PACIFIC NUCLEAR SYSTEMS, INC.

QUALITY ASSURANCE MANUAL

EDITION No. 2

Subsidiaries

- Pacific Nuclear Systems, Inc.
- ALARON Corporation
- Nuclear Packaging, Inc.
- NuPac Services, Inc.
- NUTECH Engineers, Inc.
- Pacific Nuclear Fuel Services, Inc.
- PN Services, Inc.

CONTROLLED COPY NO: 272

Issued To U.S. Nuclear Regulatory Commission

Document Control Desk

Address 11555 Rockville Pike

Rockville, MD 20852

STATEMENT OF POLICY AND AUTHORITY

PACIFIC NUCLEAR SYSTEMS

The Pacific Nuclear Systems, Inc. (PNSI) Quality Assurance Manual states the policies, assigns the responsibilities, and describes and summarizes the procedures governing the design, procurement, construction, testing and operations of safety-related components, systems and structures for nuclear applications as defined by contract or licensing/certification regulations. The PNSI Quality Assurance Program is also applicable to energy, research and development and military projects when regulatory or contractually specified.

Compliance with the PNSI Quality Assurance Program as described in this Quality Assurance Manual is mandatory for all PNSI subsidiaries and personnel whose activities affect quality.

The policies herein implement the requirements of Title 10, Code of Federal Regulations, Part 50, Appendix B; Part 71, Subpart H, and Part 72, Subpart G as well as additional requirements of ANSI, ASME, Regulatory Guides, and Military Standards as applied to organizations performing design, procurement, construction, testing and operational activities for nuclear applications to the extent specified by contract or licensing/certification regulations.

The President of PNSI retains the responsibility for implementation of all activities performed in accordance with this Manual except those specifically assigned to the Director Corporate Quality Assurance.

The Subsidiary Quality Assurance Managers are assigned responsibility for QA activities of the PNSI Quality Assurance Program at their location(s) and are given authority for assuring implementation of those activities.

The Director, Corporate Quality Assurance, reporting to the President, is given full responsibility for maintaining this Manual and for assuring uniform implementation of the quality assurance program throughout PNSI and its subsidiaries. He has the authority to initiate management action to limit further processing on items of indeterminate quality, to initiate corporate management action to resolve any deficiencies and to assure that satisfactory resolutions have been achieved prior to authorizing further processing.

Attainment of quality objectives is the responsibility of all personnel at PNSI.

By: _____
Albert J. Baciocco, Jr.
President

Date: 14 January 1991

TITLE

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GLOSSARY

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APPROVAL - The act of endorsing or authorizing an action, document or related activity. As used in this manual approval requires a signature and date.

AS-BUILT DATA - Data recorded into documents that describe the conditions actually acheived in a completed product.

AUDIT - A planned and documented activity performed to determine by investigation, examination, or evaluation of objective evidence the adequacy of and compliance with established procedures, instructions, drawings, and other applicable documents, and the effectivess of implementation. An audit should not be confused with surveillance or inspection activities performed for the sole purpose of process control or product acceptance.

CERTIFICATION - The act of determining, verifying, and attesting in writing to the qualifications of personnel, processes, procedures, or items in accordance with specified requirements.

CONTROLLED DOCUMENT - A document that has been reviewed for adequacy, approved for release by authorized personnel, and distributed to, and used at, the location where the prescribed activity is performed. Controlled documents are typically finalized technical documents, procedures or instructions.

CRITERIA - Technical requirements describing performance objectives, operating conditions and requirements, limitations regarding materials, compliance with codes or standards and any technical requirements for design, fabrication, installation, testing, operation, maintenance or quality assurance.

EXAMINATION - An element of inspection consisting of investigation of materials, components, supplies or services to determine conformance to specified requirements that can be determined by such investigation. Examination is usually nondestructive and includes physical manipulation, gauging and measuring.

INSPECTION - Examination or measurement to verify whether an item or activity conforms to specified requirements.

ITEM - A broadly used term describing an appurtenance, assembly, component, equipment, material, module, part, structure, subassembly, subsystem, system or unit.

NON-CONFORMANCE - A deficiency in the characteristics, documentation or procedure which renders the quality of an item or activity unacceptable or indeterminate.

PROCUREMENT DOCUMENTS - Purchase requisitions, purchase orders, drawings, contracts, specifications, or instructions used to define requirements for purchase.

QUALITY ADMINISTRATION - Coordination of the quality-related activities of personnel and determination that such activities are performed in the prescribed manner.

QUALITY ASSURANCE - The planned and systematic actions necessary to provide adequate confidence that a material, component, system or service meets the established requirements. Quality assurance includes quality administration and quality control.

QUALITY CONTROL - Those quality assurance actions performed to measure and control the characteristics of an or process to established requirements.

RECEIVING - Taking delivery of an item at a designated location.

RECORDS - Documentary evidence of the quality of items and activities affecting quality. For purposes of this manual, a document is considered to be a record only after the document is final.

REPAIR - The process of restoring a non-conforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still does not conform to the original requirement.

REVIEW - A technical assessment that a document or activity complies with the appropriate requirements. As used in this manual, review requires a signature and date.

REWORK - The process by which an item is made to conform to original requirements by completion or correction.

SMALL PROJECT - A project with one technical discipline managed and executed by one PNSI office.

SUBSIDIARY - A wholly owned operating unit or other identifiable segment of the company's business operations, having its own management hierarchy reporting to corporate management.

SURVEILLANCE - The act of monitoring or observing to verify whether an item or activity conforms to specified requirements.

SPECIFICATION - A concise statement of the requirements a product, material or process must satisfy in order to be acceptable.

TECHNICAL DOCUMENTS - Documents that translate technical requirements into reports, calculations, drawings, specifications, instructions and procedures necessary for procurements, fabrication installation, testing, operation and maintenance.

USE-AS-IS or ACCEPT-AS-IS - A disposition which may be imposed upon a non-conforming item, when it is established that the discrepancy will not adversely affect the item's performance or interfaces to it.

A use-as-is or accept-as-is disposition must provide justification that indicates the item under consideration will continue to meet all engineering and functional requirements, including performance, maintainability, fit and safety.

1.0 SCOPE

This section identifies the functional organization and assigns the responsibilities to assure effective execution of the PNSI Quality Assurance Program.

1.1 General

Pacific Nuclear Systems, Inc. (PNSI), located in Federal Way, Washington, is a parent company organized to effectively manage its operating subsidiaries. As the parent company, PNSI establishes business and quality assurance policy for each subsidiary, as appropriate. It is intended that the responsible contracted subsidiary utilize the resources of other PNSI subsidiaries when the scope of work requires those resources.

The functional and reporting relationships between PNSI and each subsidiary is shown on Figure 1-1 and is further explained in subsequent sections of this manual. The operating subsidiaries are responsible for proper implementation of the PNSI Quality Assurance Program, as appropriate, within their scope of responsibility. The organizational structure of a typical PNSI subsidiary, regional or branch office is shown in Figures 1-2 and 1-3. It is recognized that changes in the organizational structure, or newly created positions with varying responsibilities, may occur within a PNSI operating subsidiary.

However, prescribed duties, as defined in this Manual and related implementing procedures, are specifically designated to certain individuals. Therefore, in order to comply with the requirements set forth herein, it is incumbent upon management to assign the appropriate responsibilities to those individuals assuming newly created or revised functions. The project planning document (see QA Manual Section 2.0) assigns these responsibilities.

It is also recognized that situations may arise, particularly with small projects, that require one individual to assume more than one role. For example, Project and Engineering Management may be the same individual. This is permitted by the Quality Assurance Program, provided that an equally qualified individual, other than the originator, performs the reviewing, checking and/or design verifying functions.

The levels of management required to manage a project are dependent upon the scope and complexity of the work. For example, on large multidisciplined projects, a specific Project Manager may be assigned. Smaller projects, however, do not warrant this level of management and several small projects may be efficiently managed by a single individual.

The extent of QA related activities performed at the job site is dependent upon the nature, scope and complexity of the contracted scope of work and will be as defined in the Project Planning Document.

1.2 Pacific Nuclear Systems, Inc. (PNSI)

1.2.1 President

The President of Pacific Nuclear Systems, Inc. is responsible for the following activities with regard to the PNSI QA Program:

a. Issuing the Corporate Statement of Policy and Authority which requires the use of the PNSI QA Manual by the individual subsidiaries as determined by contract.

b. Maintaining final authority for the implementation of the requirements of the Quality Assurance Program except for those functions specifically assigned to the Director, Corporate Quality Assurance.

c. Approving the PNSI Quality Assurance Manual.

1.2.2 Director, Corporate Quality Assurance

The Director, Corporate Quality Assurance shall have demonstrated management capabilities and shall meet the qualification requirements of ANSI N45.2.23 and NQA-1, Supplement 2S-3 for Lead Auditor with the exception of "Audit Participation" and "Examination Requirements".

The Director, Corporate Quality Assurance is responsible to the President for defining corporate quality assurance policy in the PNSI Quality Assurance Manual consistent with applicable codes, standards, and regulatory criteria. He has the authority and organizational freedom to perform the following activities:

a. Identify quality problems.

b. Initiate, recommend or provide solutions, and verify implementation of solutions.

c. Control or stop further processing, delivery, or installation of a nonconforming item, deficiency, or unsatisfactory condition until proper dispositioning has occurred.

d. Maintaining and controlling the PNSI Quality Assurance Manual and Quality Procedures.

e. Reviewing Quality Procedures to assure correct interpretation of the requirements set forth in this manual.

f. Establishment of Corporate Policy for development of qualification and certification programs for personnel required to be certified.

g. Reviewing Corrective Action Reports to determine reportability under the provisions of 10CFR21.

h. Conducting annual Quality Assurance Management Audits of each division to verify implementation of quality assurance responsibilities and to determine the status and effectiveness of the PNSI Quality Assurance Program.

i. Maintaining liaison with regulatory jurisdictional agencies and customers to obtain acceptance of the quality assurance program.

1.3 **PNSI Subsidiaries**

The Corporation (PNSI) is organized into several operating subsidiaries to address various needs in the nuclear industry.

PNSI, operating under the requirements of this Quality Assurance Program Manual includes:

SUBSIDIARY	DESIGNATION
Pacific Nuclear Systems, Inc.	(PNSI)
ALARON Corporation	(ALARON)
Nuclear Packaging, Inc.	(NUPAC)
NuPac Services, Inc.	(NPSD)
NUTECH Engineers, Inc.	(NUTECH)
Pacific Nuclear Fuel Services, Inc.	(PNFS)
PN Services, Inc.	(CCD)

Each subsidiary of PNSI is comprised of several distinct functions required to effectively manage work activities at that location.

1.3.1 Operations

Each PNSI subsidiary is operated under the direction of a Subsidiary Executive Director (President/Vice President/General Manager). This Subsidiary Executive Director is responsible to the President of PNSI for the proper implementation of the PNSI QA Program within his subsidiary.

PNSI subsidiary projects are managed by an organizational structure uniquely suited to the nature, scope and complexity of project work activities.

1.3.1.1 Engineering/Technology Department

The engineering/technology department provides services and qualified personnel to the project teams for accomplishing the required scope of work. Engineering Managers are responsible for the quality of work accomplished in accordance with the requirements of the project.

1.3.1.2 Project Manager

The Project Manager is the primary contact with customers on matters including progress, budgets, schedules, changes and procedures. The Project Manager is responsible for the determination of quality requirements in accordance with contractual and regulatory requirements.

The Project Manager has overall responsibility and authority for the proper definition and execution of work required for the completion of his project in accordance with contractual and regulatory requirements. The Project Manager is responsible for developing a Project Planning Document for projects within the scope of this QA Manual. When required by contract, the Project Manager has the authority to issue a Certificate of Conformance and/or Compliance in conjunction with the QA Manager attesting that the items or services provided comply with contractual requirements.

The Project Manager is also responsible for stopping work on his project when so directed by the Field Quality Assurance Supervisor, Quality Assurance Manager or Director, Corporate Quality Assurance.

1.3.1.3 Manager of Licensing/Analysis

When a PNSI subsidiary has responsibility for licensed products, a Manager of Licensing/Analysis shall exist to manage the licensing function. The Manager of Licensing/ Analysis is also responsible for reviewing reports of nonconformances to assess the nonconformances impact on the licensed product. He initiates required actions to reconcile those issues deemed to be significant for licensing considerations. The Manager of Licensing/ Analysis shall indicate by his signature on the report of nonconformance that all licensing (including Safety Analysis Reports) considerations have been reviewed and no significant impact exists or if reconciliation is required, a plan has been put in place to reconcile the changes.

1.3.1.4 Project Engineer

Except for simple procurement projects, each project is assigned a Project Engineer(s) who reports to the Project Manager. The Project Engineer is responsible for ensuring that project related activities under his cognizance are carried out in accordance with the project criteria received from the Project Manager. The Project Manager shall perform these activities for simple procurement projects.

1.3.2 Regional and Branch Offices

When PNSI subsidiaries establish regional and branch offices remote from their central location, these remote locations shall function in full compliance with this Quality Assurance Program. Regional and branch offices are managed by office General Managers. A Quality

Assurance Manager is assigned responsibility for Quality Assurance at each regional and branch office. The Quality Assurance Managers report to the Director, Corporate Quality Assurance with a line of communication to the office General Manager. Quality Assurance Managers are responsible for verifying implementation of the PNSI Quality Assurance Program at their respective regional or branch offices.

Regional and Branch Office Locations

NUTECH Engineers, Atlanta (NEA) is located in Roswell, Georgia.

NUTECH Engineers, Washington (NEW) is located in Gaithersburg, Maryland.

NUTECH Engineers, Chicago (NEC) is located in Westmont, Illinois.

NUTECH Engineers, Minneapolis (NEM) is located in Plymouth, Minnesota.

NUTECH Engineers, San Jose (NES) is located in San Jose, California.

NUTECH Engineers, International (NEI) is located in Seoul, Korea.

1.3.3 Quality Assurance Manager

A Quality Assurance Manager is assigned Quality Assurance responsibilities for each subsidiary, regional or branch office. The Quality Assurance Managers are responsible for monitoring the PNSI Quality Assurance Program in

their respective subsidiary, regional or branch office. "Monitoring" includes performing audits, surveillance, identifying and reporting noncompliances, and verifying implementation of corrective actions.

The Quality Assurance Manager shall meet the qualification requirements of ANSI N45.2.23 and NQA-1, Supplement 2S-3 for Lead Auditor within ninety (90) days of assuming the position. In addition, Quality Assurance Managers shall possess either:

a. A Bachelor's Degree in a specialty which is applicable to the performance of quality assurance activities and three (3) years of direct quality assurance experience, or;

b. Ten (10) years of experience in progressively responsible quality assurance positions.

The Quality Assurance Manager has the authority and organizational freedom to conduct the following activities:

a. Identify quality problems.

b. Initiate, recommend, or provide solutions and verify implementation of solutions.

c. Control or stop further processing, delivery, or installation of a nonconforming item, deficiency, or unsatisfactory condition until proper dispositioning has occurred. The stop-work process shall be implemented when the QA Manager, Field QA Supervisor or Director, Corporate Quality Assurance determines that a significant condition adverse to

quality (reference Section 16.0 of the QA Manual) warrants work stoppage. The Project Manager is notified to stop work by acknowledging a "Stop Work Order" (Exhibit 1-1). The Project Manager is responsible for assuring that the work has been stopped. The Quality Assurance Manager is responsible for verifying that work has been stopped by performing surveillance.

A Corrective Action Report is generated in accordance with Section 16.0 of the QA Manual to document and correct the condition, and to determine the root cause and action to be taken to preclude recurrence.

The Quality Assurance Managers are responsible for verifying implementation of the PNSI Quality Assurance Program for work performed in their respective subsidiary, branch or regional office. In addition, other responsibilities include the following:

a. Reviewing contract-related documents to approve applicable quality assurance requirements.

b. Conducting training and indoctrination in quality assurance program requirements.

c. Interfacing with customers and regulators during audits.

d. Conducting audits of quality-related activities to verify proper implementation of the quality assurance program.

e. Developing, reviewing, and controlling Quality Procedures to implement the requirements of the quality assurance program when those procedures are specific to that location or subsidiary.

f. Reviewing and approving project instructions.

g. Analyzing nonconformance reports to identify adverse quality trends and root causes of nonconformances for management review and assessment.

h. Signing Certificates of Conformance and/or Compliance when those documents are contractually required.

The Quality Assurance Manager receives technical direction and corporate quality assurance policy interpretations from the Director, Corporate Quality Assurance. The Quality Assurance Manager reports the status and adequacy of the quality assurance program at his respective location to the Director, Corporate Quality Assurance through distribution of audit reports, Corrective Action Reports, informal status reports, meetings, and telephone contact.

The Quality Assurance Manager of each PNSI subsidiary, regional or branch office is subject to annual Quality Assurance Management Audits conducted by the Director, Corporate Quality Assurance to verify the status and effectiveness of the quality assurance program at their respective location and to verify implementation of quality assurance responsibilities.

1.3.4 Field Quality Assurance Supervisor

When determined necessary by the QA Manager for protracted field applications of this QA Program, a Field QA Supervisor shall be designated by the QA Manager. The Field QA Supervisor, reporting to the QA Manager, shall exercise QA Manager responsibilities for a specific project when at a field site.

The field Quality Assurance Supervisor shall be trained in the principles and techniques of quality assurance and in the nature of the field work being performed to adequately execute his responsibilities.

The Field Quality Assurance Supervisor has the authority and organizational freedom to conduct the following functions for quality-related activities performed at the field site:

a. Identify quality problems.

b. Initiate, recommend, or provide solutions and verify implementation of solutions.

c. Control or stop further processing, delivery or installation of a nonconforming item, deficiency or unsatisfactory condition until proper dispositioning has occurred.

The Field Quality Assurance Supervisor is responsible for performing surveillance on quality-related site activities under PNSI's control, including surveillance of PNSI site subcontractors. In addition, other responsibilities include the following:

a. Reviewing procurement documents for items and services procured at the job site.

b. Conducting training and indoctrination in quality assurance requirements for site personnel.

c. Interfacing with customer and regulatory auditors and other quality assurance personnel during site audits and surveillances.

d. Concurring with dispositions of Nonconformance Reports.

e. Monitoring implementation of PNSI's QA Program at the field site.

The Field Quality Assurance Supervisor reports directly to the Quality Assurance Manager of the applicable subsidiary, regional or branch office as determined by the contract.

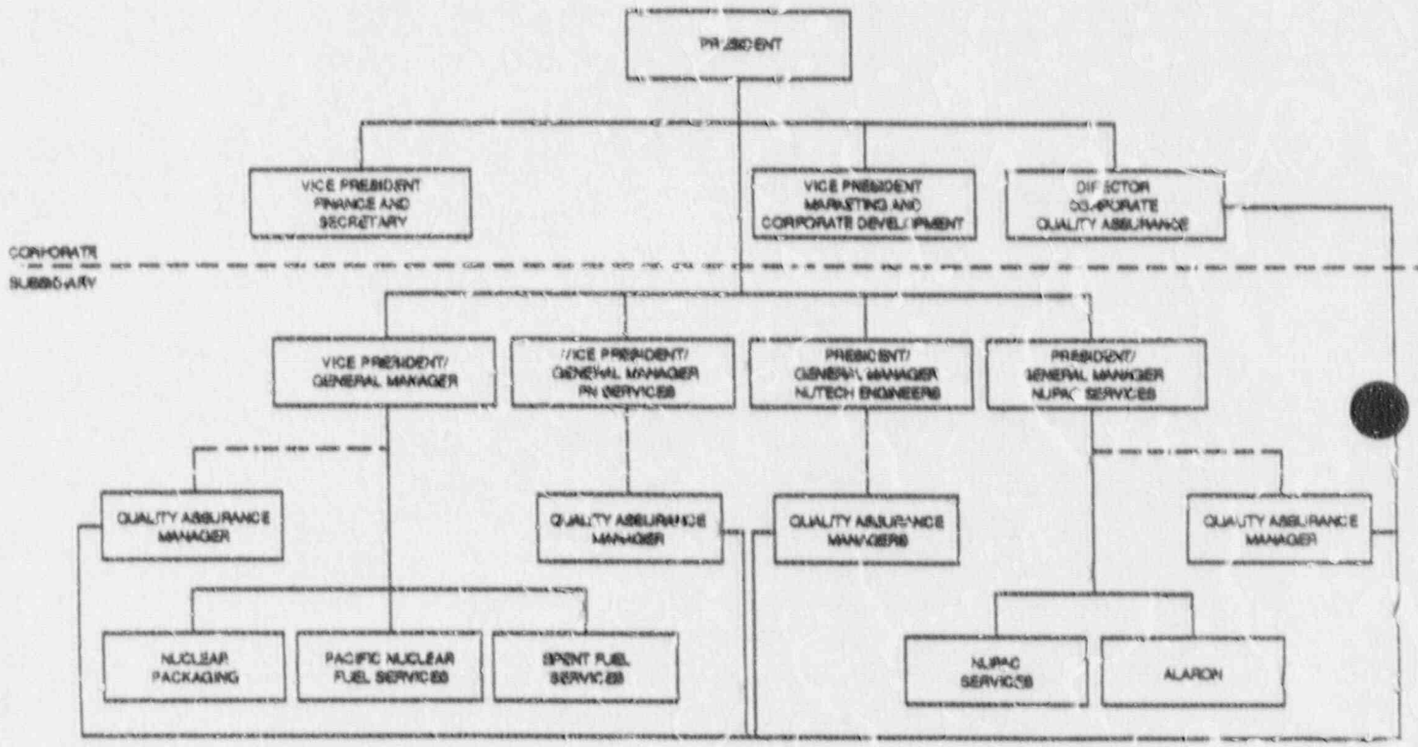
The Field Quality Assurance Supervisor is delegated Quality Assurance Manager responsibilities when the prescribed activity is performed at the field site.

1.4 Disputes Involving Quality

Disagreements involving quality between quality assurance personnel and other PNSI department personnel (engineering, projects, etc.) are resolved by referring the matter upwards through the chain of command of both the quality assurance department and the department involved until the concern has been properly resolved.

Figure 1-1

ORGANIZATION CHART
PACIFIC NUCLEAR SYSTEMS, INC.



NOTES

- SEE FIGURE 1-2 FOR TYPICAL SUBSIDIARY ORGANIZATION (INCLUDING REGIONAL OR BRANCH OFFICES)
- DOTTED LINE DENOTES LINE OF COMMUNICATION

Figure 1-2
FUNCTIONAL ORGANIZATION CHARTS

TYPICAL SUBSIDIARY

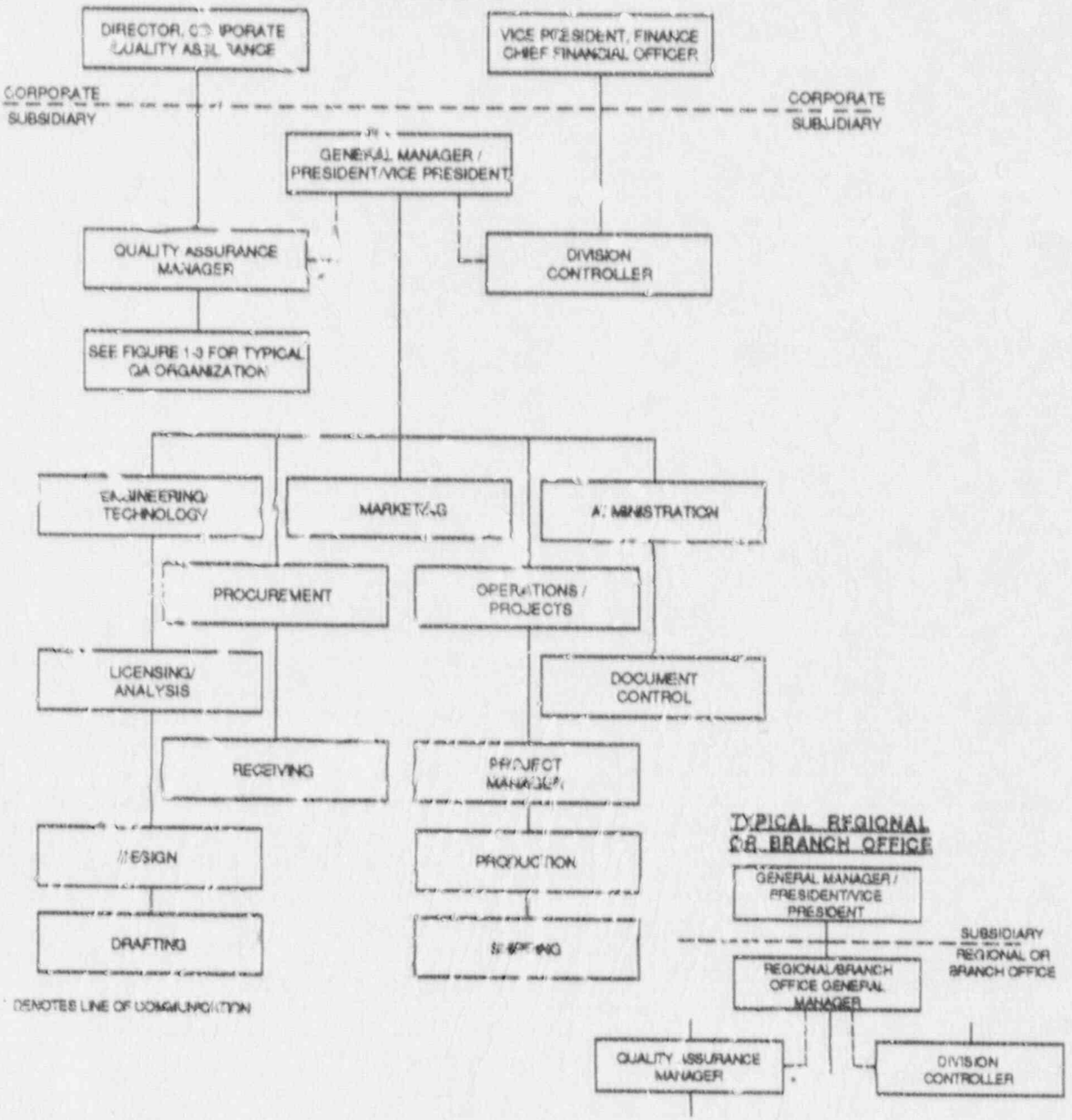
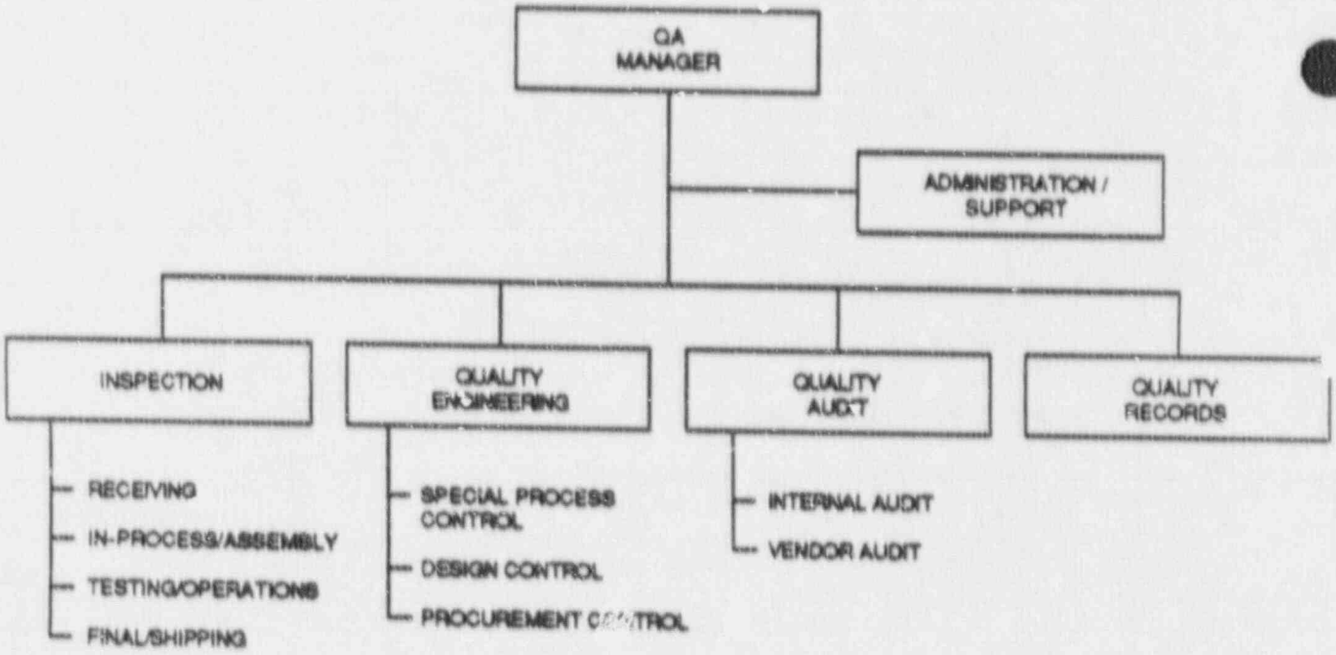


Figure 1-3

TYPICAL ORGANIZATION CHART
QA DEPARTMENT



2.0 SCOPE

The PNSI Quality Assurance Program complies with NRC Regulations, Regulatory Guides, ANSI/ASME Standards, and PNSI Quality Assurance policies as specifically defined herein. The PNSI Quality Assurance Program defines the policies, assigns the responsibilities, and summarizes the procedures governing the design, procurement, construction, testing and operational activities of quality-related components, systems, and structures for nuclear applications. The PNSI Quality Assurance Program is also applicable to energy research and development, military, aeronautical, and space projects to the extent specified by contract.

2.1 General

2.1.1 The PNSI Quality Assurance Program described herein addresses the requirements of the quality assurance criteria documents identified in this section and applies to the design, procurement, construction, testing and operational activities (at PNSI, its subsidiaries and in field locations) affecting the quality of radioactive material transport/storage packages and nuclear power plant 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 project team, including personnel of supporting departments whose activities affect quality, shall comply with the provisions of this quality assurance program.

2.1.2 The PNSI Quality Assurance Program conforms to quality assurance criteria documents listed below, including other quality assurance criteria not specifically identified. Applicable quality requirements are specified by the customer contract or appropriate regulatory criteria for licensing projects.

This is not intended to be an all inclusive list of quality assurance programmatic documents applicable to PNSI, but rather a general list of standards for the reviewer to measure the depth and breadth of the PNSI Quality Assurance Program.

a. Title 10, Code of Federal Regulations, Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants".

b. Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material", Subpart H, "Quality Assurance".

c. Title 10, Code of Federal Regulations, Part 72, "Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation (ISFSI)", Subpart G, "Quality Assurance."

d. ANSI/ASME NQA-1-1986, (including latest ASME Code accepted addenda) "Quality Assurance Program Requirements for Nuclear Power Plants and Fuel Reprocessing Plants."

e. The ASME Boiler and Pressure Vessel Code, Sections III and XI, 1986 Edition.

f. ANSI/ASME N45.2-1977, "Quality Assurance Program Requirements for Nuclear Facilities."

g. ANSI/ASME N45.2.6-1978, "Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants."

h. ANSI/ASME N45.2.9-1979, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants."

i. ANSI N45.2.11-1974, "Quality Assurance Requirements for the Design of Nuclear Power Plants."

j. ANSI/ASME N45.2.12-1977, "Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants."

k. ANSI/ASME N45.2.23-1978, "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants."

l. ANSI/ASME N626.3-1979, "Qualifications and Duties of Personnel Engaged in ASME Boiler and Pressure Vessel Code, Section III, Division 1 and 2, Certifying Activities."

m. Regulatory Guide 1.28, "Quality Assurance Program Requirements (Design and Construction)."

n. Regulatory Guide 1.58, "Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel."

o. Regulatory Guide 1.64, "Quality Assurance Requirements for the Design of Nuclear Power Plants."

p. Regulatory Guide 1.88, "Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records."

q. Regulatory Guide 1.144, "Auditing of Quality Assurance Programs for Nuclear Power Plants."

r. Regulatory Guide 1.146, "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants."

s. Regulatory Guide 7.10, "Establishing Quality Assurance Programs for Packaging Used in the Transport of Radioactive Materials".

t. Military Specification, MIL-Q-9858A, "Quality Program Requirements."

u. Military Specification, MIL-I-45208A, "Inspection System Requirements."

v. Military Specification, MIL-C-45662A, "Calibration System Requirements."

w. NASA Quality Publication, NHB 5300.4(1B), "Quality Program Provisions for Aeronautical and Space System Contractors."

x. U.S. Energy Research and Development Administration, Division of Reactor Development and Demonstration, RDT F 2-2, August 1973, "Quality Assurance Program Requirements."

y. Office of Civilian Radioactive Waste Management (OCRWM), "Quality Assurance Management Policies and Requirements," OCRWM-DOE/RW-0032, October 1985.

z. American Society for Nondestructive Testing, Recommended Practice, SNT-TC-1A, June 1975 and August 1984 Editions.

2.1.3 The PNSI Quality Assurance Program provides a basis of commitment and placement of responsibility for the duration of the contract or licensing effort. The procedural methods for implementing the requirements of the PNSI Quality Assurance Manual are contained in the Quality Procedures (QP's). Applicability of other quality standards, business mix, unique customer requirements, or other considerations may dictate the need for a subsidiary, regional, or branch office to utilize Quality Procedures specific to that location. Therefore, each PNSI subsidiary, regional, or branch office has the authority to develop, in accordance with Section 5.0 of this QA Manual, Quality Procedures unique to that location. Project Instructions (PI's) are utilized to address unique project requirements which are not specifically covered by the Quality Procedures. A further description for the review, approval, and control of QP's and PI's is contained in Section 5.0 of this manual.

2.1.4 The project planning document (Exhibit 2-1) is the key controlling feature utilized by PNSI to specify the appropriate regulatory licensing or contractual quality assurance program requirements. The applicable quality assurance program criteria, or parts thereof, are identified in the Project Plan to assure adequate quality assurance coverage. Project planning shall be performed

in accordance with applicable Quality Procedures and shall provide, as a minimum, for the following activities:

a. Establishing project team responsibilities.

b. Determining quality assurance program applicability.

c. Defining project scope and special technical and quality requirements for the project.

Preparation and approval of project plans for quality related projects involves both project and quality assurance personnel. All project plans for quality related projects are reviewed by the QA Manager to assure that QA controls are commensurate with the specific activity, item complexity, importance to safety, and customer-imposed contractual or appropriate regulatory licensing requirements.

2.1.5 The PNSI Quality Assurance Program provides for accomplishing activities affecting quality under suitably controlled conditions with consideration given to the following:

a. Use of appropriate equipment.

b. Suitable environmental conditions for accomplishing the activity.

c. Assurance that prerequisites for the given activity have been satisfied.

2.1.6 The PNSI Quality Assurance Program takes into account the need for special controls, processes, test equipment, tools, and skills to attain the required quality.

2.1.7 The PNSI Quality Assurance Program recognizes the need for verification of quality by inspection, monitoring and test.

2.2 Material Review Board

The PNSI Quality Assurance Program provides for the use of a Material Review Board (MRB) to disposition hardware or operational related discrepancies in accordance with an approved quality procedure. The MRB is convened when determined necessary by the Quality Assurance Manager and consists of representatives from engineering, licensing, production, procurement and quality assurance as applicable to the scope of the discrepancy.

2.3 Quality Assurance Manual Review, Approval and Control

2.3.1 The PNSI Quality Assurance Manual sections shall be reviewed by the Director, Corporate Quality Assurance and approved by the President.

2.3.2 The Director, Corporate Quality Assurance is responsible for the maintenance and distribution of the Quality Assurance Manual.

2.3.3 Revisions to the PNSI Quality Assurance Manual shall be indicated by a vertical line in the right hand margin unless a complete new edition of the manual is issued. In the case of a new edition, the manual shall be clearly identified as a new edition and each section shall be issued as revision zero.

2.3.4 The Director, Corporate Quality Assurance will issue controlled copies of the PNSI Quality Assurance Manual when requested. Only controlled copies of the PNSI Quality Assurance Manual shall be issued internal to the corporation. All controlled copies of the manual will be assigned a sequential number which shall appear on the title page of each controlled copy. The Director, Corporate Quality Assurance will ensure that current revisions are sent to all controlled manual holders. It is, however, the responsibility of the manual holders to keep the manuals up-to-date.

Quality Assurance Manual holders within the Corporation shall be placed on controlled distribution for a complete set of Quality Procedures (QP's) by the subsidiary Quality Assurance Manager or the Director, Corporate Quality Assurance. Controlled distribution of QP's to external recipients (other than PNSI employees) is accomplished by request from the manual holder.

Controlled distribution shall include a transmittal acknowledgement (Exhibit 2-2) which is to be signed by the document recipient and returned to the document distributor. If the document recipient fails to return the transmittal acknowledgement to the document distributor within the time frame designated on the transmittal, verbal acknowledgement may be obtained and documented to verify that the document was received. The document distributor will maintain a file of acknowledgements for each Quality Assurance Manual/QP set and has the option of removing an externally distributed document from the controlled distribution list at any time if receipt acknowledgement is not obtained. Receipt acknowledgement for overdue internally distributed documents shall be obtained by contacting the individual or his supervisor, if necessary.

2.3.5 The Director, Corporate Quality Assurance (or, for Quality Procedures, the Quality Assurance Manager) may authorize issuance of uncontrolled copies of the PNSI Quality Assurance Manual and Quality Procedures for information only. Uncontrolled copies of the Quality Assurance Manual and Quality Procedures will be up-to-date at the time of issuance and will be stamped "UNCONTROLLED" indicating that no future revisions will be issued to the document holder.

2.4 Management Review of Quality Assurance Program

2.4.1 The Director, Corporate Quality Assurance shall inform PNSI Corporate Management of the status and adequacy of the PNSI Quality Assurance Program. Quality Assurance Management Audits shall be conducted on each division, regional, and branch office annually by the Director, Corporate Quality Assurance.

These audit reports shall be transmitted to the applicable Quality Assurance Manager for action as required and distributed to Management of the affected organization as well as the President.

2.4.2 The Director, Corporate Quality Assurance shall prepare a semi-annual summary report of the quality assurance program which shall be distributed to the President for review. This report shall include the status of Corrective Action Reports (CARs), Audit Finding Reports (AFRs), Nonconformance Reports, Quality Discrepancy Reports, and shall identify any trends adverse to quality. The report shall also include a review of the Quality Assurance Manual to ensure its consistency with the quality assurance criteria documents identified in this Section.

2.5 Indoctrination and Training

2.5.1 The Quality Assurance Manager will conduct quality assurance program indoctrination sessions for new employees for his subsidiary, regional, or branch office.

2.5.2 Training for personnel who participate in the quality assurance program will be conducted by the Quality Assurance Manager for his subsidiary, regional, or branch office.

2.5.3 When necessary, training in project unique quality requirements will be provided by the appropriate Project Manager.

2.5.4 When required by applicable codes and standards, qualified personnel shall be appropriately certified in accordance with approved Quality Procedures.

2.5.5 Proficiency of personnel performing quality-affecting activities is maintained by continuing execution of their assigned responsibilities, retraining, reexamining, and/or recertifying as appropriate.

2.5.6 Records of Quality Assurance training and retraining shall be maintained by the Quality Assurance Manager to demonstrate implementation of the training program. Project unique training records shall be maintained by the Project Manager.

TITLE

DESIGN CONTROL

DIRECTOR, CORPORATE QUALITY ASSURANCE DATE 1-14-91

PRESIDENT DATE 14 Jan 1991

3.0 SCOPE

This section defines the requirements and assigns the responsibilities to assure that design and engineering activities are properly planned, documented and controlled.

3.1 General

3.1.1 Quality Procedures (QP's) shall be established and implemented to assure applicable technical requirements such as design bases, regulatory requirements, codes, standards and customer-specified requirements are correctly translated into calculations (Exhibits 3-1 and 3-2), specifications, design drawings, procedures, instructions, and design, topical and safety analysis reports. The Quality Procedures shall also ensure that appropriate quality standards are specified and included in technical documents.

3.1.2 Changes or deviations from specified technical requirements or quality standards shall be identified, documented and controlled.

3.1.3 Records of design control measures shall be identified, documented and controlled in accordance with applicable Quality Procedures and shall be available for review.

3.1.4 As appropriate for the type of project and the contracted scope of work, Quality Procedures shall provide measures for the following activities:

a. Controlling items such as physics, stress, thermal, hydraulic and accident analyses.

b. Compatibility of materials.

c. Accessibility for inservice inspection, maintenance and repair.

d. Delineation of acceptance criteria for inspections and tests.

e. Selection and review for suitability of application of materials, parts, equipment and processes that are essential to the function of the structure, system or component.

f. The identification of items and characteristics designated as important to safety are included in the details of "Topical and Safety Analysis Reports" when these documents are required. When required, these reports are produced in accordance with regulatory requirements.

3.1.5 Design documents shall be checked for both computational accuracy and appropriate design criteria by competent design personnel other than those who performed the original design.

3.1.6 Quality Procedures shall be established and implemented to identify and control design interfaces and for coordination among participating organizations. Such procedures shall describe the review, approval, release, distribution and revision of documents involving interfaces.

3.1.7 Verification of design adequacy, such as performance of design reviews, alternate calculations or qualification testing shall be in accordance with applicable Quality Procedures. The particular design verification method(s) utilized shall be identified and shall be based on regulatory and contractual requirements, the design complexity, the degree of standardization and the state-of-the-art considerations applicable to material, fabrication processes and operating conditions.

Where testing is used to verify the accuracy of the design in lieu of design review or alternate calculations, it shall include qualification testing under the most adverse design conditions.

3.1.8 Design verification shall be performed by competent individuals or groups other than those who performed the original design but who may be from the same organization or the same project team. Regardless of their title, individuals performing design verification shall not have immediate supervisory responsibility (except as allowed by Paragraph 3.1.9) and shall not have specified a singular design approach or ruled out certain design considerations or established the design inputs used in the design. The design verification shall include a review to ensure that design characteristics can be controlled, inspected, tested, and that inspection and test criteria are identified.

3.1.9 Design verification may be performed by the design originator's supervisor provided the supervisor is the only individual in the organization competent to perform the verification. In this case the following provisions apply:

a. The necessity for the supervisor to perform the verification shall be documented and approved in advance by the supervisor's management, and;

b. Effectiveness of the supervisor's design verification and the frequency of use of this verification method shall be periodically assessed by performance of comprehensive internal audits.

3.1.10 Changes to approved design documents, including field changes, 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 or by other equally qualified personnel or organizations as determined by the Project Manager. The personnel or organization(s) designated to perform the review and approval of changes shall be competent in the specific area of interest and have access to the background information and data related to the document being changed.

Changes to approved design documents, including field changes and defective or nonconforming items that are repaired or accepted as-is, are subject to the design control requirements described above. Design changes are reflected by applicable changes to drawings, reports and specifications when required to provide accurate as-built information. The verification records for specific items provide the basic as-built data and information.

3.2 Responsibilities

3.2.1 The Project Engineer is responsible for assuring that technical documents such as drawings, specifications, reports and calculations have been properly prepared and checked.

3.2.2 The Engineering Manager is responsible for verifying design adequacy through independent design verification.

3.2.3 The Project Manager is responsible for coordination of design interfaces among participating organizations and for maintaining records of activities related to design.

TITLE

PROCUREMENT DOCUMENT CONTROL

DIRECTOR, CORPORATE QUALITY ASSURANCE DATE 1-14-91

PRESIDENT DATE 14 Jan 1991

4.0 **SCOPE**

This section defines the requirements and assigns the responsibilities for the preparation, review, approval and control of procurement documents for items and services.

4.1 **General**

4.1.1 Procurement activities are performed in accordance with approved Quality Procedures to implement the policies defined in this QA Manual section.

Procurement documents shall identify the scope of work, technical requirements, quality assurance program requirements, rights of access, inspection and test requirements, special process requirements, documentation requirements and requirements for reporting and dispositioning of nonconformances, as applicable, to the item or service being procured. A typical Purchase Order is shown as Exhibit 4-1.

4.1.2 Procurement documents shall be reviewed prior to release by qualified QA personnel to assure that quality requirements are correctly stated, inspectable, and controllable; there are adequate acceptance and rejection criteria; and the procurement document has been prepared, reviewed and approved in accordance with applicable Quality Procedures.

4.1.3 Procurement documents shall also require documentation that identifies any procurement requirements which have not been met, together with a description or listing of those nonconformances dispositioned "use as is" or "repair".

4.1.4 Changes to procurement documents shall be subject to the same review and approval as the original procurement document.

4.1.5 Selection of procurement sources shall be in accordance with Section 7.0 of this Quality Assurance Manual.

4.2 Responsibilities

4.2.1 The Project Engineer is responsible for establishing the technical requirements of the procurement.

4.2.2 The Project Manager is responsible for documenting the technical and other requirements of the procurement in the procurement documents.

4.2.3 The Project Manager is responsible for assuring that all applicable customer and Quality Assurance requirements have been adequately included in procurement documents and for assuring that procurement documents have been properly controlled.

4.2.4 The Quality Assurance Manager is responsible for reviewing procurement documents to verify that they include or reference the requirements of this section. The Field Quality Assurance Supervisor is delegated this responsibility when procurement documents are prepared and issued at the field site.

TITLE

INSTRUCTIONS, PROCEDURES AND DRAWINGS

DIRECTOR, CORPORATE QUALITY ASSURANCE DATE 1-14-91

PRESIDENT DATE 14 Jan 1991

5.0 SCOPE

This section defines the requirements and assigns the responsibilities for the preparation, revision, review and approval of procedures, instructions and drawings which prescribe activities affecting quality.

5.1 General

5.1.1 Activities that affect quality shall be accomplished in accordance with written procedures, instructions and/or drawings as appropriate to the activity being performed.

5.1.2 Procedures, instructions and drawings shall include the appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

5.1.3 Quality Procedures (Exhibit 5-1) define the methods for implementation of the PNSI Quality Assurance Manual requirements for both office and field activities.

5.1.4 Quality Procedures, signed by the President and Director, Corporate Quality Assurance, are generic to PNSI subsidiaries, regional and branch offices, unless otherwise identified.

5.1.5 Each PNSI subsidiary, regional and branch office is authorized to develop Quality Procedures that are suitable to their method of operation, In no case shall Quality Procedure deviate from the quality criteria specified by the PNSI Quality Assurance Manual.

5.1.6 Project Instructions will be written, as necessary, to implement special requirements determined by customer contracts or project needs, and will be applicable only to that project or customer for both office and field activities or as defined in the project instruction.

5.1.7 All revisions to procedures, instructions and drawings shall be prepared, reviewed and approved in the same manner as the original document.

5.2 Responsibilities

5.2.1 The Quality Assurance Manager is responsible for the preparation of Quality Procedures to implement the requirements of the PNSI Quality Assurance Manual.

5.2.2 The Director, Corporate Quality Assurance is responsible for review, control and distribution of Quality Procedures.

5.2.3 The PNSI President is responsible for the approval of the Quality Procedures.

5.2.4 When a subsidiary, regional or branch office develops separate Quality Procedures specific to their location, the authority for review, approval, maintenance, distribution and control is delegated to the respective subsidiary, regional or branch office General Manager and the Quality Assurance Manager. All Quality Procedures shall be reviewed by the Director, Corporate Quality Assurance prior to issuance.

5.2.5 The individuals responsible for preparation, review and approval of procedures, instructions and drawings that prescribe activities affecting quality are identified by the Quality Procedure that generates the document.

6.0 SCOPE

This section defines the requirements and assigns the responsibilities to control the review, issuance and distribution of documents which prescribe activities affecting quality. These requirements pertain to corporate, subsidiary, regional and branch office activities as well as activities performed by PNSI at the field sites.

6.1 General

6.1.1 Documents which require control in accordance with this section are finalized technical documents, procedures and instructions.

6.1.2 Documents that prescribe activities affecting quality shall be reviewed and approved for technical adequacy and inclusion of appropriate quality requirements prior to approval and issuance. The Quality Procedure (QP) that generates the document describes the requirements for the review and approval functions.

6.1.3 Changes to documents which prescribe activities affecting quality shall be reviewed and approved by the same organization that performed the initial review and approval, or by equally qualified responsible organizations as determined by the Project Manager. However, such review and approval is not required when the changes are inconsequential, such as the correction of minor typographical errors. Such changes shall be made by the appropriate division, regional or branch office personnel by lining out the incorrect data, adding the new information, initialing and dating the correction.

6.1.4 Documents which prescribe activities affecting quality shall be distributed to, and used at, the location where the activity will be performed prior to implementation of work. The internal and external distribution of technical documents to responsible personnel are predetermined and established for each project. Distribution to individuals at the customer's facility is as specified by the customer.

6.1.5 Obsolete or superseded documents shall be either removed from the work area and destroyed or appropriately marked to identify that they have been replaced by a later revision.

6.1.6 A master list may be used to identify the latest revision of each document. When used, the master list shall be distributed to predetermined, responsible personnel. The master list shall be updated as required to remain accurate.

6.1.7 Controlled distribution of documents which prescribe activities affecting quality shall be accomplished by the use of distribution logs (Exhibit 6-1) and transmittal forms (Exhibit 6-2) or other means of positive receipt acknowledgement.

6.2 Responsibilities

6.2.1 The Project Manager is responsible for the receipt, issuance and distribution of controlled documents within the scope of the project. The Project Manager is also responsible, through customer direction, for identifying responsible personnel at the customer's facility who are to receive and use quality-related documents generated by PNSI.

6.2.2 The Director, Corporate Quality Assurance or Quality Assurance Manager is responsible for the issuance and distribution of controlled documents within the scope of quality assurance activities.

6.2.3 The applicable department manager, generating quality-related procedures or instructions for his department, is responsible for the issuance and distribution of those documents.

6.2.4 Individuals who utilize documents which prescribe activities affecting quality are responsible for using the latest revision, as identified in the appropriate distribution records, or obtaining controlled distribution for those documents.

TITLE

CONTROL OF
PURCHASED ITEMS AND SERVICES

DIRECTOR, CORPORATE QUALITY ASSURANCE DATE 1-14-91

PRESIDENT DATE 1/14/1991

7.0 **SCOPE**

This section defines the requirements and assigns the responsibilities to assure that purchased items and services, including special processes, whether purchased directly or through subcontractors, conform to specified procurement document requirements. Such measures include, as appropriate, provisions to properly plan, document, monitor and control the quality of purchased items and services.

7.1 **General**

7.1.1 Control of purchased items and services shall be performed in accordance with approved Quality Procedures (QP's).

7.1.2 Prior to award of contract, suppliers shall be subjected to a documented technical and quality assurance evaluation (Exhibit 7-1) for their capability to provide items or services and related records in accordance with the requirements of approved procurement documents.

7.1.3 The technical and quality assurance evaluations are not required for any one of the following conditions:

a. The supplier is currently on PNSI's Approved Suppliers List (ASL) for similar items or services.

b. The supplier is currently on the customers approved suppliers list or has been specifically selected by the customer and documentation attesting to this

approval has been supplied from the customer to PNSI.

c. The supplier holds a valid Certificate of Authorization or Quality System Certificate from the American Society of Mechanical Engineers (ASME) for the activities described in the procurement documents.

7.1.4 Items and services shall be controlled, monitored (surveillance) and verified upon receipt by qualified personnel to assure conformance with procurement documents. Surveillance of the suppliers activities shall be performed when determined necessary by the Quality Assurance Manager. When conducted, surveillance shall be documented on a surveillance report (Exhibit 7-2). The extent or need of surveillance activities by PNSI, at the supplier's location, is dependent on the following conditions:

a. The complexity or uniqueness of the item and its importance to safety.

b. The need for special controls and surveillance over processes and equipment. Surveillance is performed on those items where verification of procurement requirements cannot be determined upon receipt.

c. The degree to which functional compliance can be demonstrated by receipt inspection and test.

d. The availability of quality history or the degree of standardization of identical items.

7.1.5 When purchased items are received, a receiving inspection shall be performed in accordance with the requirements

specified by Section 10.0 of this Quality Assurance Manual.

7.1.6 For commercial "off-the-shelf" items, where specific quality assurance controls appropriate for nuclear applications cannot be imposed in a practicable manner, additional quality verification requirements shall be performed to the extent necessary to verify the acceptability and conformance of an item to procurement document requirements.

7.1.7 In addition to the requirements of Regulatory Guide 1.144, quality assurance audits shall be conducted to verify compliance with applicable quality requirements at intervals consistent with the importance, complexity and quantity of items or services provided. However, quality assurance audits of suppliers are not required when any one of the following conditions exist:

a. The supplier holds a valid ASME Quality System Certificate or Certificate of Authorization for the items or services being procured.

b. The supplier has been approved by the customer for the specific procurement and documentation so stating has been provided to PNSI.

c. The supplier is a nationally recognized manufacturer of test equipment and related calibration services and the calibration services are verified by PNSI prior to use of the equipment.

d. The supplier is a regulatory agency or a nationally recognized standards laboratory such as the U.S. National Institute of Standards and Technology.

7.2 **Responsibilities**

7.2.1 The Project Manager is responsible for the following activities in relation to procurement:

a. Planning and executing the procurement process.

b. Evaluating the supplier's technical capability to perform the scope of work specified by the procurement documents.

c. Notifying the Quality Assurance Manager for the performance of scheduled source surveillance.

7.2.2 The Quality Assurance Manager is responsible for performing the following activities in relation to procurement:

a. Evaluating the supplier's quality assurance program to the requirements of the specified procurement documents.

b. Performing supplier surveillance activities.

c. Conducting supplier quality assurance audits to the requirements specified herein.

7.2.3 The supplier is responsible for first-line inspection and verification of items and services, including special processes, within their contractual scope of work.

7.2.4 The Director, Corporate Quality Assurance, or his designee is responsible for maintenance and distribution of the Approved Suppliers List (ASL).

TITLE

IDENTIFICATION AND CONTROL OF MATERIALS, PARTS AND COMPONENTS

DIRECTOR, CORPORATE QUALITY ASSURANCE DATE 1-14-91

PRESIDENT DATE 14 Jan 1991

8.0 SCOPE

This section defines the requirements and assigns the responsibilities for the identification and control of materials, parts and components, including partially fabricated subassemblies received or constructed by PNSI.

8.1 General

8.1.1 Quality Procedures (QP's) shall identify the appropriate criteria and responsibilities to assure that identification is maintained, either on the item or on records traceable to the item, to preclude use of incorrect or defective items.

8.1.2 When required by the applicable specification (procurement, fabrication, construction, erection), the identification of materials and parts shall be traceable to the appropriate documentation such as drawings, specifications, purchase orders, manufacturing and inspection documents, deviation reports and physical and chemical material test reports.

8.1.3 Quality Procedures shall identify the appropriate criteria and responsibilities to assure that the correct identification of material, parts and components is verified and documented as described in Section 10.0 throughout fabrication, operation, assembling, shipping and inspection.

8.1.4 Hardware identification requirements shall be determined during generation of drawings (design and manufacturing) and specifications such that the location and method of identification does not affect the form, it, function, or quality of the item being identified.

8.2 Responsibilities

8.2.1 The Quality Assurance Manager shall be responsible for assuring that items are adequately identified and traceable to the appropriate reference documentation.

8.2.2 The Project Manager shall be responsible for assuring that all documentation identified as a deliverable by the purchase document is received and is acceptable.

TITLE

CONTROL OF SPECIAL PROCESSES

DIRECTOR, CORPORATE QUALITY ASSURANCE DATE 1-14-91

PRESIDENT DATE 14 Jan 1991

9.0 SCOPE

This section defines the requirements and assigns the responsibilities to assure that special processes such as nondestructive examination, chemical cleaning, lead pouring, welding, fabrication, weld overlay, heat treating, waste processing and induction heating stress improvement are acceptably performed and to assure that special processes are performed by qualified personnel using qualified procedures and equipment.

9.1 General

9.1.1 A special process is a process in which verifying the results are highly dependant on the control of the process or the skill of the operators, or both, and in which the specified quality cannot be readily determined by inspection or test of the product.

9.1.2 Special processes shall be controlled using special purpose forms such as Travelers (Exhibit 9-1) to define the sequential operations which must occur. These forms include provision to record the procedures, personnel and material identities related to each sequence. They will also provide a vehicle for the establishment of QA Hold/Witness Points.

9.1.3 Special process procedures, equipment and personnel shall be qualified for conformance to applicable Codes, standards and specifications.

9.1.4 Quality Procedures shall be developed to require that special processes be performed using qualified procedures, equipment and personnel.

9.1.5 Qualification records of special process procedures, equipment and personnel shall be established and maintained.

9.1.6 When special processes are subcontracted, PNSI procurement documents shall require the supplier to submit special process procedure qualification data to PNSI for review. Selection and control of special process subcontractors shall be in accordance with Section 7.0 of this Quality Assurance Manual.

9.2 Responsibilities

9.2.1 The Project Manager is responsible for the following activities in relation to special processes:

a. Review and approval of PNSI procedures which describe and control special processes for his project.

b. Review of subcontractor special process procedures when applicable.

9.2.2 The Project Manager is responsible for maintenance and turnover of records associated with the execution and acceptability of special processes except for nondestructive examination personnel qualification and certification records for which the Quality Assurance Manager is responsible.

9.2.3 The Quality Assurance Manager is responsible for final approval of special process procedures as well as inspection procedures or data sheets that provide for recording evidence of acceptable use of special process procedures, equipment and personnel.

9.2.4 The Quality Assurance Manager is responsible for maintaining a qualification program and certification records for personnel involved with special process inspection and nondestructive examination.

TITLE: INSPECTION

DIRECTOR, CORPORATE QUALITY ASSURANCE — DATE 1-14-91

PRESIDENT — DATE 14 Jan 1991

10.0 SCOPE

This section defines the requirements and assigns the responsibilities to assure that inspection and surveillance activities are performed by appropriately trained and qualified personnel using written, approved procedures.

This section includes inspection of items, upon receipt by PNSI at the designated location, and also includes surveillance and in-process and final inspections of PNSI or PNSI subcontractor fabricated, constructed, operated or erected items, systems, components or structures.

10.1 General

10.1.1 Inspection and surveillance personnel shall have been appropriately trained and shall be qualified to the requirements of ANSI N45.2.6-1978 and Regulatory Guide 1.58 for the level of inspection which they are performing.

10.1.2 Inspection and surveillance personnel shall be individuals other than those who performed or directly supervised the activity being inspected and they shall not report directly to the immediate supervisors who are responsible for the activity being inspected.

10.1.3 Inspection and surveillance personnel shall utilize written, approved procedures, checklists or instructions which delineate the acceptance criteria for the items under inspection.

The approved, written procedures, checklists or instructions shall provide for the following, as required for the inspection or surveillance:

a. Identification of characteristics or activities to be inspected, witnessed or verified, including criteria for acceptance.

b. A description of the method of inspection or surveillance.

c. Identification of required procedures, drawings, specifications or other documentation and revisions necessary to facilitate the inspection.

d. Identification of the inspector or data recorder and recording the results of the inspection or surveillance operation.

e. Specifying necessary measuring and test equipment, referencing accuracy requirements.

10.1.4 Inspection shall be performed to verify the following characteristics, as a minimum:

a. The material, component or equipment is properly identified and corresponds to the requirements of the purchase or fabrication control documents.

b. Material, components, equipment and acceptance records satisfy the inspection instructions prior to acceptance, installation or use.

c. Specified inspection, test and other records (such as certificates of conformance attesting that the

material, components and equipment conform to specified requirements) are available and acceptable prior to installation or use. These records are periodically evaluated by audits, surveillances, independent inspections or tests to assure validity.

10.1.5 Procedures shall be established to assure that PNSI hold points, including customer hold points, are identified and work will not proceed until acceptance by authorized personnel.

10.1.6 Inspection and surveillance results shall be documented and evaluated, and a determination of their acceptability shall be made.

10.1.7 Results of surveillances and inspections (receiving, in-process, assembly, final packaging and shipping) shall be documented on an inspection checklist (Exhibit 10-1) or other process control document and shall be maintained as quality records.

10.2 Responsibilities

10.2.1 The Quality Assurance Manager is responsible for maintaining a qualification program for inspection and NDE personnel and for approving procedures, planning, travelers or other documents which establish inspection hold points.

10.2.2 The Quality Assurance Manager is responsible for approving inspection procedures, checklists or instructions or other documents to identify inspection hold points where work is stopped.

10.2.3 Level II or III Certified Inspectors are responsible for evaluating inspection results to determine their acceptability.

10.2.4 The Project Manager is responsible for developing procedures, planning, travelers or other documents to control the fabrication or operations activities, and for assuring that work will not proceed until acceptance by the inspector.

10.2.5 Inspection personnel are responsible for performing the inspection using calibrated inspection, measuring and test equipment as defined in Section 12.0 and for compiling records to document the inspections.

10.2.6 The Project Manager is responsible for maintaining inspection records in accordance with this Quality Assurance Manual.

11.0 SCOPE

This section defines the requirements and assigns the responsibilities for the control of testing activities performed by PNSI.

11.1 General Requirements

11.1.1 Test requirements and acceptance criteria shall be provided by the organization requesting the test unless otherwise designated by contract.

11.1.2 Approved, written test procedures or instructions shall be developed that provide the following, as required:

a. The requirements and acceptance limits contained in applicable test specifications or design and procurement documents.

b. Instructions for performing the test.

c. Test prerequisites such as calibrated instrumentation, adequate test equipment and instrumentation (including their accuracy requirements), completeness of item to be tested, suitable and controlled environmental conditions, and provisions for data collection and storage.

d. Mandatory inspection hold points for witness by the customer or the PNSI inspector (as required).

e. Acceptance and rejection criteria.

f. Methods of documenting or recording test data and results.

g. Provisions for assuring test prerequisites have been met.

11.1.3 The test results shall be documented and evaluated to assure the test requirements and acceptance criteria have been satisfied.

11.1.4 Test personnel shall have appropriate training and shall be qualified to the requirements of ANSI N45.2.6-1978 and Regulatory Guide 1.58 for the level of testing which they are performing.

11.1.5 Testing records and records of training shall be maintained as quality records.

11.2 Responsibilities

11.2.1 The organization requesting the test is responsible for issuing documentation that delineates the criteria and requirements of the test unless otherwise specified by contract.

11.2.2 The Project Engineer is responsible for preparing test procedures that are responsive to the test requirements and acceptance criteria.

11.2.3 The Engineering Manager and, when applicable, the organization requesting the test are responsible for reviewing and approving the test procedures.

11.2.4 The Engineering Manager is responsible for properly training test personnel (or assuring that previous training has been accomplished) for the level at which the test personnel are performing.

The Engineering Manager is also responsible for evaluating and approving the test results to assure that the test requirements have been satisfied.

11.2.5 The Quality Assurance Manager is responsible for establishing and maintaining a program for the qualification of test personnel to the requirements specified herein. The Quality Assurance Manager is also responsible for performing audits and/or surveillance of testing activities.

11.2.6 Test personnel are responsible for using calibrated inspection, measuring and test equipment as defined in Section 12.0.

TITLE

CONTROL OF MEASURING AND TEST EQUIPMENT

DIRECTOR, CORPORATE QUALITY ASSURANCE DATE 1-14-91

PRESIDENT DATE 14 Jan 1991

12.0 SCOPE

This section defines the requirements and assigns the responsibilities for the control of measuring and test equipment used for acceptance of inspections or tests performed by PNSI.

12.1 General Requirements

12.1.1 Measures shall be established and documented to assure that tools, gages, instruments and other inspection, measuring and test equipment used in activities affecting quality are of proper range, type and accuracy to verify conformance to established requirements (Exhibits 12-1 and 12-2).

12.1.2 To assure accuracy, inspection, measuring and test equipment shall be controlled, calibrated, adjusted and maintained at prescribed intervals, or prior to use, against certified equipment having known valid relationships to nationally recognized standards. If no national standards exist, the basis for calibration shall be documented.

12.1.3 Special calibration and control measures on rules, tape measures, levels and other such devices are not required where normal commercial practices provide adequate accuracy.

12.1.4 The method and interval of calibration for each item shall be defined and shall be based on the type of equipment, stability characteristics, required accuracy and other conditions affecting measurement control. Special calibration shall be performed when accuracy of the equipment is suspect.

12.1.5 Unless limited by state-of-the-art, calibrating standards shall have an error requirement of no more than one-quarter (1/4) of the tolerance of the equipment being calibrated.

12.1.6 When inspection, measuring and test equipment are found to be out of calibration, an evaluation shall be made and documented of the validity of previous inspection or test results and of the acceptability of items previously inspected or tested.

12.1.7 If any inspection, measuring or test equipment is consistently found to be out of calibration, it shall be repaired or replaced.

12.1.8 Inspection, measuring and test equipment shall be marked to indicate calibration status.

12.1.9 Quality Procedures (QPs) describe the procedural details for the proper execution and documentation for the control of inspection, measuring and test equipment.

12.1.10 Written, approved procedures shall be developed to control the issuance of measuring and test equipment such as instruments, tools, gages, fixtures, reference and transfer standards, and nondestructive test equipment that is used in the acceptance of inspection and test operations.

12.1.11 Records of calibration of measuring and test equipment shall be maintained as quality records.

12.2 Responsibilities

12.2.1 The Quality Assurance Manager is responsible for the implementation of the calibration program (including the responsibility for maintaining calibration records of measuring and test equipment).

12.2.2 The Quality Assurance Manager is responsible for implementing procedures to control the issuance and use of measuring and test equipment.

12.2.3 Personnel performing inspections and tests are responsible for using calibrated inspection, measuring and test equipment.

TITLE

HANDLING, STORAGE AND SHIPPING

DIRECTOR, CORPORATE QUALITY ASSURANCE DATE 1-14-91

PRESIDENT DATE 14 Jan 1991

13.0 SCOPE

This section defines the requirements and assigns the responsibilities for special handling, preservation, storage, cleaning, packaging and shipping of materials, components and systems purchased, fabricated, constructed, operated or erected by PNSI.

13.1 General

13.1.1 Procedures shall be established to describe the control of cleaning, handling, preservation, storage, packaging and shipping of materials, components and systems, when specified by design and procurement specification requirements, to preclude damage, loss or deterioration by environmental conditions such as temperature or humidity.

13.1.2 Special handling, preservation, storage, cleaning, packaging and shipping requirements shall be established by qualified individuals in accordance with predetermined work and inspection instructions.

13.1.3 Special handling tools and equipment shall be inspected and tested in accordance with written, approved procedures, and at specified time intervals, to verify that the tools and equipment are adequately maintained.

13.2 Responsibilities

13.2.1 The Project Engineer is responsible for reviewing and approving procedures and instructions which describe the control of cleaning, handling, shipping and storage of materials, components and systems.

13.2.2 The Quality Assurance Manager is responsible for reviewing and approving procedures, instructions and checklists which provide for the inspection of special handling, preservation, storage, cleaning, packaging and shipping requirements of items by PNSI.

13.2.3 The Project Manager is responsible for implementation of receipt, storage, handling and shipping instructions of purchased items and materials. This includes the responsibility for providing special handling, special coverings, special equipment, special environments and adequate storage areas as applicable.

TITLE

INSPECTION AND TEST STATUS

DIRECTOR, CORPORATE QUALITY ASSURANCE DATE 1-14-91

PRESIDENT DATE 14 Jan 1991

14.0 SCOPE

This section defines the requirements and assigns the responsibilities for the control of inspection and test status indicators, including the authority for application and removal of inspection and test status indicators.

14.1 General

14.1.1 Procedures shall be established to indicate the inspection and test status of materials, items, structures, systems and components throughout fabrication, installation, operation and test.

14.1.2 Procedures shall be established to control the application and removal of inspection and welding stamps and status indicators such as tags (Exhibit 14-1), markings, labels and stamps.

14.1.3 The status of nonconforming, inoperative or malfunctioning structures, systems and components shall be documented and identified to prevent inadvertent use, in accordance with section 15.0 of this Quality Assurance Manual.

14.1.4 Procedures shall be established to assure that items accepted and released are identified as to their inspection status prior to forwarding them to a controlled storage area or releasing them for installation, operation or further work.

14.2 Responsibilities

14.2.1 The Quality Assurance Manager is responsible for approving procedures that provide for the identification of inspection and test status indicators, including the application and removal of status indicators such as tags and labels.

14.2.2 The Quality Assurance Manager is responsible for assuring that the status of nonconforming, inoperative or malfunctioning structures, systems or components is indicated.

14.2.3 Production, Test and Operations personnel are responsible for compliance with indicated inspection and test status indicators.

TITLE

CONTROL OF NONCONFORMING ITEMS

DIRECTOR, CORPORATE QUALITY ASSURANCE DATE 1-14-91

PRESIDENT DATE 14 Jan 1991

15.0 SCOPE

This section defines the requirements and assigns the responsibilities for the control, identification, segregation, documentation and close-out of nonconforming items to prevent their inadvertent installation or use in fabrication, construction, operations or erection.

15.1 General

15.1.1 Procedures shall be established to describe the identification, documentation, segregation, review, disposition, and notification to affected organizations of nonconforming items, materials, systems, parts and components (Exhibit 15-1).

15.1.2 Nonconforming items shall be dispositioned as "use-as-is", "reject", "repair" or "rework".

15.1.3 Nonconforming items dispcsitioned "use-as-is" or "repair" shall include technical justification to indicate and assure continued compliance with design, regulatory and contractual requirements.

15.1.4 Items dispositioned as "rework", "repair", or replacement items shall be inspected and tested in accordance with the original inspection and test requirements or acceptable alternatives which are in compliance with the specified acceptance criteria.

15.1.5 Nonconforming items dispositioned "use-as-is" or "repair" shall be reported to the customer unless such reporting is formally waived by the customer.

15.1.6 When determined by the Quality Assurance Manager to be appropriate, he shall convene a Material Review Board (MRB) as described in PNSI's Quality Assurance Manual Section 2.0 to provide a disposition of the discrepancy. MRB activities are as described in an approved Quality Procedure and are in addition to the responsibilities defined in this Quality Assurance Manual Section.

15.2 Responsibilities

15.2.1 The Project Engineer is responsible for determining (if not already provided by a Material Review Board) and approving the disposition of nonconforming items.

15.2.2 The Quality Assurance Manager is responsible for reviewing and approving the disposition of nonconforming items and for determining when it is appropriate to convene a Material Review Board to disposition discrepancies.

15.2.3 The Project Manager is responsible for approving the disposition of Nonconformance Reports. The Project Manager is also responsible for segregating nonconforming items when practical, reporting nonconforming items to the customer, and in conjunction with production, operations, test and QA personnel, implementing the approved disposition.

15.2.4 For licensed products, the Manager of Licensing and Analysis is responsible for reviewing Reports of Nonconformances to assess the impact of the discrepancy on the licensing commitments.

15.2.5 All employees are responsible for notifying their supervisor of any potential nonconforming condition affecting hardware, documentation or services.

TITLE

CORRECTIVE ACTION

DIRECTOR, CORPORATE QUALITY ASSURANCE DATE 1-14-91

PRESIDENT DATE 14 Jan 1991

16.0 SCOPE

This section defines the requirements and assigns the responsibilities for identifying and correcting significant conditions adverse to quality, including provisions to prevent recurrence.

16.1 General

16.1.1 A condition adverse to quality such as a nonconformance, failure, malfunction, deficiency, deviation, defective material or equipment shall be documented and corrected as soon as practical after the condition has been determined. Sections 15.0 and 18.0 describe the requirements for documenting and correcting these conditions.

16.1.2 Significant conditions adverse to quality including the cause of the condition and the corrective action to preclude repetition shall be documented (Exhibit 16-1) and reported to subsidiary management and the Director, Corporate Quality Assurance. For the purpose of this section, a significant condition adverse to quality is defined as, but not limited to, an unsatisfactory quality trend, bypassing of required inspections, tests, or other critical operations, a significant deficiency as defined by 10 CFR 50.55(e), or a defect or failure as defined by 10 CFR 21.

16.1.3 Timely follow-up action shall be taken to verify proper implementation and close-out of the required corrective action.

16.1.4 A Summary Report of the status of Corrective Action Reports shall be prepared on a semi-annual basis by the Director, Corporate Quality Assurance for distribution to the President for review.

16.2 Responsibilities

16.2.1 All PNSI personnel are responsible for reporting potentially significant conditions adverse to quality to the Quality Assurance Manager.

16.2.2 The Quality Assurance Manager is responsible for assuring implementation of the corrective action program, including follow-up and close-out actions. He is also responsible for informing the Director, Corporate Quality Assurance of corrective action activities.

16.2.3 The Director, Corporate Quality Assurance is responsible for reviewing all Corrective Action Reports to determine if the deviation or deficiency documented on the CAR is potentially reportable to the Nuclear Regulatory Commission in accordance with 10 CFR 50.55 (e) or 10 CFR 21.

16.2.4 For licensed products, the Manager of Licensing and Analysis is responsible for reviewing Corrective Action Reports to assess the impact of the discrepancy on the licensing commitments.

16.2.5 Production, Operations, Test and QA personnel, as identified, are responsible for correcting significant conditions adverse to quality.

17.0 SCOPE

This section defines the requirements and assigns the responsibilities for establishing the control and disposition of quality records generated by PNSI.

17.1 General Requirements

17.1.1 Quality Procedures (Qps) shall be developed identifying documents generated by PNSI which are considered quality records. Typically, quality assurance records include operating logs and results of reviews, inspections, tests, audits and material analyses, monitoring of work performance, qualification of personnel, procedures and equipment; drawings; specifications; procurement documents; calibration procedures and reports; design review reports; and inspection and test records which contain the following when applicable:

a. a description of the type of observation,
b. the date and results of the inspection or test,
c. information related to conditions adverse to quality,
d. inspector or data recorder information,
e. evidence as to the acceptability of the results,
f. action taken to resolve any discrepancies noted.

17.1.2 Identified quality records shall be classified as lifetime, product nonpermanent, or programmatic nonpermanent as described by Regulatory Guide 1.28 using an approved procedure.

17.1.3 QA records shall be indexed to provide for identification, records retention period and storage location.

17.1.4 For licensed equipment or shipping/storage containers, lifetime and nonpermanent records generated by PNSI including design related records such as calculations, drawings, design qualification data and material analysis shall be maintained in the QA records system as follows. Lifetime records shall be maintained for the life of the licensed equipment or shipping/storage containers. Programmatic nonpermanent records shall be retained for at least three (3) years and product nonpermanent records shall be retained for at least ten (10) years or the life of the item if less than ten years.

17.1.5 Lifetime and product nonpermanent records generated by PNSI for nonlicensed products, which are applicable to a specific scope of work or contract, are generated and may be transmitted to the customer during execution of the work or contract. Upon completion of the scope of work or contract, all records which have not been previously transferred will be offered to the customer for disposition. PNSI does not permanently store product quality records unless specifically requested to do so by the customer or, for licensed products, when PNSI is the licensee.

17.1.6 Nonpermanent programmatic records generated by PNSI, which are generic to the implementation of PNSI's Quality Assurance Program, and not related to a specific project such as QA Management Audits, shall be retained by PNSI for a period of three (3) years from date of generation, unless otherwise stated by customer contractual requirements.

17.1.7 Records shall be indexed, filed and maintained in facilities that provide a suitable environment to minimize deterioration or damage, and to prevent loss subsequent to completion of work, during the specified retention time or until transferred to the customer, as required by applicable Codes, Standards and procurement documents.

17.1.8 Protection for QA records is provided by using one of the following storage methods:

(a) Two sets of identical records are maintained at separate storage locations, or

(b) The official copy of all QA records is maintained in approved fire-proof files or vault, at a single location.

17.2 Responsibilities

17.2.1 The Project Manager is responsible for identifying, indexing and storing product related records under his jurisdiction.

17.2.2 The Quality Assurance Manager is responsible for identifying, indexing and storing programmatic records under his jurisdiction for the specified retention period. This includes responsibility for maintenance of training records for testers, inspectors, and auditors.

17.2.3 The Quality Assurance Manager is responsible for performing periodic audits of PNSI's Project QA records.

17.2.4 The Director, Corporate Quality Assurance is responsible for scheduling periodic audits of PNSI's QA records.

18.0 SCOPE

This section defines the requirements and assigns the responsibilities for a comprehensive system of planned and documented audits including audits of suppliers and site activities to verify compliance with all aspects of PNSI's Quality Assurance Program and to determine the effectiveness of the program.

18.1 General

18.1.1 Audits shall be scheduled in a manner to provide coverage and coordination with ongoing Quality Assurance Program activities commensurate with the status and importance of the activity. All elements of PNSI's Quality Assurance Program shall be audited at least once each year at each subsidiary or during the life of the activity, whichever is shorter.

The need for reaudit of deficient areas shall also be considered. Audits shall be planned to assure effective implementation of quality assurance activities during design, procurement, fabrication, construction, operations, erection, inspection and testing.

18.1.2 Audits shall be performed in accordance with preestablished written procedures using checklists (Exhibit 18-1) and conducted by trained and certified personnel (Exhibit 18-2) having no direct responsibilities in the areas being audited. Objective evidence shall be examined for compliance with quality assurance program requirements.

18.1.3 Audit results shall be documented by auditing personnel and shall be distributed to and reviewed by management having responsibility for the area being audited.

18.1.4 Quality Assurance Management Audits shall be performed to determine the effectiveness of functions for which quality assurance personnel are responsible.

18.2 Responsibilities

18.2.1 The Quality Assurance Manager for each PNSI subsidiary is responsible for implementing a quality assurance audit program suitable to the type, scope and complexity of the work for that location. This activity also includes supplier audits and audits of QA related activities at the job site.

18.2.2 The Director, Corporate Quality Assurance is responsible for planning, scheduling and conducting annual Quality Assurance Management Audits of each PNSI subsidiary.

18.2.3 Management of the audited organization is responsible for correcting the deficiencies identified by the audit.

TITLE

EXHIBITS

DIRECTOR, CORPORATE QUALITY ASSURANCE DATE 1-14-91

PRESIDENT DATE 14 Jan 1991

Usage Note

The forms contained in this section are included to demonstrate how the QA Program controls are typically applied and are not intended to limit PNSI subsidiaries to using the forms shown as long as the QA Manual requirements are adhered to.

TITLE	EXHIBIT NO.	REVISION
Stop Work Order	1-1	0
Project Planning Form	2-1	0
QAM/QP Transmittal Form	2-2	0
Standard Calculation Cover	3-1	0
Standard Calculation Page	3-2	0
Purchase Order	4-1	0
Quality Procedure Page	5-1	0
Distribution Log	6-1	0
Transmittal Form	6-2	0
Supplier Certification Summary	7-1	0
Surveillance Report Form	7-2	0
Process Control Traveller	9-1	0
Inspection Checklist	10-1	0
Calibration Log	12-1	0
Calibration Record	12-2	0
Status Tags	14-1	0
Nonconformance Report	15-1	0
Corrective Action Report	16-1	0
Audit Checklist	18-1	0
Lead Auditor Certification	18-2	0

PACIFIC NUCLEAR SYSTEMS

STOP WORK ORDER

DESCRIPTION OF PROBLEM / REQUEST FOR WORK STOPPAGE:

INITIATOR _____ DATE _____

STOP WORK REQUEST ASSESSMENT:

IS A WORK STOPPAGE REQUIRED? ☐ YES ☐ NO

CAR NO: _____

QA MANAGER _____ DATE _____

STOP WORK ORDER ACKNOWLEDGEMENT:

PROJECT MANAGER _____ DATE _____

PROBLEM CORRECTED, STOP WORK ORDER RESCINDED:

QA MANAGER _____ DATE _____

PROJECT MANAGER _____ DATE _____

EXHIBIT 1-1
STOP WORK ORDER

PACIFIC NUCLEAR SYSTEMS

PROJECT PLANNING FORM

File No:

Revision_____

Customer_____ Contract/P.O. No: _____

Work Scope Change? ☐ Yes ☐ No P.O. Change No: _____

Project No: _____ Work Order: _____

Authorized Amount: $_____ Contract/P.O. Date: _____

Invoices To Be Mailed To: Project Title: _____

_____

T & M ☐ Firm Price ☐

Other ☐ _____

Attachments As Applicable:

- ☐ Budget Information
- ☐ Charge Numbers
- ☐ Special Billing Instructions
- ☐ Special Job Requirements
- ☐ Detailed Work Scope
- ☐ Project Schedule Information
- ☐ Interface Control & Interfaces
- ☐ Detailed QA Requirements
- ☐ Experience Reports
- ☐ Design Input Listing
- ☐ Design Verification Requirements
- ☐ File Numbers
- ☐ Key Project Personnel
- ☐ Graded QA Listing
- ☐ Planning - Form Distribution

Job Description Or Work Scope Change Summary _____

PNSI Quality Assurance Program Is To Be Applied? ☐ Yes ☐ No

Is This A Revision To The Project Plan? ☐ Yes ☐ No

If "YES", Does This Revision Affect The Application Of PNSI QA Program? ☐ Yes ☐ No ☐ N/A

Approvals:

_____ Project Manager	_____ Date	_____ Engineering Manager	_____ Date
_____ Manager Of Licensing And Analysis (For Licensed Product Only)	_____ Date	_____ Quality Assurance Manager	_____ Date

EXHIBIT 2-1
PROJECT PLANNING FORM

PACIFIC NUCLEAR SYSTEMS

TRANSMITTAL FORM

Date: _____

File: _____

No.: _____

To:

Enclosures:

Please acknowledge receipt by signing below and returning original to:

PACIFIC NUCLEAR FUEL SERVICES, INC.
145 Martinvale Lane
San Jose, CA 95119
Phone: (408) 629-9800 Telecopy: (408) 281-6186

Attention:

Received _____ Date: _____

White: Original
Yellow: Recipient's Copy
Pink: File Copy

EXHIBIT 2-2
QAM/QP TRANSMITTAL FORM

PACIFIC NUCLEAR SYSTEMS

CALCULATION PACKAGE

FILE NO:
PROJECT NO:
CALC. NO:

PROJECT NAME

CLIENT:

CALCULATION TITLE

PROBLEM STATEMENT OR OBJECTIVE OF THE CALCULATION:

DOCUMENT REVISION	AFFECTED PAGES	REVISION DESCRIPTION	PROJECT ENGINEER APPROVAL/DATE	NAME AND INITIALS OF PREPARERS & CHECKERS

PAGE _____ OF _____

EXHIBIT 3-1
STANDARD CALCULATION COVER SHEET

PACIFIC NUCLEAR SYSTEMS

PROJECT _____ FILE NO. _____

OWNER _____

CLIENT _____

REVISION						PAGE _____ OF _____
PREPARED BY/DATE						
CHECKED BY/DATE						

EXHIBIT 3-2

STANDARD CALCULATION PAGE

PACIFIC NUCLEAR SYSTEMS
1010 South 336th Street
Federal Way, Washington
98003
(206) 874-2235
Telex: 152667 PNS
Telecopy: (206) 874-2401
Nuclear Packaging Division, Inc.

PURCHASE ORDER

The reporting requirements of 10 CFR Part 21 apply to this contract. All pertinent questions and data shall be directed to PNSI/NuPac QA via Provided Supplier Disposition Requests (SDR), form No. NPQ-019.

☐ Applies ☐ Does Not Apply

P.O. NO.	CHG. NO.	DATE

1. Ship all orders to Nuclear Packaging, Inc. at above address, unless otherwise specified.
2. Purchase order number must appear on all labels, packing lists, and invoices.
3. Invoices must show freight, taxes, and duties as separate items. Send original and 3 copies to Nuclear Packaging, Inc. at above address. If purchase is F.O.B. Seller's plant, add transportation charges to invoice and attached receipted freight bill. Seller will be assessed $35.00 if freight is sent collect.

TO _____

ATTN: _____ PHONE: _____

CONFIRMED BY/DATE

SHIP VIA F.O.B.

DELIVERY DATE TERMS

Quality Related Procurement

☐ Q.A. Related ☐ Non-Q.A. Related

☐ Q.A. Requirements Attached

_____ Quality Representative

PLEASE ENTER THIS ORDER SUBJECT TO CONDITIONS ON FACE AND REVERSE SIDE AND SUPPLEMENTARY TERMS AND CONDITIONS

ITEM	QTY	DESCRIPTION	UNIT PRICE	EXTENSION

TAXABLE YES NO	TAX NO. C600151625

NUCLEAR PACKAGING, INC.

WR# _____ WO# _____

WBS# _____ TYPE _____ COMP # _____

Purchasing: _____

Approved: _____

1. Seller/Supplier — White 2. Procurement - Canary 3. QA — Pink 4. Accounting — Goldenrod 5. Program Mgr. — Green 6. File

EXHIBIT 4-1
PURCHASE ORDER

PACIFIC NUCLEAR SYSTEMS	QUALITY PROCEDURE	QP REVISION PAGE ____ OF ____
TITLE	DIRECTOR CORPORATE QUALITY ASSURANCE DATE	
	PRESIDENT DATE	

EXHIBIT 5-1

QUALITY PROCEDURE PAGE

TECHNICAL DOCUMENT DISTRIBUTION LOG

PROJECT NO: _____ FILE NO: _____

PROJECT NAME: _____

DOCUMENT TITLE AND NO: _____

RECEIVER OR FILE NUMBER	COPY NUMBER	INITIAL AND DATE FOR REVISIONS RECEIVED OR INDICATE TRANSMITTAL NUMBER AND DATE TRANSMITTED					
		ECN NO OR REV NO	ECN NO OR REV NO	ECN NO OR REV NO	ECN NO OR REV NO	ECN NO OR REV NO	ECN NO OR REV NO
		* **					

RECEIPT ACKNOWLEDGMENT * INITIALS
** DATE RECEIVED

OR

* TRANSMITTAL NO.
** DATE TRANSMITTED

EXHIBIT 6-1
DISTRIBUTION LOG

"Controlled Transmittals"

TRANSMITTAL AND RECEIPT ACKNOWLEDGEMENT FORM

PACIFIC NUCLEAR SYSTEMS

DATE: _____

TO: _____

_____

_____

_____

ATTN: _____

TRANSMITTED HEREWITH ARE (IS):

__ each _____ Pages ___ Rev.___ Reason ___ S/N _____

__ each _____ Pages ___ Rev.___ Reason ___ S/N _____

__ each _____ Pages ___ Rev.___ Reason ___ S/N _____

__ each _____ Pages ___ Rev.___ Reason ___ S/N _____

__ each _____ Pages ___ Rev.___ Reason ___ S/N _____

__ each _____ Pages ___ Rev.___ Reason ___ S/N _____

__ each _____ Pages ___ Rev.___ Reason ___ S/N _____

__ each _____ Pages ___ Rev.___ Reason ___ S/N _____

__ each _____ Pages ___ Rev.___ Reason ___ S/N _____

Reason Legend

1. Use in Fabrication
2. Price Quotation
3. Your Approval
4. Revised/Approved
5. Your Files
6. Your Information
7. Other: _____
8. Your Request

The Documents listed in this transmittal are "controlled copies" for your files. "Controlled copies" means you **WILL** be receiving revisions to these documents as they are released through our Document Control System. Any previous revisions to the enclosed documents should be voided and removed from your active files. These documents have been stamped "Controlled" with a serial number. To verify receipt of the above items, immediatsly countersign the second transmittal sheet within one week, (attached) and return to Document Control:

_____
Document Control

Received by: _____ W.O.#: _____

Title: _____

Date: _____

NPQ #110, 1-2-89
File: TRANS.CON

Nuclear Packaging, Inc. 1010 South 336th Street Federal Way Washington 98003 (206) 874-2235 Telex 152667 PNS UD

EXHIBIT 6-2

TRANSMITTAL FORM

PACIFIC NUCLEAR SYSTEMS

QUALITY DEPARTMENT EVALUATION OF SUPPLIER QUALITY

Supplier Name and Location: _____

_____

Supplier's Scope of Activity: _____

_____

_____

Evaluation Method(s):

Physical Survey ___

Survey Report Number _____ Date _____

Other ___

Explain _____

_____

_____

Approved ___ Conditionally Approved* ___ Disapproved* ___

*Conditions of Approval/Disapproval:

_____

_____

_____

_____

Add this supplier to the Approved Supplier List: Yes ___ No ___

_____

Director Corporate QA/Date

EXHIBIT 7-1

SUPPLIER CERTIFICATION SUMMARY

PACIFIC NUCLEAR SYSTEMS

QUALITY SOURCE SURVEILLANCE CHECKLIST

FILE NO:

PAGE ____ OF ____

PROJECT NO. _____

SUPPLIER _____

PURCHASE ORDER NO. _____ REV _____

CHECKLIST APPROVED BY DATE

SOURCE REVIEW BY DATE

ITEM(S) INSPECTED

SPECIFICATIONS, PROCEDURES OR DRAWINGS AND REVISIONS

NO.	ATTRIBUTES	RESULTS			
		REVIEW ACCEPTABLE		N/A	COMMENTS
		(√) YES	(√) NO		

EXHIBIT 7-2

SURVEILLANCE REPORT FORM

PACIFIC NUCLEAR SYSTEMS

PROCESS CONTROL TRAVELER

FILE NO.

PAGE _____ OF _____

CLIENT: _____

PROJECT NUMBER: _____

UNIQUE TRAVELER IDENTIFICATION NO: _____

PREPARED BY: _____ DATE: _____

APPLICABLE CONSTRUCTION DOCUMENT(S) AND REVISION(S):

SHEET REV.	0					
REVIEWED*						
APPROVED*						
DATE						

STEP NO.	OPERATION	SHEET REV.	RESPONSIBLE ORGANIZATION	COMPLETED BY SIGN*/DATE	NOTIFICATION POINT ORG	NOTIFICATION POINT SIGN*/DATE	REMARKS

* OR INITIALS

EXHIBIT 9-1

PROCESS CONTROL TRAVELLER

PACIFIC NUCLEAR SYSTEMS

INSPECTION CHECKLIST

FILE NO

PAGE ____ OF ____

PROJECT NO. _____

SUPPLIER _____

TRAVELER NO. OR PURCHASE ORDER NO. _____ DATE OR REV _____

APPROVED BY _____ DATE

INSPECTED BY _____ DATE

(ITEM(S) INSPECTED _____ QTY

EVALUATED BY (LEVEL II) _____ DATE

RELATED SPECIFICATIONS, PROCEDURES OR DRAWINGS AND REVISIONS

NO.	ATTRIBUTES TO BE INSPECTED, METHOD OF INSPECTION, AND REQUIRED M & TE, AS APPLICABLE	MEASURING / TEST EQUIPMENT USED (NAME / SERIAL NO.)	INSPECTION RESULTS		
			ACCEPTABLE		COMMENTS
			(√) YES	(√) NO	

EXHIBIT 10-1

INSPECTION CHECKLIST

PACIFIC NUCLEAR SYSTEMS

PG ____ OF ____

QA CONTROLLED TOOL LIST				
NOMENCLATURE	QA NO.	CALIB Y	CALIB N	REMARKS

EXHIBIT 12-1
CALIBRATION LOG

PACIFIC NUCLEAR SYSTEMS

MEASURING AND TEST EQUIPMENT CALIBRATION RECORD

ITEM: S/N:

OWNED BY: CALIBRATION RESPONSIBILITY: CALIBRATION INTERVAL:

CALIBRATION DATE	BY (FACILITY OR INDIVIDUAL)	RESULTS	CALIBRATION NEXT DUE

EXHIBIT 12-2
CALIBRATION RECORD

GREEN CARD

ACCEPTED

PART NO. _____ DATE _____

PART NAME _____

SERIAL NUMBER _____

TRAVELER OR P.O. _____

QTY ACCEPTED _____

REMARKS _____

QC INSPECTOR _____

RED CARD

REJECTED

PART NO. _____ DATE _____

PART NAME _____

SERIAL NUMBER _____

TRAVELER OR P.O. _____

NCR NO. _____ QTY REJECTED _____

REASON _____

QC INSPECTOR _____

YELLOW CARD

CONDITIONAL RELEASE

PART NO. _____ DATE _____

PART NAME _____

SERIAL NUMBER _____

TRAVELER OR P.O. _____

NCR NO. _____ QTY _____

REASON _____

QC INSPECTOR _____

EXHIBIT 14-1
STATUS TAGS

PACIFIC NUCLEAR SYSTEMS

NONCONFORMANCE REPORT (NCR)

NCR NO:
FILE NO:
PAGE _____ OF _____

PROJECT TITLE:

PROJECT NO:

NCR ISSUE DATE:

PART DESCRIPTION:

ISSUED TO:

RESPONSE DUE DATE:

NONCONFORMANCE DESCRIPTION AND APPLICABLE REQUIREMENT:

_____ INSPECTOR _____ DATE

DISPOSITION: ☐ USE AS-IS ☐ REJECT ☐ REPAIR ☐ REWORK

JUSTIFICATION:

LICENSING IMPACT ☐ YES ☐ NO ☐ NA _____ MANAGER OF LICENSING/ANALYSIS / DATE

APPROVAL:

PROJECT ENGINEER	PROJECT MANAGER	QUALITY ASSURANCE
DATE	DATE	DATE

DISPOSITION COMPLETED AND ACCEPTABLE:

PROJECT ENGINEER	PROJECT MANAGER	QUALITY ASSURANCE
DATE	DATE	DATE

EXHIBIT 15-1
NONCONFORMANCE REPORT

PACIFIC NUCLEAR SYSTEMS

CORRECTIVE ACTION REPORT

CAR NO:
PROJECT NO:
FILE NO:

PREPARED BY: _____ ISSUE DATE: _____

ASSIGNED TO / TITLE: _____ RESPONSE DUE DATE: _____

REQUIREMENT:

DEFICIENCY DESCRIPTION:

RECOMMENDED CORRECTIVE ACTION:

STOP WORK ORDER REQUIRED?

☐ NO ☐ YES

DATE SENT TO DIR. CORP. QUALITY ASSURANCE _____

NRC REPORTABLE? ☐ YES ☐ NO
DIR. CORP. QUALITY ASSURANCE _____ / _____ DATE

LICENSING IMPACT? ☐ YES ☐ NO ☐ NA
MANAGER, LICENSING/ANALYSIS _____ / _____ DATE

TO BE COMPLETED BY RESPONSIBLE ORGANIZATION

SUBMITTED BY: _____ DATE: _____

TO BE COMPLETED BY QUALITY ASSURANCE ORGANIZATION

QUALITY ASSURANCE EVALUATION OF RESPONSE / CORRECTIVE ACTION STATUS

RESPONSE SATISFACTORY: DATE:

CORRECTIVE ACTION COMPLETE: DATE:

EXHIBIT 16-1

CORRECTIVE ACTION REPORT

AUDIT CHECKLIST

SUBJECT					AUDIT NO. _____ PAGE ____ OF ____ DATE _____
ITEM NUMBER	REQUIREMENTS	COMPLIANCE WITH REQUIREMENTS			REFERENCE & REMARKS
		YES	NO	N/A	

EXHIBIT 18-1
AUDIT CHECKLIST

PACIFIC NUCLEAR SYSTEMS

RECORD OF LEAD AUDITOR QUALIFICATIONS

NAME							DATE
ANNUAL EVALUATION (Signature & Date)							

QUALIFICATION POINT REQUIREMENTS		CREDITS
EDUCATION (University/Degree/Date)	4 CREDITS (Max)	
1. Undergraduate Level 2. Graduate Level		
EXPERIENCE (Company/Dates) (see resume)	9 CREDITS (Max)	
Technical (0-5 Pts) And Nuclear Industry (0-1 Pt) Or Quality Assurance (0-2 Pts) Or Auditing (0-4 Pts)		
PROFESSIONAL ACCOMPLISHMENT (Certificate/Date)	2 CREDITS (Max)	
1. P.E. 2. Society		
MANAGEMENT (Qualification/Evaluator/Date)	2 CREDITS (max)	
Explain: Evaluated By QA Manager: _____ Date: _____		
	TOTAL CREDITS	

AUDIT COMMUNICATIONS SKILLS (Written & Oral)

Evaluated By QA Manager _____ Date: _____

AUDIT TRAINING COURSES

Course Title or Topic	Date

AUDIT PARTICIPATION FOR QUALIFICATION

	Location	Audit	Date
1.			
2.			
3.			
4.			
5.			

WRITTEN EXAMINATION Date Passed: Score:

AUDITOR QUALIFICATION CERTIFIED BY:
QA Manager _____ Date Certified _____

EXHIBIT 18-2
LEAD AUDITOR CERTIFICATION