

Effective Date

Initiated By

Quality Assurance Division

Supersedes

Chapter I  
dated 10/5/80

Approved By

*W. C. Henderson*  
Office of the President

## CHAPTER I - ORGANIZATION

### 1. SCOPE

This chapter describes the organizational structure, functional responsibilities, and levels of authority for the direction and execution of the Burns and Roe, Inc. nuclear quality assurance program. It also outlines the organizational relationships within the corporate structure for the assurance of quality in the design and construction of nuclear power plants.

### 2. GENERAL DESCRIPTION

2.1 To support the effort required for the design and construction of a nuclear power project, Burns and Roe, Inc. establishes a project organization within the Project Operations Division. In assuming certain discrete tasks which involve analysis or studies, the project organization may be within another Burns and Roe, Inc. division (e.g., Power Technology). This organization is designated as the project throughout this document. The project is supplied with the necessary personnel from the various functional divisions and departments including Engineering and Design, Construction, Purchasing, and Quality Assurance to support project activities.

Engineering  
Technology

2.2 The Corporate Organization Chart, Exhibit I-1, shows that the corporate organization is composed of various divisions and departments reporting to the Executive Vice President or to the President. The President is responsible for establishing quality assurance policies, goals and objectives, and maintaining a continuing involvement in quality assurance matters. The Executive Vice President is responsible to assure that requirements of the established policies, goals, and objectives are carried out.

2.3 The activities of Burns and Roe, Inc. organizational elements are governed by a set of formal corporate documents in the Burns and Roe, Inc. CORPORATE OPERATIONS MANUAL. Responsibilities assigned to individuals or organizational elements in this Nuclear Quality Assurance Manual are derived from the CORPORATE OPERATIONS MANUAL.

2.4 This Nuclear Quality Assurance Manual is incorporated in the CORPORATE OPERATIONS MANUAL. The Nuclear Quality Assurance Manual identifies those organizational elements and procedural requirements described or contained in the CORPORATE OPERATIONS MANUAL that are applicable to, and must be addressed in, a project quality assurance plan which is developed for each nuclear power project. The content of this Manual, including all changes, is prepared by the Manager of Corporate Quality Assurance, reviewed by the Director of ~~Quality Assurance~~ and other appropriate Division Directors, and approved by the President. Distribution and updating of this Manual is controlled by the Corporate Administration Department.

Support Services

2.5 Burns and Roe, Inc. policy on the assurance of quality is established in Project Work Policy PW-006, Exhibit I-2. This Policy delegates to the Director of ~~Quality Assurance~~ the responsibility to verify that appropriate quality measures are prescribed, to confirm that actions prescribed are being performed in compliance with applicable requirements, and to develop applicable quality manuals.

Support Services

### 3. QUALITY ASSURANCE ORGANIZATION

#### 3.1 Director of ~~Quality Assurance~~

Support Services

3.1.1 The Director of ~~Quality Assurance~~ reports to the Executive Vice President and has overall responsibility for the quality assurance program within Burns and Roe, Inc. as described in Project Work Policy PW-006. The Director of ~~Quality Assurance~~ is devoid of responsibility for cost and schedule control which is vested in the individual Project Manager.

Support Services

Support Services

The Director of ~~Quality Assurance~~ determines the size of the Quality Assurance staff (Home Office/Site) required for a project from the scope of services described in the contract documents.

Support Services

3.1.2 Qualification requirements for the Director of ~~Quality Assurance~~ and the principal quality assurance management positions include the following:

Support Quality Services

Support Services

Director of ~~Quality Assurance~~

Support Services

- Bachelor of Science in an engineering discipline
- Fifteen or more years of responsible engineering experience of which a minimum of seven are quality assurance
- Detailed familiarity with U.S. Nuclear Regulatory Commission functions and regulations

- . Experience in management and personnel supervision
- . Extensive skill in technical report writing

#### Manager of Corporate Quality Assurance

- . Bachelor of Science in an engineering discipline
- . Eleven or more years of responsible engineering experience of which a minimum of three are in quality assurance
- . Detailed familiarity with U.S. Nuclear Regulatory Commission functions and regulations
- . Experience in management and personnel supervision
- . Extensive skill in technical report writing

#### Manager of Quality Audits, Manager of Vendor Surveillance and Nondestructive Examination, and Project Quality Assurance Managers

- . Bachelor of Science in an engineering discipline or certification as a Professional Engineer in any state or certification by the American Society for Quality Control as Quality Engineer
- . Seven or more years of responsible engineering experience of which a minimum of three are in quality assurance
- . Familiarity with the U.S. Nuclear Regulatory Commission functions and regulations
- . Experience in personnel supervision
- . Skill in technical report writing

These functional managers are classified as Supervising Quality Assurance Engineers in the corporate position structure.

- 3.1.3 The Manager of Corporate Quality Assurance is responsible for assuring that a quality assurance program is established and all quality affecting activities are performed in accordance with the program. Duties of the Manager of Corporate Quality Assurance are limited to those related to quality assurance.

The position of Manager of Corporate Quality Assurance is on the same organizational level as that of the individual Project Managers who are the highest line managers directly

responsible for the performance of activities affecting quality.

- 3.1.4 To assure proper direction of the quality assurance program and prompt resolution of quality related problems, the Manager of Corporate Quality Assurance has the authority to establish direct lines of communication, as may be necessary, with external organizations such as contractors and clients.

Support  
Services

- 3.1.5 As described in Project Work Policy PW-006, authority to stop unsatisfactory work or control further processing, ~~delivery, or installation of nonconforming material~~ is delegated to the Director of Quality Assurance, who has further delegated this authority to the Manager of Corporate Quality Assurance.

### 3.2 Organization and Functions

Department

- 3.2.1 The organizational structure and primary functions of the Quality Assurance Division and the function of each group within the Division are described in the CORPORATE OPERATIONS MANUAL. The Quality Assurance Division is comprised of a special projects staff and three functional groups:

Department

- . Quality Audits
- . Vendor Surveillance and Nondestructive Examination
- . Project Quality Assurance

Each of these groups, with a sufficient number of trained personnel, functions under the direction of a manager who reports to the Manager of Corporate Quality Assurance, who in turn is responsible to the Director of Quality Assurance. The Quality Assurance Managers provide technical and administrative direction to their groups through their respective supervising and lead engineers.

Services

Quality Support

- 3.2.2 A description of the Quality Assurance Division is incorporated in the CORPORATE OPERATIONS MANUAL, which defines the responsibilities, organizational relationships, and duties relating to functional work assignments.

Department

- 3.2.3 The quality assurance functions provide controls to assure all elements of 10CFR50, Appendix B are implemented within the Burns and Roe, Inc. quality assurance program. Quality assurance functions are not delegated to outside organizations unless designated in contract documents.

- 3.2.4 All persons and organizational elements performing quality assurance functions are established organizationally to



possess sufficient authority and organizational freedom to identify quality problems, to initiate, recommend, or provide solutions through appropriately designated management channels, and to verify implementation of solutions. Verification of conformance to established Quality Requirements (except design) is accomplished by individuals in the Quality Assurance Organization who are independent of the work being verified, or by individuals who are trained and qualified in Quality Assurance concepts and practices and are independent of the work being verified.

- 3.2.5 When Burns and Roe, Inc. assumes the responsibility for directing and managing the on-site quality assurance program, an appropriately qualified Quality Assurance Engineer is assigned as Site Quality Assurance Manager. This individual functions in an organizational position carrying out the responsibility and exercising the authority as is required for proper control over the quality assurance program. The Site Quality Assurance Manager is involved in day-to-day activities which are important to the safety of the plant. Duties of the Site Quality Assurance Manager are limited to those related to quality assurance and include stop work authority as delegated by the Manager of Corporate Quality Assurance.

#### 4. PROJECT ORGANIZATION

##### 4.1 General

- 4.1.1 A project is established for each nuclear power project in accordance with Project Work Policy PW-001. The Directors of the various Burns and Roe, Inc. Divisions which supply personnel for projects report to the Executive Vice President, as shown in the Corporate Organization Chart, Exhibit I-1.
- 4.1.2 A typical project, including supporting organizational elements, is shown in the Nuclear Project Organization Chart, Exhibit I-3.
- 4.1.3 Overall responsibility for all phases of the project, with the exception of the independent quality verification function, is assigned to the Project Manager who reports directly to the Project Operations Division Director. Included in the duties of the Project Manager is the responsibility for assuring that all quality affecting functions are executed in accordance with project procedures. The Project Manager has the organizational freedom and authority to detect problem areas in any facet of the project and to initiate appropriate corrective action. Engineering and design personnel are furnished to the project from the Engineering and Design Division.

Technology

4.1.4 Disagreements among project participants involving quality are resolved in accordance with Project Work Policy PW-004, Exhibit I-4.

#### 4.2 Engineering and Design Division

4.2.1 Burns and Roe, Inc. engineering and design effort is assigned to the Engineering and Design Division. The departments under the overall direction of the Engineering and Design Division Director are: Engineering, Design and Drafting, and Engineering Support, Power Technology and Computer Aided Design and Drafting CADD.

4.2.2 The Engineering and Design Division is responsible for the development of design criteria, issuance of a project criteria document, the translation of project requirements into working documents, such as specifications and drawings, and the verification of the technical adequacy of their work.

#### 4.3 Construction Division

The Resident Construction Manager is responsible to the Project Manager for the proper execution of the construction of the plant and for the project direction of all Burns and Roe, Inc. site personnel. Under the construction management method of construction, the Resident Construction Manager coordinates and oversees the contractors performing the work, anticipates and takes action to correct interference and interface problems between contractors, and as a complement to the formal quality assurance effort, takes appropriate action to assure that the construction work is performed in accordance with the contract documents. Duties of the Resident Construction Manager include obtaining interpretation of Burns and Roe, Inc. construction specifications and drawings from the Site Project Engineer; liaison between contractor, Burns and Roe, Inc. engineering, and quality assurance; and the disposition of nonconforming material within the limits established in applicable project procedures. The Resident Construction Manager receives functional and administrative direction from the Director of the Construction Division through a home office Construction Division Manager.

#### 4.4 Purchasing Department

4.4.1 The Director of the Purchasing Department reports to the Director of Procurement and Support Services.

4.4.2 The Director of Purchasing is responsible for the procurement activities of the project. These duties include the expediting of hardware items and engineering and quality documents required from contractors.

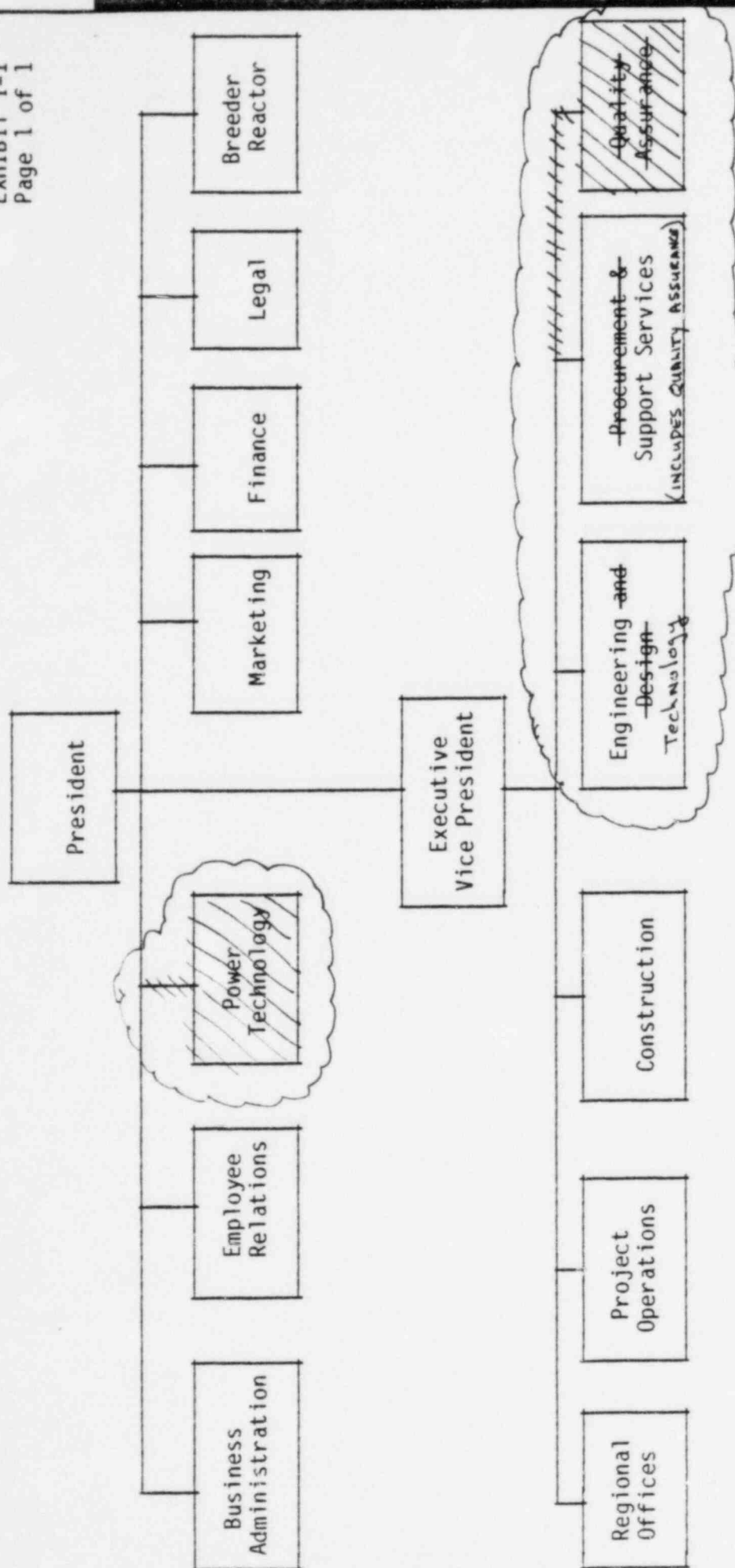


#### 4.5 Other Departments/Divisions

Other supporting functions, such as planning, scheduling, and estimating, are supplied to the project by the appropriate divisions or departments, in accordance with the Burns and Roe, Inc. scope of services and as required to support the Project.

#### EXHIBITS:

Exhibit I-1	Burns and Roe, Inc. CORPORATE ORGANIZATION CHART
Exhibit I-2	Burns and Roe, Inc. PROJECT WORK POLICY PW-006
Exhibit I-3	Burns and Roe, Inc. NUCLEAR PROJECT ORGANIZATION CHART
Exhibit I-4	Burns and Roe, Inc. PROJECT WORK POLICY PW-004



CORPORATE ORGANIZATION CHART



**BURNS AND ROE, INC.**  
ENGINEERS AND CONSTRUCTORS  
700 KINDERKAMACK ROAD  
ORADELL, NEW JERSEY 07649

## PROJECT WORK POLICY

No. PW-006  
Revision 4  
Page 1 of 2

Subject

Assurance of Quality

Effective Date

6/8/83

Initiated By

President

Supersedes

PW-006, Rev. 3  
dated 10/1/82

Approved By

1. The company is committed to achieving standards of quality in all its services to clients which will assure public safety and optimize produce reliability. Without compromising this commitment, due consideration will be given to project budgets and client guidance.
2. As a minimum, the company will take appropriate measures to engineer, design, and cause to be built into its designs a level of quality adequate to comply with statutory codes, Burns and Roe, Inc. engineering standards, and contractually imposed requirements. In addition, for nuclear facilities, Burns and Roe, Inc. will comply with the appropriate portions of the Code of Federal Regulations, the Regulatory Guides, and other nationally recognized codes or standards applying to nuclear installations.
3. The primary responsibility for the quality of the product rests with the individuals doing the work and with their immediate supervisors. However, separate people are assigned the responsibility to confirm, audit, inspect, or otherwise verify that an activity has been correctly performed.
4. Procedures and organizational arrangements are established which provide that the individual or group assigned the responsibility to confirm, audit, inspect, or otherwise verify quality is independent of, and has organizational freedom from, the person or group directly responsible for performing the specific work activity. In this regard persons assigned to confirm or review will be free to identify quality problems, to recommend solutions, and to verify the implementation of corrective action.
5. Responsibilities for assurance of quality are as follows:
  - a. The responsibility for the technical quality of engineering and design work is described in Corporate Policy G-001, "Excellence in Engineering."
  - b. The Director, Breeder Reactor Division is responsible for quality assurance compliance on those projects assigned to the Breeder Reactor Division. For all other power plant projects, the Quality Assurance Division has the responsibility to verify that appropriate quality measures are prescribed, to confirm that actions prescribed are being performed in compliance with applicable requirements, and to develop applicable quality manuals.

EXHIBIT I-2  
Page 1 of 2

c. When Burns and Roe, Inc. is performing in the role of construction manager on other than nuclear projects, surveillance of contractors' inspection and nondestructive examination activities will normally be performed by Construction Division personnel. When force account work is undertaken at such sites, Construction Division personnel will normally perform inspection of Burns and Roe, Inc. construction work. In either case, personnel assigned to perform these functions will be qualified formally by the Director of ~~Quality Assurance~~ and their activities will be audited periodically by the Quality Assurance ~~Division~~. All other audit, surveillance, inspection, and nondestructive examination of manufacturing and construction work will be performed by Quality Assurance ~~Division~~ personnel unless otherwise approved in writing by the President.

6. The Director of ~~Quality Assurance~~, the Manager of Corporate Quality Assurance and the Breeder Reactor Division Quality Assurance Manager have the authority to stop unsatisfactory nuclear work or to control further processing, delivery, or installation of nonconforming items. In exercising this authority, the Project Manager will be advised of the circumstances and will be requested to take appropriate action, including stopping work when considered necessary. The Project Manager will proceed in an orderly manner with the action requested. If the responsible Division Director ~~for~~ considers the action taken inappropriate, the matter is to be resolved immediately in accordance with Corporate Policy PW-004, "Resolution of Conflicts."

When appropriate, the authority granted here to the Manager, Corporate Quality Assurance and the Breeder Reactor Division Quality Assurance Manager may be delegated in writing to assigned project quality assurance personnel.

7. The Director of ~~Quality Assurance~~ will formally certify those who qualify as Level III in nondestructive examination methods and Mechanical, Electrical and Civil disciplines in accordance with applicable standards. Certified Level III personnel will formally certify those individuals who qualify as Level I and II in NDE methods and in the above stated disciplines.
8. The company's plans for assurance of quality are described in (1) the Nuclear Quality Assurance Manual for nuclear project compliance with 10CFR50, Appendix B; (2) the Quality Compliance Manual for quality verification on other than nuclear power plant projects; (3) the ASME Section III, Division 1 and 2 Quality Assurance Manual; (4) the Corporate Power Boiler Quality Control Manual; and (5) the Quality Assurance Program Plan for Breeder Reactor Division project compliance with 10CFR50, Appendix B and RDT Standard F2-2.

EXHIBIT I-2  
Page 2 of 2

# EXHIBIT I-3 Page 1 of 2

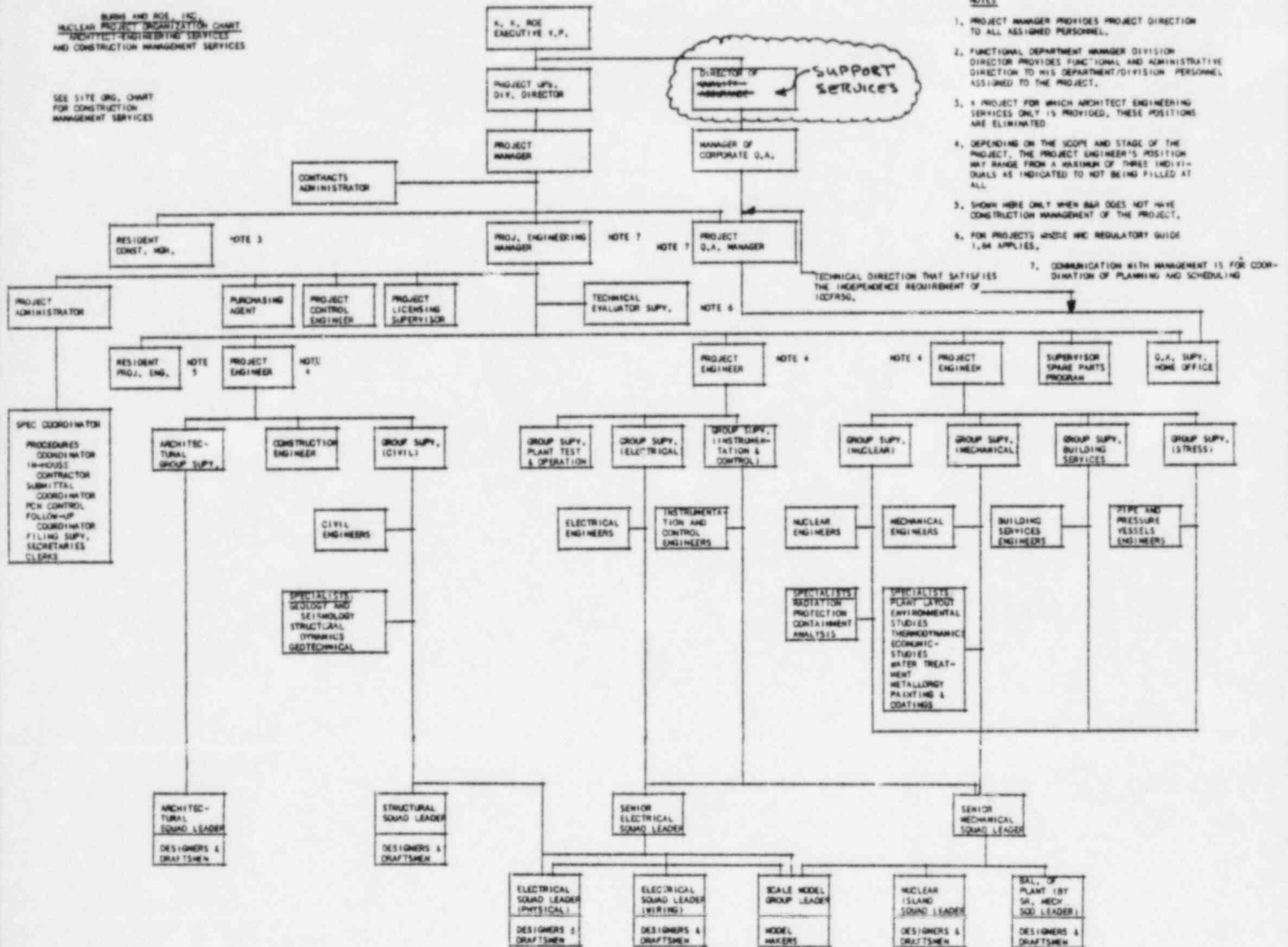
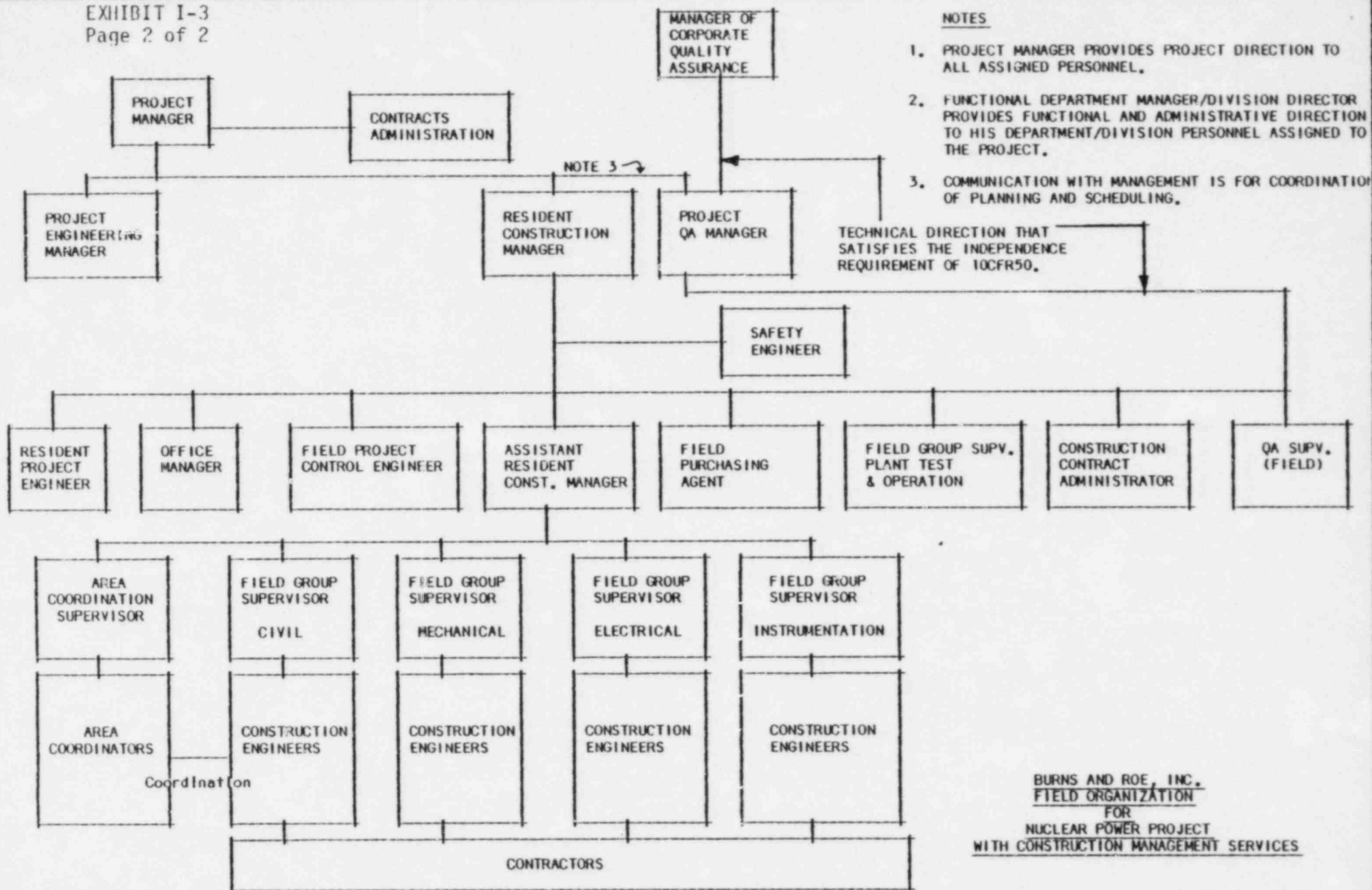




EXHIBIT I-3  
Page 2 of 2



BURNS AND ROE, INC.  
FIELD ORGANIZATION  
FOR  
NUCLEAR POWER PROJECT  
WITH CONSTRUCTION MANAGEMENT SERVICES



**BURNS AND ROE, INC.**  
ENGINEERS AND CONSTRUCTORS  
700 KINDERKAMACK ROAD  
ORADELL, NEW JERSEY 07649

## PROJECT WORK POLICY

No. PW-004  
Revision 0  
Page 1 of 1

Subject  Resolution of Conflicts	Effective Date  8/1/76	Initiated By  President <i>ICR</i>
	Supersedes	Approved By

1. Conflicts resulting from differences of opinion on personnel, technical and other matters between projects and functional Divisions or Departments should be resolved promptly at the lowest supervisory level where sufficient information exists to make an effective resolution.
2. In any case where conflicts cannot be resolved promptly at the lowest supervisory level, such conflicts are to be referred to the next higher level of supervision in both the project and functional Division or Department and, if necessary, ultimately to the Directors of the Divisions concerned for resolution.
3. When referred to the Division Director level, concerned Division Directors are mutually responsible for expeditious settlement of unresolved conflicts, for promptly advising the Office of the President of such conflicts, and for obtaining assistance or requesting decisions from the President or his representative in the Office of the President when necessary to insure timely resolution of conflicts in a manner that serves the best interests of the company.

EXHIBIT I-4  
Page 1 of 1