

**TOPICAL REPORT
P-TOP-QA1
REVISION 3A**

**PARSONS
QUALITY ASSURANCE PROGRAM
FOR
NUCLEAR FACILITIES**

DATE: AUGUST 26, 1985

**NOTE: ALL VERTICAL BLACK BARLINES ADJACENT TO PARAGRAPHS AND FIGURES IN THIS
REPORT SIGNIFY THE CHANGES OF REVISION 3A.**

THE RALPH M. PARSONS COMPANY

Worldwide Engineers/Constructors

RMP

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PDR TOPRP EECRMP
B PDR



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

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AUG 30 1985

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AUG 26 1985

Docket No. 99900527

Mr. Reynaldo Frias
Manager of Quality Assurance
The Ralph M. Parsons Company
100 West Walnut Street
Pasadena, CA 91124

Subject: NRC Acceptance of Revised Ralph M. Parsons Company Quality Assurance
Topical Report

Dear Mr. Frias:

We have completed our review of proposed Revision 3 to the Ralph M. Parsons Company Topical Report, P-TOP-QA1. Proposed Revision 3 was submitted with your letter of June 26, 1985. This revision updates the topical report to reflect organization changes, commitments to later issues of quality related ANSI Standards and Regulatory Guides, and editorial changes.

Based on our evaluation of the changes described in proposed Revision 3, we find that the revised topical report continues to meet the criteria of Appendix B to 10 CFR Part 50 and the guidance provided in the Standard Review Plan, NUREG-0800, Section 17.1 and is, therefore, acceptable. This acceptance is based in part on your commitment to comply with the quality assurance related regulatory guides that endorse the ANSI/ASME N45.2 standard and daughter standards.

To use this topical report in future licensee applications, the Ralph M. Parsons Company needs only to have it referenced in Section 17 of the SAR. Should this topical be referenced in an SAR for a new nuclear power project, the basis of our evaluation will be the acceptance criteria in the latest revision to the Standard Review Plan Section 17.1. Appropriate change to the topical report may, therefore, be necessary.

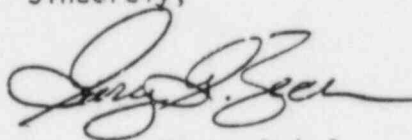
Please replace our letter of June 28, 1978 with a copy of this letter, renumber the report P-TOP-QA1 (Revision 3A) and forward one signed original to the Document Control Desk, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. The report should highlight the changes by use of a black bar in the margin where a change is made and the revision number should be adjacent to the bar.

Mr. Reynaldo Frias

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Should you have any questions regarding our review or if we can provide assistance, please contact Bill Belke on (301) 492-4512.

Sincerely,

A handwritten signature in dark ink, appearing to read "Gary G. Zech", with a stylized, flowing script.

Gary G. Zech, Chief
Vendor Program Branch
Division of Quality Assurance, Vendor,
and Technical Training Center Programs
Office of Inspection and Enforcement

ENCLOSURE: Topical Report Evaluation

TOPICAL REPORT EVALUATION

Report Number: P-TOP-QA1, Revision 3A, Nonproprietary
Report Title: Parsons Quality Assurance Program for Nuclear Facilities

Originating Organization: Ralph M. Parsons Company
Reviewed by: Quality Assurance Branch

SUMMARY OF TOPICAL REPORT

Topical Report P-TOP-QA1, Revision 3A, describes the quality assurance (QA) program which Ralph M. Parsons Company (Parsons) applies to those design, procurement, and fabrication activities involving safety-related structures, systems, and components of nuclear power plants within their scope of work. P-TOP-QA1 Revision 3A, commits Parsons to comply with the requirements of Appendix B to 10 CFR Part 50 and to follow the Regulatory Position provided by the NRC in Regulatory Guides 1.28-Revision 2 (February 1979), 1.30 (August 11, 1972), 1.37 (March 16, 1973), 1.38-Revision 2 (May 1977), 1.39-Revision 2 (September 1977), 1.58-Revision 1 (September 1980), 1.64-Revision 2 (June 1976), 1.74 (February 1974), 1.88-Revision 2 (October 1976), 1.94-Revision 1 (April 1976), 1.116-Revision 0-R (May 1977), 1.123-Revision 1 (July 1977), and 1.144-Revision 1 (September 1980).

Parsons has provided for our evaluation a detailed organizational description of those individuals and groups involved in carrying out activities required by the QA program and a delineation of duties, responsibilities, and authority of those organizational elements involved in the QA program. P-TOP-QA1, Revision 3A, contains a description of the measures used to carry out the Parsons QA program activities and describes how applicable requirements of Appendix B will be satisfied by the administration and implementation of these measures in QA manuals and procedures.

SUMMARY OF REGULATORY EVALUATION

We have evaluated the QA program and the organizations responsible for QA functions as described in P-TOP-QA1, Revision 3A. We find that QA policy and direction originate at an acceptably high management level and are effectively communicated to other parts of the organization. Those performing QA functions have responsibility and authority commensurate with their duties in implementing the QA program. We also find that measures have been established, to be implemented by written procedures and instructions, which address each of the criteria of Appendix B in an acceptable manner.

Based on our review and evaluation of P-TOP-QA1, Revision 3A, we conclude that:

1. The organizations and persons performing QA functions within Parsons have the required independence and authority to effectively carry out the QA program without undue influence from those directly responsible for costs and schedules.

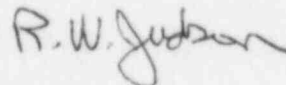
2. The Parsons QA program contains requirements and controls which, when properly implemented, comply with the requirements of Appendix B to 10 CFR Part 50.
3. The Parsons Topical Report, P-TOP-QA1, Revision 3A, "Parsons Quality Assurance Program For Nuclear Facilities", provides an acceptable description of the QA program for use in the design, procurement, and fabrication activities associated with nuclear power plants.

FOREWORD

This report establishes the Quality Assurance Program requirements for work performed by or for the The Ralph M. Parsons Company on nuclear facilities designed and/or constructed in accordance with the requirements of Nuclear Regulatory Commission Regulation 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants", and the ANSI standards endorsed or referenced by the Regulatory Guides listed herein. The report also satisfies and complies with the basic requirements and supplements of ANSI/ASME NQA-1-1983, "Quality assurance Program Requirements for Nuclear Facilities" and applicable parts of ANSI/ASME NQA-2-1983, "Quality Assurance Requirements for Nuclear Power Plants". The Program defined herein is followed by all Parsons divisions, departments, and personnel who perform work on safety-related systems, structures, and components of nuclear facility projects referencing this document in License Applications or Safety Analysis Reports.

The Manager of Quality Assurance is authorized to issue revisions to this report and instructions for implementing the program.

The Senior Vice President and Manager, Systems Division has been delegated the authority and responsibility for regularly assessing the scope, status, implementation, and effectiveness of the Company's Quality Assurance Program and for the resolution of differences between Quality Assurance and the other departments and divisions of Parsons. The Manager of Quality Assurance reports directly to the Senior Vice President and Manager, Systems Division.



R. W. Judson
President

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8/26/85

ABSTRACT

This report describes Parsons Quality Assurance Program plan for use by those organizations within Parsons that have responsibility for nuclear safety related systems, structures, or components, and the services related to them during the design, procurement, and construction phases of the nuclear facility project. This program meets the requirements of Nuclear Regulatory Commission Regulation 10 CFR Part 50, Appendix B, and the ANSI standards endorsed or referenced by the Regulatory Guides listed herein.

CAVEAT: THIS REPORT HAS BEEN PREPARED BY AND FOR THE USE OF THE RALPH M. PARSONS COMPANY AND ITS RELATED ENTITIES. ITS USE BY OTHERS IS PERMITTED ONLY ON THE UNDERSTANDING THAT THERE ARE NO WARRANTIES OR REPRESENTATIONS EXPRESSED OR IMPLIED AS TO THE VALIDITY OF THE INFORMATION OR CONCLUSIONS CONTAINED HEREIN.

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INTRODUCTION

The purpose of this report is to describe the Quality Assurance Program implemented by The Ralph M. Parsons Company on nuclear facility projects that are within the purview of the Nuclear Regulatory Commission (NRC). This report provides a standard quality program referenced in License Applications (LA) and Safety Analysis Reports (SAR). The LA or SAR referencing this document defines Parsons scope of work and related responsibilities for the project activities for a specific facility.

The Quality Assurance Program presented in this report is implemented by Parsons on safety-related structures, systems, components, and related services, as identified in various sections of the LA or SAR. Implementation is based on the activities performed and responsibilities assigned by Parsons, which can include design, procurement, and construction or construction management. The project manuals and procedures that are applicable and are to be used to fulfill the quality assurance requirements of 10 CFR Part 50, Appendix B and ANSI/ASME N45.2, including daughter standards that are cited, are presented in Section 17 of the SAR, as prescribed in the "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants: Revision 3", dated November 1978. However, in this Topical Report, reference to WASH 1283 and 1309 are superseded by the identified issues of ANSI Standards as noted. For nuclear facilities other than power plants, the Quality Assurance section is normally the last section in the LA or SAR.

The phrase "quality assurance" is defined by 10 CFR Part 50, Appendix B, as "all those planned and systematic actions necessary to provide adequate confidence that a structure, system, or component will perform satisfactorily in service," and includes quality control. Quality assurance is provided by all design, manufacturing, and construction organizations responsible for the design analysis, fabrication, construction, or testing of structures, systems and components of the facility that could prevent or mitigate the consequence of postulated accidents that could cause undue risk to the health and safety of the public, and is not limited to the Quality Assurance group.

To attain quality, those individuals who develop methods and designs, perform calculations, and manufacture, erect, install, inspect, test and examine structures are selected based on their skills and qualifications, as well as the defined job criteria and requirements. The activities are performed based on planning; use of applicable regulations, codes, standards, tools, and techniques; and use of suitable procedures, under appropriate supervision and technical direction. The verification and control of quality are accomplished through discipline checking, interdiscipline review, testing, surveillance, audits and review and acceptance of work activities, including related documentation. Parsons policy requires that verification and control of quality be performed by individuals assigned to the project discipline, but not directly responsible for the performance of the work activity.

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Parsons policy requires that those quality assurance functions consisting of review and acceptance of safety-related design documents, surveillance of Parsons and suppliers' safety-related work activities, and formalized and documented audits of them, be performed by the Quality Assurance group. This group is part of the Quality Assurance Department of the Company, and is independent of the organizations responsible for the performing the activity. The Quality Assurance group is responsible for the establishment or review and acceptance of general quality assurance policies, coordination of quality assurance activities and interfaces, verification and control activities to ensure compliance with established requirements while evaluating program effectiveness. In summary, the overall Parsons Quality Assurance Program includes the activities or organizations performing work, and the quality assurance and control functions performed by them and the Quality Assurance group.

This report describes the organizations, responsibilities, and practices that are consistent with Parsons quality program policy, as implemented for nuclear facility work.

The program presented in this report is used to fulfill the quality assurance requirements of the ASME Boiler and Pressure Vessel Code, Section III, Division 1, for items covered by that Code. In many cases the program presented in this report is more inclusive than would be necessary to fulfill these Code requirements. However, the specific requirements delineated in ASME Section III, Article NCA 4000 entitled "Quality Assurance" shall apply.

Consistent with the Parsons scope of work, the program commits to following or imposing the NRC positions presented in the following Regulatory Guides and Federal regulations:¹

¹ The requirements of these guides and regulations are met subject to specific exceptions noted either in Appendix A or in the LA or SAR for a specific project.

- (1) 10 CFR Part 50, Appendix B, (1/20/75), "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants."
- (2) 10 CFR Part 50, S50.55a, (12/31/81), "Codes and Standards."
- (3) 10 CFR Part 50, S50.55(e), (8/29/77), "Conditions of Construction Permits" (reporting significant QA deficiencies).
- (4) 10 CFR Part 50, S50.34 (a.7) Appendix A, (10/22/81), "Contents of Application; Technical Information" (Preliminary Safety Analysis QA program description).
- (5) 10 CFR Part 50, Appendix A, (2/12/76), "General Design Criteria for Nuclear Power Plants."
- (6) Regulatory Guide 1.8, (9/75), "Personnel Selection and Training" (endorses ANSI/ANS 3.1).
- (7) Regulatory Guide 1.26, (2/76) "Quality Group Classification, and Standards for Water, Steam, and Radioactive Waste Containing Components of Nuclear Power Plants."
- (8) Regulatory Guide 1.28, (2/79), "Quality Assurance Program Requirements (Design and Construction)" (endorses N45.2).
- (9) Regulatory Guide 1.29, (9/78), "Seismic Design Classification."
- (10) Regulatory Guide 1.30, (8/11/72), "Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment" (endorses N45.2.4/IEEE STD 336).
- (11) Regulatory Guide 1.37, (3/16/73), "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants" (endorses N45.2.1).
- (12) Regulatory Guide 1.38, (5/77), "Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants" (endorses N45.2.2).
- (13) Regulatory Guide 1.39, (9/77), "Housekeeping Requirements for Water-Cooled Nuclear Power Plants" (endorses N45.2.3).
- (14) Regulatory Guide 1.58, (9/80), "Qualifications of Nuclear Power Plant Inspection, Examination, and Testing Personnel" (endorses N45.2.6).
- (15) Regulatory Guide 1.64, (6/76), "Quality Assurance Requirements for the Design of Nuclear Power Plants" (endorses N45.2.11).
- (16) Regulatory Guide 1.74, (2/74), "Quality Assurance Terms and Definitions" (endorses N45.2.10).

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- (17) Regulatory Guide 1.88, (10/76), "Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records" (endorses N45.2.9).
- (18) Regulatory Guide 1.94, (4/76), "Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel during the Construction Phase of Nuclear Power Plants" (endorses N45.2.5).
- (19) Regulatory Guide 1.116, (5/77), "Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems" (endorses N45.2.8).
- (20) Regulatory Guide 1.123, (7/77), "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants" (endorses N45.2.13).
- (21) Regulatory Guide 1.144, (9/80), "Auditing of Quality Assurance Programs for Nuclear Power Plants" (endorses N45.2.12).
- (22) Regulatory Guide 1.146, (8/80), "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants" (endorses N45.2.23).
- (23) Regulatory Guide 3.3, (3/74), "Quality Assurance Program Requirements for Fuel Reprocessing and for Plutonium Processing and Fuel Fabrication Plants" (endorses N45.2).
- (24) Branch Technical Position (BTP) CMEB 9.5-1 (formerly BTP ASB 9.5-1 attached to Standard Review Plan 9.5.1) "Guidelines for Fire Protection for Nuclear Power Plants".

The terms, abbreviations, and definitions that follow are described as they relate to - or are used in - this report. They are also in general agreement with Regulatory Guide 1.74, dated February 1974. For practical reasons, only a portion of the terms, abbreviations, and definitions used in this report is presented here because most are self-explanatory or are used as industry presented in this report, each is defined at its point of initial use within the report.

<u>Applicant</u>	The person, group, organization, or company that requests or holds a construction permit or operating license for a nuclear facility from the Nuclear Regulatory Commission.
<u>Client</u>	The person, group, organization or company with whom The Ralph M. Parsons Company has a contractual agreement to perform work.
<u>Design Package</u>	Term used to describe applicable design data, such as drawings, specifications, and related engineering documents.
<u>Home Office</u>	Term used to describe the Parsons office at which a project is located.
<u>Interdiscipline Review (Squad Check or Inter- squad Check)</u>	Term used to describe design control activities among concerned project design disciplines, cognizant project (specialist) engineers, quality assurance engineers, and other responsible technical groups, as required, to prevent interference problems, to ensure that adequate clearances are allowed, and to ensure that the engineering requirements of a discipline are being considered by other disciplines.
<u>Intradiscipline Check, or Discipline Check</u>	Terms used to describe control activities within the respective project disciplines.
<u>Item</u>	An all inclusive term used in place of any of the following: appurtenance, assembly, component, equipment, material, module, part, structure, subassembly subsystem, system, or unit.
<u>Management Audits</u>	Term used to describe the activity performed by the Manager of Quality Assurance to review the status, adequacy, and effectiveness of the Project QA Program on nuclear projects for Parsons company and/or executive management.
<u>Parsons</u>	The Ralph M. Parsons Company.

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<u>Project</u>	Term used to describe the management, engineering, and support personnel assigned to a project.
<u>Project Document Control Audits</u>	Terms used to describe the activity performed in verifying that project document control and record keeping activities are being performed in accordance with approved procedures.
<u>Project QA Group</u>	Term used to describe Home Office QA and QC personnel assigned to a project.
<u>QA</u>	Quality Assurance
<u>Quality Assurance Audits</u>	Term used to describe the activity performed by Project Quality Assurance group personnel to verify - through investigation - compliance with approved procedures, instructions, specifications, codes, and standards, or other applicable safety-related contractual or licensing requirements, and to determine the effectiveness of implementation.
<u>Quality-Related Activity</u>	The phrase that describes the actions of individuals or groups that (1) determine the quality requirements, (2) maintain the quality of design, (3) include independent checks of documents, and (4) verify that quality of design output and the related services, materials, equipment, structures, and systems.
<u>Site QA Group</u>	Term used to describe the QA and QC personnel assigned to the plant site by the Project QA Manager.
<u>Subcontractor</u>	Term used to describe an organization that is responsible to Parsons for the performance of work or services, usually related to construction at a site but not limited thereto.
<u>Suppliers</u>	Term used to describe vendors, fabricators, manufacturers, sellers, consultants, and subcontractors responsible for furnishing material, equipment, and services for a project.
<u>Supplier/Site Surveillance Checklist</u>	Term used to describe detailed checklists that are used for procurement, project, supplier, and site QA surveillance activities.
<u>Surveillance</u>	Terms used to describe review, observation, or inspection performed by Parsons for the purpose of

verifying that applicable quality requirements are accomplished as specified for engineering, procurement, construction services, and manufacturing where these activities occur.

When an approved ANSI standard is referenced in this report without qualification, the requirements of that standard, as interpreted by Parsons, are incorporated into the program, subject to approved modifications as shown in Appendix A of this report or in an individual LA or SAR.

SECTION 1¹
ORGANIZATION

1.1 THE RALPH M. PARSONS COMPANY

1.1.1 The Ralph M. Parsons Company is comprised of both operating and subsidiary divisions. Parsons also is composed of company and project support departments (see Figure 1). The managers of these divisions and departments report directly to the President of The Ralph M. Parsons Company.

1.1.2 There are three (3) operating divisions located at the home office that have the responsibility for performing assigned work on projects; Systems, Mining and Metallurgical (M&M), and Petroleum Chemical (P-C). The Systems Division performs engineering design, and construction services for various nuclear and non-nuclear related projects (see paragraph 1.2 for complete description of Systems Division responsibilities). The Petroleum-Chemical Division provides complete services for such projects as petroleum refining, chemical and gas processing, coal gasification, synthetic natural gas, sulphur recovery, and sulfuric acid. The Mining and Metallurgical Division performs complete services such as geology, underground and surface mining, metallurgy, and metals fabrication.

1.1.3 There are two (2) subsidiary divisions which are headquartered external to the home office; Engineering-Science, Incorporated and The Ralph M. Parsons Company Limited.

1.1.4 Company and project support departments (see Figure 1) located at the home office are: Finance, Management Systems, Human Resources, Office Services, Engineering, Procurement, Cost Engineering and Scheduling. These support departments provide services and personnel to assist the operating divisions in performing the activities required to accomplish the project work.

1.1.5 The Systems Division is assigned the authority and responsibility for nuclear facilities projects by the President of The Ralph M. Parsons Company.

1.1.6 The overall Quality Program for Parsons, including the program for nuclear facilities defined by the present report, is approved by the President of the Company. The Quality Program, implemented by Parsons, is prescribed

¹SAR Section 17.1.1 or equivalent for nuclear facilities other than power plants.

through policies authorized by the President and governed, in the case of safety-related items for nuclear facilities, by the program described in this report.

1.1.7 Parsons operates under a project management system. This system is illustrated in Figures 2 and 3 by means of organization charts that show a typical Nuclear Project Organization and Project QA Organization, respectively, as well as their reporting levels and interfaces within Parsons and with respect to the client's organization.

1.1.8 Organizational structuring and functional responsibilities for the project are based on the recognition that quality assurance is an interdisciplinary activity that is performed by many organizational components and individuals within Parsons - from management down to each worker whose activities influence quality on the project. Therefore, authority with regard to achievement of quality is defined in Company policy as follows:

- (1) The responsibility for control and detailed checking of work, in accordance with written project procedures and instructions to ensure quality, rests with the project disciplines that perform the work operations on the project. Detailed checking is performed by an individual other than the person who performed the activity, but who may be from the same work group.
- (2) The responsibility for review, surveillance, auditing, inspecting, and otherwise verifying that such activities have been correctly performed, in accordance with applicable QA and procedural requirements, rests with the QA organization assigned to the project.

1.2 SYSTEMS DIVISION

1.2.1 The Systems Division plans, designs, engineers, procures, and manages the construction of complete nuclear and non-nuclear facilities, plants, and systems. Departments comprising the Systems Division include Business Development, Project Operations, Administration, Quality Assurance, and Technology. A Senior Vice President and Manager is assigned responsibility for the overall direction and management of activities performed by the Division. For nuclear work, a project task force is established to implement and perform the assigned activities. Figure 4 displays the Systems Division organization.

1.2.2 The Senior Vice President and Manager, Systems Division, is responsible for the general management and overall operations of the Systems Division in providing design, engineering, and construction services to the power and nuclear industries. The Senior Vice President reports directly to the President of The Ralph M. Parsons Company for all divisional activities and has been delegated overall responsibility and authority for the effectiveness of the QA program..

1.2.3 The Vice President and Assistant Division Manager is responsible for the management of Project Operations, and Administration, within the Systems Division. He reports directly to the Senior Vice President and Manager, Systems Division.

1.2.4 The Vice President and Business Development Manager reports directly to the Senior Vice President and Manager, Systems Division, and has overall management and operational responsibility for business development. Such development includes but is not limited to proposals, sales, and development of new and current markets.

1.2.5 Project Vice Presidents report directly to the Senior Vice President and Manager, Systems Division, and are assigned by this Senior Vice President to manage and direct large and complex projects of the Systems Division. The Project Vice Presidents have the authority and responsibility for the technical, financial, and administrative execution of their respective projects.

1.2.6 The Manager of Technology reports directly to the Senior Vice President and Manager, Systems Division, and is responsible for the overall management of the Technology Department. The Manager of Technology assigns nuclear work to a Power and Nuclear Technology Manager who appoints technical specialists and engineers in the fields of Nuclear Conceptual design, licensing, computer applications, and plant operations (see Figure 5). The Power and Nuclear Technology Manager is responsible for staffing, indoctrination, and training of the technical specialists and engineers assigned to his organization as well as development and maintenance of Power and Nuclear Technology design standards and procedures. Further responsibilities of the Power and Nuclear Technology manager include ensuring that applicable federal, state, and local regulations, codes and standards are maintained and available for use by the project.

1.2.7 The Manager of Project Operations reports directly to the Vice President and Assistant Division Manager. The Manager of Project Operations is responsible for initiating and recommending the assignment of key personnel to Systems Division projects.

1.2.8 The Administration Manager reports directly to the Vice President and Assistant Division Manager, and assigns word processing and stenographic/secretarial personnel to Systems Division projects.

1.2.9 The Manager of Quality Assurance (MQA), who directs the Quality Assurance Department, is responsible for the overall direction of Parsons Quality Assurance Programs for nuclear facilities projects; for the assignment of the Project Quality Assurance Manager to the specific nuclear facilities projects; and for providing guidance to Project Quality Assurance personnel. The Manager of Quality Assurance formulates and approves quality policies, and evaluates the effectiveness of the overall Quality Assurance Program. The Manager of Quality Assurance reports functionally and administratively to the

Senior Vice President and Manager, Systems Division. Further, quality related issues between The Ralph M. Parsons Company functional elements and Quality Assurance that cannot be resolved at Systems Division level shall automatically be elevated to the president. Figure 10 illustrates the functional relationship of the Quality Assurance Department.

1.3 NUCLEAR PROJECT ORGANIZATION

1.3.1 Figure 2 presents additional detailed definition of a typical nuclear facilities project organization. When a project is assigned to the Systems Division, a Project Team, headed by a Project Manager, is established to perform the work on the project.

1.3.2 The Project Manager assigned to the project provides the overall direction and coordination for the project, and is responsible for the project's engineering, procurement, and if applicable, construction management activities.

1.3.3 To accomplish this, the Project Manager is responsible for ensuring project implementation and compliance with contractual obligations, project procedures and instructions, Quality Program requirements, and NRC licensing commitments for the project; he is the primary contact with the client and NRC on matters related to the project. The Project Manager reports on project related matters, including progress, budgets, schedules, procedures, and status of client relations, to the Senior Vice President and Manager, Systems Division. The Project Manager is also responsible for ensuring that personnel assigned to the project from within the Systems Division and from the Support Departments (Engineering, Procurement, and Cost Engineering and Scheduling) are meeting project commitments.

1.3.4 The Project Manager coordinates with the Project QA Manager (PQAM) to ensure that quality assurance commitments, including resolution of Quality Assurance comments on safety-related items and the necessary corrective actions are implemented in conformance with the Quality Program described in the present report and in Parsons ASME Section III, Division 1, Quality Assurance Program Manual, as appropriate to the specific facility and project scope of work.

1.3.5 The Project Engineer is a principal member of the Project Manager's staff and, as such, assists the Project Manager in the management and functions of the project delegated to him. The primary responsibility of the Project Engineer is the development, execution, supervision, and coordination of the technical aspects of the engineering work. The Project Engineer also ensures that the client's criteria, scope of work, and Quality Program activities are being met by the engineering disciplines assigned to the project. The Project Engineer is administratively responsible to the Manager of Project Operations and is functionally responsible to the Project Manager (see Figures 2 and 4).

1.3.6 The Project Discipline Engineer is the discipline leader on the project and has responsibility for quality, technical adequacy, coordination, and production efforts including supervision and direction for personnel accomplishing the design and engineering work performed by that discipline. He is functionally responsible to the Project Engineer and administratively and technically responsible to the Engineering Department Section Manager of his discipline. The Project Discipline Engineer coordinates nuclear safety-related work with the Project QA Manager to ensure that requirements are met, and that the related scope of work for that discipline's portion of the project is implemented in conformance with the Quality Program requirements. This also includes technical responsibility for design work performed outside Parsons, and coordination and interfacing with other disciplines, during the preparation of and before the release of design documents, including drawings and specifications. The Project Discipline Engineer's responsibilities include the technical evaluation of bids, review of supplier submittals, and preparation of instructions in accordance with the Quality Program requirements.

1.3.7 The Project Licensing Engineer is assigned to the project by the Power and Nuclear Technology Manager with the concurrence of the Project Manager. The Project Licensing Engineer has the responsibility to perform the actions necessary to obtain the construction and operating licenses required by the Nuclear Regulatory Agencies for the project. He shall delineate the Safety Analysis Report format and philosophy, including interpretation of NRC licensing criteria. The Project Licensing Engineer is administratively and technically responsible to the Power and Nuclear Technology Manager, and is functionally responsible to the Project Engineer; all of which assure adequacy and competency of the licensing process. (Figure 2 displays this project reporting direction.)

1.3.8 The Project Construction Manager is responsible for all phases of construction management and provides on-site project support and assurance that all construction work is carried out in accordance with Project direction. He reports directly to the Project Manager on all project-related matters. Additional details of his responsibilities and activities are provided in paragraph 1.6, Construction Management Team.

1.4 ENGINEERING DEPARTMENT

1.4.1 Figure 6 presents a detailed definition of the Engineering Department organization. The technical support and administrative direction of the department are provided by the Vice President and Manager, Engineering Department. The management team of the department is composed of the following: the Technical Administrator, who directs staff groups that perform special technical analyses and who provide specialist personnel to the various projects in the Company; the Production Administrator, who provides nontechnical production and support to projects; and, Section Managers, who supervise and direct technical personnel in the systems-oriented and equipment disciplines.

1.4.2 The Engineering Department furnishes engineering and design support services, as necessary, for nuclear facility projects undertaken by Parsons. Qualified Project Discipline Engineers, engineers, designers, draftsmen, and technical specialists are assigned from the functional sections and groups of the Engineering Department to provide support services as requested by the Project Manager.

1.5 PROCUREMENT DEPARTMENT

1.5.1 The Procurement Department provides purchasing, subcontracting, vendor data control, expediting, and traffic service activities to the various operating divisions and projects within the Company. This department is headed by the Vice President and Manager, Procurement Department, who is responsible for purchasing services and for providing procurement personnel and services to the three company operating divisions (see Figure 7 for Procurement Department Organization).

1.5.2 The Procurement Department assigns Project Procurement Managers, Project Buyers, and Field Procurement Supervisors to specific projects. The basic Procurement Department elements which provide project support are Purchasing and Subcontracting and Procurement Services.

(1) Purchasing and Subcontracting

This is the basic buying organization which is commodity-oriented. present are buying groups that specialize in certain commodities such as materials and equipment. The group also provides subcontracting services when required.

(2) Procurement Services

This organization provides the expediting, vendor data control, traffic and non-safety-related source inspection. The activities performed include monitoring of suppliers from receipt of order through release from the supplier's shop; expediting and control of vendor data; arranging for shipping and handling of special, large or unusual items and providing assistance to the projects on special traffic problems.

1.5.3 Purchase of material, equipment, and services required by a Project is handled by the Project Procurement Manager assigned to the Project. The Project Procurement Manager utilizes commodity buyers as required. Other groups within procurement management process vendor data that the purchase order requires to be submitted to Parsons, and expedite timely delivery of vendor items to meet promised delivery dates and construction schedules. Shipping and handling of special, large, or unusual items is arranged with the Traffic Department.

1.5.4 Field procurement at the construction site is assigned to a Field Buyer or Field Procurement Supervisor. Field purchase Code Items may include welding electrodes, small diameter piping components, and other similar type items. Boiler, pressure vessels, and components, as well as piping fabrication, are normally purchased by Home Office Procurement.

1.5.5 Surveillance inspection responsibility for nuclear safety-related items that are procured by Parsons Procurement Department, is assigned to the Project QA staff, (Quality Control Source Inspectors); this is described further in Section 7, Control of Purchase Material, Equipment, and Services.

1.6 CONSTRUCTION MANAGEMENT TEAM

1.6.1 The construction management team (see Figure 8 for typical Field Construction Management Organization), under the direction of the Project Construction Manager, includes a Chief Field Engineer, Field Cost Engineer, Field Superintendent, Field Administrative Manager and their associated staffs. The Field Supervisors for Safety and Labor Relations are part of the Construction Management Team.

1.6.2 The Chief Field Engineers's staff includes:

- (1) The Material Control Supervisor, supported by the warehousing staff, who is responsible for receiving storing and controlling material at the site. Portions of this activity may be specifically designated as part of a subcontractor's responsibility.
- (2) Field Area Engineers who are assigned by the Chief Field Engineer to areas of the plant and the site to assist the Field Superintendent and Subcontractors in interpreting drawings, specifications, and instructions.
- (3) The Office Engineer who is responsible for designers/draftsmen to perform field drawing services as needed, and for document control and the field records file.
- (4) The Field Discipline Engineer who is responsible for providing technical guidance to the construction staff within the responsibility of their respective disciplines.
- (5) The Chief Scheduler who is responsible for providing plans and schedules to the responsible construction staff for the assigned scope of work.

1.6.3 The Chief Field Engineer's staff performs the following quality related functions, which are required by parsons Quality Program:

- (1) Administration of the nonconforming material control systems, and determination of remedial actions.

- (2) Review of field material requisitions, purchase orders, and subcontracts for ASME Section III, Division I, Code items prior to release of these documents.
- (3) Review of all supplier quality documentation package(s) for completeness and traceability to the item(s), and forwards quality verification documents to field inspection personnel for additional review as delineated in Section 7.4.2.

1.6.4 The Field Superintendent directs various Area Superintendents, who in turn direct the work of the Craft Supervisors and force-account labor for construction work actually performed by Parsons. However, some work may be assigned to properly qualified and approved subcontractors. These efforts are also under the direction of the Field Superintendent. The extent and amount of subcontractor and force-account work vary between projects and specific sites. These work activities will be defined for the specific project prior to the construction effort being initiated at the site.

1.6.5 The Field Administrative Manager's organization includes the Field Subcontracts Administrator, Field Procurement Supervisor, Accounts Payable Supervisor, and the Payroll Supervisor (Figure 8). This staff provides the administrative support for the Field Administrator in performing the following functions:

- (1) The Field Subcontract Administrator is responsible for issuing field subcontracts for incidental items of work, and assists in the administration of subcontracts, including the NDE laboratories used at the site.
- (2) The Field Procurement Supervisor is responsible for purchasing incidental commodities and items for the site that have not been procured by the Home Office Procurement Department.
- (3) The Accounts Payable Supervisor is responsible for payment of items and services received at the site based on the requirements imposed on the supplier.
- (4) The Payroll Supervisor is responsible for the time record and payroll for personnel employed by Parsons at the jobsite, including technical, administrative, and craft personnel.

1.7 QUALITY ASSURANCE DEPARTMENT

1.7.1 The Manager of Quality Assurance (MQA) is responsible for the overall direction of Parsons Quality Assurance Programs for nuclear projects. The composition of the Quality Assurance Department (QAD) is exhibited in Figure 9.

1.7.2 Figure 10 displays the functional relationship of the MQA to the Senior Vice President and Manager, Systems Division. The MQA also keeps top management informed of quality assurance activities and problems by periodic reports to the Senior Vice President and Manager, Systems Division.

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1.7.3 The MQA has the responsibility for achieving the following objectives related to meeting NRC and QA requirements.

- (1) Formulates, reviews, and approves quality policies for use by Parsons.
- (2) Approves QA procedures for compliance with Corporate policy prior to their release.
- (3) Prepares and maintains manuals, reports, and procedures, including ASME Section III Nuclear QA Program Manual, ASME Non-Nuclear Code, Quality Control System Manual, and the Parsons Topical Report (QA Program for Nuclear Facilities).
- (4) Formulates and directs audit programs to assure Executive Management that the overall Quality Program of the Systems Division's nuclear projects conforms to the requirements of 10 CFR Part 50, Appendix B; ANSI/ASME N 45.2 and daughter standards; ASME Code, Section III, Article NCA-4000, as appropriate to the project scope of work; and, the Quality Program described in this Topical Report.
- (5) Evaluates the effectiveness of the Quality Program and any problems requiring special attention.
- (6) Reviews, evaluates and approves the quality programs of the Engineering and Procurement Departments, as related to the requirements in the ASME Code and the commitments in this manual.
- (7) Maintains and controls ASME Code Symbol Stamps.
- (8) Determines the size of the QA organization including the inspection staff.
- (9) Prequalifies and qualifies suppliers of nuclear safety-related items, materials and services through review and acceptance of their quality programs; also, surveys, audits, and evaluates the suppliers' programs, procedures, and facilities for Parsons acceptance. (The MQA, however, may delegate these activities to the Project QA Manager.)

1.8 PROJECT QUALITY ASSURANCE

1.8.1 To accomplish QA objectives listed in Paragraph 1.7.3, the Manager of Quality Assurance assigns a Project QA Manager (or Project QA Engineer depending on the size, complexity, and contractual commitments) to the project, and delegates the QA responsibilities to that individual. The minimum qualification requirements for the Project QA Manager (PQAM) are the same as those given in Section 2, paragraph 2.6.7 for the individual responsible for directing and managing Parsons overall QA program.

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1.8.2 The Project QA Manager is responsible for QA activities, and directly reports to the Manager of Quality Assurance. The Project QA Manager is responsible for coordinating with the Project Manager, and ensures that project QA activities are performed in conformance with Quality Program requirements. This method of organization ensures that the QA Organization assigned to the project is independent of those groups directly responsible for performing engineering, procurement, and construction activities associated with safety-related items and service.

1.8.3 The Project QA Manager has the authority, responsibility and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions through designated channels; to verify implementation of solutions; and, to control further processing, delivery, or use of nonconforming, deficient, or unsatisfactory items or conditions, as related to requirements, until proper disposition is accomplished; and also to stop unsatisfactory work. The Project QA Manager is responsible for the following activities:

- (1) Establishment and definition of the Parsons Quality Assurance Program for the project.
- (2) Assurance that the requirements of the Quality Program are met by the project organizations responsible for its implementation and use.
- (3) Review and approval of design documents of safety-related items prepared by project Home Office and Field Personnel so as to evaluate compliance of their design documents with the quality requirements established in the Parsons QA program.
- (4) Contact and interface with the client, regulatory agencies, and Authorized Nuclear Inspector on matters related to Parsons adherence to Quality Program requirements on the project.
- (5) Supervise and direct the activities of the Project QA Group at both the Home office and the construction site.
- (6) Act as a point of contact between Parsons, its Authorized Inspection Agency, and State Jurisdiction.

1.8.4 The Project QA Manager is assisted by a Home Office group of QA Engineers/specialists and QC source inspectors. When a project includes construction management responsibility, a Site QA Supervisor, supplemented with site QA and QC Engineers, is assigned to the project. These personnel are technically competent individuals who are familiar with the QA/QC requirements related to engineering, manufacturing, and construction disciplines. The project QA manager and Site QA Supervisor routinely attend and participate in work schedule and status meetings to assure adequate project and site QA/QC coverage.

1.8.5 During the preliminary design and detailed design phases of the project, the Home Office QA group is responsible for the development of Project QA Procedures included in the Project QA manual, and of QA checklists and instructions for ensuring that design document and change control procedures have been established and are being followed. This group is also responsible for monitoring and auditing the performance of quality-related activities of the project team.

1.8.6 During the procurement phase of the project, the Home Office QA group evaluates and qualifies suppliers of nuclear safety-related items or services (including approval of suppliers' QA programs), establishes supplier surveillance requirements, conducts surveillance inspection visits, and develops written procedures and checklists, as required, for monitoring and verifying conformance of supplier's work to safety-related procurement requirements. (Refer also to Section 7, paragraph 7.2)

1.8.7 During the construction phase of the project, the Site QA Supervisor and Site QA Engineers are responsible for implementing site QA surveillance requirements, as previously established by the Project QA Manager. This includes developing written QA procedures and checklists, as required, for monitoring and auditing the performance of site construction work; for maintaining appropriate quality records for QA activities performed by Parsons personnel at the construction site; and, for reviewing and approving the quality control and inspection procedures to be used by site construction contractors. An NDE Engineer qualified in accordance with Section 10 of this report, is assigned to the construction site and is responsible for control of the NDE Laboratories under contract to Parsons at the site.

1.8.8 In addition the Field QC Engineer, who reports to the Site QA Supervisor, is responsible for inspection of site construction work except where subcontractors have been delegated inspection responsibility; for preparation and maintenance of quality inspection documentation and construction inspection records; for assisting Site QA Engineers, as required, in surveillance of subcontractor inspection activities and related documentation. A Field Inspection Staff will assist the Field QC Engineer in performing inspection activities. Each field inspection activity may be subdivided into specific inspection work elements, e.g., Mechanical Structural, Piping, Electrical and Instrument.

1.8.9 When construction work is performed by Parsons subcontractors, the quality of the work is the subcontractor's responsibility. The first-level inspection may be either assigned to the subcontractor or performed by Parsons, as established in the subcontract. Parsons field engineering organization reviews, coordinates, and monitors the engineering activities that are the responsibility of the subcontractor. If the subcontractor performs first-level inspection, Parsons Site QA organization monitors the inspection performed, and reviews the documentation prepared by the subcontractor.

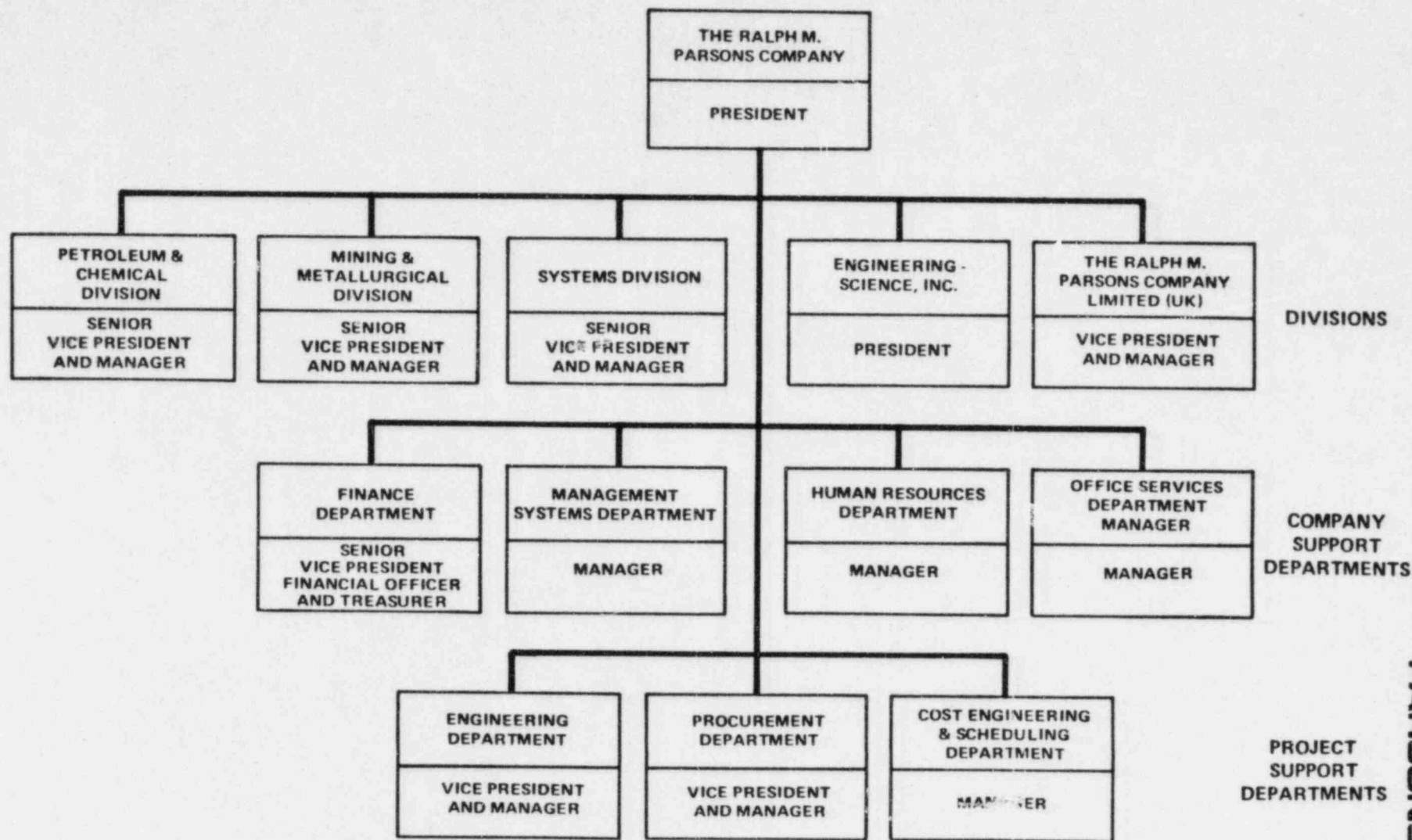


Figure 1 - The Ralph M. Parsons Company Organization

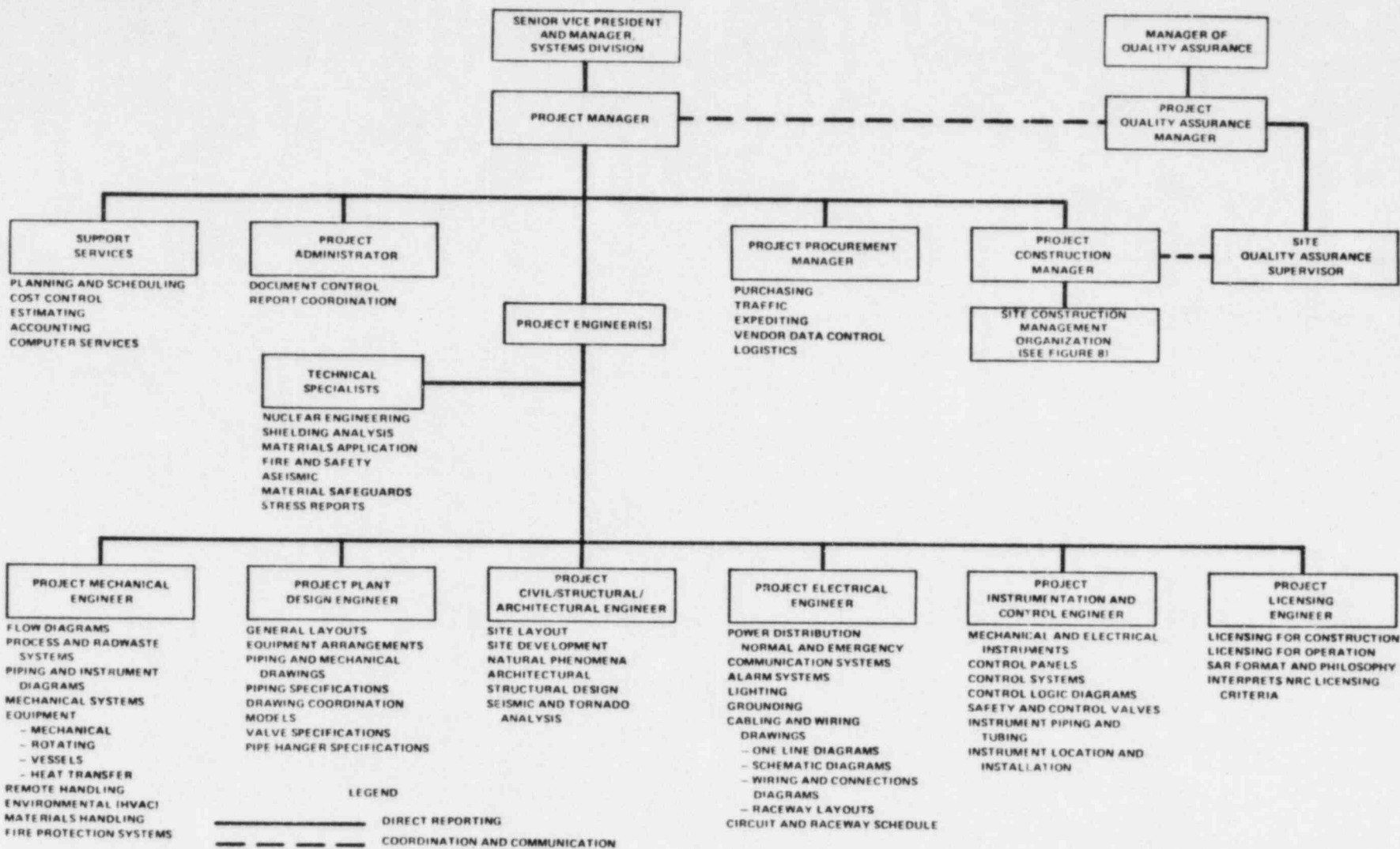


Figure 2 - Typical Nuclear Project Organization

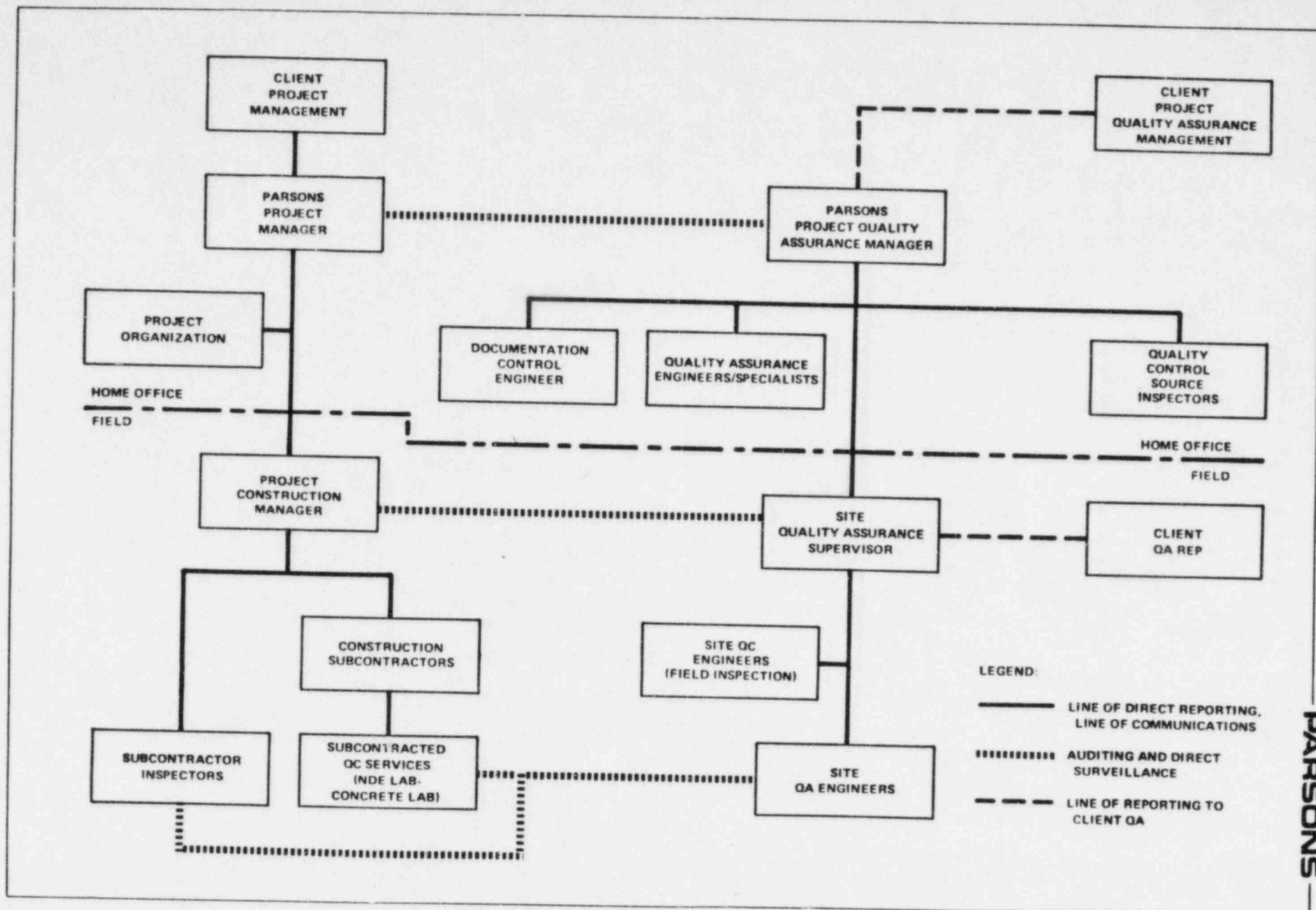


Figure 3 - Typical Project Quality Assurance Organization

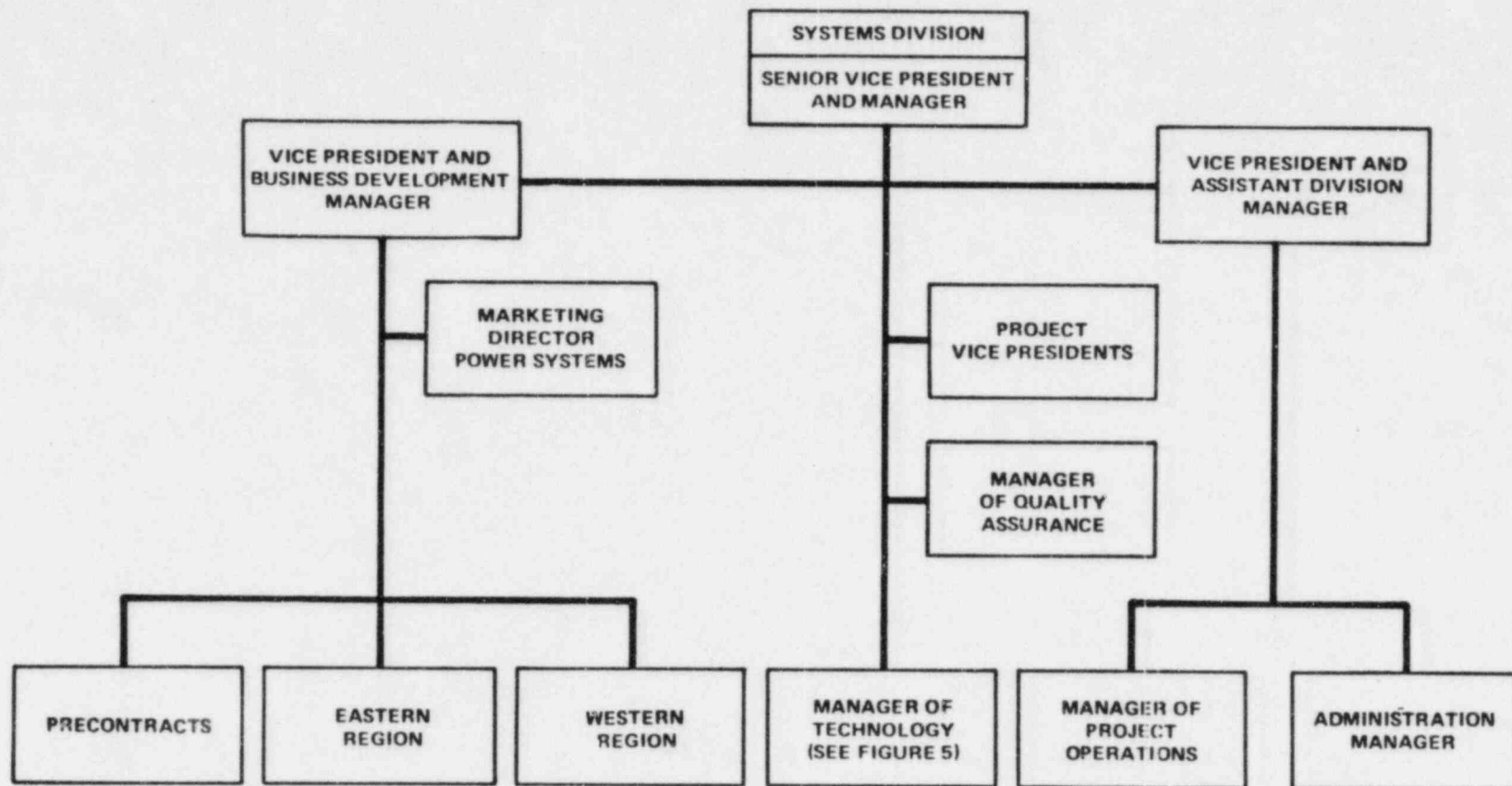


Figure 4 - Systems Division Organization

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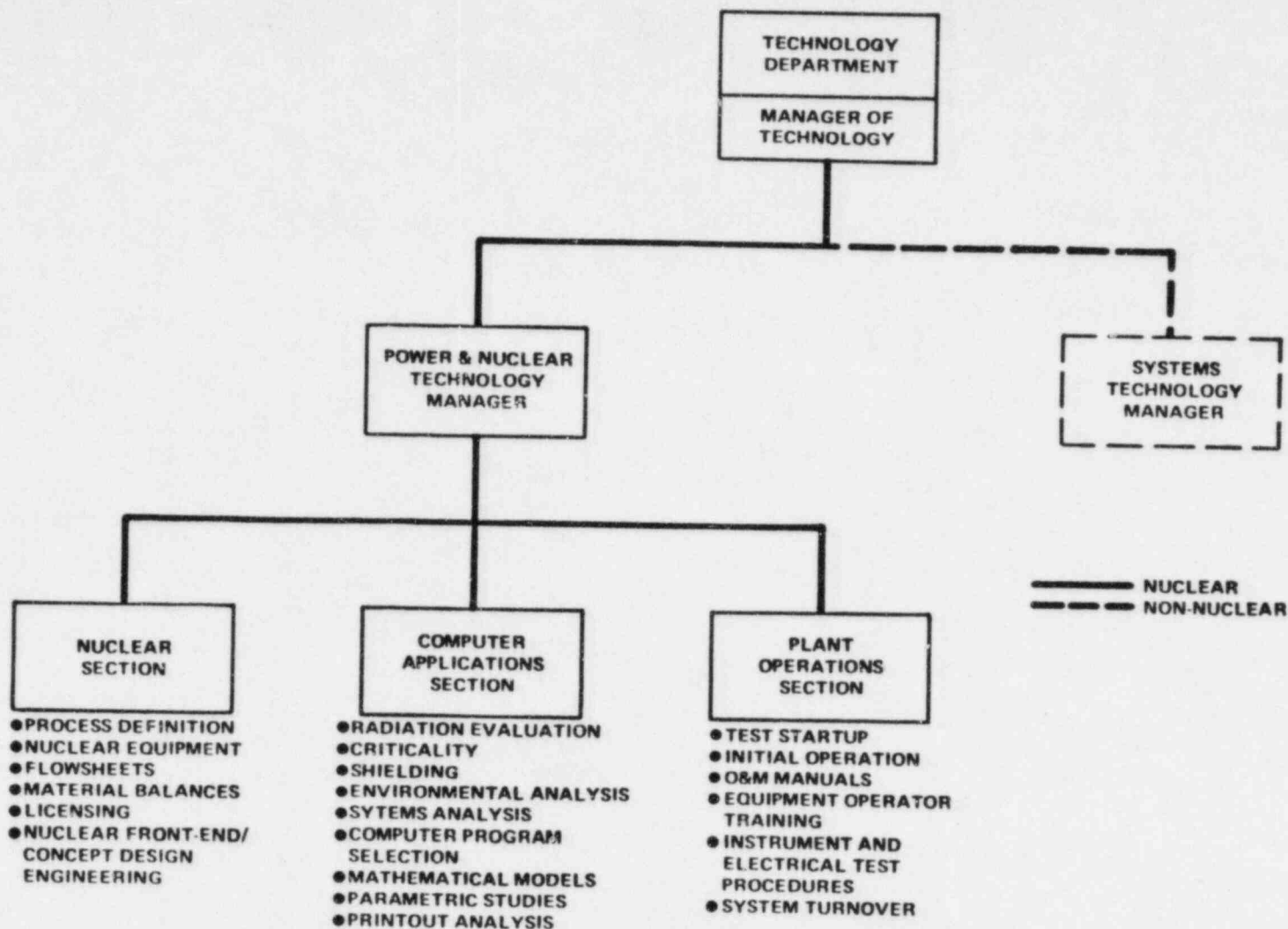


Figure 5 - Technology Department Organization (Nuclear)

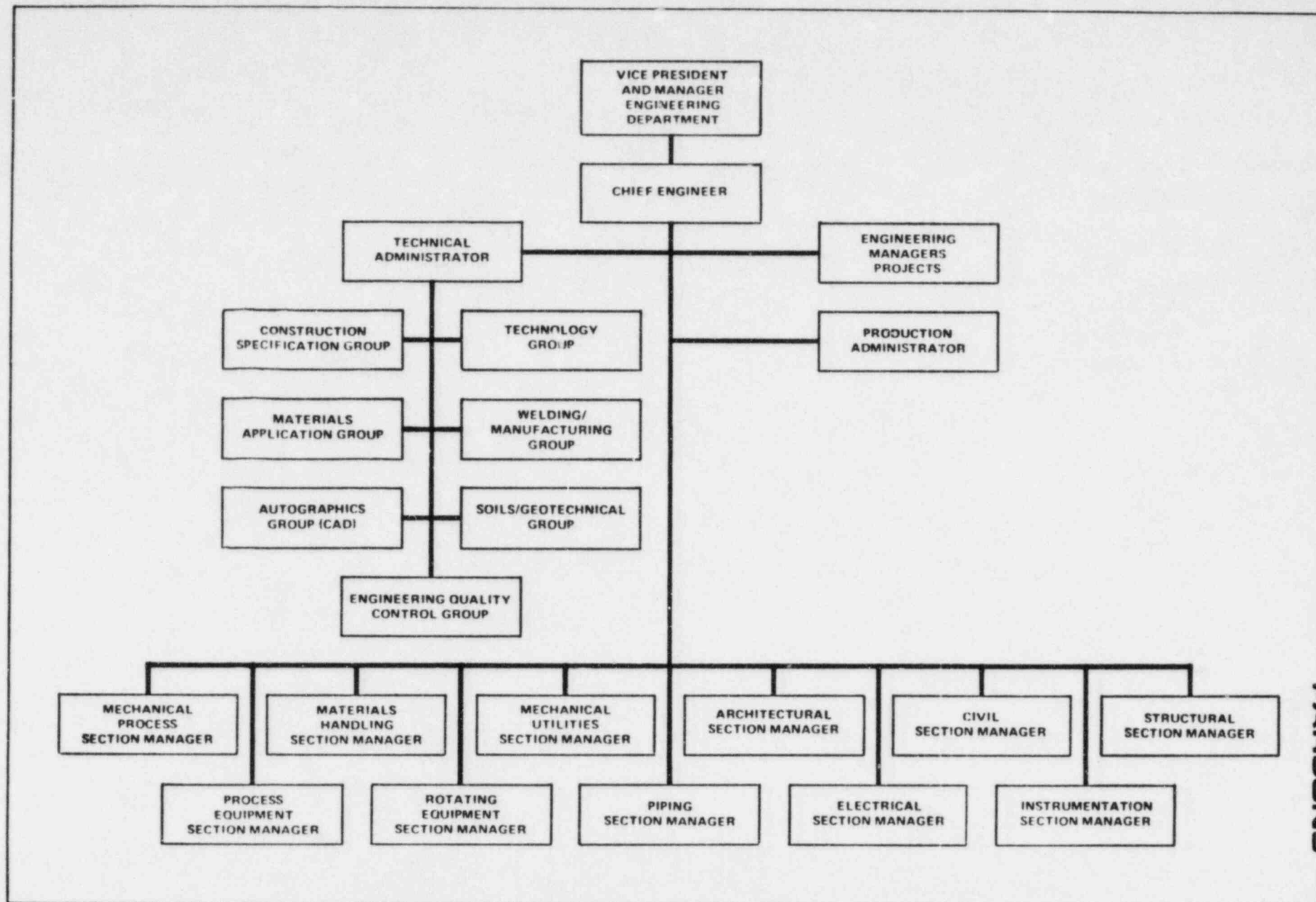


Figure 6 - Engineering Department Organization

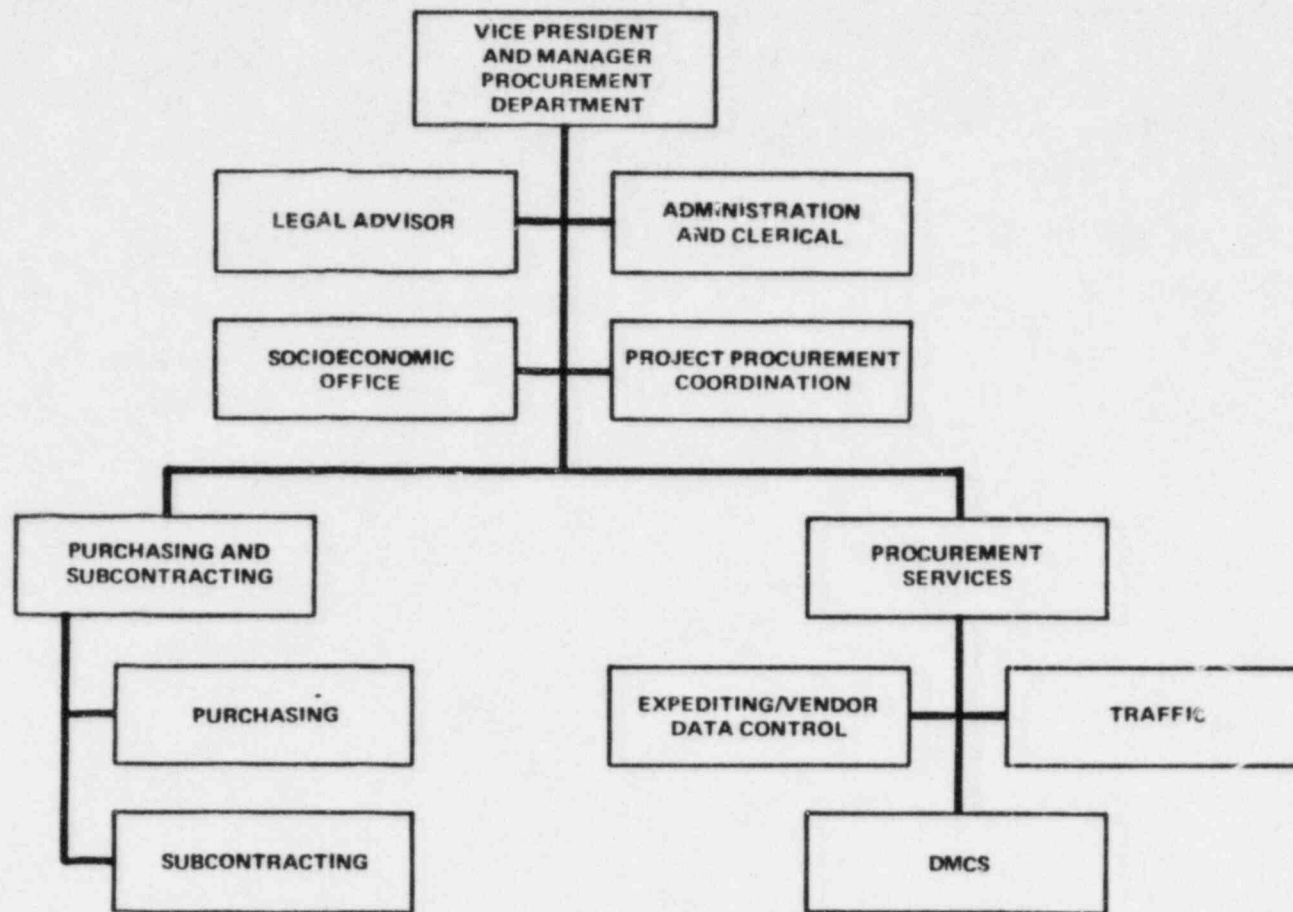


Figure 7 - Procurement Department Organization

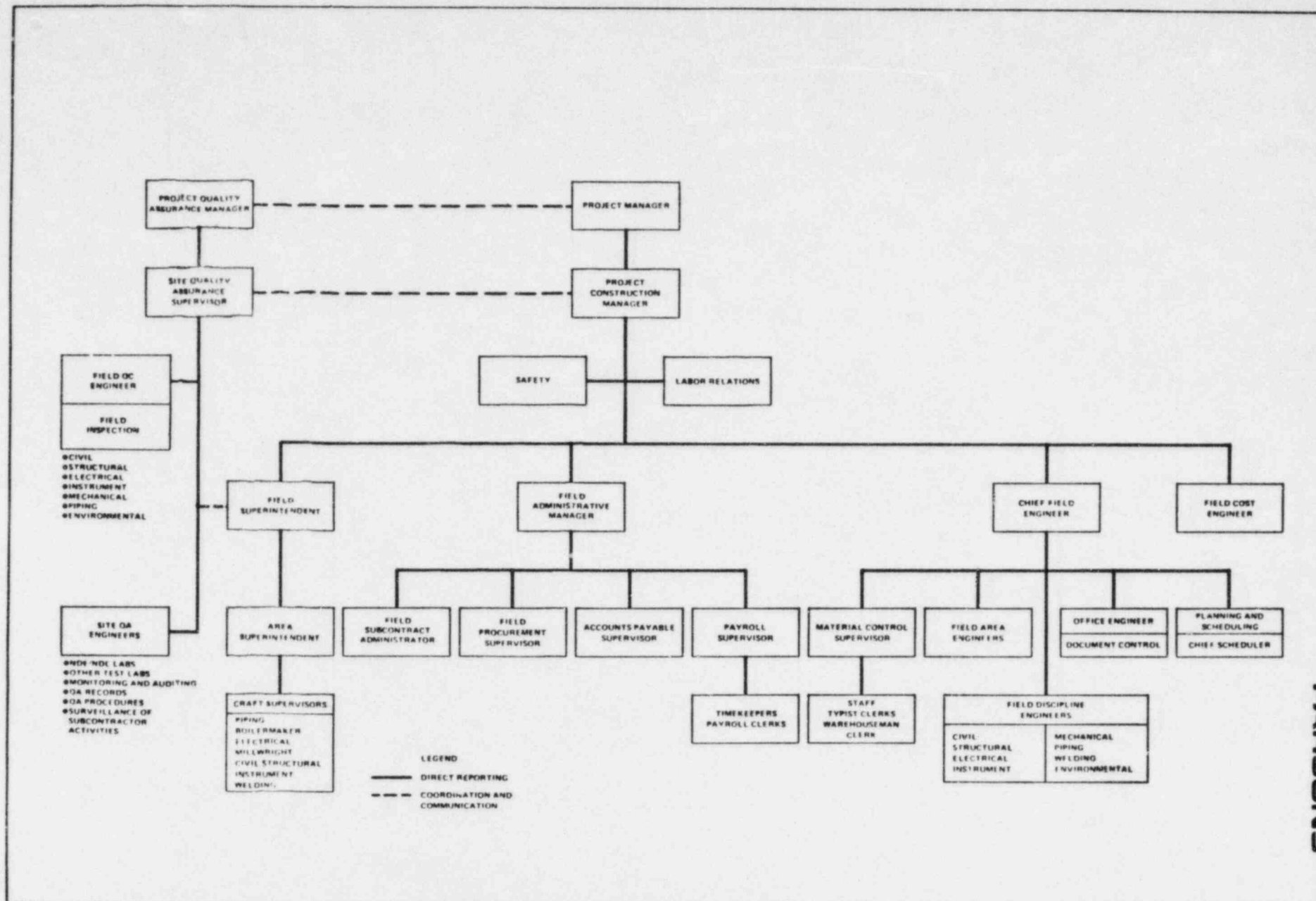


Figure 8 - Typical Field Construction Management Organization

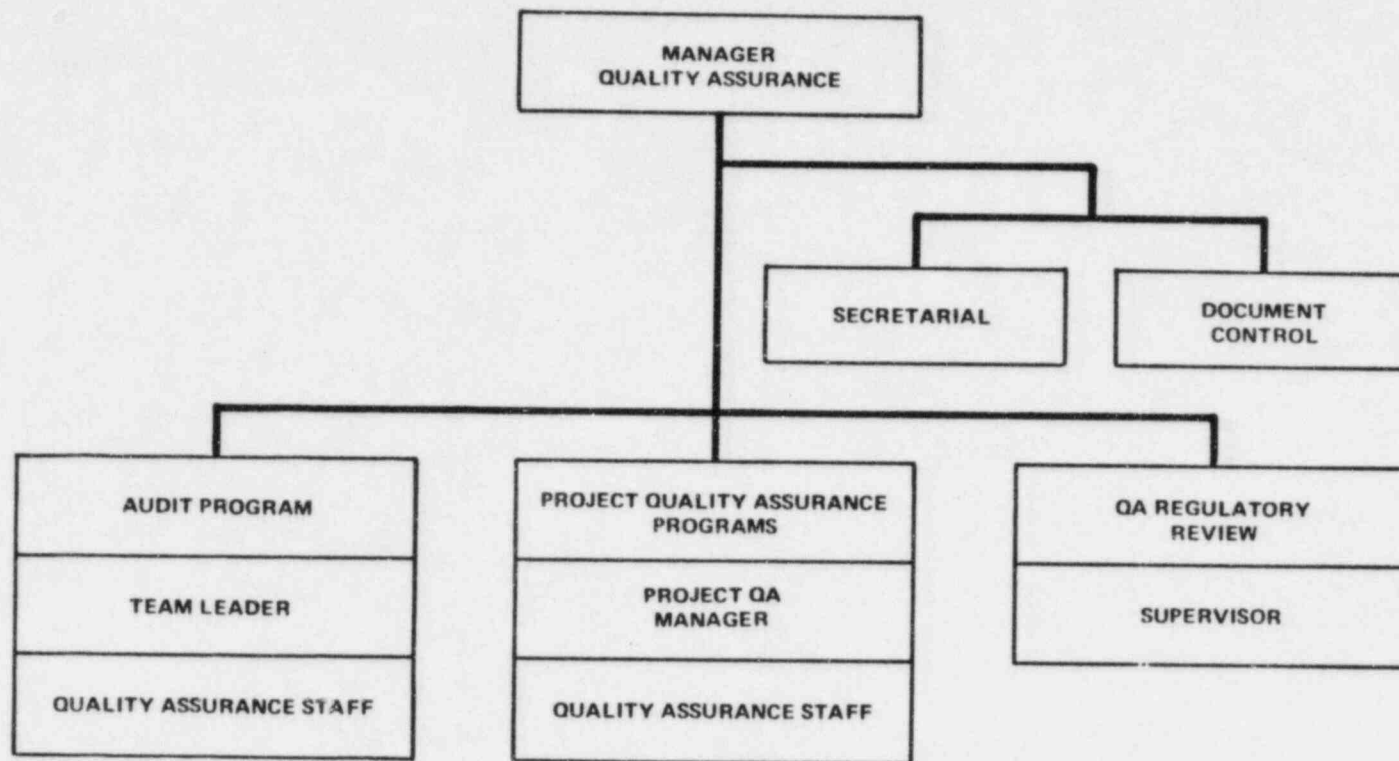


Figure 9 - Quality Assurance Department

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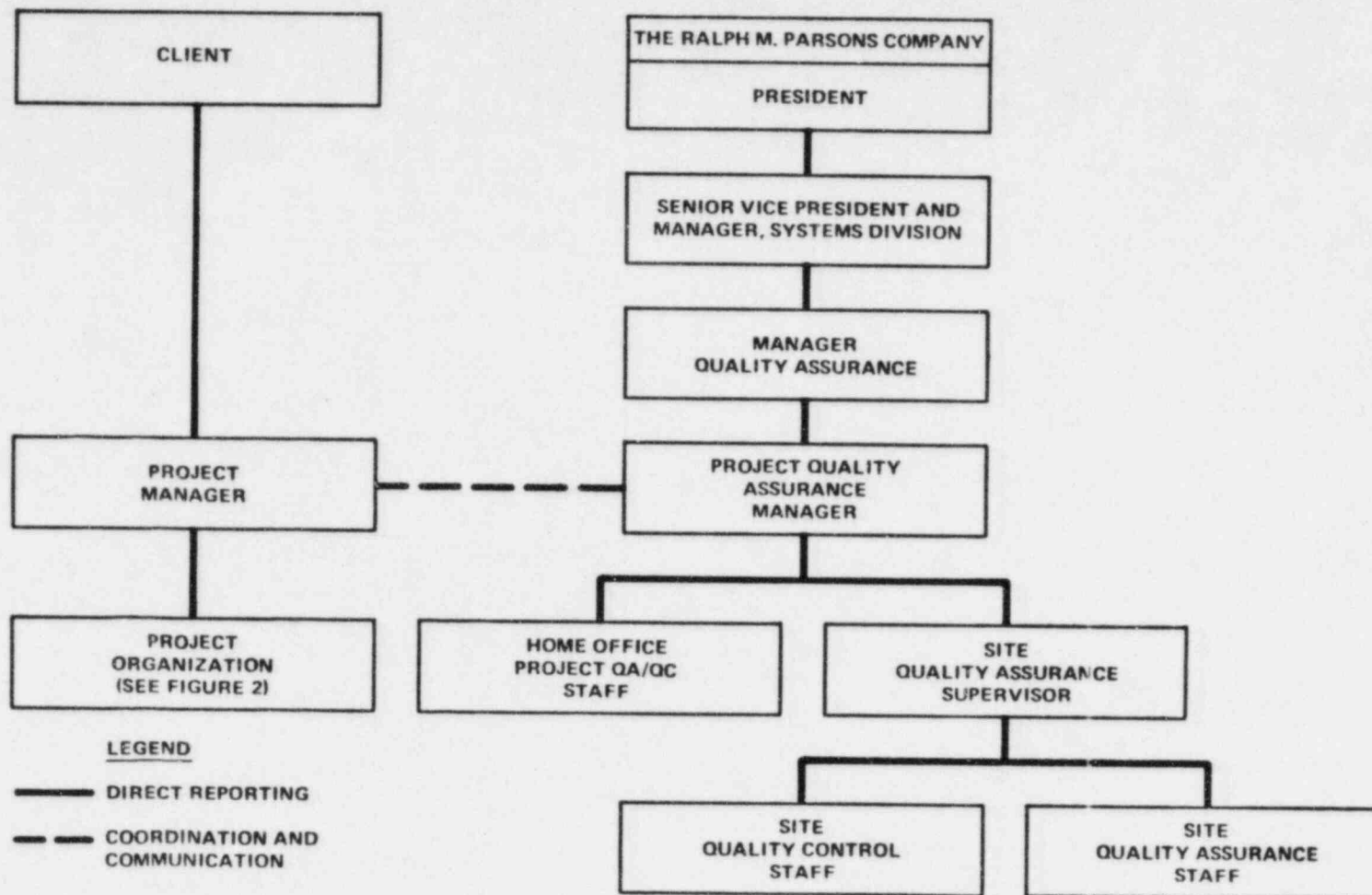


Figure 10 - Quality Assurance Interface
and Functional Relationship

SECTION 2¹

QUALITY ASSURANCE PROGRAM

2.1 PROGRAM DEFINITION

The Parsons Quality Program defined in this report is designed to comply with requirements of NRC Regulations and the practices prescribed by specified American National Standards, client requirements, and Parsons policies. The NRC Regulations and American National Standards include Appendix B to 10 CFR Part 50, and ANSI N45.2-1977.

2.2 PROGRAM COVERAGE

2.2.1 The Parsons Quality Program described in this report covers the various aspects of a nuclear facility project from the initiation of preliminary design and the preparation of licensing documents through completion of detailed design to the procurement and construction phases of the project. Preliminary architect engineering services, procurement services such as preparation of documents for long lead items, and QA review of criteria, preliminary design and long lead bid items accomplished prior to PSAR submittal shall require conformance with the Quality Program defined herein. The Quality Program is applied to the design, procurement, and construction activities related to structures, systems, and components whose satisfactory performance is required to prevent accidents that may cause undue risk to the health and safety of the public or to mitigate the consequences of such accidents should they occur. These are defined as safety-related items, and are identified in the LA or SAR for the project.

2.2.2 The service activities performed by Parsons are divided into four major areas with the contractual scope of work established with the client defining the details of each area of activity. The four areas are as follows:

(1) Architect-Engineer Services

- o Preliminary engineering.
- o Detailed design.
- o Preparation of appropriate engineering criteria, calculations, drawings, specifications, and other pertinent design documents.

¹SAR Section 17.1.2 or equivalent for nuclear facilities other than power plants.

- o Review, evaluation, and surveillance of engineering documents and activities to ensure conformance with the design and document control requirements of the Quality Program.
- o Requisitions for material and equipment.

(2) Procurement Services

- o Preparation of procurement specifications and procurement documents.
- o Development of qualified bidders list.
- o Technical analysis of bids and evaluation of supplier quality programs before and after bids are released.
- o Surveillance and evaluation of supplier performance, including witnessing of tests and manufacturing operations.
- o Verification of supplier conformance with purchase order requirements before release of items for shipment to the plant site.
- o Expediting and traffic services

(3) Construction Management Services

(Refer to Section 1, paragraph 1.6.)

(4) QA Services

- o Home Office engineering QA services for activities described above.
- o Procurement QA/QC services including source surveillance inspection for safety-related items.
- o QA surveillance and audit of construction contractors and subcontractors.
- o Field inspection of Parsons force account work and of subcontractors when so specified in their scope of work.
- o Receipt inspection of incoming materials/equipment to the extent necessary to ensure that, where applicable, material identification requirements have been met and quality documentation and certifications are in conformance with applicable purchase order requirements.

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- o Release of procured equipment as acceptable to construction contractors responsible for site erection and installation.
- o Maintenance of appropriate quality records for QA activities performed by Parsons personnel at plant site.

2.3 POLICIES, PROCEDURES, AND INSTRUCTIONS

2.3.1 The Parsons overall Quality Policies are formulated by the Manager of Quality Assurance (MQA), who is independent of individuals directly responsible for the management or coordination of engineering, procurement, and construction activities. Responsible organizations and individuals are informed that quality policies, manuals, and procedures are mandatory requirements that must be implemented and enforced. These overall policies are authorized by the President of the Company, and are applied in QA procedures that are described in a Project QA Manual prepared specifically for the project. Approval of these procedures is the responsibility of the MQA; authorization for the use of the Project QA Manual by division, department, and project personnel within Parsons is delineated by the President. On each specific project, Quality Assurance practices and instructions are determined by the Project QA Manager, who also reviews and concurs with the manuals, procedures, instructions, and quality-related practices on safety-related items utilized by the project. Audits of these activities by the Project Quality Assurance Manager and the QA staff ensure implementation of approved and documented QA practices.

2.3.2 The Quality Program is defined by the quality policies established in this report or expanded by the Project QA Manager and the MQA in the project QA Manual. These policies are implemented through manuals and procedures issued by various divisions, departments, or groups after the implementing manual or procedure has been revised and concurred with by Quality Assurance management for policy compliance (see Appendix B, Table B-1). Quality Assurance management documents this review and concurrence.

2.3.3 The Parsons Quality Program for a nuclear project addresses required Company policies and procedures, suitably tailored to conform with the scope of work for that nuclear facility project and client requirements. The Project Quality Assurance Manager is responsible for coordinating the development of the project Quality Program, and ensuring that it conforms with the overall Parsons quality policies, and that appropriate approvals and authorization are obtained. Approved procedures and a sufficient number of trained personnel will be available to implement the applicable portion of the QA Program prior to initiation of the activity. The control of the distribution of documents and their revisions is described in Section 6, paragraph 6.2.1.

2.4 IDENTIFICATION OF SAFETY CLASSES, SEISMIC CATEGORIES, AND QUALITY PROGRAM CATEGORIES

2.4.1 Nuclear facilities include structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. The Quality Assurance Program establishes quality assurance requirements for the design, procurement, and construction of those structures, systems, and components.

2.4.2 The structures, systems, and components that are to be covered by the Parsons Project QA Program are identified in Chapter 3 of the Safety Analysis Report (SAR) or an equivalent chapter of the LA by means of a Q-List, which specifies the applicable Safety Class, Seismic Category, and Quality Program Category assigned to the item. The bases for the assignment to an item of a particular Safety Class, Seismic Category, and Quality Program Category are also given in Chapter 3 of the SAR or its equivalent chapter in the LA. For water and steam-containing components, important to the safety of water-cooled nuclear power plants, the Quality Group Classification system described in Regulatory Guide 1.26. "Quality Group Classifications and Standards for Water, Steam, and Radioactive Waste Containing Components of Nuclear Power Plants," Revision 3, dated February 1, 1976, is coordinated and cross referenced with the Safety Class System identified in the SAR. The fire protection system identified from SRP Section 9.5.1 shall also be part of, and covered by, the Parsons Project QA Program.

2.4.3 The Project Quality Level ("Q" List) is the master control document which identifies the structures systems, and components of the nuclear plant that are safety related, i.e., those that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. The Parsons Quality Assurance Program applies to all items on the "Q" List.

The Project Manager, assisted by the Project Engineer, is responsible to identify the "Q" List items during the preliminary design phase of the project, in conjunction with the client, and to document the list. The Project Engineer is responsible for the "Q" List, defining the "Q" designation or Quality level, and for document control. The Project Quality Assurance Manager will monitor the implementation of the "Q" designators. A Systems Division Technology Department procedure provides the criteria for defining the appropriate Quality Levels.

The "Q" List is reviewed by the Project Engineer concurred with by the Project Quality Assurance Manager and is approved by the Project Manager. The "Q" List is distributed to all Project Discipline Engineers, the Project Quality Assurance Manager, and the client. The "Q" List is kept current throughout the life of the project, and is the basis for applying various degrees of control over each listed item. The List is updated by the Project Engineer as the need arises, and is reissued after each updating.

2.4.4 During the design phase of the project, appropriate design and document control measures are applied, based on the Safety Class assigned to the item (Section 3). In addition, the Seismic and Quality Program Categories are assigned during this phase.

2.4.5 The development, control, and use of computer code programs will be conducted in accordance with the QA program. The Computer Programs used for the design and analysis of nuclear safety related systems shall be periodically verified and documented. Computer programs used for a specific project shall be implemented, controlled, and verified in accordance with procedures concurred with by the Project QA Manager and accepted by the Project Manager.

2.4.6 During the procurement and construction phases of the project, the assigned classifications are used to invoke the appropriate technical, acceptance, and quality requirements on the supplier responsible for providing the item or service. The Quality Program Category assigned to the item(s) or service(s) provides the basis for requesting the inclusion of specific elements in the supplier's quality program (Section 7).

2.4.7 The following guidelines list some of the factors considered in applying Quality Program Categories to an item or service:

- (1) The effect of malfunction or failure of the item, the importance of its service to safety, or the reliability of its function to prevent or mitigate the consequences of an accident without undue risk to the public.
- (2) The design, fabrication, or analytical complexity or uniqueness of the item or service.
- (3) The need for special controls and surveillance of special processes and equipment.
- (4) The degree to which the item's safety-related functional or pressure boundary compliance can be demonstrated by inspection or test.
- (5) The quality history and degree of standardization of the item or service.

2.5 CONTROL OF FURTHER PROCESSING

2.5.1 General. As defined in this report and established by Parsons policy, Quality Assurance personnel have the authority to control the further processing of nonconforming, defective, or unsatisfactory nuclear-safety-related work, work activities, items, and services. This control authority is applied directly to engineering, procurement, and construction activities performed by Parsons Project QA Manager or Site QA Supervisor. In addition, control of further processing of unacceptable work is provided by appropriate hold and release points.

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2.5.2 Design. Work related to design documents prepared by Parsons is controlled through the independent review process, including discipline check and the refusal of the checker/reviewer to sign off; i.e., accept an unsatisfactory document. This prevents its further processing or issue for use. Other than Parsons design documents, for which the project has an interface or control responsibility, control is exercised by the review and approval signature of the cognizant Project Discipline Engineer, under whose technical responsibility the design work is being performed outside Parsons, subject to the concurrence of the Project Engineer. Any status other than full approval, without comment, requires followup and closeout actions.

2.5.3 Procurement Supplier work, including subcontracts, is controlled by Parsons as follows: The individual assigned by Quality Assurance to perform source inspection is responsible for authorizing the supplier to release purchased items for shipment; the Field Inspector is responsible for recommending the acceptance of subcontracted items. In either case, the individual performing the inspection activity may recommend that Parsons control of further processing be through designated contractual channels for those situations that, if uncorrected, would cause the item to be unacceptable for release or acceptance. Contractual relief, including termination, is provided by Parsons procurement documents for cases of gross deficiencies or violations.

2.5.4 Construction Two primary mechanisms are used for the control of further processing of unacceptable work performed by Parsons personnel at the site. These are the nonconformance reporting system and the authority to refuse to give sign-off acceptance of completed work. The site QA personnel may use either of these methods, or, in addition, produce audit and surveillance "findings" reports to recommend control of further processing.

2.6 PERSONNEL

2.6.1 Overall job descriptions for key individuals involved in quality-related activities, as well as education and experience requirements for each of the positions these key individuals fill, are formally documented. These job descriptions are approved and periodically reviewed by Parsons division or department management. Education, experience, and proficiency requirements are commensurate with the degree of responsibility of the job assignment. The documents describing the requirements and the qualifications of key individuals are proprietary in nature. These documents are maintained by project or Project Quality Assurance, and are made available for client or NRC review at Parsons home office during audits.

2.6.2 Parsons personnel participating in nuclear facility projects that are covered by this program receive basic indoctrination and training in quality program requirements. Parsons "QA Training and Certification Procedure" outlines the program for training quality assurance personnel and delineates the method of certifying these individuals at various levels. The training program covers the company organization and the quality assurance functions

and responsibilities as related to the operating divisions and staff departments. The program also includes a discussion and presentation of the various quality assurance criteria, standards, manuals, and other guidance documents that the Company uses in the performance of its work; examples of these documents are shown in Table B-1. The training program on a specific project is scheduled and implemented by the Project Quality Assurance Manager in accordance with the previously referenced procedure; the program is reviewed and audited by the Manager of Quality Assurance.

2.6.3 As part of the quality assurance training program, the quality assurance staff on the project is indoctrinated by the Project Manager, or his designee, in the use of the project procedures (procedures by which the Project Team performs its work). Such training programs are formalized and records are kept of attendance, subjects, and duration. The quality assurance staff is also given instruction and additional examination by the Project QA Manager, or his designee, to demonstrate understanding and knowledge of 10 CFR 50, Appendix B and project QA requirements. Records of these programs, training certificates, and certification records (including that required by ANSI N45.2.6) are filed in the QA Department. Records are reviewed annually on a specific project and a determination made for retraining. Recertifications are performed as required by Company and Industry standards to insure that adequate proficiency is maintained for qualified and/or certified personnel.

2.6.4 The Project Team, including technical specialists assigned to the project, is trained and oriented in the use of the quality assurance program manuals and procedures by the Project QA Manager, or his designee. The Project Team and the assigned technical specialists are oriented in project procedures by the Project Manager, or his designee. The indoctrination and training program for project personnel is conducted so that these individuals become proficient in the use of procedures that insure that their design activities are performed in a planned, controlled, and documented manner. Training sessions are formally conducted, and documentation for the project file covers the purpose of the program, session dates, the content of the sessions, and names of attendees and instructors.

2.6.5 The Manager of Quality Assurance, as part of his periodic reporting to management, is required to assess the training and quality capabilities of personnel assigned to a project. He accomplishes this through a review of the Project QA manager's audits and his own observations of the total project's adherence to quality standards.

2.6.6 The Company also provides generic training programs to many of its personnel through in-house technical and administrative training programs and those offered by external agencies such as colleges, societies, and individual outside companies. Records of these training programs are maintained in the Personnel Department and in the files of affected individuals. Such programs include ASQC Certifications, SNT-TC-1A Training and Certifications (Level III), State Registrations, Special Technical Certificates, Awards, and Recognitions. The Company also promotes the attendance by its staff at outside college or technical schools, where such additional education or training is related to the individual's work in the Company.

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2.6.7 The minimum qualification requirements for the individual responsible for directing and managing Parsons overall QA program are as follows:

o Education

The individual shall have a Bachelor's Degree in engineering, physical sciences, mathematics, or quality assurance from an accredited institution. A State Professional Engineering Registration is considered as equivalent to a Bachelor's Degree for this purpose.

o Experience

The responsible person shall have 10 years experience in the engineering, manufacturing, or construction industry, with a thorough knowledge of QA regulations, policies, practices, and standards. This experience shall also include 4 years experience in the field of quality assurance, or equivalent number of years of nuclear project experience in a supervisory position, or a combination of the two. At least 1 year of these 4 years shall be nuclear project experience in the implementation of the quality assurance program. If a State Professional Engineering registration is used as the basis for the educational requirement described above, a total of 15 years of experience in the engineering, manufacturing, or construction industry is required.

2.6.8 The minimum qualification requirements for the Field Quality Control Engineer (refer to Figure 8) are as follows:

o Education

The individual shall have a Bachelor's Degree in engineering or physical sciences. A State Professional Engineering Registration in an engineering discipline or quality category is considered as equivalent to a Bachelor's Degree for this purpose.

o Experience

The individual shall have 5 years of experience in the construction industry, at least 2 years of QC work, and at least 2 years in architect-engineering construction activities on large, complex projects. The experience shall also include at least 2 years of work assignments on nuclear projects, or training and certification in the use of codes, standards, and quality requirements related to commercial nuclear projects. If a State Professional Engineering Registration is used as the basis for the educational requirements described above, a total of 10 years of construction experience is required.

2.6.9 In cases where codes and standards require qualification or certification of an individual to specific requirements, prior to performance of the related activity, personnel are qualified to perform the activity. These requirements for qualification and certification include, but are not limited to, the following:

- (1) Personnel performing pressure-boundary and structural welding are required to meet the applicable qualification requirements of the ASME Boiler and Pressure Vessel Code or the AWS standards for the type of welds to be performed.
- (2) Personnel required to review and approve NDE procedures, evaluate and audit NDE service suppliers, prepare examinations and perform training for the qualification of Level I and II NDE personnel, and review and resolve alleged nonconformances found by NDE techniques are required to be qualified as Level III examiners per SNT-TC-1A.
- (3) Personnel performing or evaluating Nondestructive Examinations are required to meet the applicable Level II qualification requirements of SNT-TC-1A.
- (4) Site quality assurance and inspection personnel are qualified in accordance with the provisions of ANSI N45.2.6-1978, as applicable.
- (5) Personnel performing audits are qualified in accordance with the appropriate requirements of ANSI N45.2.12-1977.
- (6) Quality Assurance personnel performing source surveillance inspection for nuclear safety-related items are qualified in accordance with the applicable requirements of ANSI N45.2.6-1978 and applicable Parsons standards.

2.7 PROGRAM CONTROL

2.7.1 Personnel performing quality assurance functions, including quality control are provided with several methods of ensuring conformance to Quality Program requirements. These include:

- (1) Various levels of approval described in Sections 1 and 3 and in Section 2, paragraph 2.5.
- (2) Control of further processing described in Section 2, paragraph 2.5.
- (3) Mandatory inspection hold and review points for engineering and procurement documents, supplier work and documentation, and construction work described in various sections.
- (4) Nonconformance and corrective action procedures described in Sections 15 and 16.

2.7.2 In all of the above instances, the decision of the assigned individual performing the quality-verification function is controlling, subject only to appeal by the performing organization through its management and to the cognizant quality-verification function management. In any case, personnel performing quality assurance and quality control functions have the authority to identify quality problems, and to initiate action leading to their solution.

2.7.3 The final authority on project Quality Program matters is the Manager Quality Assurance, subject to appeal by the Project Manager to the the Senior Vice President and Manager, Systems Division. If necessary the problem shall be elevated to the President of The Ralph M. Parsons Company.

2.8 PROGRAM EVALUATION

The Manager of Quality Assurance receives copies of project and management quality assurance audits, reports of significant Quality Program problems, and reports of audits conducted by clients and of inspections by NRC. The MQA evaluates these documents, and uses them as a basis for recommending actions, developing new policies, and providing periodic reports to executive management.

2.9 MANAGEMENT REVIEW

2.9.1 Reports from the Manager of Quality Assurance to management contain summary data on the status of outstanding audit and corrective-action items, and identify the status of other significant Quality Program activities. These may include items such as training and qualification programs; development of standard procedures, work plans, and other documents; status of industry standards; and other external issues of interest. (Refer also to Section 15, paragraph 15.4.2.)

2.9.2 As delegated by the President, the Senior Vice President and Manager, Systems Division, reviews and evaluates on an annual basis, the Company's Quality Assurance Program with respect to status, scope, implementation, and effectiveness, and also assesses the performance of the QA Department. This review and assessment are accomplished through (1) the issuance of an annual report by the Manager of QA to both the Senior Vice President and Manager, Systems Division, and the President; (2) the subsequent scheduling of a formal and documented meeting by the Senior Vice President and Manager, Systems Division, to review and evaluate the Company's QA program and, in particular, its goals, objectives, status, and implementation. In performing this review, the Senior Vice President and Manager, Systems Division, is required to assess whether the implementation of the QA program by the designated elements of the Company complies with applicable nuclear codes and regulations. The Senior Vice President and Manager, Systems Division, can request the attendance, at this meeting, of any of the Company's division or department managers, as he deems necessary, in order to accomplish a thorough review of the program. Any findings or determinations of corrective action resulting from the review are requested to be implemented by the appropriate divisions and departments of the Company.

2.10 PREOPERATIONAL TESTING AND PLANT TURNOVER

The Quality Program described herein covers design, procurement, and construction activities. The client is responsible for the Quality Program during a preoperational testing phase. As defined in the scope of work for a project, Parsons, in conjunction with the client, performs advance planning for control of managerial and technical interfaces between Parsons, the client, and other contractors and suppliers to the client during preoperational testing and plant turnover.

2.11 NRC REVIEW AND APPROVAL OF TOPICAL REPORT

The Parsons "Quality Assurance Program for Nuclear Facilities" described in this Topical Report is required to be reviewed and approved by the NRC. The current letter of approval from the NRC is included at the very beginning of this report in accordance with NRC regulations. It is required that Parsons: (1) Notifies the NRC within 90 days of changes that do not reduce the commitments in the program description previously accepted by the NRC and (2) Notify and receive approval from the NRC prior to implementation of changes to the quality program description that do reduce commitments.

SECTION 3¹

DESIGN CONTROL

3.1 PROGRAM BASIS

Parsons design control program commits to comply with the requirements of 10 CFR Part 50, Appendix B, Criterion III; ANSI N45.2-1977, Section 4; and ANSI N45.2.11-1974.

3.2 GENERAL DESIGN CONTROL MEASURES

3.2.1 When Parsons Systems Division is assigned design responsibility for a nuclear facility project as part of its contractual scope of work, the project team (Figure 2) is responsible for the establishment of documented design control measures. These measures include establishing the requirements and methods for selecting, reviewing, identifying, and documenting design inputs, and controlling deviations from established quality standards, e.g., design bases, technical and regulatory requirements, and codes and standards. In addition, the establishment of requirements, methods, and techniques for ensuring that these design inputs are correctly translated into design output documents; e.g., drawings, procedures, specifications, and calculations.

Design verification shall be accomplished prior to release of items for procurement, manufacturing, construction or release to another organization for use in other design activities. In cases where this timing cannot be met the design verification may be deferred providing the justification for this action is documented and controlled. In all cases the design verification shall be completed prior to relying on the component, systems or structure to perform its function.

3.2.2 The overall responsibility for the adequacy of the design work rests with the Project Manager. He delegates technical responsibility for design adequacy and control through the Project Engineer to the specific Project Discipline Engineers and their respective assigned staffs. It is the Project Discipline Engineers who set the acceptance criteria for the design of safety-related items; i.e., safety-related systems, components, structures, and services related thereto. The Project Discipline Engineer delineates the applicable design bases, NRC requirements, codes and standards, and licensing information to be used on the project. Direction, coordination, and approval of the design and engineering work of the Project Discipline Engineers and their respective staffs are the responsibility of the Project Engineer.

¹SAR Section 17.1.3 or equivalent for nuclear facilities other than power plants.

Technical review and the establishment of company technical standards are the responsibility of the Section Managers within the Engineering Department's organization. Each of these Section Managers has final technical authority over his Project Discipline Engineer on the project with respect to design control within that discipline.

3.2.3 To assist and guide the Project Discipline Engineers in their development of licensing information and documentation, the Project Licensing Engineer is responsible for setting format, content, and licensing basis for the project. He is also responsible for reviewing the licensing documents and information developed by the Project Discipline Engineers to ensure conformance with the current licensing requirements set for the project.

3.2.4 The Project Manager establishes clear and concise lines of interface among design organizations within Parsons, as well as with the client and other organizations, such as consultants, suppliers, and site construction subcontractors.

3.2.5 The project conducts appropriate checks and reviews the design input and output. The distribution of design documents is described in Section 6, paragraphs 6.2.3, 6.2.6, and 6.2.7.

3.2.6 The Engineering Department's Quality Control Group periodically conducts reviews of the design effort from a position independent of the Project to ensure the technical adequacy of the design effort. These technical design reviews performed by Engineering Quality Control do not replace the design reviews which are required to be performed by the Project as set forth in Section 3.4.

3.2.7 The Project QA Group is responsible for reviewing the adequacy of control measures taken in the design, for ensuring that appropriate quality requirements have been included in the design, for verifying that the LA or SAR commitments have been followed, and that the QA and engineering procedures have been properly implemented.

3.2.8 Parsons QA and engineering procedures require design calculations, drawings, and specifications to be checked, and that there be documentary evidence of such checking. Checking includes:

- (1) A discipline check and a review of design engineering work by technically qualified project personnel other than the originator, which includes verification of dimensional accuracy and completeness of design drawings and specifications.
- (2) Review and approval by the originator's Project Discipline Engineer.
- (3) An interdiscipline review to avoid interference problems, to ensure that adequate clearances are allowed, and to ensure that the technical requirements between disciplines have been met.
- (4) Review and approval by the Project Engineer.

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- (5) Review and approval of safety-related documents by the project QA Group to assure they are prepared, reviewed and approved in accordance with company procedures and contain the necessary QA requirements.
- (6) Design review for Safety Class I, II, and III structures, systems, and components (refer to Sections 2 and 3, paragraphs 2.4 and 3.4).

The work of personnel in those disciplines listed in Figure 2 under the heading "Technical Specialists" is also controlled. The Project Engineer assigns technical specialists, as required, to Project Discipline Engineers. Design documents originated by a technical specialist are checked by another technical specialist in the same discipline. The Project Discipline Engineer, to whom the technical specialist is assigned, is responsible for initiating interdiscipline reviews of such documents. Design documents, such as calculations, originated by technical specialists are available to support design review activities.

3.2.9 Appropriate design control checklists and instructions are used to verify that applicable checks are made by engineer/designer checkers. These checklists are reviewed for adequacy by the project QA Group. Interdiscipline review is performed by the individual discipline groups on the project. Routing control of these activities is handled by the Project Administrator. The results of these checks are documented, reviewed, and approved by the cognizant Project Discipline Engineer, and their correct implementation is verified by a cognizant Project QA Engineer to assure that all errors and deficiencies are corrected. At the conclusion of the checks and reviews, copies of the reviewed documents and routing slips are retained in the project files for record purposes.

3.2.10 Where verification by qualification test is utilized the test conditions must simulate the most adverse design condition as determined by analyses.

3.3 INTERFACE CONTROL

3.3.1 Drawings, specifications, design and system criteria, and other interface information developed and submitted by the client for use by Parsons, are controlled by procedures that delineate the methods to be used for handling routing, review, and concurrence by appropriate Parsons groups. Similar information received from other organizations, such as consultants and suppliers, is also controlled in accordance with pre-established procedures.

3.3.2 Procedures for control of internal interface (interdiscipline review) activities among Parsons organizations are contained in project procedures. External interface activities and any special internal interface activities that are required for the project are contained in the project or project QA Procedures that are developed specifically for the project.

3.3.3 Interface controls and lines of communication are established to assure that structures, systems, and components are compatible geometrically, functionally, and with process and environment.

3.4 DESIGN REVIEWS

3.4.1 Design reviews are an integral portion of the Parsons Quality Program design-verification activities for nuclear safety-related items. Design review includes checking by the materials application group and process group to insure that materials, parts, processes and equipment are suitable for the intended use. QA engineer verification is required to assure that any errors or deficiencies arising during the review are corrected. The above review is also required for any "off the shelf" materials utilized. The type of review an item receives is a function of its importance to safety, and is determined by its Safety Class. The basis for the assignment of a particular Safety Class to an item is given in Chapter 3 of the SAR or in an equivalent chapter of the LA. Using this safety classification system, the following reviews are conducted.

- o Safety Class I items receive a formalized design review conducted by a Design Review Committee.
- o Safety Class II items receive a design review performed by qualified individuals or groups.
- o Safety Class III items receive an independent check (discipline check), interface check or review (interdiscipline review), and final review and approval by the Project Discipline Engineer, Project Engineer, and Project Manager, and acceptance by the Project QA Manager.

3.4.2 The Design Review Committee for Safety Class I items is chaired by the Section Manager of the discipline on the project responsible for the design document that is to be reviewed. The additional participants on the Design Review Committee, that may include technical specialists (see Figure 2), are selected and based on interface considerations related to the item being subjected to review. With the concurrence of the Project Manager, the chairman selects the technical participants for such reviews. The chairman prepares a written agenda for the meeting, including checklists and designation of the calculations that are to be reviewed. The Project QA manager assigns a member of the Project QA group to participate in these meetings, and to assist the chairman in preparing documentation related to the design review. In addition, the Project QA manager may request other personnel to ensure evaluation of quality-related aspects of the design.

3.4.3 Safety Class II items are reviewed in the same manner as that prescribed for Safety Class I items, with the exception that the design review is not a formal meeting, and the documents or items may be reviewed separately by the individuals selected. The Section Manager that is responsible for the design document on the project, selects, with the concurrence of the Project Manager, the technical personnel to perform the review function as appropriate

to the design document or item. Results of the individual reviews are documented. The Project Discipline Engineer is responsible for resolution and implementation of review comments. The project QA Group verifies that review comments are resolved and implemented.

3.4.4 Safety Class III items are reviewed on the project, receiving an independent check (discipline check), Project Discipline Engineer approval, project interface review (interdiscipline review), Project Engineer approval, release for procurement action or construction. At least the independent check and Project Engineer approval activities are performed on design documents prior to other reviews.

3.4.5 Safety Class IV (Non-Nuclear Safety classified) documents are given a project review that is similar to that for Safety Class III items, but the project QA Group's function is only to examine such documents to ensure that the non-nuclear safety designation is appropriate, and not to verify any part of the review process.

3.4.6 Design review activities are based on evaluation of correct selection and incorporation of design input requirements, including system criteria; federal, state, and local regulatory requirements; codes; standards; LA or SAR commitments; design calculations; appropriateness of assumptions used; material selection; and QA requirements. Based on the specific information presented in the design document being reviewed, the following design considerations are evaluated: analysis of malfunction, material suitability, good design practice, calculation assumptions and accuracy, constructibility, maintainability, safety, and in-service inspection capability. The reviews also ensure that pertinent information contained in NRC or Energy Research and Development Agency (ERDA) Construction and Operating Experience Reports is considered in the design.

3.4.7 Prior to the release of design output documents, the project QA Group performs the verification and assurance activities described in Section 3, paragraph 3.2.8, as applicable to the documents.

3.5 ALTERNATIVE CALCULATIONS AND QUALIFICATION TESTING

3.5.1 An alternative or simplified calculation method or a suitable test program can be used in addition to design review or in lieu of a design review. The three methods are evaluated to determine the technique that is applicable to the design or specific design characteristic. The Project Manager is responsible for the final selection, which is evaluated by the cognizant Section Manager and accepted by the project QA Group.

3.5.2 When alternative calculations are selected as the method of design verification for the item or specific design details, the verification is achieved by comparison with the initial design calculations or analysis. The alternative calculations are made by a qualified person or persons other than those who performed the initial calculations, and are prepared in sufficient depth to ensure the appropriateness of assumptions, input data, and the equations, computer code, or other calculation methods that are used.

3.5.3 In instances where a testing program is selected as being appropriate for design verification, the test program or procedure is reviewed and approved by the responsible Project Discipline Engineer, the Project Engineer, and Project Manager, and is accepted by the project QA Group. The basis for review of the program and test results is conformance with technical requirements; ANSI N45.2.-1977, Section 4.3; and ANSI N45.2.11-1974, Section 6.3.

3.5.4 Prototype testing may be used to verify specific design details where the test would affect the useful life of, or destroy, the item. To minimize this type of testing, it is Parsons policy to use industrial standards, specifications, and material and components that have been demonstrated as adequate.

3.5.5 The verification method selected by the Project Manager is evaluated by the cognizant Section Manager. Selection and evaluation are based on the nature and importance of the item, the specific safety attribute(s), and its similarity to previously proven designs in similar applications.

3.5.6 The cognizant Project Discipline Engineer is responsible for assuring that supplier catalog items, that have been previously approved for a different application, meet the functional performance and other technical requirements of the design (refer to Section 4.3).

3.6 DOCUMENTATION AND RECORDS

A design document is not released for procurement or construction until the checks and reviews of the document have verified the incorporation of authorized comments, or until such comments have been resolved. The record of the checking and review program includes signed checklists with appropriate signatures on the design documents, routing records, approval records, discipline check and interdiscipline review prints, and, where applicable, review meeting minutes or written comments.

3.7 DESIGN CHANGES

3.7.1 Changes to approved design documents, including field change requests and errors and deficiencies are subject to design control measures commensurate with those applied to the original design, based on the importance to safety of the change under consideration. Design changes are reviewed and approved by the person or organization that performed the review and approval of the initial issue of the design document, if practicable, or by other equally qualified personnel or organizations. The personnel or organization(s) designated to perform the review and approval of changes is competent in the specific area of interest, and has access to the background information and data related to the document being changed.

3.7.2 Changes to approved design documents, including field change requests and defective or nonconforming items that are repaired or accepted as-is, are subject to the design control requirements of Section 3, paragraph 3.7.1.

Design changes are reflected by applicable changes to drawings and specifications when required to provide accurate as-built information. The verification records for specific items provide the basic as-built data and information.

SECTION 4¹

PROCUREMENT DOCUMENT CONTROL

4.1 PROGRAM BASIS

The procurement document control program follows the requirements and guidelines of ANSI N45.2-1977. The program applies to procurement actions for nuclear safety-related items (Q-Listed) and services, including off-the-shelf items, whether performed by Home Office or field procurement personnel, and employs technical and QA requirements established by the project and project QA Groups, respectively.

4.2 PROCUREMENT DOCUMENT PREPARATION AND CONTROL

4.2.1 Specifications, drawings, and other technical data to be used for procurement purposes are prepared by the project in accordance with written procedures. These activities are governed by the same policies and procedures that apply to design documents. Project and Procurement Department procedures delineate the sequence of quality-related actions to be accomplished in the preparation, review, approval, and control of procurement documents and changes thereto.

4.2.2 The project is responsible for ensuring that applicable requirements, such as supplier QA program requirements that are necessary to obtain and verify quality, are included or referenced in the procurement documents. Procurement Department procedures cover control of procurement document processing, including provisions that require appropriate project review. In addition, the Parsons Quality Program dictates that appropriate acceptance criteria and inspection and test requirements are invoked on the supplier. In many instances, these requirements establish controls that may be needed over and above those generally invoked by applicable codes and standards.

4.2.3 During the preparation of procurement documents, the project QA Group provides assistance to the project in the selection of inspection, test, and QA program requirements to be invoked on the supplier. The type and number of requirements to be invoked for an item are based on the Safety Class and Quality Program Category assigned to the item (refer to Section 2, paragraph 2.4). The Parsons QA Department provides a standard basis and form for use by the project in establishing and requesting supplier quality program information.

¹SAR Section 17.1.4 or equivalent section for nuclear facilities other than power plants.

4.2.4 Procurement documents include particular technical specifications for the equipment and services to be furnished, define specific codes, standards, acceptance criteria, inspections, and records to be applied or to be furnished as supplier engineering and verification documentation. The procurement documents also include QA requirements either in separate specifications that define requirements for the supplier's QA program or by incorporating appropriate requirements in the technical specifications and associated documents. Quality programs may be specified by invoking appropriate sections and elements of ANSI N45.2-1977, Appendix B to 10 CFR Part 50, appropriate supplementary ANSI Quality Assurance Standards, and the ASME Boiler and Pressure Vessel Code, as applicable, or by incorporating equivalent requirements into the procurement documents. The procurement documents also establish provisions for source inspection, including access to the supplier and lower-tier suppliers' facilities and records for audit and provisions for extension of the applicable requirements to lower-tier procurements, including provision for control and approval of supplier nonconformances. In addition, the procurement documents establish requirements for preparation and delivery of documentation. Specific requirements are provided for documents that must be submitted for review, approval, and/or verification.

4.2.5 The following list describes the types of information and requirements that are included in procurement documents, as applicable to the item or service to be furnished by a respective supplier.

(1) Technical Information

Drawings, specifications, a list of codes and standards, with applicable revision date, test and inspection requirements, and special instructions and other requirements for such areas as designing, fabricating, cleaning, packaging, handling, shipping, normal or extended storage in the field, test equipment, and other special processing considerations.

(2) Supplier QA Program Requirements

Applicable QA program requirements that must be developed and implemented by the supplier, such as design control; document preparation and control; purchased material control; control of materials, parts, and components; special process control; inspection and test control; control of measuring and test equipment; handling, storage, and shipping control; inspection and test status; control of nonconforming material; corrective action; auditing; and any other quality requirements deemed necessary by Parsons to provide a high-quality item or service.

(3) Source Surveillance and Audit Requirements

Provisions for Parsons and client access to the supplier's plant facilities and records, and the right of review and witness of specific events during fabrication, assembly, and construction.

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(4) Record Requirements

Documents and records to be prepared, maintained, submitted, or made available for review and/or approval by Parsons are specifications; procedures; procurement documents; inspection and test records; personnel procedure qualifications; material, chemical, and physical property test results; certificates of compliance; and shipment releases.

(5) Lower-Tier Procurements

Requirements for extending applicable requirements of procurement documents to lower-tier suppliers, including Parsons and client (through Parsons) access to the lower-tier suppliers' facilities and records.

4.2.6 The procurement of spare or replacement parts is governed by the Quality Assurance Program that is in effect at the time of procurement, and those measures described in Selections 4.2.1 through 4.2.5 above.

4.3 PROCUREMENT DOCUMENT REVIEW

4.3.1 The project reviews the portion of the procurement documents that it prepares for quality assurance requirements. The technical quality requirements are reviewed by technical personnel. Programmatic aspects are reviewed by Project Quality Assurance, which ensures that the document is prepared, reviewed, and approved by project in accordance with approved procedures. Evidence of the review and approval is available on routing documents and the requisition sign-off.

4.3.2 The following list describes the sequence of steps in the preparation of procurement documents and review of bids:

- (1) Procurement documents are originated by the Project Procurement Manager.
- (2) Quality assurance requirements are reviewed by the Project Quality Assurance Group prior to acceptance and release of the documents for procurement action.
- (3) Project engineering forwards the procurement documents to the Project Procurement Manager.
- (4) The Project Procurement Manager prepares a formal bid request package, which is forwarded to the bidders.
- (5) Bids are received by the Project Procurement Manager for project evaluation and selection of the recommended supplier.
- (6) The Project Quality Assurance Group reviews and concurs with the evaluation of the recommended supplier's QA program.

- (7) The Project Manager approves the bid recommendations, obtains other necessary approvals, and forwards them to the Project Procurement Manager for subsequent coordination with the Procurement Department.
- (8) After acceptance of the bid package, the purchase order or subcontract is placed by the Project Procurement Manager.

SECTION 5¹

INSTRUCTIONS, PROCEDURES, AND DRAWINGS

5.1 PROGRAM BASIS

Parsons program for instructions, procedures, and drawings commits to comply with the requirements of ANSI N45.2-1977. Parsons documented procedures and instructions for quality-related activities are identified in Appendix B.

5.2 PARSONS INSTRUCTIONS, PROCEDURES, AND DRAWINGS

Each Parsons group works to internally established and approved instructions and procedures for the design, procurement, and construction of the project. The data contained in these documents include or reference acceptance or rejection criteria for determining that important activities have been satisfactorily accomplished. These documents may be reviewed by the client and subjected to client approval. When needed, special Parsons drawings are established to illustrate a requirement or specific item. These drawings include or reference appropriate acceptance or rejection criteria needed to determine satisfactory accomplishment of an item or service (e.g., dimensional tolerancing).

5.3 SUPPLIER INSTRUCTIONS, PROCEDURES, AND DRAWINGS

5.3.1 Parsons procurement requirements dictate that suppliers have appropriate instructions, procedures, and drawings to ensure satisfactory performance of work for items or services for which they are responsible. Suppliers are also held responsible for furnishing appropriate instruction manuals, storage and handling procedures, and other pertinent documents with their product or service.

5.3.2 Drawings and procedures submitted by suppliers are reviewed by the Parsons project Engineering, Procurement, and QA Group, as appropriate, to ensure inclusion of appropriate qualitative and quantitative acceptance criteria.

¹SAR Section 17.1.5 or equivalent for nuclear facilities other than power plants.

SECTION 6¹

DOCUMENT CONTROL

6.1 PROGRAM BASIS

Parsons document control program commits to comply with the requirements of ANSI N45.2-1977, Section 7. The program identified in Section 2 provides methods for the control of documents. These procedures include controls for the review, approval, and release of documents, as well as changes to them, as they apply to engineering, procurement, construction, and interface activities, including the client suppliers, and other contractors who have a direct relation to the client.

6.2 PARSONS DOCUMENTS

6.2.1 The program requires that Parsons-generated documents pertaining to quality-related items, as identified herein, be controlled. The documents listed in Appendix B (Table B-1) are on controlled distribution to ensure that changes to them are transmitted and received when applicable. Manuals, instructions, procedures, specifications, drawings, procurement documents, inspection plans, design calculations, design criteria, field change requests, Safety Analysis and Environmental Reports, and inspection, test, and manufacturing procedures are identified by control logs, registers, or index lists. Inspection reports, reports of nonconformances and corrective action, supplier deviation reports, documentary evidence of design reviews, memoranda, as-built documents and correspondence are controlled by logs that provide for traceability of closeout action.

6.2.2 The Project Administrator and QA Documentation Control Engineer are responsible for the control of documents for the project and project QA Group, respectively. This responsibility includes receipt, release, control records, and distribution of controlled documents.

6.2.3 Project procedures prescribe the requirements for preparation, approval, acceptance, control, and distribution of design documents. Approved drawings and specifications prepared by project are issued to organizations and individuals responsible for performing the work prior to start of the activity, and also to those responsible

¹SAR Section 17.1.6 or equivalent for nuclear facilities other than power plants.

for surveillance inspection. Control logs² or registers are issued periodically; these identify the drawings, specifications, instructions, procedures, and procurement documents, and give their current status.

6.2.4 When signed receipts for documents are required from an addressee, a transmittal form letter or memorandum and receipt form, indicating this requirement, is employed to forward the documents. Followup is performed to ensure that receipts are returned.

6.2.5 Changes made to approved design documents by the project or proposed by field engineering are reviewed and approved by the cognizant Project Discipline Engineer, subject to the concurrence of the Project Engineer, in accordance with established procedures, which provide that changes be reviewed in the same manner as the original issue. When approved, changes are promptly included in governing documents, or else controlled change notices are provided for interim revision. Changes may not be implemented without appropriate documented approvals. When a specified number of change notices have been issued, or when a designated period of time has elapsed, change notices are incorporated into the governing document.

6.2.6 The project organization employs procedures for the control of distribution of approved drawings, specifications, other design documents, and control records. These procedures include provisions for maintaining historic files of superseded design documents; for appropriate marking or destruction of superseded and obsolete documents; and for indication of the receipt and acceptance status of suppliers' documents.

6.2.7 The site construction organization at the jobsite employs standard prescribed procedures for control of the distribution of approved drawings, specifications, and other documents. These procedures include provisions for field receipt, review, and distribution of approved documents, and for appropriate marking or destruction of obsolete documents.

6.2.8 Controls to ensure that work activities are conducted in accordance with the necessary procedures or other documents take several forms. Procedural controls are invoked when they are:

- o Required by Quality Program policies.
- o Required by procurement specifications.

²The Project QA Manager receives copies of the control logs and transmittal notices listing the documents and their approval status, but may not receive copies of the documents. In any case, these are available at the suppliers' plant for the QC Inspector. The logs and notices are used as backup for project QC source surveillance inspection activities.

- o Required by appropriate division, department, or group manuals and procedures.
- o Required for monitoring of project and construction compliance by project QA.
- o Required for monitoring of supplier compliance by project QA as a portion of its source inspection and audit activities.

6.2.9 Procedures are established to provide for the preparation of as-built drawings and related documentation in a timely manner. Prior to turnover of the facilities, drawings, and related documentation are up-dated to reflect the actual as-built configuration. It is the responsibility of the Project Construction Manager to see that these as-built drawings are completed in a timely manner and accurately represent the final plant design.

6.3 SUPPLIER'S DOCUMENTS

6.3.1 Parsons requires that suppliers establish appropriate document control measures for drawings, specifications, and procedures affecting those safety-related materials, structures, systems, and components for which they have supply responsibility.

6.3.2 The Parsons source inspection program includes procedures governing the initial inspection visit. These procedures are designed to identify necessary documentation and to verify that the controls are in place for preparation and approval of procedures prior to performance of work governed by the procedures. Construction inspection planning includes identification of documents required, and these must be available for use prior to performing inspections governed by the procedures.

6.3.3 The Project controls supplier-submitted engineering documents, such as drawings, specifications, procedures, manuals, and other data, by use of logs which provide the identification and status of supplier documents. Transmittal forms are used to return and show approval status of evaluated supplier documents. The Project Quality Assurance Group maintains a review of the current status of supplier documents, and copies of applicable supplier documents are formally transmitted to the construction site, with provision for receipt acknowledgment.

6.4 SURVEILLANCE

The Parsons Project QA Group performs surveillance and planned audits at the Home Office, site, and supplier's facilities of various discipline groups, project staff, and supplier's organizations to ensure that the document control measures are being implemented in accordance with approved procedures.

SECTION 7¹

CONTROL OF PURCHASED ITEMS AND SERVICES

7.1 PROGRAM BASIS

Parsons program for control of purchased items and services commits to comply with the requirements and conditions established in ANSI N45.2-1977, Section 8, and ANSI N45.2.13-1976.. This program includes control of purchased spare or replacement parts for safety-related structures, systems and components.

7.2 SUPPLIER EVALUATION AND SELECTION

7.2.1 Parsons requires that the capability of suppliers of safety-related items and services be appropriately evaluated prior to selection. The Parsons Project QA Group and the project are responsible for establishing and implementing measures for performing quality assurance and technical capability evaluations of suppliers, respectively. These measures include the use of historical quality performance data and source surveys or audits. The specific method used varies with the type of material, equipment, or service to be supplied.

7.2.2 Applicable QA requirements are invoked on suppliers of safety-related (Q-listed) items and services. These requirements are incorporated into the procurement documents, and include provisions for supplier inspections, tests, and performance of special processes in accordance with applicable codes, standards, and Parsons specification and drawing requirements.

7.2.3 The Procurement Department maintains current files of capable and qualified suppliers. These files identify suppliers who have demonstrated their ability to provide high-quality material, equipment, or services, or who have been established as capable by survey. Suppliers' quality history files contain information on scope of services and capability, identify projects currently employing them, and include results of recent surveys or audits. Periodic reports identifying data contained in quality history files are issued to interested groups within Parsons. Parsons Quality Assurance Department assures that nuclear-related files and the data contained therein are complete and current by means of surveillance activities and regularly scheduled audits.

¹SAR Section 17.1.7 or equivalent for nuclear facilities other than power plants.

7.2.4 The Materials Application Group and the Welding/Manufacturing Group (Chief Welding Engineer) of the Engineering Department review heat-treating, welding, and NDE procedures, as applicable, for work involving compliance with the ASME Boiler and Pressure Vessel Code. Quality Assurance reviews these procedures to ensure that applicable quality requirements are contained. The Materials Application Group also reviews protective coating procedures from manufacturing and construction suppliers. The Parsons organization evaluating supplier quality control documents provides the requesting project and the QA Department with information for summary listings of the approved supplier information that are on file. This information is available to other projects for assistance in identification and evaluation of qualified sources.

7.2.5 Parsons project and project QA procedures include provisions for source surveys that may be used to supplement data in a supplier's quality history file in cases where the scope of services and quality requirements of new work exceed that for which the supplier was previously qualified; in cases where new sources are being considered for selection; or when no work or report has been generated during the previous year.

7.2.6 Technical and quality requirements that must be met prior to award follow:²

- (1) Determination by project that the source is responsive to the technical requirements of the specification.
- (2) Determination by project and project QA that the supplier QA program is capable of meeting the specified requirements.

The QA program evaluation may be achieved by review of controlled program manuals previously submitted and evaluated by responsible Parsons personnel; manuals and procedures submitted to Parsons, or made available for Parsons review in the bidder's facilities, in connection with the specific procurement; or summary descriptions submitted with the proposal.

7.2.7 For bids that are limited to ASME Boiler and Pressure Vessel Code, Section III, Division I requirements, possession of the appropriate "N" stamp, and review of the bidder's Certificate of Authorization, constitute acceptable minimum requirements for source qualification.

²In some instances, it may be necessary to place a contract without fully satisfying these criteria. For these cases, the criteria are met prior to the initiation of the work or activity affected.

7.3 SUPPLIER INSPECTION

7.3.1 For purchased items, the primary responsibility for technical and quality control rests with the supplier. Through review of specified supplier documents, including drawings and procedures, the project provides assurance that the supplier's technical control meets project requirements. Project is also responsible for providing or accepting supplier-proposed resolutions of discrepancies encountered. Inspection of the supplier's work is the responsibility of the supplier's inspection department. Parsons project QA/QC personnel perform surveillance inspection of the supplier's safety-related work. This inspection may include specific measurements and examinations performed by the individual, but generally includes monitoring and witnessing of inspections and tests performed by the supplier's quality control organization. Parsons QA/QC personnel, performing source surveillance, spot-check the dimensions, surface finish, and protective coatings; visually examine welds and other details; and review NDE and test reports.

7.3.2 The project, assisted by the project QA Group, identifies procurement items (both Home Office and field) requiring source surveillance inspection and audit. Project QA/QC may recommend additional items. Manufactured or fabricated safety-related (Q-List) items, such as vessels, heat exchangers, pumps, piping subassemblies, valves, and electrical panels, are included in surveillance inspection and audit programs. Items that are typically excluded from the surveillance inspection program are those that can be adequately inspected upon receipt or verified in post-installation checkout or test. Also excluded are materials for which important physical and chemical properties are independently verified on samples taken at the supplier's facilities or at the site.

7.3.3 Parsons QA/QC personnel (inspectors) conduct source surveillance inspection visits at the supplier's facility or facilities prior to, during, and upon completion of the work on items to be released for shipment. The conduct of the source surveillance is preplanned and documented.

7.3.4 Consistent with the complexity of the inspection assignment, the inspector reviews with the supplier the requirements of the source surveillance plan. During the initial visit, the inspector discusses:

- (1) Quality requirements of the procurement documents.
- (2) Applicable requirements of the governing codes and standards.
- (3) Requirements for project approvals.
- (4) Requirements for Parsons surveillance of lower-tier supplier's facilities.
- (5) Requirements for qualification of welders, NDE personnel, and inspection, examination, and testing personnel.

- (6) Requirements for Parsons inspection, witness, and hold-points, including release for shipment.
- (7) Requirements for complete and accurate supplier quality-verification documentation prior to release for shipment.

7.3.5 In addition, the inspector establishes witness and mandatory holdpoints, in accordance with the guidelines established by project and project QA/QC, that are included in the source surveillance plan. During the course of progressive inspection, the inspector has the prerogative to make other inspections and witness any other examinations and tests necessary to ensure the supplier's compliances with the requirements of the procurement documents. In performing source surveillance inspection, Parsons project QA/QC personnel have the authority to refuse to release nonconforming material or items for shipment.

7.3.6 Documents that include the supplier's Statement of Conformance and the inspector's release for shipment are transmitted with the shipment to the site with copies sent to the Home Office project group. Suppliers certificates of conformance are periodically evaluated by audits, independent inspection, or tests to assure they are valid, and the results of the evaluation documented. The documents summarize procurement document requirements and, as a minimum, present the following:

- (1) Identity of the purchased item; e.g., by purchase order number.
- (2) Identity of specific procurement document requirements met.
- (3) Identity of any approved changes, waivers, or accepted deviations (nonconformances) applicable to the item.
- (4) Identity of any procurement document requirements that have not been met, together with an explanation and the means for resolving any nonconformances.
- (5) Signature of the person in the supplier's organization who is responsible for the quality program.

7.4 RECEIVING INSPECTION

7.4.1 Receiving inspection practices conform with the requirements of ANSI N45.2.2-1972. These are performed by suitably trained personnel, in accordance with documented procedures or documented instructions.

7.4.2 Documentary evidence that the item conforms with procurement documents required to be available at the construction site prior to installation or use includes the following:

- (1) For Parsons-procured³ and inspected items not covered in ASME Boiler and Pressure Vessel Code requirements, a certificate of conformance⁴ (signed by an authorized representative of the supplier) can be used to identify the specific technical requirements met by the item. The certificate can also be used to reference the appropriate Parsons specification and other important governing codes and standards, and to acknowledge that Parsons has reviewed the required documentation and has released the item. The form provides the inspector's releasing statement and signature, indicating that applicable supplier documentation supporting the certification has been reviewed and the items released. Alternatively, receipt of a separate teletype or report from the inspector indicates that inspection is complete and the item has been released. Note: a release number is needed by traffic to track or move material to the site.
- (2) For Parsons-procured and inspected items covered by ASME Boiler and Pressure Vessel Code requirements, the foregoing requirements prevail, with the appropriate Code Data Report forms and other documents required by the Parsons Quality Assurance Manual and ASME code, Section III, Division 1.
- (3) For Parsons-procured and non-inspected items, quality-verification documentation is required to be submitted by the procurement documents, and must be reviewed and verified by field inspection personnel as a part of receiving inspection.
- (4) For major items furnished by the client's other direct contractors or for supplier-furnished items, appropriate certification is required from the contractor in accordance with the contractor's quality program. The control of nonconforming items is described in Section 15, paragraph 15.3.5.

7.5 SUPPLIER AUDITS

7.5.1 The supplier's control program provides for audits of active elements of the supplier's QA program. Audits of suppliers performing continuing work for one or more Parsons projects are normally conducted on an annual basis; audits of suppliers performing limited-duration assignments are normally conducted at least once during the life of the contract.

³Also applies to Parsons client (applicant) procured items for which Parsons is acting as agent for the client.

⁴The Statement of Conformance complies with the requirements of ANSI N45.2.13-1976 for a certificate of conformance.

7.5.2 Construction subcontractors' activities that are based on Parsons contractual scope of work are performed under the administrative control of the Field Subcontracts Administrator, with assistance from Field Engineering. Surveillance inspection is performed by Parsons Field Inspection; subcontractor quality-verification documentation is reviewed and checked by Field Inspection and site QA personnel. Routine construction-site audits of subcontractors are performed by QA personnel.

7.5.3 Design subcontractor and consulting program work is monitored by the project, with assistance and audits provided by project QA.

SECTION 8¹

IDENTIFICATION AND CONTROL OF ITEMS

8.1 PROGRAM BASIS

8.1.1 Parsons program for identification and control of items (e.g. materials, parts, components) commits to comply with the requirements of ANSI N45.2-1977, Section 9, and ASME Boiler and Pressure Vessel Code, Section III, Division I.

8.2 REQUIREMENTS

8.2.1 Identification and control requirements are applied to site construction activities and suppliers. These requirements are established during the preliminary documents, specifications, drawings, and procedures.

8.2.2 Parsons procurement documents require that suppliers of safety-related items provide traceability between those items and their engineering documents and inspection and test records.

8.2.3 Parts, components, subassemblies, equipment, and partially fabricated items are identified by stenciled or etched markings, strip markings, imprinted tape, color coding, and tags or other equivalent approved method. Large quantities of small items are identified as to heat, batch, lot of specification by applying markings to bags, bins, tanks or other suitable containers. Identification of installed or assembled items is transferred to inspection records or as-built documents.

8.3 PROCUREMENT

8.3.1 Parsons quality-related procurement documents require that suppliers establish appropriate measures for the identification and control of safety-related items. These measures require that adequate controls be established to ensure that identification of an item is maintained by heat number, part number, serial number, or other appropriate means throughout manufacturing, fabrication, assembly, and, in some cases, site installation of the respective item. The identification must be traceable to the appropriate documentation

¹SAR Section 17.1.8 or equivalent for nuclear facilities other than power plants.

such as drawings, specifications, purchase orders, manufacturing and inspection documents, deviation reports, and physical and chemical mill test reports. Nonconforming items must also be properly identified by the supplier and, whenever practicable, the item must be segregated to preclude inadvertent use.

8.4 SURVEILLANCE AND RECEIVING INSPECTION

8.4.1 Supplier surveillance inspection and audit activities performed by Parsons QA cover review and verification of proper supplier identification and control methods and records. These activities are an integral part of the determination of the supplier's compliance with procurement requirements.

8.4.2 During the construction phase of the plant, the site QA Group reviews the various construction activities, including subcontractors' work, for identification and control methods at the plant site to ensure that they are conducted in accordance with pre-established project, client, and subcontractor requirements and procedures.

8.4.3 Receiving inspection verifies that materials, parts, or components received at the construction site are properly identified and are accompanied by appropriate documentation. Provisions are made for handling and storing items to retain identification and to prevent intermixing. For items procured by Parsons, the responsibility for accomplishing this activity rests with the Material Control Supervisor. However, depending upon the contractual scope of work, subcontractors may have their own receiving inspection for items they procure; in this case, site QA audits the subcontractor's receiving inspection activities.

SECTION 9¹

CONTROL OF SPECIAL PROCESSSS

9.1 PROGRAM BASIS

9.1.1 Parsons program for control of special processes commits to comply with the requirements of ANSI N45.2-1977, Section 10, and the ASME Boiler and Pressure Vessel Code.

9.1.2 Special processes requiring procedures and/or personnel qualifications beyond those defined and required by the Code are identified in specifications, procedures, and instructions; by reference to appropriate industry codes and standards, where applicable; or by specific description in the technical document.

9.2 QUALIFICATION

9.2.1 Personnel performing or evaluating nondestructive examinations are qualified to the level appropriate to the activity they perform in accordance with the requirements of the Society of Nondestructive Testing SNT-TC-1A and supplements, as applicable. Personnel performing inspection, examinations, and testing during the construction phase of the project are qualified in accordance with the requirements of ANSI N45.2.6-1973 as applicable to the activity they are required to perform.

9.2.2 When Parsons construction forces perform special processes, including welding, heat treating, NDE, protective coating, and cleaning and flushing, the personnel and procedures are qualified in accordance with the requirements of the applicable code or standard. The requirements for welding qualification comply with the applicable portions of the ASME Boiler and Pressure Code or American Welding Society Standards.

Personnel qualifications and procedures for cleaning and flushing conform with the requirements of ANSI N45.2.1-1973. Procedures and/or instructions for the performance of special processes are placed at the work location prior to commencement of the work.

¹SAR Section 17.1.9 or equivalent for nuclear facilities other than power plants.

9.2.3 Procedure, equipment, and personnel qualification records are maintained by the project, project QA, or site construction organization that has the technical and administrative control responsibility for the special process activity being performed. Active files are maintained in the Home Office, and copies of qualification records covering special processes and procedures are provided to each affected project. Projects are required to maintain up-to-date lists of personnel qualifications and/or applicable equipment qualifications for special processes. Controls are provided to ensure that personnel qualifications records are regularly reviewed and that appropriate requirements for requalification are implemented. The Chief Welding Engineer of the Welding/Manufacturing Group (refer to Figure 6) is responsible for the qualification of welding procedures for work performed by Parsons in the field and for work performed in suppliers' shops that is subject to review or approval by Parsons.

9.3 PROCUREMENT

9.3.1 Parsons project-prepared specifications either identify the appropriate industry codes and standards by reference or establish the technical requirements for special processes. The Materials Application Group and/or the Welding Manufacturing Group provide technical assistance to the project, as requested, either to establish requirements for suppliers or to review supplier-submitted procedures. The specifications that are part of the procurement documents impose the requirements on suppliers.

9.3.2 Suppliers are required by the Parsons procurement documents to submit the special process procedure qualification data for review by Parsons. With the exception of suppliers of NDE services, the qualification records of the personnel are the suppliers' responsibility. NDE personnel qualification records for individuals performing the tests and examinations of Parsons performed work are submitted to, and accepted by, Parsons prior to the assignment of the individual to perform the activity.

9.4 SURVEILLANCE

9.4.1 Parsons QA/QC surveillance inspection and audits of suppliers extend to the review and verification of supplier controls for special processes and witnessing of important special-process operations performed by the supplier. The project QA Group and qualified Project Discipline Engineers review the supplier documents to ensure conformance with applicable requirements. The quality of work performed and the personnel qualification record are also checked by the Parsons QA/QC representative prior to release of the item for shipment.

9.4.2 The site QA Group performs surveillance over the site construction activities; over other contractor(s), as applicable to the contractual scope of work; and over independent NDE and testing laboratories to ensure that controls for performance of special processes have been established and are in effect, and that appropriate qualification records are available and current.

SECTION 10¹

INSPECTION

10.1 PROGRAM BASIS

Parsons program for inspection commits to comply with the requirements established in ANSI N45.2-1977, Section 11, and ANSI N45.2.6-1973.

10.2 PROCUREMENT

10.2.1 As described in Section 7, the quality programs, activities, and items procured from qualified and approved suppliers are subject to surveillance inspection by Parsons project QA/QC personnel. This source surveillance inspection is performed on items or material which, by their nature, cannot be inspected or tested at receiving inspection or post-installation. Such source-inspected items are inspected upon receipt for damage, complete paperwork, and completeness of the shipment. Items that are not source inspected shall be inspected by appropriate field inspection personnel, at the site, under the direction of the site QA Supervisor. These are full inspections covered by documented procedures or instructions as set forth in Section 7.4.1. Audits of site inspection activities will be performed by the MQA or Project Home Office QA in accordance with Section 18 of this report.

10.2.2 In addition, work related to ASME Boiler and Pressure Vessel Code, Section III, Division I, is subject to independent inspection by Authorized Nuclear Inspectors in accordance with Code rules.

10.3 SITE INSPECTION

10.3.1 Sections 1 and 2 identify the responsibility for inspection of Parsons force-account construction work. Field inspectors, who are independent of craft supervision and field engineering, perform the quality-verification inspection and testing. The field inspectors receive their technical and administrative direction from the Field Quality Control Engineer.

10.3.2 NDE services for Parsons force-account construction work are performed by a qualified NDE service company that has been prequalified and evaluated by the Home Office QA Department before being assigned to the

¹SAR Section 17.1.10 or equivalent for nuclear facilities other than power plants.

field. This evaluation is performed in accordance with the requirements of SNT-TC-1A, Appendix B to 10 CFR Part 50, ANSI N45.2-1977, and the ASME Boiler and Pressure Vessel Code, Section III, Division 1, as applicable. An individual within Parsons who is SNT-TC-1A certified Level III is included on the evaluation team. In the field, the NDE service company is the responsibility of the NDE Engineer (minimum of SNT-TC-1A level II), who has been trained and certified in accordance with approved company procedures, including certification by a certified Level III examiner (see Figure 8). Subcontractors in the field are also required to maintain NDE work in accordance with SNT-TC-1A. Conformance with this requirement is accomplished through the monitoring activity of the NDE Engineer and site QA audits. For procured items from suppliers, either the project QA Group at the Home Office or the Site QA staff (NDE Engineer) for field procurement is responsible for reviewing suppliers' records and for conducting surveillance inspection to ensure that suppliers are meeting the NDE requirements.

10.3.3 Inspection and testing activities are performed in accordance with procedures that may be supplemented by specific or standard instructions, work operations, or planning documents including inspection plans delineating inspection hold points. The inspection activities that are planned in advance of their performance include receiving inspection, construction inspection and testing, and installation inspection and testing. The field inspection activities have documentation reflecting the applicable inspections or tests performed on safety-related systems, structures, and components.

10.3.4 Inspection and test procedures, instructions, and records provide the following information:

- o Reference to applicable documents, such as drawings, specifications, and procedures.
- o Identification of prerequisites and special-process control requirements, such as personnel, procedure or equipment qualification; suitable and controlled environmental conditions; and calibrated instrumentation.
- o Identification of characteristics to be inspected.
- o Individuals or groups responsible for performing the inspection.
- o Acceptance and rejection criteria (explicit or by reference) obtained from specifications, drawings, supplier instructions, and construction standards.
- o A description of the method of inspection and equipment to be used or reference to an appropriate procedure.
- o Identification of frequency of inspection or sampling plan.

- o Record of the date and results of the inspection, including any special documentation and sign-off by the inspector.
- o Verification that inspection operations are complete and acceptable.10.3.5
Provisions for establishing mandatory inspection hold points for witness by an Authorized Nuclear Inspector are described in Section 7, paragraph 7.3.5.

10.3.5 Provisions for establishing mandatory inspection hold points for witness by an Authorized Nuclear Inspector are described in Section 7, paragraph 7.3.5.

10.3.6 Inspections of modifications, repairs, and replacements are performed in accordance with either the original inspection procedure, instruction, plan, special procedures or plans appropriate to the work activity.

10.4 PERSONNEL QUALIFICATION

The personnel qualification procedures include provisions to ensure that records of inspectors' qualifications are maintained and periodically reviewed to ensure that they are kept current. ANSI N45.2.6-1978 provides the basis used by Parsons to evaluate and certify inspection personnel unless other requirements are delineated by codes or standards for a specific item being inspected.

10.5 SITE QA SURVEILLANCE

The site QA Group performs QA surveillance over the site to ensure that appropriate inspection procedures have been established and that inspections are accomplished by Parsons force-account or subcontractors QC and inspection personnel as applicable to the contractual scope of work. This surveillance activity is performed in accordance with detailed procedures contained in Parsons Projects QA Manual and in accordance with appropriate site surveillance checklists. (See Section 2.)

10.6 RESPONSIBILITIES

Individuals performing inspection, surveillance, and testing, both in-process and final, shall be independent of any direct work supervision responsibilities. If the individuals performing inspections are not a part of the QA Organization, the inspection procedures, personnel qualification criteria, and independence from undue pressure, such as cost and schedule, are subject to review and approval by the QA Organization prior to initiation of the activity.

SECTION 11¹

TEST CONTROL

11.1 PROGRAM BASIS

Parsons program for test control commits to comply with the requirements of ANSI N45.2.1977, Section 12. Tests required to qualify, demonstrate, or ensure the quality and characteristics of items or site conditions, or the erection and construction of safety-related items, are defined by the project in design output documents, such as drawings, procedures, specifications, or test procedures. (Refer also to Section 10, paragraph 10.3.4). Modifications, repairs and replacements are treated as nonconforming items and are controlled by the measures described in Sections 15 and 16.

11.2 PROCUREMENT

11.2.1 Parsons requires that suppliers of safety-related items establish appropriate measures to demonstrate that the items being supplied perform satisfactorily in service. The requirement for tests to be performed by the supplier is delineated in procurement documents. The procurement documents establish the acceptance criteria for tests, and require the supplier to perform such tests in accordance with approved procedures.

11.2.2 Suppliers are required by the procurement documents to establish necessary hold points and to permit Parsons to define mandatory hold points and witness points. This allows the project QA Group/or project personnel to witness the conduct of important tests as part of source surveillance, and to examine other test control activities as a part of the surveillance control portion of the Quality Program (Section 7).

11.3 CONSTRUCTION

Construction testing is performed to demonstrate that the installation of equipment and systems is complete, and that these are available for preoperational testing. The testing performed is examined as an extension of field inspection activities, and is performed in accordance with test plans and procedures. Tests reports and records are used to demonstrate and document that the completed tests meet the test objectives.

¹SAR Section 17.1.11 or equivalent for nuclear facilities other than power plants.

11.4 SITE QA SURVEILLANCE

During the construction phase of the facility, the site QA Group performs surveillance activities related to test programs in order to ensure that they are conducted in accordance with test plans or procedures, that they conform with requirements, that acceptance criteria have been met, and that the appropriate test reports and records have been completed and filed, and are traceable to the item tested.

The QA Group shall be assisted by discipline engineers to evaluate test result technical data requiring an engineering evaluation.

11.5 PREOPERATIONAL AND STARTUP TESTS

11.5.1 System cleaning, flushing, instrument and control setting, and performance demonstration are part of the preoperational and startup test program. Preoperational and startup testing is usually under the control of the client or plant operator. Parsons project and QA personnel may provide assistance to the client in the preparation of startup procedures and supervision of startup tests. Parsons project and QA personnel are independent of the construction and the Owners' operation organization, and are qualified to collect, analyze, and evaluate test results in accordance with the criteria of ANSI N45.2-1977.

11.5.2 The site QA Group may assist the client in QA surveillance of acceptance testing to ensure that test requirements, as specified in the appropriate engineering documents and other criteria, are properly documented and performed. This surveillance extends to startup and test operations, as required and requested by the client.

SECTION 12¹

CONTROL OF MEASURING AND TESTING EQUIPMENT

12.1 PROGRAM BASIS

12.1.1 Parsons program for control of measuring and testing equipment commits to comply with the requirements of ANSI N45.2-1977, Section 13.

12.1.2 Calibration standards are traceable to nationally recognized standards; otherwise, the basis for calibration is established and documented. Calibration standards used are in accordance with the accuracy tolerance recommended by the manufacturer of the equipment being calibrated. Calibrating standards are required to have an uncertainty (error) of no more than one quarter (1/4) of the tolerance of the equipment being calibrated, unless such an uncertainty (error) limit is beyond the "state-of-the-art." When calibration standards do not have an accuracy of at least four (4) times greater than the item being calibrated, the basis of the acceptance is documented by the Chief Field Engineer. The calibrated instruments are required to have an accuracy better than that required for the item being tested.

12.2 PROCUREMENT

12.2.1 Parsons procurement documents specify that, as part of a supplier's quality program, control of measuring and test equipment be defined by the requirements established in 10 CFR Part 50, Appendix B, Criterion XII, or ANSI N45.2-1977, Section 13.. Purchase orders and subcontracts require the supplier to apply practices similar to those described for this program.

12.2.2 The supplier is responsible for ensuring that measuring and test equipment is adequate and appropriate, and is calibrated and adjusted at specific intervals to maintain accuracy within the limits defined in Section 12, paragraph 12.1.2.

12.3 CONSTRUCTION

12.3.1 The Parsons Quality Program provides for calibration, maintenance, and control of measuring and test equipment used by Parsons during construction. Procedures provide for identification of each instrument or equipment item that requires calibration or check, establishment of calibration schedules based on the elapsed time or usage cycles, traceability

¹SAR Section 17.1.12 or equivalent for nuclear facilities other than power plants.

of equipment back to calibration test data, and provisions for identification of calibration status by tags, labels, or markings applied to the item. Records are maintained to show the status of items that require calibration. Examples of the types of equipment to be controlled are as follows.

- a. Gauges (pressure and vacuum)
- b. Levels/transits
- c. Micrometer, steel types, height gauges, hardness testers
- d. Portable contact pyrometers, temperature recording instruments
- e. Potentiometers, ammeters and voltmeters
- f. Torque wrenches
- g. Rod oven temperature controls
- h. Dead weight testers

12.3.2 Inspection procedures require the individual performing the inspection to check calibration labels or tags, as well as the apparent proper functioning of the instrument prior to use, to ensure that the calibration period has not lapsed and that the equipment is in proper working order and within the appropriate range.

12.3.3 The identification of measuring and test equipment used in performing tests is entered in the test records.

12.3.4 When inspection, measuring, and test equipment is found to be out of calibration, the organization performing the activity is required to perform an evaluation; to document the validity of previous inspection or test results; and to document the acceptability of items previously inspected or tested. The basis for this evaluation is provided in the accuracy statement in Section 12, paragraph 12.3.3.

12.4 SURVEILLANCE

The Parsons project QA and site QA Groups perform both source and site surveillance to ensure that suppliers and construction organizations are controlling measuring and test equipment, and that the tests related to them are in conformance with established and documented requirements. The established and documented requirements are reviewed and accepted by project QA as part of its supplier-evaluation activities (Section 7) for procured items, and as part of its construction-verification activities where Parsons performs construction work.

SECTION 13¹

HANDLING, STORAGE, AND SHIPPING

13.1 PROGRAM BASIS

13.1.1 Parsons program for handling, storage, and shipping commits to comply with the requirements for ANSI N45.2-1977, Section 14, and ANSI N45.2.2-1972. The requirements of ANSI N45.2.2-1972 for packaging, marking, and shipping are specified in procurement documents by reference or by provisions of specific technical requirements that conform with the standard.

13.1.2 The Parsons program requires that procedures used for equipment and system cleaning and flushing, and cleanliness control, conform with the appropriate specific requirements of ANSI N45.2.1-1973.

13.2 PROCUREMENT

13.2.1 Parsons procurement documents specify that suppliers of safety-related items are to establish, prior to shipment, appropriate measures for handling, storage, shipping, cleaning, and preservation of material and equipment in accordance with ANSI N45.2.1-1973, as applicable to the item or scope of work they are providing. The packaging, handling, and shipping practices of the suppliers are subject to review by Parsons QC source inspectors at the source for compliance with requirements defined in procurement documents.

13.2.2 In addition, the procurement documents normally require that the supplier submit appropriate instructions for proper handling and storage of the item once it arrives at the site. These instructions usually include provisions for proper handling of equipment during installation, and specify protective environments for storage of items; e.g. inert gas atmospheres, specific moisture-content levels, and temperature levels.

13.3 CONSTRUCTION

13.3.1 At the construction site, materials and equipment are received, inspected, stored, and maintained in accordance with standard field procedures supplemented by special procedures and requirements issued by the project or furnished by suppliers. Materials and equipment are physically inspected upon arrival at the jobsite, and are moved into prescribed storage areas or to the

¹SAR Section 17.1.13 or equivalent for nuclear facilities other than power plants.

installation site if adequate protection is available. Immediate movement to the installation site is permitted if it would eliminate multiple handling and is compatible with the construction schedule. Special environmental conditions, e.g., inert gas, specific moisture-content levels, and temperature levels, prescribed in procedures or specifications, are controlled at the site.

13.3.2 Procedures are provided, as appropriate, for handling special items and for the care and maintenance of material-handling equipment. Otherwise, standard material-handling methods are used to ensure care and protection against physical damage. Special handling instructions and procedures for major or special items are included in procedures reviewed by the project or other Parsons specialists. Personnel responsible for handling these major or special items are qualified to the extent required by these special handling instructions and procedures. Preparation for and performance of rigging operations involving major equipment, such as reactor vessels, furnaces, steam generators, and pressurizers, are witnessed by Parsons' inspectors supplemented by Parsons specialists, when required.

13.4 SURVEILLANCE AND REVIEW

13.4.1 When specifications require special procedures for handling, storage, shipping, or preservation, such procedures are approved by the Parsons site QA Group unless they have been previously approved by the home office project QA Group.

13.4.2 The project and site QA Group also perform QA surveillance and audits over the various suppliers' material control in storage areas to ensure that appropriate handling and storage procedures and instructions are being implemented.

SECTION 14¹

INSPECTION, TEST, AND OPERATING STATUS

14.1 PROGRAM BASIS

Parsons program for inspection, test, and operating status commits to comply with the requirements of ANSI N45.2-1977, Section 15.

14.2 PROCUREMENT

Suppliers of safety-related items and applicable services; e.g., geotechnical and NDE services, are required to establish measures that conform with the requirements of 10 CFR Part 50, Appendix B, Criterion 14 or ANSI N45.2-1977, Section 15. These measures are similar to those described for construction activities.

14.3 CONSTRUCTION

14.3.1 Construction and inspection procedures or instructions provide for inspection and test status indicators by the use of inspection reports, work schedules, inspection records, physical locations, tags, markings, or other methods compatible with the item, system, work, work activity, or operation being tested or inspected. Progress is shown on records that include inspection requirements and permit identification of a change in status to reflect conditions. Upon completion of construction and construction tests of equipment, components, and systems, a tagging or status-indicator system is employed to visually indicate operating status. Records of test results are produced and maintained.

14.3.2 To ensure quality, work activities are performed according to planned sequences and in accordance with this report. Inspection hold points may be deferred or waived, without generation of a reported nonconformance, only when provided for in the governing procedure. Mandatory inspection hold points are established by project QA or outside organizations, and cannot be waived or deferred without their written authorization. Inspection hold points may be deferred only when the characteristic can be inspected at a later time in the sequence, and another hold point is planned. The inspection records or checklists are incomplete until the deferred inspection is performed. The item is tagged hold when it is necessary to prevent its advertent installation or use, which would preclude the performance of the inspection or test that had been deferred.

¹SAR Section 17.1.14 or equivalent for nuclear facilities other than power plants.

14.3.3 The individual or groups responsible for the application or removal of status indicators are designated in procedures and instructions.

14.3.4 Site QA Group personnel are the only individuals authorized to direct the application and removal of inspection status indicators and hold tags.

14.4 SURVEILLANCE

14.4.1 During the procurement and construction phases of the project, the site QA Group performs surveillance inspection and audit activities to ensure that appropriate procedures for the control of inspection, test, and operating status are established by suppliers, and for construction activities, and are properly and effectively implemented.

14.4.2 At the discretion of the project, project QA Group, field inspectors, or site QA personnel, suppliers are required to provide the procedure(s) for the implementation and control of inspection, test, and operating status, and for review and evaluation to permit adequate and appropriate surveillance to be performed.

SECTION 15¹

CONTROL OF NONCONFORMING ITEMS

15.1 PROGRAM BASIS

Parsons program for nonconforming items commits to comply with the requirements of ANSI N45.2-1977, Section 16.

15.2 PROCUREMENT

15.2.1 Parsons procurement documents require suppliers of safety-related items to establish measures for the identification and control of nonconforming work, work activities, materials, parts, components and as applicable to services (including computer codes) in accordance with the requirements of 10 CFR Part 50, Appendix B, Criterion 15 or ANSI N45.2-1977, Section 16.

15.2.2 Parsons allows scrap dispositions to be made by the supplier; however, "use as is" or "repair" dispositions that affect procurement requirements shall have the review and approval of the Parsons project and project QA Group. Rework dispositions that return items that do not conform to the specified requirement are allowed without Parsons review and approval, except that a record of the rework is included with the verification documents.²

15.2.3 As part of the source surveillance activities, the Parsons project QA Group reviews nonconforming material reports against each item prior to release of the item for shipment. This review is performed to verify that nonconforming items have been disposed of in accordance with approved procedures and by the required organizations.

15.3 CONSTRUCTION

15.3.1 Material, items and/or associated documentation that are found to be in nonconformance with the applicable drawings, specifications, specification procedures, or documents are identified and, whenever practicable, withheld

¹ SAR Section 17.1.15 or equivalent for nuclear facilities other than power plants.

² For ASME Section III, Division I items the definitions of "repair", "rework" and "use-as-is" delineated in Section III, Subsection NCA, Article NCA 4000 of the ASME Boiler and Pressure Vessel Code shall apply.

from the production system to prevent their installation or inadvertent use. Nonconforming work, work activities, or items are reviewed by the responsible personnel, and disposed of accordingly.

15.3.2 Materials, items, work, or work activities that are defective or do not conform with applicable code requirements, drawings, specifications, specification procedures, or procurement documents are in nonconformance until rework is completed and accepted. If the decision is to repair or use-as-is, the work or item remains in nonconformance with requirements, but is acceptable for use in the completed system.

15.3.3 The Nonconformance Report procedure provides for identification, documentation, and control of nonconforming items; identifies the responsibilities for preparation, review, and approval of the proposed resolution; and provides documentation of reinspection results.³ The procedure includes requirements related to:

- o Tagging and segregation, whenever practicable.
- o Interim disposition by Field Engineering.
- o Approving repair or accept-as-is dispositions by the project prior to correcting significant or unique nonconformances.
- o Advising project after implementation of the use of standard preapproved repair procedures.
- o Approving the conditional release of nonconforming items by the site QA Group.
- o Reviewing the completed nonconformance reports by the project or site QA Group to establish the need for, or to evaluate, the proposed corrective action. Repetitive nonconformance reports result in reports that are routed to management for review and resolution.

15.3.4 The authority for disposition of nonconforming items follows the rules for approval of design changes described in Section 3. Field Engineering personnel are authorized to provide for dispositions involving reject, rework (if Parsons performed the original fabrication or construction work), or repair (for those cases where standard, preapproved repair procedures have been provided or approved by the project). Other repair and use-as-is dispositions require project approval prior to their implementation. The site QA Group or project QA Group must concur with all dispositions, and is responsible for review and verification of the

³Section 4.6 of the Parsons QA Program Manual, ASME Section III, Division I, provides for the participation of the Authorized Nuclear Inspector for disposition of nonconforming Code items.

disposition. Reinspection of rework and repair dispositions, applying inspection methods at least equivalent to those applied to the original work, is the responsibility of the cognizant field inspector. As part of project approval, use-as-is and repair dispositions are referred to the responsible design group for approval.

15.3.5 Nonconforming items are required to be identified, tagged, and/or segregated. For construction work performed by Parsons, no further work can proceed on a nonconforming item until an approved disposition is implemented unless a conditional release, prepared by Field Engineering, is approved by the site QA Group. Suppliers are required to apply similar procedures in their QA programs.

15.4 SURVEILLANCE

15.4.1 The site QA Group performs QA surveillance over site quality-related activities, including work performed by suppliers and contractors. Nonconformances found are reported by means of a nonconformance report or audit report in accordance with documented and approved procedures.

15.4.2 The Project QA Manager is required to analyze nonconformances found during his and the Site QA group audits and surveillance of site activities, to show quality trends. The Manager of QA is responsible for determining whether these quality trends require management attention and for submitting reports to the Senior Vice President and Manager, Systems Division and the President for their review and assessment. Reports submitted to management identify significant conditions adverse to quality, their cause, and the recommended corrective action.

15.4.3 The personnel performing project QC source surveillance inspection at a supplier's facility use the Supplier Surveillance Inspection procedure to report nonconformances. At a supplier's facility, repair or use-as-is dispositions on nonconformances with procurement requirements must be documented and approved by the project.

15.4.4 Nonconformances found during QA audits or surveillance at a supplier's facility are reported as findings (Section 18). Nonconformance reports are discussed in Section 17, paragraph 17.2.7.

15.4.5 Nonconformances related to items provided by a supplier are resolved or are given a documented disposition that has been approved by project prior to release of the items for shipment. Nonconformances related to supplier items or construction activities are resolved and have the approved project disposition prior to final acceptance.

15.5 PROGRAM DEVIATIONS

Parsons procedures for implementing the reporting requirements of Section 206 of the Energy Reorganization Act of 1974 have been prepared in compliance with 10 CFR Part 21, and relate to reporting deviations from the commitments established in the SAR, LA, Environmental Report, or responses to NRC questions.

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SECTION 16¹

CORRECTIVE ACTION

16.1 PROGRAM BASIS

16.1.1 Parsons program for corrective action commits to comply with the requirements of ANSI N45.2-1977, Section 17. The corrective action program, as applied to the design phase, commits to comply with the requirements of ANSI N45.2.11-1974.

16.1.2 The Parsons QA program incorporates measures to detect and correct conditions adverse to quality. Records of corrective action taken by Parsons, suppliers, or personnel and organizations performing quality work on safety-related items at the site are available for review by the client.

16.1.3 Corrective action measures include reporting of failures, malfunctions, deficiencies, deviations, and defective material uncovered by normal QA activities as related to Parsons Home Office engineering activities, suppliers, and site activities. Such reporting is the basis for determining areas that require management attention and areas that may need changes in program procedures or practices.

16.2 DESIGN

16.2.1 Corrective action involving design documents, investigation of cause, and actions taken to correct the error or deficiency and preclude recurrence is applied to significant and/or recurring deficiencies detected after the design-verification process is complete.

16.2.2 The Parsons program provides for procedures requiring that errors or deficiencies detected after the verification process be documented and reviewed for corrective action. These deficiencies are documented by reports; e.g., Supplier Disposition Request, Inspection and Nonconformance Reports, Engineering Change Reports, preoperational and startup reports, or feedback from clients during the operation of the facility. Project Quality Assurance reviews and documents concurrence with the above described procedures and also documents its concurrence with the adequacy of the corrective action.

¹Section 17.1.16 or equivalent for nuclear facilities other than power plants.

16.3 PROCUREMENT

16.3.1 Parsons procurement documents require that suppliers of safety-related items and services establish measures within their own quality programs to detect and correct deficiencies, errors, defects, and nonconformances in quality-related design, manufacturing, installation, construction, and testing.

16.3.2 The Parsons program requires that defects or deficiencies noted during review of supplier-furnished engineering documentation or item-verification records be documented, and that the supplier perform corrective action to preclude recurrence.

16.4 CONSTRUCTION

Corrective action related to construction activities within the Parsons program is accomplished through evaluation of identified situations in documented reports or corrective-action requests related to the activity. These include nonconformance reports, change requests, and deviation requests; reports and other documents prepared by the site QA Group as part of its quality assurance review, monitoring, surveillance, and audit program; and project and management quality assurance audits.

16.5 SURVEILLANCE

16.5.1 The program requires that the project QA Group - as a portion of its monitoring, surveillance, or audit activities - ensure conformance with design by corrective action requirements and procedures.

16.5.2 During the procurement and construction phases of the project, the project site QA Group, as appropriate to the activity, obtains detailed procedures covering safety-related activities from the supplier, and evaluates the supplier's conformance with these procedures during surveillance and audit activities.

16.5.3 The Parsons QA/QC representative(s) assigned to perform surveillance inspection and audits of the supplier's facility identifies areas requiring corrective action by means of reports. These reports are reviewed by the Parsons MQA and the project. Where necessary, corrective action is taken through the Parsons Procurement Department.

16.5.4 As required or established by the QA scope of work, the site QA Group follows up on corrective action programs.

16.6 REPORTING REQUIREMENTS

16.6.1 The Parsons program provides for the evaluation of conditions and corrective actions that are documented. A determination is then made that may require reporting to NRC by Parsons or its clients in accordance with the requirements of 10 CFR Part 21, 10 CFR Part 50.55(e) or Section 206 of the Energy Reorganization Act of 1974.

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16.6.2 In addition, the program provides the project and site QA Groups with a corrective action procedure and a report as a means of controlling, documenting, and reporting to Parsons management conditions that may require corrective action.

16.6.3 Final verification that corrective action has been implemented, and for ensuring that Parsons management is informed, is the responsibility of the QA Department.

SECTION 17¹

QUALITY ASSURANCE RECORDS

17.1 PROGRAM BASIS

Parsons program for Quality Assurance records commits to comply with the requirements of ANSI N45.2-1977, Section 18. For the collection of completed records of the design, procurement, and construction phases, Parsons commits to comply with the criteria for storage and retention recommended in ANSI N45.2.9-1974 and Appendices.

17.2 REQUIREMENTS

17.2.1 The Parsons project QA Group and the project are responsible for establishing detailed procedures for control and retention of QA records related to their activities and responsibilities during the engineering and design, procurement, and construction phases of the facility.

17.2.2 These QA records are identifiable and retrievable. They include documents such as drawings, specifications, procurement documents, material analyses, qualification of personnel, procedures and equipment as well as records of design control measures taken, specification and drawing reviews, and reports on procurement document control and supplier surveillance, acceptance of procured items, receiving inspection, storage, cleaning and cleanliness control, control of nonconforming conditions and corrective action, and reports of site surveillance and audit activities. Inspection and test records contain the following where applicable.

- a. Description of the type of observation.
- b. Date and results of inspection or test.
- c. Information related to conditions adverse to Quality.
- d. Inspector identification.
- e. Evidence as to acceptability of the results.
- f. Action taken to resolve any discrepancies noted.

17.2.3 Project design and engineering records are retained by the project as work is performed. It is normal practice to microfilm documents at regular intervals unless duplicate copies are available at an alternate location.

¹SAR Section 17.1.17 or equivalent for nuclear facilities other than power plants.

17.2.4 During the design, Parsons, in conjunction with the client, determines the types of records to be turned over to the client for retention during the operating life of the facility and the records to be retained by Parsons or other designated organizations. Copies of records may be retained by Parsons as nonpermanent records at the discretion of the project. The basis for permanent records to be retained by Parsons are client direction and Code requirements. Records are stored in accordance with the requirements of ANSI N45.2.9-1974 and Appendices. Records are reviewed to determine their completeness when they are turned over to the client.

17.2.5 Documentation of the design review process is prepared and maintained in accordance with Section 3. Design changes may be issued on an interim basis by means of change notices. However, these are ultimately incorporated into revisions to the governing documents unless the change is a limited waiver (e.g., use-as-is on a nonconformance report) that does not generally apply to the design document. Copies of release drawings, specifications, technical reports, and similar documents are placed in project files and construction files, and are also submitted to the client. Upon completion of design, final copies of these records are provided to the client. Parsons retains control of design calculations and analyses. These are available for review by the client and appropriate regulatory bodies, if required. Copies of final design calculations may be provided to the client, depending on contractual commitments.

17.2.6 Supplier records that identify as-built status verify the quality of their work are requested from the supplier, and placed in site quality record files. In some instances, with the agreement of Parsons and the client, suppliers are permitted to retain custody of certain records if retention procedures and storage facilities are adequate and access is provided to Parsons and its client. Based on site filing facilities, duplicates of these supplier records may be filed at the project office.

17.2.7 Completed quality-verification records, including nonconformance reports for repair and use-as-is dispositions, are included in the record files. The client and appropriate regulatory groups are provided access to these files while the files remain in Parsons custody. Upon completion of Parsons contractual activities, these files are turned over to the client.

17.2.8 The requirements and guidelines in ANSI N45.2.9-1974, for receipt, control, and retention of quality assurance records are employed for the control of construction site quality record files. The recommended retention periods of ANSI N45.2.9 or the requirements of ASME Boiler and Pressure Vessel Code, Section III, Division I, as applicable, are followed for Parsons and supplier-generated records. Supplier and nonpermanent records are generally retained by the supplier as agreed to between the supplier and the purchaser.

17.2.9 QA records are available for client and regulatory agency review, as required, to verify that appropriate QA activities have been properly performed in accordance with program requirements.

17.2.10 The fire protection guidelines in Branch Technical Position (BTP) ASB-9.5.1, attached to Standard Review Plan Section 9.5.1, identify the QA controls which are employed in the QA Program for fire protection of the quality record files.

SECTION 18¹

AUDITS

18.1 PROGRAM BASIS

18.1.1 Parsons program for audits commits to comply with the requirements of ANSI N45.2-1977, Section 19. The program complies with these requirements and with ANSI N45.2.12-1977.

18.1.2 The Parsons personnel qualifications for auditors comply with the above basis and with ANSI N45.2.23-1978, and are supplemented by Parsons procedure for training and certifying audit personnel.

18.1.3 The Parsons quality assurance audit program provides comprehensive assurance of conformance with program and procedure requirements, licensing commitments, and client requirements related to the various safety-related activities performed by Parsons or under Parsons contractual control.

18.2 RESPONSIBILITIES AND REQUIREMENTS

18.2.1 The Manager of QA is responsible for verifying project and QA conformance with Quality Program requirements. This is accomplished by audits and review of audit reports prepared by the project or site QA Groups.

18.2.2 The Parsons project QA Group is responsible for performing audits of Parsons safety-related design, procurement, and construction activities, and those of suppliers and site construction contractors, to verify their compliance with Quality Program requirements.

18.2.3 Scheduling of audits to be performed at the Home Office and supplier's facilities is established by the Project QA Manager. Site audits are established by the Parsons Site QA Supervisor. Audits are scheduled based on the status, complexity and importance to safety of the activity being performed. These schedules identify the target date for each audit, the area activities, and the organization to be audited.

18.2.4 Audits and other surveillance activities are performed using checklists prepared prior to initiation of the audit. The checklists are prepared based on the Parsons Quality Program documents and procedures for internal audits, and on the suppliers's quality program documents and procedures, as accepted by project and by project QA or by QA personnel in the

¹SAR Section 17.1.17 or equivalent for nuclear facilities other than power plants.

QA Department. Audits shall be conducted early enough to assure the effectiveness of the QA Program during design, procurement, manufacturing, construction, installation, inspection and testing activities.

18.2.5 Audit findings, completed audit checklists, and audit action schedules are compiled and transmitted as a report to the internal or external organization audited.

18.3 HOME OFFICE AUDITS

18.3.1 During the preliminary design, detailed design, and procurement phases of the project, the project QA Group conducts internal audits, on a periodic basis, of the Home Office activities accomplished on the project. These audits include project management activities, discipline activities, and overall design control, computer program verification, document control, configuration control activities, indoctrination and training programs, and the preparation, review, approval, and control of early procurements. In addition, unannounced audits are also made on a random basis as a part of the normal reviews and monitoring function performed by the project QA Group.

18.3.2 The Parsons project QA Group normally performs these formal audits to:

- o Provide an objective evaluation of compliance with established requirements, methods, and procedures.
- o Assess progress in assigned tasks related to the project QA program.
- o Determine the adequacy of the project QA program performance.
- o Verify implementation of recommended corrective action.
- o Verify compliance with Quality Program requirements for filing and control of suspended or obsolete documents.

18.3.3 Audit results are documented and reviewed by the supervisor of the area audited, the Project Manager, the Division Manager, the Project QA Manager, and the Manager of QA. In cases where audit results indicate a condition(s) requiring correction, the Project Manager is responsible for defining the corrective action to be taken, and the Project QA manager is responsible for evaluating the corrective action and determining its acceptability. The Project QA Manager is responsible for determining the effect on the program of audit results and corrective action. The Project Manager is responsible for implementation of the corrective action, and formally notifies the Project QA Manager of its implementation.

18.3.4 Deficient areas noted during such audits are audited again to ensure that the corrective action has been taken and is effective. Depending upon the nature and seriousness of the deficiencies, the areas involved may be subjected to a more detailed review at the next scheduled audit.

18.4 SUPPLIER AUDITS

18.4.1 During the procurement phases of the project, suppliers who furnish safety-related structures, systems, components and services for the plant are required to perform periodic quality audits to ensure that their own quality programs are being implemented and are effective. The Parsons project QA Group also performs independent audits of these suppliers as a part of its procurement surveillance activities (Sections 3 through 17).

18.4.2 Audits of Parsons suppliers, including subcontractors and, as applicable to the QA contractual scope of work, other client contractors, are conducted by project QA with assistance, as required, from other appropriate elements of the company; i.e., Project, Materials Application, Engineering Section, and Welding/Manufacturing Group (Chief Welding Engineer). These audits are normally conducted annually for suppliers performing continuing work on Parsons safety-related purchase orders and subcontracts. Parsons suppliers with multiple safety-related purchase orders are normally audited once annually for the purchase orders processed during the 1-year period. For Parsons suppliers with purchase orders or subcontracts that have a duration of 1 year or less, one audit is normally performed. Surveys of a potential supplier, which establish the supplier's conformance with a quality program acceptable to Parsons, may be substituted for the initial annual audit of that supplier. However, that survey establishes the annual basis date; if the supplier must be re-audited, the timing is based on the survey date(s) rather than the duration of the purchaser order or subcontract.

18.4.3 Result of supplier audits are reported to the supplier, affected projects, the Procurements Department, and Division and Quality Assurance management. Results of these audits are placed in the supplier (and, if applicable, contractor) quality history files.

18.5 SITE ACTIVITY AUDITS

18.5.1 During the construction phase of the project, the site QA Group performs planned, scheduled, and documented audits of Parsons safety-related site activities. These audits conform with the requirements of the audits program, and are scheduled periodically. The reports of these audits are distributed to the Project Construction Manager, Chief Field Engineer, Field Quality Control Engineer, Project Manager, and Project QA Manager.

18.5.2 The site QA Group normally performs audits to:

- o Provide an objective evaluation of compliance with approved design documents, established requirements, methods, and procedures.
- o Determine the adequacy of the Quality Program performances as applicable to site activities.
- o Verify performance of inspection reporting, including nonconformances and implementation of corrective actions.

- o Verify that control of documents and filing is in compliance with Quality Program requirements, including the marking or destruction of obsolete documents.

18.5.3 The site QA Group audits suppliers and contractor(s) performing safety-related construction activities in accordance with the supplier audit program (Refer to Section 7).

18.5.4 The Project QA Manger audits the site activities, at least semiannually, in accordance with audit program requirements. The reports of these audits are distributed to the Project Construction Manager, Site QA Supervisor, Chief Field Engineer, Field Quality Control Engineer, Project Manager, Division Manager, and the Manager of QA.

18.6 MANAGEMENT AUDITS

18.6.1 Audits of project design, procurement, construction, and inspection activities are conducted by Quality Assurance audit teams under the direction of the Manager of QA, assisted by other elements of the Company as he deems necessary. These audits are conducted at least annually. Results are reported to the management of the function audited, cognizant project management, division management, the Senior Vice President and Manager, Systems Division, and the President.

18.6.2 The Manager of QA may determine, by reviewing the quality-related performance of work and requests for corrective action on a nuclear project, that certain areas of the project require more frequent management audits. In such instances, the Manager of QA conducts the audits using personnel from the QA Department who are not assigned to the specific project and appropriate personnel from other elements of the Company. To assure executive management that project performance is being reviewed, the Manager of QA submits annual status reports to the Senior Vice President and Manager, Systems Division, and the President.

18.7 AUDIT PROGRAM

18.7.1 The audit program, implemented in accordance with the provisions of ANSI N45.2-1977. Section 19, ensures compliance with the QA program requirements. Specifically, the audit program includes:

- (1) Audits conducted to ensure that specialists, consultants, suppliers, subcontractors, and contractors are following their required programs for activities affecting quality, including activities associated with site features that affect plant safety.
- (2) Audits to evaluate conformance with quality-related procedures, including evidence of essential steps in preparation, review, and control of SAR and design output documents; preparation, review, and control of procurement documents; indoctrination and training programs; and requests for proposals and evaluation of bids.

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18.7.2 Audit frequencies may be modified by the Project QA Manager or Manager of QA, depending upon the nature and importance of the safety-related activity being performed. Section 18, paragraphs 18.3, 18.4, and 18.5, provides information on frequency of audits. Audits of activities by project QA personnel are initiated early enough in the project cycle to ensure implementation of the Quality Assurance Program. Typically, this is within 3 to 6 months after the start of work on activities affecting quality; audits continue periodically throughout the duration of the activity.

18.7.3 Audit finding are documented, reviewed with supervisors having responsibility in the audit area, and reported to management. Reports of management audits include assessment of overall program implementation and direct attention to significant problem areas.

18.7.4 Audit programs include provisions for identification of deficiencies, determination that corrective action is defined, and follow-up to verify that timely corrective action has been taken and is effective. Audits include selective review and evaluation of quality-related procedures, instructions, work practices, and examinations of items and records. Records of audits are available to projects, the client, and the NRC, as requested.

APPENDIX A
PARSONS POSITION ON NRC QA REGULATORY GUIDES
AND/OR ANSI STANDARDS

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GENERAL EXCEPTIONS TO REGULATORY GUIDES AND/OR ANSI STANDARDS

1. Parsons interpretation of the use of the words "shall," "should," and "may" is as follows:

ANSI N45.2.10-1973 "Quality Assurance Terms and Definitions," contains definitions that apply to terms generally used in the N45.2 standards published or under preparation. Under "guidelines," it is stated in ANSI N45.2.10 that the term "shall" denotes a mandatory requirement, and that "should" denotes particular provisions; these are considered good practice, but are not mandatory in programs intended to comply with that standard.

We endorse the ANSI N45.2.10 definitions of the terms "shall" and "should," and interpret the term "may" to denote permission - neither a mandatory requirement nor a guideline. Furthermore, recommendations or guidelines in the N45.2 standards that are stated in Regulatory Positions to be acceptable to the Regulatory staff are not interpreted as thereby becoming mandatory requirements.

Accordingly, Parsons commits, at this time, to comply with mandatory requirements of the N45.2 standards qualified by the word "shall." In addition, we may follow guidelines or recommendations of the N45.2 standards qualified by words other than "shall." We further commit that the LA or SAR for a specific project will identify those exceptions or alternatives to the guidelines or recommendations of the N45.2 standards that we intend to invoke on that project.

2. The terms, "shall include as applicable" or "shall include as appropriate," in N45.2 standards, are interpreted as follows:

Lists of activities, procedures, instructions, or documents qualified by the above or similar terms are interpreted as containing representative or typical items that shall be evaluated on a case-by-case basis to determine whether or not they apply in a particular situation.

Such terms are not interpreted to require mandatory imposition of every listed item in all cases.

3. Suggested practices or solutions set forth in appendices to standards are not interpreted to be mandatory requirements. If such practices or solutions are not used, alternatives that are to be followed will be identified in the LA or SAR, or as otherwise noted.

The following Appendices are interpreted to be nonmandatory:

- (1) ANSI N45.2.4-1972, Appendix A, if the application is for a single unit station.

- (2) ANSI N45.2.4-1972, Appendix B
- (3) ANSI N45.2.5-1974, Appendix
- (4) ANSI N45.2.11-1974, Appendices A, B, and C

4. The work "planning" is interpreted to denote a requirement for considering and evaluating the steps to be taken in an activity before the activity commences. Parsons planning will include a documented review of the requirements for the activity and the need for the preparation and control of procedures and instructions to implement it, to assure that the activity can be performed in accordance with the prescribed requirements.

The work "planning" is not interpreted to require a formal plan or document for each safety-related activity. However, as required by codes and standards, written and approved procedures or instructions or checklists shall be available for the performance of a safety-related activity before it commences.

REGULATORY GUIDE 1.28, "Quality Assurance Program Requirements (Design and Construction)," Revision 2 - February, 1979.

This Guide endorses the use of ANSI N45.2-1977, "Quality Assurance Program Requirements for Nuclear Power Facilities."

Parsons concurs with the Regulatory Position subject to the General Exceptions stated on page A-2 of this Appendix and to the following:

Section 1.1 - Scope of the Standard

The scope is interpreted to mean:

This standard provides requirements and guidelines for design, construction, and operation of structures, systems, and components whose satisfactory and reliable performance is required:

- (1) To prevent accidents that could cause undue risk to the health and safety of the public.
- (2) To mitigate the consequences of such accidents if they were to occur.

This language is consistent with that used in ANSI Standard N45.2.11-1974, "Quality Assurance Requirements for the Design of Nuclear Power Plants."

Parsons interpretation of this section is intended to establish a consistent basis for this and the other ANSI N45.2 standards referenced in this report. In particular, the requirements of 10 CFR 50 Appendix B do not cover items whose satisfactory performance is required for the plant to operate reliably unless such items are safety-related.

REGULATORY GUIDE 1.30, "Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment, "Safety Guide 30, dated 8/11/72.

This Guide endorses the use of ANSI N45.2.4-1972 "Installation, Inspection, and Testing Requirements for Instrumentation and Electric Equipment During the Construction of Nuclear Power Generating Stations," subject to stated conditions.

Parsons concurs with the Regulatory Position, subject to the General Exceptions stated on page A-2 of this Appendix and to the following:

The content of the referenced ANSI standard covering quality assurance requirements for safety-related items will be applied by Parsons except as indicated below:

Section 2.1 - Planning of the Standard

Planning activities meeting the requirements of the standard will be similar for many installations on several projects. Standard procedures and work instructions may be applicable in multiple situations, and will be reviewed on a case basis to determine such applicability. Individual planning for each item or system will not normally be necessary unless the work activities to be performed are unique.

Section 9 - Applicable Codes, Standards, and Guides

The guides and standards listed refer specifically to nuclear power plants and are considered applicable to such plants. Codes and standards applicable to nuclear facilities other than nuclear power plants will be included in the LA or SAR for such other facilities.

REGULATORY GUIDE 1.37, "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants," dated 3/16/73.

This Guide endorses the use of ANSI N45.2.1-1973, "Cleaning of Fluid Systems and Associated Components During Construction Phase of Nuclear Power Plants," subject to stated conditions.

Parsons concurs with the Regulatory Position, subject to the General Exceptions stated on page A-2 of this Appendix and to the following:

Section 1.1 - Scope of the Standard

The term, "important nuclear power plant fluid systems," is interpreted to mean those nuclear power plant fluid systems "important to safety." Subject fluid systems are those whose satisfactory and reliable performance is required:

- (1) To prevent accidents that could cause risk to the health and safety of the public.
- (2) To mitigate the consequences of such accidents if they were to occur.

Section 2.1 - Planning

Planning activities meeting the requirements of the standard will be similar for many installations on several projects. Standard procedures and work instructions may be applicable in multiple situations, and will be reviewed on a case basis to determine such applicability. Individual planning for each item or system will not normally be necessary unless the work activities to be performed are unique.

Section 3.1 - Cleanness Classifications

The class of cleanness required for an application may not be specified in design drawings or specifications, but shall be stated in the actual working procedures or instructions.

The classification system given in the standard is interpreted as a guide. If this system is not invoked, we commit to using an equivalent classification method.

REGULATORY GUIDE 1.38, "Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants," Revision 2, dated 5/77.

This Guide endorses the use of ANSI N45.2.2-1972, "Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants," subject to stated conditions.

Parsons concurs with the Regulatory Position, subject to the General Exceptions stated on page A-2 of this Appendix and to the following:

The content of the referenced ANSI Standard covering quality assurance requirements for safety-related items will be applied by Parsons except as noted below:

Section 2.7 - Classification of Items of the Standard

We interpret the four-level system described as providing guidance on the classification of items. If this system is not invoked, we commit to using an equivalent classification system and describing it in the LA or SAR for the project.

REGULATORY GUIDE 1.39, "Housekeeping Requirements for Water-Cooled Nuclear Power Plants," Revision 2, dated 10/77.

This Guide endorses the use of ANSI N45.2.3-1973, "Housekeeping During the Construction Phase of Nuclear Power Plants," subject to stated conditions.

Parsons concurs with the Regulatory Position, subject to the General Exceptions stated on page A-2 of this Appendix and to the following:

The content of the referenced ANSI standard covering housekeeping requirements for safety-related items will be applied by Parsons except as indicated below:

Section 1.1 - Scope of the Standard

Parsons interprets the term "important" used in the first sentence to mean "important to safety." The wording of the second sentence is interpreted to mean:

These parts include the structures, systems, and components whose satisfactory and reliable performance is required to prevent accidents that could cause undue risk to the health and safety of the public, or to mitigate the consequences of such accidents if they were to occur.

Such language is consistent with that used in ANSI Standard N45.2.11-1974, "Quality Assurance Requirements for the Design of Nuclear Power Plants."

Section 2.1 - Planning

- (1) Planning activities meeting the requirements of the standard will be similar for many installations on several projects. Standard procedures and work instructions may be applicable in multiple situations, and will be reviewed on a case basis to determine such applicability. Individual planning for each item or system will not normally be necessary unless the work activities to be performed are unique.
- (2) The zone designations given in the standard may not be followed and in that event, will be replaced by an appropriate system. Such a system will take into account the differing requirements for cleanliness in the same area as a function of time during construction progress.

REGULATORY GUIDE 1.58, "Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel," dated 9/80.

This Guide endorses the use of ANSI N45.2.6-1978, "Qualifications of Inspection, Examination, and Testing Personnel for the Construction Phase of Nuclear Power Plants," subject to stated conditions.

Parsons concurs with the Regulatory Position, subject to the General Exceptions stated on page A-2 of this Appendix and to the following:

Section 1.1 - Scope of the Standard

The second sentence of the first paragraph is interpreted to mean:

These parts include those (safety-related) structures, systems, and components whose satisfactory and reliable performance is required to prevent accidents that could cause undue risk to the health and safety of the public, or to mitigate the consequences of such accidents if they were to occur.

This language is consistent with that used in ANSI Standard N45.2.11-1974, "Quality Assurance Requirements for the Design of Nuclear Power Plants."

The second paragraph is interpreted to mean:

The requirements of this standard apply to personnel who perform inspection, examinations, and tests during fabrication prior to receipt of items at the construction site and during construction, preoperational and startup testing, and operational phases of nuclear facilities. The requirements of this standard do not apply to personnel who perform inspections for government or municipal authorities, or who perform as Authorized Nuclear Inspectors in accordance with the ASME Boiler and Pressure Vessel Code.

This language is taken from Section 1.2, Applicability, of ANSI N45.2.6-1978.

Section 1.2 - Applicability

Parsons interpretation is that the requirements of this standard are optional, at the discretion of the employer, for application to personnel who perform calibration or to craftsmen who perform installation checkouts as part of their basic installation responsibility to ready the installation for preoperational testing.

Section 2.1 - Planning

Parsons interprets the first sentence to mean:

Planning activities shall be conducted to permit the assignment or staffing and training of an adequate number of personnel to perform the required inspections, examinations, and tests, and shall reflect the schedule of project activity so as to allow adequate time for assignment or selection and training of the required personnel.

Section 3.2.1 - Physical - Specific Required Capabilities for Inspection, Examination, and Testing Personnel

Parsons interprets this section as follows:

The responsible organization shall identify any special physical characteristics needed in the performance of each activity. Personnel requiring these characteristics shall have them verified annually by examination.

Table 1 - Minimum Levels of Capability for Project Functions

Parsons intends to endorse the contents of Table A-1

Table A-1 - Minimum Levels of Capability for QA/QC Functions on a Project

Project Function	Level		
	L-I	L-II	L-III
Recording inspection, examination, and testing data ^a	X		
Implementing inspection, examination, and testing procedures	X		
Evaluating the validity and acceptability of inspection, examination, and testing results		X	
Reporting inspection, examination, and testing results		X	
Supervising equivalent or lower-level personnel		X	X
Qualifying lower-level personnel		X	X
Evaluating the adequacy of specific programs used to train and test inspection, examination, and test personnel			X
Approving inspection, examination and test procedures			X

- ^a When a single inspection or test requires implementation by a team or group, personnel not meeting the requirements of this standard may be used in data-taking assignments or plant equipment operation provided that they are supervised by a qualified individual participating in the inspection, examination, or test. This qualified individual must participate in the aforementioned single inspection or test.

REGULATORY GUIDE 1.64, "Quality Assurance Program Requirements for the Design of Nuclear Power Plants," Revision 2, dated June, 1976.

This Guide endorses the use of ANSI Standard N45.2.11-1974, "Quality Assurance Requirements for the Design of Nuclear Power Plants," subject to stated conditions.

Parsons concurs with the Regulatory Position, subject to the General Exceptions stated on page A-2 of this Appendix and to the following:

Section 3.1 - Design Input Requirements (General) of the Standard

Using the definition of Design Input given in Subsection 1.4, Parsons commits to having design input available before final design of the work affected by that input. Design input will be available, therefore, for verification of the final design.

Parsons interpretation of this section is intended to clarify the use in the standard of the term - "timely basis." It is our position that it is not necessary to have all the design input available before work on a design package can proceed.

Section 4.1 - Design Process (General)

Parsons interprets the third paragraph to mean that it will be possible to correlate the final design with its bases. These bases will normally include calculations. Analyses that support the final design will be kept in record files.

Parsons interpretation of this section of the standard is intended to clarify the use of the term "source of design input." Design activities are normally performed in phases e.g., Conceptual, Preliminary, Final, with the output documents from one phase being design input for the next phase. With this approach, the source of the final design is its design input.

Section 7 - Document Control, Section 8 - Design Change Control, and Section 9.1 - Detection of Errors

Parsons interprets the terms, "design documents and changes thereto," "documents, and "design documents" to mean "final design," as defined in the standard.

Parsons interpretation is intended to be consistent with the coverage of ANSI N45.2.11-1974, defined under 1.1, "Scope," by the phrase, "this standard covers activities which affect the final design." These activities are considered to begin within the identification of design input and to end with the production of final design.

REGULATORY GUIDE 1.74, "Quality Assurance Terms and Definitions," dated February, 1974.

This Guide endorses the use of ANSI Standard N45.2.10-1973, "Quality Assurance Terms and Definitions," subject to stated conditions.

Parsons concurs with the Regulatory Position.

REGULATORY GUIDE 1.88, "Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records," Revision 2, dated October, 1976.

This Guide endorses the use of ANSI Standard N45.2.9-1974 and Appendices, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants," subject to stated conditions.

Parsons concurs with the Regulatory Position, subject to the General Exceptions stated on page A-2 of this Appendix and to the following:

The requirements of the standard will be followed for QA records for safety-related components of nuclear power plants. The requirements of Appendix A to this standard will be applied, as appropriate, to nuclear facilities other than nuclear power plants. For example, there will be no "Procedure for containment vessel pressure-proof test and leak rate test and results" for a plutonium fuel fabrication plant.

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REGULATORY GUIDE 1.94, "Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants," Revision 1, dated April, 1976.

This Guide endorses the use of ANSI Standard N45.2.5-1974, "Supplementary Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel during the Construction Phase of Nuclear Power Plants," subject to stated conditions.

Section 1.1 - Scope of the Standard

Parsons interprets the first two sentences to mean:

The standard sets forth the supplementary quality assurance requirements for installation, inspection, and testing of structural concrete and structural steel for nuclear power plant construction. It is intended for application to those structures from which satisfactory and reliable performance is required:

- (1) To prevent accidents that could cause undue risk to the health and safety of the public.
- (2) To mitigate the consequences of such accidents if they were to occur.

This language is consistent with that used in ANSI Standard N45.2.11-1974, "Quality Assurance Requirements for the Design of Nuclear Power Plants."

Section 2.1 - Planning

Planning activities meeting the requirements of the standard will be similar for many installations on several projects. Standard procedures and work instructions may be applicable in multiple situations, and will be reviewed on a case basis to determine such applicability. Individual planning for each item or system will not normally be necessary unless the work activities to be performed are unique.

Section 4.8 - In-Process Tests on Concrete and Reinforcing Steel

Parsons interprets the seventh and eighth sentences as follows:

Pumped concrete should preferably be sampled from the pump line discharge. If the sampling point of pumped concrete is not at the pump line discharge, a correlation program must be developed as recommended by ACI 304. No water or other ingredients may be added to any concrete batch at the sampling point or after the sample is taken for in-process tests.

Section 4.9.2 - Mechanical (Cadweld) Splice Testing (Visual Inspection)

Parsons position is that the permissible gap between rebar ends cannot be inspected after the joint is completed. Inspection should be performed prior to splicing.

Section 6.1 - Data Analysis and Evaluation (General)

We interpret "on the spot" evaluation to mean evaluation at the time the sample is taken.

REGULATORY GUIDE 1.116, "Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment Systems" (Revision O-R, May, 1977).

This Guide endorses the use of ANSI Standard N45.2.8-1975, "Supplementary Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment Systems for the Construction of Nuclear Power Plants," subject to the stated conditions.

Parsons concurs with the content of this standard, subject to the General Exceptions stated on page A-2 of this Appendix and to the following:

Section 1.1 - Scope of the Standard

The term "important items" is interpreted to mean items whose satisfactory and reliable performance is required:

- (1) To prevent accidents that could cause undue risk to the health and safety of the public.
- (2) To mitigate the consequences of such accidents if they were to occur.

This language is consistent with that used in ANSI Standard N45.2.11-1974, "Quality Assurance Requirements for the Design of Nuclear Power Plants."

Section 1.4 - Definitions

Parsons intends to use the definitions of "procurement documents" and "purchaser" given in ANSI N45.2.10 as amended by the Regulatory Position of Regulatory Guide 1.74, "Quality Assurance Terms and Definitions," dated 2/74.

Section 2.1 - Planning

Planning activities meeting the requirements of the standard will be similar for many installations on several projects. Standard procedures and work instructions may be applicable in multiple situations, and will be reviewed on a case basis to determine such applicability. Individual planning for each item or system will not normally be necessary unless the work activities to be performed are unique.

Section 3.5 - Site Conditions, Item (e)

Parsons interprets this statement to mean: "Nonconformances for adjacent items that adversely affect the installations of the subject item shall be resolved prior to the installation of the subject item."

Section 4.1 - Control During Installation Process, General

Parsons interprets the third sentence to mean: "Documentation shall be provided for the coordination and sequencing of these activities at established inspection points in successive stages of installation."

Parsons is using the term "documentation" as it is defined in ANSI N45.2.10-1973.

REGULATORY GUIDE 1.144 "Auditing of Quality Assurance Programs for Nuclear Power Plants" (9/80).

This Guide endorses the use of ANSI Standard N45.2.12-1977, "Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants," subject to the stated conditions.

Parsons concurs with the content of this standard, subject to the General Exceptions stated on page A-2 of this Appendix and to the following:

Section 1.1 - Scope of the Standard

The requirements of this standard will be applied to the Parsons quality assurance program for items that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public.

Section 3.5.2 - Scheduling

Parsons interprets the second sentence to mean: "Internal audits of active elements of the quality assurance program shall be conducted at least annually or at least once within the life of the activity, whichever is shorter."

Parsons is limiting the scheduling section to internal audits because ANSI N45.2.13-1976, referenced herein, covers supplier audits.

The term "active elements" is used to preclude the requirement to schedule regular audits of completed or suspended activities.

REGULATORY GUIDE 1.123, "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants" (Revision 1, 1977)

This Guide endorses the use of ANSI Standard N45.2.13-1976, "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants," subject to the stated conditions.

Parsons concurs with the content of this draft standard, subject to the General Exceptions stated on page A-2 of this Appendix and to the following:

Section 2.1 - Planning

Planning activities meeting the requirements of the standard will be similar for many installations on several projects. Standard procedures and work instructions may be applicable in multiple situations, and will be reviewed on a case basis to determine such applicability. Individual planning for each item or system will not normally be necessary unless the work activities to be performed are unique.

APPENDIX B

QUALITY PROGRAM COMPLIANCE WITH
APPENDIX B TO 10 CFR PART 50

Parsons Quality Program documents are listed in Table B-1. Table B-2 presents a comparison of Parsons Quality Program with Appendix B of 10 CFR Part 50.

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Table B-1 - Parsons Quality Program Documents

Subject	Scope
Corporate Policy Manual	Defines quality program policy
Systems Division	Defines Systems Division quality program activities
Engineering Department Manual	Defines Engineering Department activities in support of quality program
Procurement Department Manual	Defines Procurement Department activities in support of quality program
Construction Management Team	Defines Construction Management activities in support of quality program
Nuclear Licensing Procedures Manual	Defines Licensing Organization activities in support of quality program
QA Training and Certification Program Procedure	Defines certification and training for QA personnel
QA Program Manual, ASME Section III, Division 1	Defines quality program compliance with ASME Section III, Division I, Article 4000
Quality Control System, Non-Nuclear ASME Code Manual	Defines quality program compliance with ASME Section I and VIII, Division I
Topical Report	Defines QA Program for Nuclear Facilities
Checking Policies and Procedures	Defines checking policies and procedures in support of quality program
Project Manual ^a	Defines responsibilities and procedures for project
Project QA Manual ^a	Defines responsibilities and procedures for project QA Group

^a This document is available prior to the initiation of the specific project activities described.

Table B-2 - Parsons Quality Program
Comparison with 10 CFR Part 50, Appendix B

<u>10 CFR Part 50 Appendix B Criterion</u>	<u>Subject of Procedure(s)</u>	<u>Scope of Procedure(s)</u>
I	Company Organization	Defines interfaces between Power Division and support departments
I	Typical Nuclear Project Organization	Describes project responsibilities and methods of implementation
I	Project QA	Describes project QA group responsibilities and methods of implementation
II	Quality Program for Safety-Related Items	Defines quality program criteria for safety-related items
II	Training and Orientation of Personnel	Defines bases for personnel training and orientation
II	Management Review and Reporting of the QA Program	Defines requirements for for reporting quality program status to Company management
II	Q-List	Defines responsibilities and basis for assigning Safety Classes, Quality Program Categories, and Seismic Categories
II	Project Surveillance	Describes methods used in conducting surveillance of Parsons safety-related activities
III	Control of Design Input	Defines control of design input documents

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Table B-2 (Contd)

10 CFR Part 50
Appendix B
Criterion

	<u>Subject of Procedure(s)</u>	<u>Scope of Procedure(s)</u>
III	Control of Design Interfaces	Describes external and internal design interface controls
III	Field Engineering	Describes quality program responsibilities of field engineering
III	Design Change Control	Describes control of design changes
III	Codes, Standards, and Regulatory Requirements	Defines application of codes, standards, and regulatory requirements to safety-related items
III	Conduct of Design Verification	Describes conduct and control of verification methods for safety-related items
IV	Procurement Document Control	Defines requirements for preparation and control of procurement documents
V	Instructions, Procedures, Drawings	Describes preparation and review controls for instructions, procedures, and drawings
VI	Supplier Document Review	Defines basis for review and approval of supplier documents
VI	Document Control	Describes methods used to control the issuance of quality-related documents

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Table B-2 (Contd)

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Appendix B
Criterion

	<u>Subject of Procedure(s)</u>	<u>Scope of Procedure(s)</u>
VI	Records and Filing System	Describes records and filing system for quality-related documents
VI	SAR and LA Control	Defines responsibilities for preparation, review, and control of the LA and SAR
VI	Review and Approval of Procedures	Describes methods of reviewing and approving quality program procedures
VI	Manuals and Procedures Control	Describes preparation, reviewing and approving quality program procedures
VI	Action Lists	Describes control of action item assignments and their completion
VII	Supplier Engineering and Verification Documents	Defines requirements for and differences between the two types of documents
VII	Subcontractor Control	Defines quality program controls for subcontractors
VII	Evaluation of Suppliers	Defines project requirements for evaluating suppliers
VII	Requirements for Procurement Activities	Describes methods related to requests for information from potential bidders and suppliers

Table B-2 (Contd)

10 CFR Part 50
Appendix B
Criterion

	<u>Subject of Procedure(s)</u>	<u>Scope of Procedure(s)</u>
VII	Evaluation of QA Programs for Procurement Activities	Describes methods for qualifying and evaluating suppliers of safety-related items
VII	Supplier Surveillance of Site Procured Items	Describes methods used to perform supplier surveillance for items procured at the plant site
VII	Review of Procurement Documents	Defines requirements for review and acceptance of supplier documents
VII	Supplier Surveillance Inspection	Defines responsibilities for surveillance inspection of suppliers
VII	Receiving Inspection	Describes how safety-related items are checked for conformance with procurement documents prior to their issuance to construction contractors
VII	Supplier Deviation Control	Defines control of supplier nonconformances and corrective actions
VII	Acceptance of Procured Items	Describes methods used for acceptance of purchased safety-related items prior to shipment to the plant site
VIII	Storage Control	Describes storage area controls at the plant site

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Table B-2 (Contd)

10 CFR Part 50
Appendix B
Criterion

	<u>Subject of Procedure(s)</u>	<u>Scope of Procedure(s)</u>
IX	Supplier Special Process Control	Defines controls for special processes performed by suppliers
IX	Parsons Special Process Control	Defines controls for special processes performed by Parsons
X	Equipment Surveillance	Describes surveillance activities for the installation and inspection of safety-related equipment
X	Structural Concrete Surveillance	Describes site surveillance activities related to concrete production and placement
X	Field Inspection	Defines inspection requirements at the plant site
X	Surveillance of Construction Work	Defines verification of completion and inspection of general construction work
XI	Test Control	Defines controls for tests of safety-related items
XII	Surveillance of Tool, Gauge, and Instrument Control	Describes surveillance of contractor methods for control of tools, gauges, and instruments
XIII	Surveillance of Site Housekeeping	Describes methods of verifying proper site housekeeping by site contractors

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Table B-2 (Contd)

10 CFR Part 50
Appendix B
Criterion

	<u>Subject of Procedure(s)</u>	<u>Scope of Procedure(s)</u>
XIII	Handling and Storage	Defines handling and storage controls for safety-related materials and items
XIV	Control of Item Status	Describes controls for the identification of item status at the construction site
XV	Design and Procurement Document Nonconformances	Describes control of nonconformances in design and procurement documents
XV	Control of Nonconforming Items	Describes methods of control of nonconformances during construction activities
XVI	Corrective Action	Describes methods of requesting corrective action for nonconforming items
XVI	Reporting of Significant Deficiencies	Defines methods for reporting deficiencies as required by 10 CFR Part 50.55(e) and Section 206 of the Energy Reorganization Act of 1974
XVI	Response to External Audits and Corrective Action	Describes methods used to respond to external audits and corrective action cited
XVII	Design Document Records	Defines controls for maintaining design documents for safety-related items

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XVII	Procurement Document Records	Describes controls for maintaining procurement documents for safety-related items
XVII	Construction Document Records	Describes controls for maintaining construction documents for safety-related items
XVIII	QA Audits	Describes requirements for the conduct of QA audits