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QUALITY ASSURANCE MANUAL

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FPL
FLORIDA POWER & LIGHT COMPANY

ABSTRACT

Florida Power & Light Company (FPL) has established and implemented a Quality Assurance Program to provide assurance that the design, procurement, construction and operation of nuclear power plants conforms with applicable regulatory requirements. The FPL Quality Assurance Program described in this Topical Report is in compliance with the requirements of Appendix B to 10 CFR Part 50.

The FPL Quality Assurance Program meets the requirements provided by the NRC Regulatory Guidance and Industry Standards as listed in Appendix C of this Topical Quality Assurance Report.

FLORIDA POWER & LIGHT COMPANY

TOPICAL QUALITY ASSURANCE REPORT

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NEED FOR POLICY

To avoid undue risk to the health and safety of the public and company employees, it is necessary to design, construct, and operate nuclear power plants with a high degree of functional integrity, quality and reliability.

STATEMENT OF POLICY

It is the policy of Florida Power & Light to design, construct and operate nuclear power plants of a quality level that will meet or exceed government regulations and will merit public satisfaction by providing electricity in a reliable, efficient, and safe manner.

RESPONSIBILITY

The President of Florida Power & Light Company is responsible for the execution of the Quality Assurance Program for Florida Power & Light Company nuclear power plants. The authority for developing and verifying execution of the Program is delegated to the Manager of Quality Assurance through the direction of the Director of Nuclear Affairs, the Vice President of Advanced Systems & Technology, and the Executive Vice President.

The head of each organization performing quality related activities is responsible for: identifying those activities within his organization which are quality related as defined by the QA Program; establishing and clearly defining the duties and responsibilities of personnel within his organization who execute those quality related activities; and planning, selecting, and training personnel to meet the requirements of the QA Program.

J. J. Hudiburg, President
Florida Power & Light Company

The Topical Quality Assurance Report (FPLTQAR 1-76A) contains the description of the Florida Power & Light Company (FPL) Quality Assurance Program relative to its nuclear power plants. This report consists of three parts: The Introduction, which delineates the purpose and summarizes the scope and applicability of the Topical QA Report. The second part, Topical Quality Requirements (TQRs), which delineate QA Program requirements and summarizes the FPL approach to activities related to materials, parts, components, systems, and services included in the Quality Assurance Program. The third part, Appendices, which provide supporting statements, tabulations, and technical analyses or deviations which are not, in themselves, the subject of the report.

The Topical QA Report shall be an integral part of the corporate Quality Assurance Manual (FPL-NQA-100), and shall delineate the generic requirements and responsibilities by which FPL implements the corporate QA Program. Revisions and changes to this Report will be made in accordance with a Quality Procedure as outlined in TQR 2.0. The remainder of the QA Manual is comprised of Quality Procedures (QPs) which serve as the documents which describe how the interfacing of tasks between departments or organizations is achieved. The Quality Procedures also cover those technical elements which require a common corporate position for interfaces or resolution of problem areas.

In addition to the Quality Assurance Manual, Quality Instructions (QIs) are developed as required by each of the implementing plants and departments. Quality Instructions describe the measures to be used to implement the quality requirements of the QA Manual. The Quality Instructions describe actions and responsibilities to be performed within a department or organization and address the requirements of the appropriate Topical Quality Requirements, and Quality Procedures.

The FPL Quality Assurance Program meets the requirements provided by the NRC Regulatory Guidance and Industry Standards as listed in Appendix C of this Topical Quality Assurance Report.

The requirements of this Topical QA Report apply to safety related materials, parts, components, systems and structures; and to services employed for design, procurement, construction, operation, maintenance, refueling, repair, and modification. The safety related systems for each plant are specified in the respective plant Safety Analysis Report.

The FPL Quality Assurance Program fully addresses the requirements of Appendix B to 10 CFR Part 50. The Topical QA Report shall be applicable to all existing nuclear plants, those under construction, and supporting FPL departments, and will be referenced in the Safety Analysis Report (SAR). For future plants, the description of activities, requirements, and organizational structures that are unique to a particular plant shall be addressed in the respective SAR document.

R F Englmeier

Manager of Quality Assurance

1.1 GENERAL REQUIREMENTS

The FPL organizational structure shall be defined such that the responsibilities for establishment and implementation of the Quality Assurance Program are clearly identified. The authority and duties of individuals and organizations performing quality assurance and quality control functions shall be described, and shall illustrate the organizational independence and authority necessary to identify problems; to initiate, recommend, or provide solutions; and to verify implementation of solutions. In addition, the description shall illustrate that persons or groups responsible for verifying the correct performance of an activity are independent of the person or groups responsible for performing the activity.

1.2 IMPLEMENTATION

The President of Florida Power & Light is ultimately responsible for the execution of the Quality Assurance Program for Florida Power & Light Company (FPL) nuclear power plants. The authority for developing and verifying execution of the program is delegated to the Manager of Quality Assurance, through the direction of the Director of Nuclear Affairs, the Vice President of Advanced Systems & Technology, and the Executive Vice President. The reporting relationship of each department involved with the Quality Assurance Program is shown in Appendix A, Figure 1-1. To provide for a review and evaluation of QA Program policies and activities, the President has established the QA Committee, chaired by the Executive Vice President. This organization's responsibilities are defined in Section 1.2.1 below.

The head of each department or organization performing quality related activities is responsible for: a) identifying those activities within his organization which are quality related as defined by the QA Program; b) establishing and clearly defining the duties and responsibilities of personnel

1.2 IMPLEMENTATION (Cont'd)

within his organization who execute those quality related activities; and c) planning, selecting, and training personnel to meet the requirements of the QA Program. The responsibility, authority, and organizational relationship for performing quality related activities within each organization shall be established and delineated in organizational charts and written job or functional descriptions.

A QA/QC Coordinator shall be designated by the head of each department or organization except for the Company Nuclear Review Board and the Quality Assurance Committee, since these committees are review and policy forming bodies (of which the Director of Nuclear Affairs is a member). The QA/QC Coordinator is the prime interface for coordination of quality related matters within his department, with the QA Department, and with other departments.

The organization chart, Appendix A, Figure 1-1, illustrates the lines of authority and areas of responsibility for each of the organizations that are involved in quality related activities. The Project Management organization shown in this figure is applicable only during design, construction, and modification of power plants (determined by management on a case-by-case basis) as described in Section 1.2.3. Below are listed the departments and organizations that have Quality Assurance responsibilities. Specific organizational responsibilities for implementation of the Quality Assurance Program are described in the corresponding section numbers.

1.2 IMPLEMENTATION (Cont'd)

1.2.1 Quality Assurance Committee
1.2.2 Nuclear Affairs
-Quality Assurance
-St. Lucie Projects-QA
-Nuclear Licensing
1.2.3 Project Management
1.2.4 Corporate Contracts
1.2.5 Environmental Affairs
1.2.6 Power Plant Engineering
1.2.7 Purchasing
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1.2.9 Nuclear Energy
1.2.10 Power Supply
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1.2.12 Company Nuclear Review Board
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1.2.14 Nuclear Fuel
1.2.15 Corporate Records
1.2.16 Executive and Documentary Files

1.2.1 Quality Assurance Committee

The Quality Assurance Committee, chaired by the Executive Vice President, is comprised of executive level management with responsibilities for the execution of the Quality Assurance Program within their responsibilities. This Committee's composition and reporting relationship is shown in Appendix A, Figure 1-1.

The Quality Assurance Committee is responsible for reviewing and evaluating QA Program policies and activities. Policy changes shall be initiated when Committee findings indicate the necessity. Quality Assurance Program status reports shall be periodically prepared by the QA Department and routed to the members of the QA Committee for their review.

1.2.1 Quality Assurance Committee (Cont'd)

In addition, QA Committee meetings shall be held by the Executive Vice President to keep members apprised of conditions including significant problems that require management attention. The Quality Assurance Committee shall be the final authority for resolution of contested quality policies, differences of opinion, and stop-work or other corrective action requests when lower level agreement cannot be reached between QA or QC and other departments.

1.2.2 Nuclear Affairs Department

The Nuclear Affairs Department shall be responsibile for administering the FPL Quality Assurance Program. This includes developing and verifying implementation of corporate policies, plans, requirements, and procedures affecting quality. This is accomplished through the Corporate Quality Assurance Department for Corporate QA activities and through the St. Lucie Projects-Quality Assurance group for QA activities at St. Lucie Units 1 & 2. The Nuclear Affairs Department retains responsibility for delegated portions of the QA Program by performing initial evaluation and subsequent periodic audits of the contractors' QA Programs. The QA Program responsibility further extends to the performance of audits within the Company to assure management that the established requirements and procedures are being implemented, and that the Program complies with the baseline document requirements. Periodic audits of the Nuclear Affairs Department shall be performed by a team independent of the Nuclear Affairs Department, which is selected and approved by the Chairman of the Quality Assurance committee. The results of this audit are presented to the QA Committee.

1.2.2 Nuclear Affairs Department (Cont'd)

The organizational freedom of the QA Function is accomplished through the corporate structure, illustrated in Figure 1.1-1, which provides independence from those departments responsible for design, procurement, engineering, construction, and operation. With Quality Assurance as the sole function of these organizationally independent department, the Manager of QA, the Superintendent of St. Lucie Projects - QA and their staff, both on-site and off-site, are completely free from the cost and scheduling pressures of design, procurement, construction, and operation. The Nuclear Affairs Department has the freedom and authority to: a) identify quality problems; b) initiate, recommend or provide corrective action; c) verify implementation of the corrective action; and d) recommend the stoppage of work or operations adverse to quality, when necessary.

The Director of Nuclear Affairs reports to the Vice President of Advanced Systems and Technology.

The Manager of Quality Assurance and the Superintendent of Quality Assurance report administratively and functionally to the Director of Nuclear Affairs. The Superintendent of St. Lucie Projects - QA receives technical direction from the Manager of QA. The Manager of Nuclear Licensing, also reports to the Director of Nuclear Affairs.

The Director of Nuclear Affairs, the Vice President of Advanced Systems & Technology and the Manager of Quality Assurance are each members of the Quality Assurance Committee. This reporting relationship and memberships on the QA Committee assure that the QA Department and the QA-St. Lucie Projects group each have direct access to the levels of management necessary to assure effective implementation of the QA Program.

1.2.2.1 Quality Assurance Department

The Manager of QA directs and administers the Corporate Quality Assurance Program, including developing and verifying implementation of policies, plans, requirements, procedures, and audits which assure compliance with the baseline documents listed in Appendix C of this Topical Quality Assurance Report. He shall also be responsible for the technical direction and the administrative control (e.g., performance appraisal, salary review, hire/fire, position assignment) of all members of the Quality Assurance Department. Reporting directly to the Manager of Quality Assurance are:

- o Assistant Manager of QA - Systems and Audits
- o Manager of QA - Procurement and Reliability
- o Assistant Manager of QA - Turkey Point
- o Assistant Manager of QA - Engineering and New Projects

The duties, responsibilities, and authorities of each Manager, and his group are described in the sections which follow.

a. Quality Assurance Systems and Audits Group

- o Develop and maintain the QA Department Quality Instructions, QA Department Organization Manual, and the corporate QA Manual;
- o Assist Other departments in the development of Quality Instructions by review and comment and through interpretation of corporate Quality Assurance requirements;
- o Develop and implement a Quality Assurance indoctrination program for FPL supervisory personnel, and a training program for the Quality Assurance Department;
- o Prepare reports on Quality Assurance Program activities for presentation to the Quality Assurance Committee by the Manager of Quality Assurance;

1.2.2.1 Quality Assurance Department (Cont'd)

- o Maintain a file system for documentation of quality assurance activities performed by the QA Department;
- o Review Regulatory Guides, Codes, and Standards for impact on the Quality Assurance Program and recommend appropriate program changes;
- o Review documents submitted to the CNRB as requested by the QA Department CNRB member;
- o Plan, coordinate and implement a comprehensive system of periodic internal audits with support from the other Quality Assurance groups, when necessary;
- o Initiate, recommend or provide solutions and verify implementation of solutions for quality problems identified.

b. Quality Assurance Procurement and Reliability Group

- o Assist in the development and implementation of policies, plans, requirements, and procedures for the requisition and purchase of materials, equipment and services related to nuclear power plants and to the acceptance and storage of equipment and material;
- o Perform appropriate surveillance of hardware during manufacture;
- o Develop and implement a program for auditing of supplier QA/QC programs;
- o Review and approve FPL procurement documents and changes to these documents to assure that the necessary quality requirements are imposed.
- o Assist other FPL departments in the identification of quality problems associated with procurement and storage; initiate, recommend, or provide solution; and verify implementation of solutions;
- o Review, approve, and periodically audit the execution of FPL contractor quality assurance programs;
- o Maintain a file system for documentation of quality assurance activities performed by the QA Procurement group;
- o Maintain the Quality Assurance Department "Approved Suppliers List".

1.2.2.1 Quality Assurance Department (Cont'd)

The responsibility of this group, in terms of phases of procurement, begins with the perparation of the procurement document, extends through bid evalutaion, vendor selection, fabrication, and shipment; and ends upon receipt of shipment at the FPL construction site, operating plant, or warehouse. This group through audits and surveillances assures that the contractor's organizations performing QA functions have sufficient authority and organizational freedom to implement effective QA programs.

c. Quality Assurance Turkey Point Group

- Assist in the development and implementation of policies, plans, requirements, and procedures for portions of the quality assurance program related to the operation of nuclear power plants at Turkey Point Units 3 and 4 (PTP);
- Perform audits at PTP to identify quality problems in the area of plant operation, system turnover, modification, and maintenance; including such areas as refueling, inservice inspection and testing, procurement of spare/replacement parts, material storage, health physics, chemistry, plant security and fire protection;
- Recommend stoppage of work or operations adverse to quality at PTP in accordance with the appropriate Quality Procedures;
- Review and comment on Quality Instructions or equivalent quality related administrative procedures prior to issue, with respect to the requirements of the FPL Quality Assurance Program; the PTP Final Safety Analysis Report; and the PTP Technical Specifications;
- Assure that the status is tracked for all PTP open items identified by the NRC; other federal, local and state agencies; and the FPL QA Turkey Point group, and inform appropriate management when there is an indication that a commitment will be met on time;
- Maintain a file system for documentation of qualty assurance activities performed by the Turkey Point group.

1.2.2.1 Quality Assurance Department (Cont'd)

During the operations phase, the QA Turkey Point group responsibility begins at the point of acceptance of a shipment of replacement/spare parts at the PTP plant warehouse. This group is called upon to audit the Turkey Point operating plant. The Turkey Point group interfaces with the Plant Manager and his staff on-site by assisting in the resolution of quality related problems. The Turkey Point group shall also provide the assurance that an orderly and effective turnover of data packages and equipment, by contractors to FPL, is accomplished.

A Project Quality Assurance Engineer is assigned from this group to provide an interface with the Project Management Department and the QA Turkey Point group. This individual is the QA Project Team member for Turkey Point Project.

The Assistant Manager of QA-Turkey Point is responsible for developing and verifying the execution of the on-site Quality Assurance Program for the Turkey Point Plant.

d. Project Quality Assurance Engineer

The Project Engineer is assigned to each identified major project for coordination of QA related activities. His responsibilities include:

- o Represent the Manager of Quality Assurance at Project Team meetings;
- o Assist the Project General Manager and members of his staff in regard to QA activities;
- o Provide technical guidance on QA questions;
- o Submit periodic reports that will include assessments of peoject plans, progress, milestones and recommendations for improvement, to the Manager of Quality Assurance.
- o Identify and schedule the QA Department support needed to achieve project objectives.

1.2.2.1 Quality Assurance Department (Cont'd)

- o Prepare project related plans and objectives for QA support of Project Management and measuring the QA performance record against these plans and objectives.

1.2.2.2 Quality Assurance St. Lucie Projects Group

The Superintendent of St. Lucie Projects - QA has responsibility for on-site development and implementation of the Quality Assurance Program, including the following:

- o Lead in the development and implementation of policies, plans, requirements, and procedures for portions of the quality assurance program related to construction of St. Lucie Unit 2 (PSL-2);
- o Identify requirements, ensure inclusion of commitments in documents and verify implementation of the Quality Assurance Program during the construction phase of PSL-2 through audits of FPL and contractor organizations;
- o Review site incidents and notify the NRC of PSL-2 site reportable incidents under Part 50.55(e) or Part 21 in accordance with the approved procedure;
- o Track all PSL-2 construction open items identified by the NRC; and the FPL St. Lucie Projects-QA group; and inform appropriate FPL management when there is an indication that a commitment will not be met on time;
- o Maintain a records center at the plant site for PSL-2 Quality Assurance records for construction;
- o Maintain a file system at the plant site for documentation of quality assurance activities performed by the St. Lucie Projects-QA group;
- o Support Plant Construction turnover through verification that records required for quality activities are available;
- o Assure design related activities performed by the Architect/Engineer meet the quality aspects of the contract;

1.2.2.2 Quality Assurance St. Lucie Projects Group (Cont'd)

- Review Construction and Construction QC procedures with respect to the FPL QA Program, SAR Document commitments, and applicable codes, standards and regulations; (for procedure review requirements see TQR 5.0);
- Review site generated FPL procurement requests and purchase orders and changes thereto, assuring that quality requirements have been specified, where applicable;
- Lead in the development and implementation of policies, plans, requirements, and procedures for portions of the quality assurance program related to the maintenance, modification, backfit and operation of St. Lucie Unit 1 (PSL-1);
- Perform audits at PSL-1 to identify quality problems in the area of plant operation, system turnover, modification, backfit and maintenance; including such areas as refueling, inservice inspection and testing, procurement of spare/replacement parts, material storage, health physics, chemistry, plant security, and fire protection;
- Perform audits of PSL-1 and PSL-2 major design service contractors both on-site and off-site;
- Recommend stoppage of work or operations adverse to quality at PSL-1 and PSL-2 in accordance with the appropriate Quality Procedures;
- Review and comment on Quality Instructions or equivalent quality related administrative procedures prior to issue, with respect to the requirements of the FPL Quality Assurance Program; the PSL-1 Final Safety Analysis Report; and the plant Technical Specifications;
- Assure that the status is tracked for all PSL-1 open items identified by the NRC; other federal, local and state agencies; and the FPL QA St. Lucie Projects group, and inform appropriate management when there is an indication that a commitment will not be met on time;
- Perform QA Review of construction related FPL originated design documents, applicable to PSL, to assure inclusion of appropriate quality requirements;
- Assure that orderly and effective turnover verifications of data packages and equipment is accomplished.

1.2.2.2 Quality Assurance St. Lucie Projects Group (Cont'd)

The scope of responsibility of this group is confined to the St. Lucie Projects activities and covers all phases of plant life from site exploration activities, through commercial operation. The interface with the QA Procurement group ends with the receipt of a shipment of nuclear safety related equipment at the plant site. The Quality Assurance program for the shipment is then within the purview of the QA St. Lucie Projects group.

The St. Lucie Projects group interfaces with Plant and Site Managers and their staffs on-site by assisting in the resolution of quality related problems. Off-site interfaces for the resolution of quality related problems and NRC items are with Project Management, Power Plant Engineering, Nuclear Energy Staff, and the Ebasco Quality Assurance Department.

A Project Quality Assurance Engineer is assigned from this group to provide an interface with the Project Management Department and the St. Lucie Projects-QA group. This individual is the QA Project team member for the St. Lucie Project.

1.2.2.3 Nuclear Licensing

The Manager of Nuclear Licensing is responsible for coordinating the NRC interface, distributing NRC documents requiring actions, evaluating potential impact, and responding to all NRC action items. The Manager of Nuclear Licensing reports to the Director of Nuclear Affairs, as shown in Appendix A, Figure 1-1.

1.2.3 Project Management Department

The Project Management Department, through the Project General Manager, exercises management control of assigned major projects. This management control begins when a Project is assigned to the Project Management Department and continues until the facility is accepted for operation or the

1.2.3 Project Management Department (Cont'd)

project is complete. The Project Management Department organization is shown in Appendix A, Figure 1-1.

The Director of Projects, reporting to the Vice President-Engineering, Project Management and Construction has overall responsibility for the activities of the Project Management Department. A Project General Manager, reporting to the Director of Projects, is responsible for completing the assigned project in compliance with technical and other project specifications, and for the application of the provisions of the Quality Assurance Manual during the project. The Project General Manager is responsible for obtaining corrective action from contractor management when corrective action cannot be obtained at the plant site management level and, when necessary, can exercise his authority to stop work on construction activities adverse to quality.

The Project Site Manager reports to the Project General Manager and is responsible for Construction activities. He has the authority to stop work on operations adverse to quality, if the need arises.

Project Team Members are appointed by their home department heads as the departmental representative on the respective project, when requested by the Project General Manager. Team Members, other than Quality Assurance, report functionally to the Project General Manager, but continue to receive administrative support and technical direction from their home department. The QA Department has a representative assigned to each major project, who reports functionally and administratively to the Director of Nuclear Affairs. Team members are responsible to the Project General Manager for home department support to the Project.

1.2.4 Corporate Contracts Department

The Corporate Contracts Department is responsible for generation, negotiation and issuance of Contracts over specified time periods and dollar limits for turbine generators, steam generators, nuclear steam supply systems (NSSS), new items, repairs, constructors, construction managers, and Architect Engineer (A/E) and consulting services. Corporate Contracts is also responsible for assuring that technical and quality requirements developed by others are incorporated in such contracts, as appropriate, and that these contracts have the required approvals. Details of the activities of the department in fulfilling this responsibility shall be delineated in the appropriate Quality Procedures. The Manager of Corporate Contracts reports to the Director of Corporate Contracts. The Corporate Contracts Organization is shown in Appendix A, Figure 1-1.

1.2.5 Environmental Affairs

Environmental Affairs is responsible for obtaining the major federal, state, and local environmental permits required for FPL facilities and operations. For new nuclear power plants, Environmental Affairs prepares the Environmental Report, which is then coordinated within the Advanced Systems & Technology Department as a part of the construction permit application to the NRC. Prior to and during operation of the nuclear power plant, Environmental Affairs maintains responsibility for overall coordination of environmental monitoring programs. Some of the activities include: a) drafting of Environmental Technical Specifications; b) review of proposed changes to Environmental Technical Specifications and investigation of violations; and c) review of proposed plant changes and modifications for effect on the environmental impact evaluation when requested.

1.2.5 Environmental Affairs (Cont'd)

The Manager of Environmental Technical Services, the Manager of Environmental Planning and Projects and the Manager of Environmental Permitting and Programs report to the Director of Environmental Affairs as illustrated in Appendix A, Figure 1-1. The Director of Environmental Affairs has overall responsibility for implementation of the Environmental Technical Specifications in nuclear power plants.

The Company Environmental Review Group (CERG) advises the Director of Environmental Affairs and the Chairman of the CNRB on all matters related to environmental quality. The CERG provides a review of proposed changes to Environmental Technical Specifications, and has prime responsibility for investigation of violations, evaluation of corrective actions, and reporting and making recommendations to the Company Nuclear Review Board on matters related to environmental quality.

1.2.6 Power Plant Engineering

The Power Plant Engineering Department (EPP) is responsible for power plant design related aspects of the FPL QA Program throughout all phases of plant life except as specified for the Fuel Resources Department in Section 1.2.14. This responsibility extends from initial engineering evaluations of plant design related site characteristics, through preliminary and detailed design, construction, operation and decommissioning.

EPP performs design related activities and delegates design related activities to qualified contractors. For activities performed by EPP, the work is governed by FPL's QA Program, and EPP is responsible for approval of the design output. Delegated activities are performed in accordance with an FPL approved QA Program and the contractor is responsible for approval of design output. EPP is responsible for defining the scope of delegated activities and the responsibilities of the contractor. Prior to the release of design outputs by contractor organizations, EPP ensures that the contractor is technically qualified to perform the design related activity.

1.2.6 Power Plant Engineering (Cont'd)

EPP is responsible for development and maintenance of the design control program governing design related activities performed by EPP and for providing technical support to the Quality Assurance Department for assessing the adequacy, implementation and effectiveness of contractor design control programs.

The Chief Engineer of Power Plant Engineering reports to the Vice President Engineering, Project Management and Construction as shown in Appendix A, Figure 1-1.

1.2.7 Purchasing

The Purchasing Department is responsible for the purchase of materials and field procured services by or for FPL for nuclear power plants. Materials, services, and items for nuclear safety related application shall be purchased only from approved suppliers or as commercial grade items, if applicable. During the construction of a new plant where a contractor (e.g., A/E, NSSS, etc.) initiates the purchase order, the Purchasing Department's responsibility is limited to the review and approval of purchase orders submitted by the contractor. The department performs activities such as: a) maintaining traceability of purchasing records from acceptance of requisitions through payment of the purchase order, and b) non-technical review of requisitions to verify that a review for quality requirements has been accomplished. The Director of Procurement and Material Management reports to the Vice President - Corporate Services as shown in Appendix A, Figure 1-1.

1.2.8 Construction

The Plant Construction Department is responsible for providing quality control support activities required to assure that construction work and activities meet the requirements of plans, specifications, codes, and corporate standards. This responsibility extends from inspection of material upon receipt on-site to acceptance of the installed items by Nuclear Energy,

1.2.8 Construction (Cont'd)

and includes the verification of conformance of an item or activity initiated during this period to quality requirements (e.g., records review, inspection, NDE). The Superintendent - Construction Quality Control, the Project Quality Control Supervisor have the authority to stop work or operations adverse to quality if the need arises. The organizational structure of the Construction Department is illustrated in Appendix A, Figure 1-1.

Implementation of Construction QC activities is the only responsibility of the Project Quality Control Supervisor, who reports functionally to the Project Site Manager and administratively to the Superintendent - Construction Quality Control. The freedom and independence of the on-site QC organization from the pressures of construction costs and scheduling, is derived from the Project QC Supervisor's administrative reporting relationship to the Superintendent - Construction Quality Control.

The Superintendent - Construction Quality Control is responsible for directing and administering the Construction Quality Control Program for all plant construction activities. This includes the development and implementation of policies, plans, codes, requirements, and procedures. He is also responsible for the technical direction and administrative control (e.g., salary review, hire/fire, position assignment) of all personnel in the Construction Quality Control organization.

Reporting to the Superintendent - Construction Quality Control is a program staff of Quality Control Coordinators and the on-site Quality Control organization. (The structure of the on-site QC organization shall be defined in the Quality Assurance Section of the respective plant Safety Analysis Report.) The Quality Control Coordinators provide administrative support and assistance to the Superintendent - Construction Quality Control.

1.2.8 Construction (Cont'd)

Each new nuclear project is assigned a site Project Quality Control Supervisor who reports administratively to the Superintendent - Construction Quality Control. The Project QC Supervisor has a functional reporting relationship to the Project Site Manager for the purpose of coordinating inspection activities with construction work, corrective action, and scheduling direction.

The functional/administrative reporting role of the Project Quality Control Supervisor provides the necessary independence of the site Quality Control organization, and yet maximizes communications between the Construction staff and the QC staff. To clarify this dual reporting role at the site, the following definitions are given:

Administrative reporting: The Superintendent - Construction Quality Control shall have responsibility for: a) Final authority for hiring, termination, promotion, and salary action; b) Program control (i.e., procedural and technical direction); c) Approval of all procedures, instructions and/or checklists used by Construction Quality Control personnel, including requirements (frequency, and revision to these); d) Final approval of dispositions of deviation from program, procedure, specification, or other requirements; e) Review all required reports from Project Quality Control Supervisor concerning quality conditions or progress.

Functional reporting: The Project Site Manager shall have responsibility for: a) Day-to-day coordination of inspection activities with construction work; b) Corrective action path to contractors for deficient conditions identified; c) Scheduling direction (Quality Control personnel may not be assigned tasks in non-quality related areas); d) Request changes in personnel levels.

1.2.8 Construction (Cont'd)

The Project QC Supervisor is responsible for first level verification of conformance of construction activities to Quality Assurance requirements, codes, plans, specifications, and local, state, and federal regulations. He directs on-site implementation of the Construction Quality Control Program which includes supervision and daily coordination of inspection activities, scheduling of QC manpower levels, and reviewing inspection results to assure effective inspection. To fulfill this function the Project Quality Control Supervisor performs the following:

- o Planning, supervising, and assignment of all site Quality Control personnel;
- o Provides on-site management control of inspection contractors;
- o Provides site resolution of quality problems;
- o Review of construction and erection procedures for proper inspection requirements and hold points;
- o Prepares reports which are sent directly to the Superintendent - Construction Quality Control; and
- o Reports any situations which he feels may compromise his ability to fulfill his quality responsibilities directly to the Superintendent - Construction Quality Control.

The overall responsibility for Plant Changes and Modifications to operating plants is defined in each plant's Technical Specifications. However, frequently the work of installation and administration of Plant Changes and Modifications is assigned to FPL Construction. In these instances, the reporting relationships between the Project Site Manager and Project Management are similar to that for new projects. Activities affecting quality may be performed by FPL, or contracted. Should any of these functions be contracted, the contractor may perform the activities under his own Quality Assurance Program, which must have prior approval by FPL Quality Assurance, or the contractor may directly adopt the requirements of

1.2.8 Construction (Cont'd)

the FPL Quality Assurance Manual. If the contractor implements the Quality Control function directly to the FPL QA Manual requirements, the contractor's Quality Control Supervisor shall have the authority and freedom to administer the Quality Control program.

1.2.9 Nuclear Energy

Nuclear Energy responsibility for the plant begins with the Department's acceptance of a system or portion thereof from FPL Construction. Throughout the remainder of plant life, Nuclear Energy maintains control of and responsibility for the preoperational and start up testing, operation, maintenance, refueling, and modification of the plant in accordance with written and approved procedures.

The organizational structure of Nuclear Energy is shown in Appendix A, Figure 1-1. The Vice President of Nuclear Energy has overall responsibility for Nuclear Energy's activities.

The plant manager, through the Manager of Nuclear Energy is responsible for the on-site activities of the Nuclear Energy Department. The plant manager is additionally responsible for the establishment and implementation of plant QC policy which implements the quality control aspects of the Quality Assurance Program.

Reporting directly to the plant manager is the plant Quality Control Supervisor who has the authority and freedom to administer the plant Quality Control program and, when necessary, for stopping activities adverse to quality. The QC Supervisor, his staff, and personnel performing QC inspection functions are required to be independent of groups or persons performing activities that they may be required to verify or inspect. QC effort includes preparation and review of plant procedures, PCMs, quality related instructions and procurement documents; the inspection, monitoring, surveillance, and review of plant activities to verify compliance with the

1.2.9 Nuclear Energy (Cont'd)

provisions of the facility operating license and the Quality Assurance Manual. The QC Supervisor shall take corrective action for deficiencies identified, where applicable, and shall follow up on corrective action taken by other organizations until close out.

The Plant Nuclear Safety Committee (PNSC) or Facility Review Group (FRG) is comprised of key plant management and staff personnel as described in the plant Technical Specifications. The PNSC/FRG serves the plant manager in a technical advisory capacity for the review of all safety related procedures and activities that impact on plant safety and the facility operating license.

1.2.10 Power Supply

Within the Power Supply Department, only equipment and services provided by the System Protection group are subject to the requirements of the Quality Assurance Program. Appendix A, Figure 1-1 illustrates the reporting relationship.

System Protection is responsible for post receipt test, calibration, and maintenance of certain high voltage electrical protective relays for safety related systems of the nuclear plant. During construction, this group is involved in the review of relay system drawings and specifications. Activities of System Protection include final wiring connection checks, and preoperational check-out and test of all system protection devices.

1.2.11 Inventory Resources

The Inventory Resources Department is responsible for the receipt, handling, storage, shipping, and issue of items received at the plant site for control by Inventory Resources. This responsibility encompasses spare and replacement parts and components for plant equipment through all phases of plant life. During operations, Inventory Resources also performs additional quality related activities such as handling and segregation for nonconforming items received for stores control. The Inventory Resources Department and/or Architect/Engineer, Constructor, or other contractors may perform these functions for quality controlled items intended for installation during initial construction activities. The Director of Procurement and Material Management reports to the Vice President - Corporate Services as shown in Appendix A, Figure 1-1.

1.2.12 Company Nuclear Review Board

The Company Nuclear Review Board (CNRB) reviews or directs the performance of reviews of activities concerning the technical aspects of the operating nuclear power plant insofar as they impact on plant safety; the environment; the health and safety of the public; and laws, regulations, and licensing commitments. In addition, audits of these areas are performed under the cognizance of the CNRB. Where necessary, the Board may use consulting services to perform required reviews. Membership, and the management level to which the CNRB reports, is illustrated in Appendix A, Figure 1-1.

Involvement of the CNRB with a particular plant begins when the operating license is issued for that plant, and is limited to those systems which FPL Nuclear Energy has accepted from the Construction Department. Subjects within the purview of the Board are listed in the appropriate plant Technical Specifications. The CNRB has the authority to carry out its responsibilities by way of written action letters, verbal direction, or minutes of meetings.

1.2.13 General Engineering

General Engineering is responsible for the retention of drawings generated by both Power Plant Engineering and General Engineering, and provides drafting and related services for all engineering projects. This department is responsible for the establishment and implementation of a control program for drawings. The Chief Engineer - General Engineering reports to the Vice President - Engineering, Project Management, and Construction as shown in Appendix A, Figure 1-1.

1.2.14 Nuclear Fuel

The Nuclear Fuel Section of the Fuel Resources Department (FRN) is responsible for the procurement, management, and accountability of FPL's nuclear fuel assets, and for providing technical support of fuel users within FPL. The Nuclear Fuel Section is under the direction of the Manager of Nuclear Fuel who has the responsibilities described below:

- o Forecasting FPL's nuclear fuel requirements and the availability and price of nuclear fuel;
- o Preparing the procurement specifications for components of the nuclear fuel cycle;
- o Determining sources of supply and evaluating alternatives;
- o Making commercial arrangements, including contract negotiations with vendors for acquisition, processing and delivery of nuclear fuel and related services for the nuclear fuel cycle;
- o Assuring that technical and quality requirements including inputs from other FPL departments are incorporated in fuel contracts and letters of authorization and that these documents have the necessary approvals;

1.2.14 Nuclear Fuel (Cont'd)

- Administering and managing contracts for nuclear fuel and related services to assure that contractual obligations are met, and serving as FPL liaison in all matters of nuclear fuel and fuel related contracts;

- Performing audits and coordinating accountability reporting on all nuclear fuel;

- Providing support to the QA Department for their auditing of nuclear fuel design and fuel assembly manufacturing;

- Performing fuel management and safety analyses of nuclear cores to support plant licensing;

- Development and/or review of fuel and nuclear physics design;

- Performing the project management function with respect to nuclear fuel;

- Provide and maintain computer codes and procedures available for Fuel Resources line functions and other departments for daily use in maintaining records, performing safety analysis and core design, reporting of off-site nuclear fuel management activities, and providing economic data;

- Maintain effective and controlled computer access to Nuclear applications systems;

- Develop and provide, to appropriate FPL groups, information necessary to determine FPL's fuel related costs and to finance fuel related expenditures;

1.2.14 Nuclear Fuel (Cont'd)

- Reviewing core related changes to Safety Analysis Reports and Technical Specifications for compliance with design criteria and regulatory requirements;

- Participating in start-up physics tests and providing other technical support for operating nuclear power plants.

- Planning, maintenance and implementation of the Corporate Special Nuclear Materials program.

The Manager of Nuclear Fuel reports to the Director of Fuels as shown in Appendix A, Figure 1-1.

1.2.15 Corporate Records

The Manager of Corporate Records is responsible for locating acceptable quality assurance record storage areas when requested by other departments, storage and retrieval of records as requested, establishing the parameters for the Corporate Computer Record Indexing System, and participating in the evaluation of specifically designated "QA-Approved" storage rooms. The Corporate Records organization is shown in Appendix A, Figure 1-1.

1.2.16 Executive and Documentary Files

The Supervisor of Executive and Documentary Files is responsible for receiving, maintaining, retrieving and storing the QA records in connection with licenses and contracts received from other departments. The Executive and Documentary Files organization is shown in Appendix A, Figure 1-1.

2.1 GENERAL REQUIREMENTS

Florida Power & Light Company has established a Quality Assurance Program which complies with the criteria of 10 CFR 50 Appendix B, and meets the requirements of Regulatory Guides and Industry Standards referenced in Appendix C of this report. The Topical Quality Requirements and attached Policy Statement, together with the Quality Procedures and Quality Instructions document the Program and the FPL policy with regard to Quality Assurance. This Program shall be instituted for each plant site in a schedule consistent with accomplishing the required activity and shall be carried out throughout the life of FPL nuclear plants. This shall include quality related activities initiated prior to submittal of the PSAR, such as design, procurement, preparation of the PSAR, and safety related site preparation activities.

The requirements of the FPL Quality Assurance Program shall only apply to nuclear safety related structures, systems, and components as identified in the Safety Analysis Report for each nuclear unit. Additionally, the requirements of the FPL Quality Assurance Program shall apply to all FPL, contractor, or consultant organizations performing activities affecting the quality of safety related structures, systems, and components of FPL nuclear power plants.

Documented procedures shall require and define indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained.

Periodic program reviews of the status and adequacy of the FPL Quality Assurance Program shall be accomplished by the independent audit team described in Section 1.2.2 and by QA Department audits. Management of organizations outside Florida Power & Light Company participating in the Program shall be required to regularly review the status and adequacy of that part of the FPL Quality Assurance Program which they are executing. The FPL Quality Assurance Department shall review and concur in the QA Program of contractors.

2.2 IMPLEMENTATION

2.2.1 Goals and Objectives

As stated in the Policy Statement of the President of Florida Power & Light Company, the goal of the FPL Quality Assurance Program is to maintain quality levels in an effective and efficient manner, and to assure the high degree of functional integrity and reliability of nuclear safety related structures, systems, and components. To meet this goal, the following objectives of the FPL Quality Assurance Program have been defined:

a. Define through documented procedures and instructions the quality activities that apply to the design, fabrication, procurement, construction, testing, operation, refueling, maintenance, repair and modification of nuclear power plants;

b. Establish, assign, and document the responsibilities for those activities affecting quality of safety related structures, systems, and components;

c. Establish confidence that the design, fabrication, construction, and operation of nuclear power generation facilities are performed in a manner consistent with FPL policies by assuring quality related activities are performed by responsible personnel;

d. Apprise management of unresolved problems and trends which could have a significant effect on nuclear power plant safety; and

e. Prevent schedule delays and high cost due to poor quality.

2.2.2 Program Documentation

The Topical Quality Assurance Report, which defines the policy, goals, and objectives regarding the Quality Assurance Program, shall be contained in the FPL Quality Assurance Manual, and used as guidance for the development of corporate level Quality Procedures which are also contained in the Quality Assurance Manual. Revisions to the Topical Quality Assurance Report will be made, as needed, to reflect current FPL program requirements and descriptions of activities. These revisions shall be made in accordance with a Quality Procedure. If a program revision reflects a deviation from the baseline documents contained in Appendix C, an amendment shall be submitted to the NRC 30 calendar days prior to implementation. Thirty (30) calendar days after submittal, the NRC shall be notified of FPL's intent to begin implementation of program changes identified in the amendment. In all other cases, amendments to the Topical QA Report will be submitted to the NRC to reflect implemented program revisions on an annual or more frequent basis.

Quality Procedures shall be written by the department with major responsibilities for an activity or by the Quality Assurance Department. These procedures shall be reviewed by all the departments with responsibility for some portion of that procedure, and shall be approved by the major implementing departments with co-approval by the Manager of Quality Assurance. A listing of corporate level Quality Procedures is contained in Appendix E. As the QA program develops and responds to new or revised requirements and guidance, new procedures may be adopted.

Each Quality Procedure shall be written to further address criteria contained in the Topical Quality Requirements and to further define the FPL QA policies, plans, and program where action is required by more than one department.

2.2.2 Program Documentation (Cont'd)

Each department head shall have the responsibility for implementation of the Quality Assurance Program, which includes procedure requirements applicable to his department. In addition, he shall be responsible for the preparation, approval, and distribution of Quality Instructions, operating procedures, testing procedures, or other instructions where further guidance is necessary for implementation of the QA Program within his department. Quality Instructions shall be reviewed by the Quality Assurance Department.

2.2.3 Structures, Systems, and Components

The requirements of the FPL Quality Assurance Program shall apply to nuclear safety related structures, systems, and components, as defined in the SAR. Safety related structures, systems, and components are listed as those necessary to assure the integrity of the reactor coolant boundary, the capability to shutdown the reactor and maintain it in a safe shutdown condition, or the capability to prevent or mitigate the consequences of accidents which could result in off-site exposures comparable to the guideline exposures of 10 CFR 100.

Control over activities affecting the quality of safety related structures, systems, and components shall be to the extent consistent with their importance to safety. Such control shall include use of appropriate equipment, establishment of suitable environmental conditions, and assurance that all prerequisites for a given activity have been satisfied. The Program shall provide for controls over special processes and skills necessary to attain the required quality, and the need for verification of quality by inspection and test.

Advance planning is required, for the control of management and technical interfaces between FPL and contractors, during the phase-out of design and construction and during preoperational testing and plant turnover. This is achieved through periodic meetings of concerned organizations and the

2.2.3 Structures, Systems, and Components (Cont'd)

development of procedures which define responsibilities and interfaces, and control the testing and turnover of plant systems to FPL.

2.2.4 Participating Organizations

The FPL organizations with responsibilities for activities affecting quality of nuclear safety related structures, systems, and components are identified in TQR 1.0, which also briefly describes their assigned responsibilities. The Quality Assurance Department shall be responsible for: a) the development, coordination, and control of the QA Program, including coordination of Quality Procedure review and approval; b) control and issuance of the FPL Topical Quality Assurance Report and the QA Manual as a controlled document, and c) review of Quality Instructions written by other departments.

Florida Power & Light Company may delegate activities to contractor organizations and equipment vendors. Delegated activities are subject to the external organization's FPL approved QA Program or the FPL QA Program, or some FPL approved combination thereof. However, FPL shall retain overall responsibilities for the QA Program. Procurement documents shall define the scope of delegated activities, as well as QA Program requirements that shall govern these activities.

The Quality Assurance Department shall review and approve the QA Program governing contracted activities prior to award of contract except for activities for which the output is of a conceptual and/or prototype nature. In all cases, final approval shall occur at a point in the process to ensure that the output complies with the requirements of the FPL approved QA Program. The object of this review shall be to verify that the program is in compliance with the applicable requirements of Appendix B, 10CFR50, and ANSI N45.2. Audits shall

2.2.4 Participating Organizations (Cont'd)

be conducted periodically to verify the acceptable implementation of the contractor's FPL approved QA Program governing delegated activities. The Quality Assurance Department is responsible for conducting these audits. The initial review and periodic audits shall be performed by qualified Quality Assurance Department personnel, and as appropriate, by technical specialists from other FPL departments and contractor organizations.

2.2.5 Indoctrination and Training

A program shall be established and maintained for quality assurance indoctrination, and for training which assures that the required level of personnel competence and skill is achieved and maintained in the performance of quality related activities. Quality Procedures shall delineate the requirements for an indoctrination program to assure that personnel responsible for performing quality activities are instructed in the purpose, scope, and implementation of the quality related manuals, instructions, and procedures and that compliance to these documents is a mandatory requirement. The Quality Assurance Department shall be responsible for the indoctrination of supervisory personnel. Each department head is responsible for the indoctrination of non-supervisory personnel within his department who perform quality related activities. When personnel are assigned to perform their functions under the direction of personnel from other than their home department, the department head of the organization providing direction is responsible for the indoctrinaton and training of personnel who perform quality related activities under his direction.

Quality Procedures shall also require the head of each department (including the QA Department) to be responsible for a training plan which assures that personnel performing quality related activities are trained in the principles and techniques of the activity being performed. This training shall maintain the proficiency of personnel in the skills necessary for the quality related activities through retraining, requalification or reexamination, as appropriate.

2.2.5 Introduction and Training (Cont'd)

Quality Procedures shall specify the requirements for documenting indoctrination and training sessions, including a course description, attendance, location, and date.

2.2.6 Management Participation

In addition to the involvement of department heads in implementing the QA Program within their departments and the involvement of the Manager of Quality Assurance in the development, coordination, and review of the Program, the Quality Assurance Committee shall be apprised of the status and adequacy of the Quality Assurance Program on a periodic basis. The following actions shall be instituted to assure that the Quality Assurance Committee remains informed and meets its Program responsibilities:

a. The Committee shall review a summary of the results of management level QA audits of FPL Departments.

b. The Quality Assurance Department shall circulate monthly reports of quality related activities to members of the QA Committee and affected department heads. The monthly reports may include such items as the status of audits, a summary of audit findings, the status of development projects, and descriptions of policy matters or problems requiring management attention.

c. The Quality Assurance Committee shall review the status of the QA Program on a semiannual basis. The review will include assessment of the Program goals, objectives, and accomplishments.

2.2.6 Management Participation (Cont'd)

d. Periodic audits of the QA Department and Program shall be conducted by an independent audit group under the direction of the Chairman of the Quality Assurance Committee. This audit group shall employ FPL audit procedures and shall distribute the audit report to the QA Department, and to the Quality Assurance Committee for review of findings and corrective action. Auditor certifications of independent audit teams will be retained by the Quality Assurance Department.

The programs of contractor organizations that perform quality related activities shall be reviewed to assure that their management regularly reviews the status and adequacy of that part of the FPL Quality Assurance Program which they are executing.

3.1 GENERAL REQUIREMENTS

A Quality Assurance Program shall be established for design related activities. This design control program shall ensure that the design is defined, controlled and verified; that applicable design inputs are specified and correctly translated into design output documents; that design interfaces are identified and controlled; that design adequacy is verified by persons other than those who designed the item; and that design changes, including field changes, are governed by control measures commensurate with those applied to the original design.

Design records shall be developed to provide evidence that the design process and design verification were performed in accordance with the requirements of FPL's Quality Assurance Program. The design organization, the Power Plant Engineering Department, the Fuel Resources Department or designated contractor organization shall be responsible for the content of these records.

Design records shall include design output documents and the important steps in the design effort. The intent of this documentation is to allow a technically qualified person to understand how the design was developed, and to allow him to verify the design based on the design documentation and engineering data sources referenced therein.

3.2 IMPLEMENTATION

The design organization's Quality Assurance Program for design control shall be approved by the FPL Quality Assurance Department prior to the release of approved design output by the design organization. The design organization is the organization responsible for approval of design output.

Quality Procedures and Quality Instructions shall be developed to delineate design control requirements governing design related activities performed by the Power Plant Engineering Department and the Fuel Resources Department and for delegating activities to contractor organizations.

3.2.1 Design Process

The design organization shall specify and document its design activities to the level of detail necessary to permit the design to be developed in a correct manner and to permit verification that design output documents satisfy design input requirements. Design methods, materials, parts, equipment and processes, including those associated with commercial grade items that are essential to the function of the structure, system or component shall be selected, reviewed and approved for suitability of application by the design organization.

Design inputs shall be identified, documented, reviewed and approved by the design organization. They shall be specified to the level of detail necessary to permit the design activity to be carried out in a correct manner, and to provide a consistent basis for making design related decisions, performing design verification and evaluating design changes. Changes to approved design inputs, including the reason for the changes, shall be approved, documented and controlled by the design organization.

The design organization shall identify aspects of manufacture, construction, inspection and testing critical to achieving the function of the structure, system or component. Quality standards and quality requirements shall be specified on design output or procurement documents. Changes from approved quality related requirements specified in design output, including the reason for the changes, shall be approved, documented and controlled by the design organization.

Design analyses shall be controlled and documented. Approved design output documents and approved changes thereto shall be relatable to the design input by documentation in sufficient detail to permit verification. The design organization shall establish procedures to review industry design experience. As appropriate, this experience shall be made available to cognizant design personnel.

3.2.2 Design Change Control

Changes to approved design output documents, including field changes, shall be justified, subjected to control measures commensurate with those applied to the original design, and shall be reviewed and approved by the same design organization that approved the original design unless other organizations are specifically designated.

Where a significant design change is necessary because of an incorrect design, as appropriate, Power Plant Engineering or Fuel Resources shall determine the cause of the incorrect design. As necessary, design and verification procedures shall be reviewed and modified to correct the cause of the incorrect design.

During the operations phase, design changes shall also be reviewed by operating plant management including plant Quality Control. The intent of this review is to ensure that implementation of the design change is coordinated with any necessary changes to operating procedures and practices, and required QC Surveillance activities. In accordance with plant technical specification requirements, nuclear safety related design changes are reviewed by the Plant Nuclear Safety Committee (PNSC) or Facility Review Group (FRG) and the Company Nuclear Review Board (CNRB).

3.2.3 Design Interface Control

The design organization shall be responsible for identification, control, resolution and documentation of design interface requirements. Procedures shall establish interface controls between participating organizations and between the various technical disciplines within the design organization. These procedures shall include the assignment of responsibility, and be in sufficient detail to cover the preparation, review, approval, release, distribution and revision of design output documents.

3.2.3. Design Interface Control (Cont'd)

For interdisciplinary design, approval documentation of each involved discipline of the design organization shall appear on the design output document or on a separate document directly traceable to the design output. The design organization shall designate a discipline(s) responsible for resolution of the comments of participating organizations. The designated discipline(s) approval of a design output shall also document resolution of the comments of participating organizations.

3.2.4 Design Verification

Design control measures shall be established to independently verify the design inputs, design process, and that design inputs are correctly incorporated into design output. The design organization shall develop procedures that govern design verification. These procedures shall require that the design organization identify and document the verification method utilized and that the documentation clearly identify those individuals performing the design verification.

Design verification shall be performed by technically qualified individual(s) or group(s) other than those who performed the design. The original designers and verifiers may both be from the design organization. Design verification by the designer's immediate supervisor shall be limited to those instances where the supervisor is the only qualified individual available within the design organization. These instances are further restricted to designs where the supervisor did not specify a singular design approach, or did not restrict design methods or alternatives, or did not specify design inputs (unless the specified design inputs have already been independently verified). Justification for verification by the designer's immediate supervisor should be documented along with the extent of the supervisor's involvement in the design.

3.2.4 Design Verification (Cont'd)

The design organization shall be responsible for determining the extent of design verification and methods to be employed. The methods may include one or more of the following: the performance of design reviews, the use of alternate calculations, or the performance of qualification tests. This shall apply to original design and to changes to approved design output. Where reverification is not required for a design change the bases shall be documented by the design organization. Cursory supervisory reviews and mathematical checks for calculation accuracy do not satisfy the independent design verification requirement.

Design verification shall normally be completed prior to release of design output for procurement, manufacture or release by the design organization for use in design activities by a participating organization. Verification shall be conducted based on the status of design at the time of release of design documents. Where this timing cannot be met, verification may be deferred provided that the unverified portion of the design output, and all design output documents, structures, systems and components based on the unverified portion of design are identified and controlled. In all cases verification shall be completed prior to relying on any affected items to perform their design functions.

3.2.5 Computer Codes

Organizations utilizing computer codes as a method for design shall maintain instructions or procedures to effect the following:

1. That such codes are verified for their particular use using benchmark problems, alternate calculations, comparison with other code or experimental results, design review or similar methods,

3.2.5 Computer Codes (Cont'd)

2. That such codes have been qualified for their specific application sufficient to ensure valid results,

3. That such codes are provided with user instructions sufficient for a technically competent individual to follow,

4. That configuration controls are provided to assure that such code changes or modifications are documented and controlled.

4.1 GENERAL REQUIREMENTS

Procurement of items and services shall be performed in accordance with procedures which assure that applicable regulatory requirements, design bases, code requirements, and other requirements necessary to assure quality shall be included or invoked by reference in the procurement document. These procedures shall delineate the sequence of actions to be accomplished in the preparation, review, approval, and control of procurement documents. Changes to procurement documents shall be subjected to the same degree of control as utilized in the preparation of the original documents.

4.2 IMPLEMENTATION

4.2.1 Procurement Document Provisions

Quality Procedures and Quality Instructions shall identify the responsibilities and actions required of the organizations originating, reviewing, approving, and controlling procurement documents. These procedures shall require the procurement documents to specify:

a. The scope of work to be performed.

b. Technical requirements (by specifying or referencing) which shall include the applicable components and materials identification requirements, drawings, specifications, procedures, instructions, codes, and regulations and provide for identification of applicable test, inspection and acceptance requirements, or special process instructions.

c. QA Program requirements to be imposed on contractors which shall include the applicable portions of 10 CFR 50, Appendix B.

d. Right of access which provides, as appropriate, for access to contractor facilities and records for inspection or audit by FPL or its designated representative, and to access for events such as witness and hold points.

4.2.1 Procurement Document Provisions (Cont'd)

e. The documentation required to be prepared, maintained, and/or submitted to FPL or its representative for review, approval, or historical record. The time of submittal of this documentation and the retention and disposition of quality assurance records which will not be delivered to FPL shall be prescribed.

4.2.2 Procurement Document Review

Procurement documents shall be reviewed for correctness, and inspectability and controllability of quality requirements in accordance with Quality Procedures and Quality Instructions to assure that the appropriate provisions of Section 4.2.1 are included. This review shall be documented and performed by designated technical and quality evaluators, and shall assure that the procurement document was prepared, reviewed and approved as required. Procurement documents for the purchase of spare or replacement parts for safety related structures, systems, and components are subject to controls equivalent to those used for the original equipment.

Changes to procurement documents, whether initiated by FPL or their representative, are subjected to the same degree of control as that utilized in the preparation of the original document.

4.2.3 Selection of Procurement Sources

The Purchasing, Fuel Resources or Corporate Contracts Department, as applicable, shall verify that the procurement document has been reviewed and approved, and that the supplier has been approved prior to issuing the purchase order for safety related materials or services. Supplier approval is not necessary if the important characteristics of the item can be verified by inspection or test.

4.2.4 The overall procurement requirements including those related to planning, bid evaluation, and review and concurrence of suppliers QA programs are described in Quality Procedures and Quality Instructions.

5.1 GENERAL REQUIREMENTS

Activities affecting quality of nuclear safety related structures, systems, and components shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. These documents shall include appropriate quantitative criteria such as dimensions, tolerances, and operating limits, and qualitative criteria such as comparative workmanship samples, to assure that the quality assurance activity has been satisfactorily accomplished.

5.2 IMPLEMENTATION

5.2.1 Quality Assurance Program Documents

The FPL Quality Assurance Manual described in TQR 2.0 contains corporate Quality Procedures which comply with the criteria of 10 CFR 50, Appendix B. Quality Procedures and department level Quality Instructions provide direction for activities affecting quality. The Quality Assurance Department reviews and comments on Quality Instructions written by other departments. Comments concerning compliance with corporate QA commitments and requlatory requirements are resolved prior to issuance. The Quality Assurance Department receives controlled copies of Quality Instructions issued by other departments.

During the design, construction, and procurement phases, the Architect/Engineer or other contractors may be delegated responsibility for maintaining, issuing and verifying the implementation of appropriate program documents. In this case, Quality Assurance Department audit and/or Construction Quality Control surveillance activities shall assure that such measures are established and implemented. Contractor programs shall clearly delineate the actions to be accomplished in the preparation, review and

5.2.1 Quality Assurance Program Documents (Cont'd)

control of instructions, procedures and drawings, and the methods for complying with the appropriate criteria of 10 CFR 50, Appendix B.

5.2.2 Procedures and Instructions

Instructions and procedures for activities affecting quality shall be prepared, reviewed, and approved in accordance with written Quality Procedures or Quality Instructions.

During the design and construction phase, contractors shall be required to have Quality Assurance Programs which contain written instructions for preparation, review, and approval of procedures, instructions, and drawings affecting quality. In addition, Constructor's site construction procedures and Quality Control inspection procedures shall be approved by FPL Project Site Manager, or his designee, following reviews by Quality Assurance or Quality Control personnel to assure compliance with Corporate commitment and regulatory requirements.

During the operations phase, on-site plant procedures shall be prepared, reviewed, and approved in accordance with written instructions which includes a review for concurrence by Quality Assurance or Quality Control personnel. These plant procedures include operating procedures, off-normal and emergency procedures, test procedures, and calibration procedures. Also included are maintenance and repair procedures for subcontracted maintenance and repair activities which are outside the normal scope of plant craft capability. A plant change or modification of a magnitude requiring the assignment of a Project General Manager shall be subject to the QA Program as discussed in 5.2.1, and the preceding paragraph of Section 5.2.2.

5.2.3 Drawings

The design organization is responsible for review and approval of drawings. For delegated design activities, as appropriate, the Power Plant Engineering Department or the Nuclear Fuel Department may approve changes to drawings. The technical control of drawings, i.e., review and approval of the drawing and all changes thereto shall be governed by procedures. A means shall be developed and updated as required to identify approved drawings and revisions thereto. A Master Drawing List is the normal means used for this.

5.2.4 Acceptance Criteria

Quality Procedures and Quality Instructions require that quality related instructions, procedures, and drawings include adequate quantitative and qualitative acceptance criteria, as appropriate, for determining satisfactory work performance and quality compliance. These acceptance criteria requirements apply to important activities such as design, operations, test control, inspection, and plant modifications.

6.1 GENERAL REQUIREMENTS

The distribution of documents such as instructions, procedures, and drawings which provide guidance, specifications, or requirements affecting the quality of nuclear safety related structures, systems, and components shall be controlled. These documents shall be prepared, reviewed for adequacy, and approved for release by authorized personnel in the effected organization. These documents shall be distributed to locations where the activity is performed.

Changes to controlled documents shall be so identified and shall be reviewed and approved by the same organization that performed the original review and approval unless otherwise specified in the implementing procedures. In addition, procedures shall provide for controlling obsolete documents to preclude the possibility of use of outdated documents.

6.2 IMPLEMENTATION

6.2.1 Responsibility

Quality Procedures shall delineate the control measures for controlled documents including direction for the review for adequacy, approval by authorized personnel, distribution of controlled documents and verification that changes are promptly incorporated. These control measures shall apply to documents affecting the quality of nuclear safety related structures, systems, and components such as:

a. design specifications;

b. design, manufacturing, construction, and installation drawings;

c. quality program manuals, procedures, and instructions;

6.2.1 Responsibility (Cont'd)

d. inspection, manufacturing, and test procedures and instructions;

e. plant operating and maintenance procedures;

f. plant Safety Analysis Reports and related design criteria documents.

The requirements for control of procurement documents are contained in TQR 4.0.

During all phases of the plant life, it shall be the responsibility of each organization issuing controlled documents to use document control procedures. Procedures shall document the responsibility for review, approval, maintenance and distribution of documents, including coordination and control of documents which describe interface relationships.

During the design and construction phase and for operating plant changes under their cognizance, the Architect/Engineer, Nuclear Steam Supply System vendor, and other contractors shall be responsible for assuring that all revisions required as a result of FPL comments, nonconformances, or engineering work are incorporated into revised documents.

6.2.2 Distribution of Controlled Documents

Quality Procedures shall specify that controlled documents and revisions be distributed to locations where the activity is performed.

6.2.3 Drawing Control

During the design and construction phase, a participating design organization shall normally be assigned responsibility for development, review and approval of the Master Drawing List, or its equivalent, and all revisions thereto. The design organization shall revise and distribute the Master Drawing List as a controlled document at a frequency consistent with the state of design and construction. The design organization shall be responsible for maintenance, distribution and control of all approved drawings and revisions thereto.

FPL normally assumes control of the drawings and Master Drawing List after initial operation of the facility. The Power Plant Engineering Department shall require that participating design organizations update the drawings and Master Drawing List to reflect the as-built conditions of the facility prior to FPL's acceptance of these documents.

Maintenance, distribution and control of the drawings and the Master Drawing List by FPL during the operation phase shall be assigned to a drawing custodian. Revision to drawings shall be approved prior to release by the drawing custodian, approval shall be by, as appropriate, Power Plant Engineering, Nuclear Fuel, or a design organization designated by one of these departments.

During the operation phase a system shall be established to provide ready access and availability of drawings to engineering and operations personnel; to identify drawings affected by approved plant design changes; and to update drawings and the Master Drawing List to reflect implemented design changes.

6.2.4 Instruction and Procedure Control

Participating organizations shall be responsible for development, maintenance and control of those documents identified in paragraph 6.2.1 issued by them as controlled documents. Each organization shall be responsible for the adequacy of their procedures.

6.2.5 Obsolete Documents

Controls established by Quality Procedures or Quality Instructions shall assure that outdated copies of controlled documents are not inadvertently used.

CONTROL OF PURCHASED ITEMS AND SERVICES

7.1 GENERAL REQUIREMENTS

Measures shall be established to assure that safety related items or services purchased by or for FPL conform to the requirements of the procurement document. These measures shall include documented evidence of source selection, verification activities and examination of items or services to assure compliance with the procurement document. The effectiveness of the control of quality by contractors and subcontractors shall be assessed at intervals consistent with the importance, complexity, and quantity of the product or service.

7.2 IMPLEMENTATION

7.2.1 Initial Evaluation of Suppliers

Procurement source evaluation and selection measures shall be specified in Quality Procedures and Quality Instructions which shall identify the responsibility of qualified individuals for determining supplier capability. The evaluation may require integrated action involving Quality Assurance and one or more organizations (e.g., Engineering, Construction, Nuclear Energy or Purchasing) based upon the item or service being procured. This evaluation is to ensure that the FPL contractors comply with the applicable portions of 10 CFR 50, Appendix B. Documented evidence of the evaluation, and the acceptance of the contractor's quality program and procedures shall be retained in the Quality Assurance Department files. The determination of supplier approval shall be based on such factors as prior performance, historical quality performance data, source surveys or audits, and evaluation of the supplier's QA Program. The basis shall be consistent with the importance, complexity, and quality required for the items or services involved.

7.2.2 Verification Activities

Quality Procedures shall define the requirements for verification activities such as surveillance, inspection, or audit to assure conformance of procured items and services to identified requirements. These verification activities shall be performed in accordance with written procedures which specify the documentation required and the characteristic or process to be witnessed, inspected, verified, or accepted. FPL verification activities shall be accomplished by qualified personnel to verify that the supplier complies with quality requirements, and when possible, shall be performed on those items where verification of procurement requirements cannot be determined upon receipt.

7.2.3 Receiving Inspection

Quality Procedures and Quality Instructions shall delineate requirements and responsibilities for the performance of receiving inspection. This inspection shall verify that suppliers have fulfilled their contractual obligation and that the procured items meet the appropriate quality requirements. Receiving inspection shall include, as appropriate:

a. Measures for verifying that the shipment is complete, properly identified, undamaged, and corresponds with the receiving documentation;
b. Measures for inspection of the item and review of supporting documentation (e.g., mill test reports, NDE reports) as required by the purchase documents;
c. Measures for inspection and acceptance of items to inspection instructions;
d. Measures for identifying and controlling acceptable items including identification of inspection status prior to release from the receiving inspection area;

7.2.3 Receiving Inspection (Cont'd)

e. Measures for identifying, segregating, and handling nonconforming items;

f. Measures to ascertain that inspection records or Certificates of Conformance are available prior to release.

7.2.4 Supplier Furnished Records

Records required to be furnished by the supplier are specified in the procurement document. Certifications or documentation verifying conformance, provided by the supplier shall identify the specific procurement requirements met (either by reference to the purchase order or by delineation). Such certification shall identify any procurement requirements which have not been met and provide a description of those nonconformances dispositioned "accept as is" or "repair". Control of procurement documents is described in TQR 4.0.

8.1 GENERAL REQUIREMENTS

Materials, parts, and components, including partially fabricated assemblies, shall be identified and controlled as required throughout fabrication, storage, installation, construction, and use of the item. The identification of the item shall be maintained by heat number, part number, serial number, or other suitable means, and shall be physically marked on the item or on records traceable to the item. The object of these controls shall be to prevent the use of incorrect or defective materials, parts, and components.

8.2 IMPLEMENTATION

Quality Procedures and Quality Instructions shall establish the responsibilities and requirements for the identification and control of materials, parts and components. The procedures and instructions shall assure that identification and control is maintained throughout fabrication, receipt, handling, storage and installation of items. Provisions include:

a. Requirements for traceability to appropriate documentation, such as: procurement documents, manufacturing documents, drawings, specifications, inspection and test records, and nonconformance reports.
b. Controls to assure that the correct identification of an item is verified and documented prior to release for fabrication, assembly, shipping or installation.
c. Requirements which assure that the method or location of markings do not affect the function or quality of an item.
d. Establishment of identification requirements by specifications, drawings, procurement documents, instructions or procedures during initial planning.

FPL may delegate any portion of the implementation of the identification and control program to the Architect/Engineer, Constructor, Nuclear Steam Supply System vendor or other contractors. If delegated, contracts shall require that the contractor establish an identification and control program which meets the requirements of this TQR.

9.1 GENERAL REQUIREMENTS

Measures shall be established to assure that special processes such as welding, heat treating, and nondestructive examination, are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements.

9.2 IMPLEMENTATION

The Power Plant Engineering Department, or the Fuel Resources Department or the delegated contractor organization, as appropriate, shall include special process requirements in their design outputs and changes thereto. Special processes used during plant operations shall be the responsibility of the plant manager, who shall ensure that procedures are developed, reviewed, approved and controlled, and that personnel are qualified.

9.2.1 Identification of Special Processes

Special processes are those processes which must be qualified and controlled where quality is highly dependent on close control of process variables or operator skills, and objective verification of end quality (inspection, examination or testing) is difficult.

As a further clarification, special processes identified as such by applicable codes and standards shall be controlled, qualified, and implemented in accordance with those codes and standards. Examples of special processes include (but are not limited to) welding, heat treating, and nondestructive examination. Others, i.e., flushing, protective coating, plating applications and nuclear cleaning should be reviewed to determine if they are special processes.

9.2.2 Procedure Qualification and Control

Quality Procedures specify that written process control procedures shall be used and qualified as required by applicable specifications, codes, or standards.

Where FPL assigns work to outside contractors, the contractors shall make their procedures and personnel qualifications available to FPL prior to the start of work. The Architect/Engineer, Nuclear Steam Supply System vendor, or other organization designated by FPL shall be responsible for the evaluation and acceptance of on-site contractor special process procedures, and shall interface with the appropriate FPL department, as necessary, to resolve review comments with the contractor. The contractor shall also be responsible for the control and approval of sub-contractor procedures.

The review of special process procedures used during construction shall be coordinated by the Plant Construction personnel assigned to the construction site.

9.2.3 Personnel Qualification and Certification

Procedures or instructions shall specify personnel qualification/certification requirements. Personnel responsible for the performance and verification of special processes shall be trained, tested, and certified as required by applicable specifications, codes and standards. Requirements for the period of certification, retesting, and recertification of personnel shall also be specified. Contractors shall qualify personnel and maintain records of qualified personnel in accordance with applicable codes, standards, specifications, and contract or procurement document requirements.

9.2.3 Personnel Qualification and Certification (Cont'd)

During construction, the Plant Construction personnel, which includes the Construction QC personnel, shall be responsible for: the certification or qualification, as appropriate, of personnel performing special processes; and to control, maintain and calibrate equipment used for special processes. The QA Department is responsible to assure, by audit, that current records are maintained on-site for work performed by or for FPL. During operations, the plant manager or his designee shall be responsible for these records.

9.2.4 Special Process Records

Records shall provide objective evidence that special processes were performed in compliance with approved procedures by qualified personnel, and that when required by procedures, specifications, and codes, such performance was verified. Results of nondestructive examinations shall be recorded in accordance with applicable specifications, codes and standards. These records shall be retained by the vendor or supplied to FPL as required by contract or purchase orders. If records are to be retained by the vendor, the contract or purchase order shall specify the retention period and instructions for final disposition of such records.

During construction, the Construction Quality Control organization is responsible for the review of nondestructive examination documents for acceptance, and for assuring that documents for special processes utilized during construction are properly collected, reviewed, accepted and transmitted for retention. During operations, the plant manager is responsible for the review and retention of records.

INSPECTION

10.1 GENERAL REQUIREMENTS

A program for inspection shall be established and executed by or for FPL to verify conformance with the documented instructions, procedures, and drawings for accomplishing an activity. Such inspections shall be performed by individuals or groups other than those who performed the activity being inspected. Examinations, measurements, and tests of materials or products processed shall be performed for each work operation, where necessary, to assure conformance to established requirements. If direct inspection of processed materials or products is impossible or disadvantageous, indirect control by monitoring shall be provided. Mandatory inspection, witness, or hold points beyond which work shall not proceed without the consent of FPL or a designated representative shall be indicated in the appropriate documents.

10.2 IMPLEMENTATION

10.2.1 Inspection Responsibilities

During the construction phase, a program for on-site inspection of construction activities affecting quality shall be established and executed by the Construction Department to ensure conformance with documented instructions, procedures and drawings. During this phase, the Construction Department may delegate the establishment and execution of this program to a contractor or other designated FPL representative, but shall retain ultimate responsibility for the program. In all cases, the personnel performing the inspection shall be independent of the group performing the work. The Construction Department shall also be responsible for performing receiving and process verification inspections.

The System Protection Department may perform inspections of equipment within their purview during operations. Inspections shall be performed in accordance with approved, written procedures by qualified personnel.

10.2.1 Inspection Responsibilities (Cont'd)

During the operations phase, a program for on-site inspection of activities affecting quality shall be established by the Nuclear Energy Department. Nuclear Energy shall perform inspections, surveillance, and monitoring of plant activities during operational and start-up testing, and plant operations as required by established plans, schedules, and/or procedure's inspection, witness, or hold points. In all cases, the personnel performing the inspection shall be independent of the group performing the work.

Quality Procedures and Quality Instructions shall be written which delineate the requirements and responsibilities for, the performance of inspections.

10.2.2 Inspection Plans and Schedules

Documented inspection plans may be either a separate document or an integral part of work instruction documents. The plans shall be based on design specifications, procurement documents, drawings, other specifications, or previous experience, as appropriate. Inspections shall be scheduled to assure that sufficient time and resources are available, and to assure inspections are not inadvertently omitted or bypassed.

10.2.3 Inspection Personnel

a. Inspections shall be performed by individuals other than those who performed or directly supervised the activity being inspected. Inspection personnel shall be qualified and certified in accordance with appropriate codes, standards, and/or company training programs. Qualifications and certifications shall be kept current.

b. Prior to performing inspections, inspection personnel shall have access to the drawings, procedures, specifications, or other documented criteria necessary for performance of the inspection.

10.2.4 Inspection Procedures

a. Required inspection, surveillance, or monitoring activities shall be performed and documented according to written, approved instructions or procedures. Inspection procedures, instructions, or checklists shall contain the following:

- o Identification of characteristics to be inspected.
- o Identification of the individual or groups responsible for performing the inspection.
- o Acceptance criteria or reference to the acceptance criteria.
- o A description of the method of inspection.
- o Verification of completion and certification of inspection.
- o A record of the results of the inspection.

b. During the operations phase, inspection procedures shall be reviewed by QC personnel to determine the need for an independent inspection and the degree and method if such an inspection is required, and to assure the identification of inspection personnel and the documentation of inspection results.

c. Written approved instructions shall specify surveillance or monitoring of processing methods, or testing and operation of equipment when inspection is impossible, inaccessible or not applicable.

d. Modification, repair, replacement or rework items shall be inspected in accordance with original inspection requirements or acceptable alternatives.

10.2.5 Inspection, Witness, and Hold Point Identification

Appropriate inspection, witness, or hold points shall appear in process documents (e.g., construction, testing, operating and maintenance procedures). These process procedures are subject to the review of the appropriate Quality Control organization for adequacy of inspection, witness, and hold points.

Mandatory hold points shall be used when witnessing and inspecting must be performed and signed-off by the responsible personnel before work can proceed.

FPL shall indicate FPL witness or hold points applicable during the manufacture of an item in procurement documents. A distinction shall be made between witness points and mandatory hold points.

11.1 GENERAL REQUIREMENTS

A test program shall be established to assure that testing required to demonstrate that structures, systems and components will perform satisfactorily in service is identified, accomplished, and documented in accordance with written procedures. The test program shall include, as appropriate, proof tests prior to installation, construction tests, preoperational tests, start-up tests, and operational tests, and retest following repairs, replacements or modifications.

11.2 IMPLEMENTATION

11.2.1 Test Program

Testing requirements shall be identified in the engineering/design documents, SAR documents, procedures, or procurement documents, as appropriate. Retest following repairs, replacements, or modifications shall be performed in accordance with the original design and test requirements or acceptable alternatives. Retest shall be performed when the original test results are invalidated.

Quality Procedures and Quality Instructions shall be written which delineate the methods and responsibilities for controlling, accomplishing, and documenting testing during the construction, preoperation, start-up, and operation of nuclear power plants.

FPL may delegate the implementation of all or any part of the test program to other organizations but shall retain ultimate responsibility for the program. The contractor shall be required to control, perform and evaluate tests in accordance with written procedures and shall be required to prepare a written test program detailing the testing required.

11.2.2 Test Procedure Preparation and Test Performance

Testing shall be accomplished in accordance with written approved test procedures which incorporate or reference the requirements and acceptance limits in the applicable design and procurement documents. The test procedure or test program documents shall include the following as a minimum:

a. Instructions for the testing method used;

b. Required test equipment and instrumentation;

c. Test requirements and acceptance criteria;

d. Hold, witness, inspection and data collection points;

e. Test prerequisites such as: calibrated instrumentation; trained, qualified, and licensed or certified personnel; preparation, condition and completeness of item to be tested; suitable and controlled environmental conditions.

f. Methods for documenting or recording test data and results;

g. Provisions for data collection.

11.2.3 Evaluation of Test Results

The documented test results shall be evaluated against the predetermined acceptance criteria by a group or individual having appropriate qualifications. The acceptance status of the test shall be documented. Deficiencies noted during the evaluation shall be documented and dispositioned in accordance with approved Quality Procedures or Quality Instructions.

The evaluation of the test results may be delegated to other organizations; however, FPL shall retain the responsibility for the evaluation. The evaluating organization shall be required to use qualified personnel, evaluate the data against predetermined criteria, and document the results of the evaluation and acceptance status of the test.

12.1 GENERAL REQUIREMENTS

Tools, gauges, and other measuring and testing equipment used as the basis for acceptance in activities affecting quality shall be properly controlled, periodically calibrated, and adjusted to assure that accuracy is maintained within limits necessary to verify that design requirements have been met. It is the responsibility of each department maintaining calibrated instruments to provide for the calibration and control of such instruments.

12.2 IMPLEMENTATION

12.2.1 Control of Measuring and Test Equipment

Procedures shall be written to delineate the methods and responsibilities for the control, maintenance, and calibration of measuring and test equipment (M&TE). M&TE control procedures or calibration program documents shall contain the following:

a. A listing of M&TE to be controlled;

b. Frequency of calibration of listed M&TE. The frequency may be based on calendar time or relate to usage, and be based on such factors as experience, inherent stability, instrument purpose, or accuracy required;

c. A method for controlling issue and recall of portable M&TE;

d. A method to identify controlled M&TE (e.g., labeling) required calibration frequency and calibration test data applicable to the M&TE;

e. Method to document and maintain the status of M&TE.

12.2.1 Control of Measuring and Test Equipment (Cont'd)

FPL may delegate the control and/or calibration of M&TE to other organizations. FPL, however, retains ultimate responsibility for control and calibration, and the contractor shall meet the requirements of this TQR or an acceptable alternative program as required by the procurement document for the contracted services.

12.2.2 Calibration Procedure

M&TE shall be calibrated in accordance with written approved procedures. The calibration procedures shall contain, as a minimum:

a. Identity of M&TE to which the procedure applies;

b. Calibration equipment and reference standards to be used;

c. Acceptance criteria;

d. Sequence of operations and special instructions;

e. Documentation and data collection requirements;

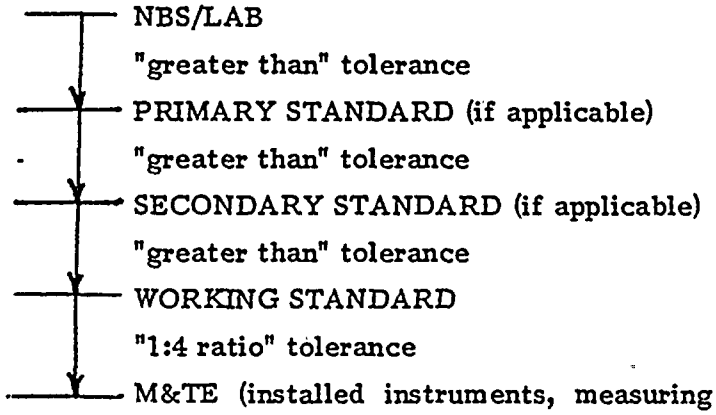
f. A requirement that M&TE be checked and results recorded before adjustments or repairs are made;

g. Calibration frequency required.

12.2:3 Calibration Standards

M&TE shall be calibrated using reference standards whose calibration has a known, documented, valid relationship to nationally recognized standards or accepted values of natural physical constants. If no national standard exists, the basis for calibration shall be documented. Standards and reference standards shall have an accuracy level, range and stability which are adequate to verify that the equipment being calibrated is within tolerance and adequate for the programmatic requirements of the equipment being calibrated.

M&TE shall be calibrated against reference standards having tolerances not greater than one fourth (1/4) the tolerance of the M&TE. Tolerances greater than 1/4 will be acceptable when limited by the state-of-the art. Reference standards shall be calibrated against higher level reference standards of closer tolerance. The meaning of this paragraph may be diagrammed as follows:



12.2.3 Calibration Standards (Cont'd)

For projects with limited work authorizations for construction and for plants with operating licenses prior to May, 1976, reference standards shall have a maximum error equal to or less than that required of the M&TE. The accuracies of M&TE and reference standards shall be chosen such that the equipment being calibrated can be calibrated and maintained within the required tolerances.

12.2.4 "Out of Tolerance" Control

M&TE and reference standards, when found out of tolerance, shall be so identified and removed from service. An investigation shall be conducted to determine the validity of previous inspection or test results gained through use of the instrument, and of the acceptability of items previously inspected or tested.

13.1 GENERAL REQUIREMENTS

Written instructions or procedures shall be established and implemented for the cleaning, shipping, storage, preservation, packaging, and handling of specified items. These instructions and procedures shall delineate measures which prevent degrading an item through damage or deterioration. When necessary for particular products, special protective environments such as inert gas atmosphere, specific moisture content levels, and temperature levels shall be specified and provided.

13.2 IMPLEMENTATION

13.2.1 General

Instructions or procedures shall be written to define the requirements and responsibilities for the cleaning, packaging, preservation, handling, storage, and shipping of equipment and material, and shall require implementation of the established design and specification requirements by personnel having appropriate qualifications. FPL may delegate any portion of the responsibility for handling, storage and shipping of material and equipment, but shall retain ultimate responsibility. Where any of the functions in the section which follow is delegated to a contractor, the contractor shall be required to adhere to the FPL requirements stated herein.

During the operations phase, consideration shall be given to the need for special requirements in the preparation and review of procurement documents (see TQR 4.0). Procedures and instructions shall be prepared and implemented for special on-site handling or storage requirements. The receiving department shall be responsible for on-site implementation of the special handling, shipping, and storage requirements for items received and controlled by their organization.

13.2.2 Establishment of Handling, Storage, and Shipping Requirements

Special handling, preservation, storage, cleaning, packaging, and shipping requirements shall be specified, as appropriate, in the design documents or purchase orders. The requirements established in the design documents or purchase orders shall be consistent with industry accepted standards, the importance of equipment or material to nuclear safety, and the material or equipment's sensitivity to damage. The preparation of these design documents or purchase orders may be delegated by FPL to other organizations. The preparation and control of design documents and purchase orders is described in TQR 3.0 and 4.0.

13.2.3 Handling, Storage, and Shipping Procedures

Materials and equipment which are to be incorporated into a safety related system of a nuclear power plant shall be handled, stored, and shipped in accordance with written procedures, where necessary, to implement the design document and purchase order requirements. These procedures shall assure that cleaning, handling, storing, packaging, shipping, and preserving materials, components and systems will preclude damage, loss, or deterioration by environmental conditions, such as temperature or humidity.

The preparation and/or implementation of these procedures may be delegated to other organizations, but FPL shall retain the ultimate responsibility for proper material handling, storage, and shipping.

13.2.4 Verification of Proper Handling, Storage, and Shipping.

The Quality Assurance Department shall be responsible for verification of proper handling, storage and shipping at vendor facilities and on the construction site during the construction phase. The Nuclear Energy and the QA Department shall be responsible for verification of proper handling, storage, and shipping at the plant during the operations phase.

14.1 GENERAL REQUIREMENTS

Measures shall be established to indicate by the use of markings such as stamps, tags, labels, routing cards or other suitable means, the status of inspections and tests performed on material, equipment, or systems during the construction and operations phases of nuclear power plants. These measures shall provide for the identification of items which have satisfactorily passed required inspections and tests. Measures shall also be established for indicating the operating status of structures, systems and components to prevent inadvertent operations.

14.2 IMPLEMENTATION

14.2.1 General

During the construction phase, the Construction Department is responsible for establishment and maintenance of a suitable system for identifying the inspection, test, and operating status of materials, equipment, systems, and components. The system shall be established, implemented and maintained in accordance with written Quality Procedures and Quality Instructions. The Architect/Engineer or Constructor shall develop and implement procedures to comply with contractual responsibilities, and applicable codes, standards, specifications, and criteria governing the status identification of procurement items being tested, installed, or fabricated. The Architect/Engineer (where applicable), suppliers and contractors shall be required to maintain a system for identifying the inspection, test and processing status of materials, parts, and components. Elements of this system require that suppliers and contractors have a controlled manufacturing and test operation in order to preclude the inadvertent bypassing of processing, inspections or test, and to provide a positive identification of component status throughout all phases of manufacturing, testing, and inspecting, by means of tagging, routing cards, stamping, manufacturing or test reports, labeling or other appropriate methods.

14.2.1 General (cont'd)

During the operations phase, the Nuclear Energy Department shall be responsible for assuring that on-site inspection, test, and operating status requirements are implemented per written Quality Procedures and Quality Instructions.

The Construction, Nuclear Energy and Quality Assurance Departments shall verify adequacy of the controls established and implemented.

14.2.2 Status Identification and Control

Quality Procedures and Quality Instructions shall describe control of the application and removal of markings such as stamps, tags, labels, routing cards, and other suitable means to indicate the status of non-operational, nonconforming, or malfunctioning nuclear safety related structures, systems and components to prevent inadvertent operation, and to prevent omission of inspections, tests, or other critical operations. These procedures and instructions shall delineate the requirements, methods and responsibilities for indicating the status of the affected items. These procedures will clearly delineate the individuals or groups responsible for application and removal of status indicators.

NONCONFORMING MATERIALS, PARTS OR COMPONENTS

15.1 GENERAL REQUIREMENTS

Measures shall be established to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation. These measures shall include, as appropriate, procedures for identification, documentation, segregation, disposition, and notification to affected organizations. Nonconforming items shall be reviewed and accepted, rejected, repaired or reworked in accordance with documented procedures.

15.2 IMPLEMENTATION

15.2.1 Program

Quality Procedures and Quality Instructions shall define the responsibilities and methods for identifying, documenting, segregating and dispositioning nonconforming items. For procedure review requirements, see TQR 5.0. Each department shall be responsible for the identification, control, and disposition of nonconformances within the scope of their departmental responsibilities.

Throughout plant life, FPL may delegate any portion of the identification and control of nonconforming items and services to an Architect/Engineer (A/E), constructor, NSSS vendor or other contractors. In any case, FPL retains the responsibility for assuring that requirements are met, and shall assure that the contractor's actions conform to requirements set by FPL.

15.2.2 Documenting and Controlling Nonconformances

All nonconformances in safety related items shall be documented and reported for corrective action. Measures shall be delineated in Quality Procedures and Quality Instructions which control further processing, installation, or operation of nonconforming items. These measures shall include:

a. Physical identification of the item as nonconforming.

b. Segregation of nonconforming items until properly dispositioned.

Where physical segregation is not practical, suitable tags, marking and documentation shall be used to assure control.

15.2.3 Documentation

Documentation of the nonconforming item shall: identify the item; describe the nonconformance; show disposition of the nonconformance and inspection requirements; and include the signature of the person approving the disposition.

15.2.4 Evaluation and Disposition

Power Plant Engineering, Nuclear Fuel, Nuclear Energy, System Protection or the delegated contractor organization, as specified by procedure, shall evaluate nonconformances and disposition them based on the results of the evaluations. These evaluations and dispositions shall be reviewed, approved and documented in accordance with procedures.

15.2.4 Evaluation and Disposition (Cont'd)

An evaluation to determine the disposition of nonconforming items shall be performed. The evaluation shall determine whether an item is to be accepted as-is, repaired, reworked, or rejected. A technical evaluation shall be performed when an item is accepted as-is or is repaired to an acceptable condition. Records of the disposition of these items shall be made part of the nonconformance report. This evaluation shall assure that the final condition does not adversely effect safety, operability or maintainability of the item, or of the component or system in which it is installed.

The A/E, or other contractors on-site, shall be required to inform the FPL Construction or Nuclear Energy Department prior to use or installation of a nonconforming item. The nature and extent of a nonconformance and the reason for proposing its use or installation shall be justified. Nonconforming items dispositioned "accept as-is", or repaired to an acceptable condition, shall be so identified. Nonconformance reports for those items shall be made part of the item records and forwarded with the material to FPL.

The determination of the need and the advisability of releasing nonconforming materials or items, is made by the Power Plant Engineering, Construction, or Nuclear Energy Departments. The following factors may be appropriate considerations in making this determination:

a. Effect on the orderly progress of work if material or items are released;

b. Safety of personnel;

c. Suitability of material or items in "as-is" condition, i.e., probability of eventual satisfactory resolution of the nonconformance without repair, rework, or replacement;

15.2.4 Evaluation and Disposition (Cont'd)

d. Accessibility of material or items after release;

e. Cost of removal and repair of replacement should material or items eventually have to be removed, repaired, or replaced;

f. Impact on plant safety.

Items shall be reworked or repaired in accordance with documented procedures and shall be verified by reinspecting the item as originally inspected or by a documented method which is at least equal to the original inspection method.

Quality Assurance or Quality Control personnel shall periodically review nonconformance reports to identify quality trends. The results of these analyses shall be reviewed with appropriate members of upper level management.

16.1 GENERAL REQUIREMENTS

Documented measures shall be used to assure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances, are promptly identified and corrected as soon as practicable. In the case of significant conditions adverse to quality, the cause of the condition shall be determined and action taken to preclude repetition. The identification of significant conditions adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of management.

16.2 IMPLEMENTATION

16.2.1 Corrective Action and Follow-Up

Quality Procedures and Quality Instructions shall define responsibilities and methods for identifying and correcting conditions adverse to quality. When an adverse condition is detected, a determination shall be made by plant supervision, Quality Control, or Quality Assurance personnel as to whether immediate or routine corrective action is required.

a. "Immediate Corrective Action" applies to conditions which pose a threat to plant safety or to the health and safety of the public, which could result in major equipment and material damage, or could, if not corrected, produce defects of significantly greater consequences than those immediately resulting from the condition. "Immediate Corrective Action" is accomplished through stop-work requests/orders to appropriate levels of management, requiring that work be stopped, the plant be shut down or other appropriate actions be taken.

16.2.1 Corrective Action and Follow-Up (Cont'd)

b. "Routine Corrective Action" applies to conditions which do not require immediate corrective action. Routine corrective action is assured through the distribution and disposition associated with inspection reports, surveillance reports, nonconformance reports, and audit reports; and the investigation analysis and action associated with reportable conditions.

Follow-up to verify implementation of corrective action and close-out of corrective action documentation is accomplished by the QA or QC organization responsible for verifying the corrective action. The Quality Assurance Department shall track, follow-up, and close-out open items identified by QA Department audits and vendor surveillances, and shall assure the tracking of unresolved items and violations identified by NRC inspections. Each department shall be responsible for follow-up and close-out of corrective action resulting from their departmental inspections, tests, or operations.

If corrective action is inadequate or not timely, the follow-up organization shall request corrective action from management, as delineated in procedures. The Quality Assurance Committee is the final authority in the event that agreement is not reached at lower levels regarding stop work requests or other corrective action.

Where corrective action is required of contractor personnel, FPL shall define in procedures and contracts the corrective action interface between FPL and the contractor. FPL shall require the A/E, NSSS vendor, constructor and other suppliers of safety related materials and services to have a documented corrective action system.

16.2.2 Recurrence Control

It is the responsibility of the organization which identifies the significant condition adverse to quality to verify that corrective action description not only corrects the immediate condition, but also precludes the condition from recurring. The organization(s) that provide(s) the corrective action disposition and implementation is responsible to assure that the corrective action taken not only corrects the immediate condition, but also precludes recurrence.

16.2.3 Incidents and Reportable Occurrences Reporting

During construction, significant deficiencies shall be documented as to cause and corrective action, and shall be reported to the Nuclear Regulatory Commission (NRC) and FPL management as required by 10CFR50.55(e) or 10CFR21. In all cases when a determination is made that an item is reportable, the NRC will be notified within 24 hours after that determination and by written report within 30 days.

Operating Reportable Occurrences and reports of incidents shall be investigated, documented as to cause and corrective action, and reported to the NRC in accordance with the applicable plant Technical Specifications. Reportable Occurrences and reports of incidents that result in damage or are otherwise safety related, shall be forwarded to the Company Nuclear Review Board (CNRB) for review. Conditions adverse to quality are reported to operating plant management through: distribution of QA audit reports, QC inspection reports, corrective action requests, and the investigation and reporting of Reportable Occurrences in accordance with plant Technical Specifications.

17.1 GENERAL REQUIREMENTS

Sufficient records shall be maintained to furnish documented evidence of the quality of safety related structures, systems, and components, and of activities affecting their quality. The records shall include, as appropriate, data such as qualifications of personnel, procedures, and equipment; and other documentation such as inspection or test acceptance criteria, and the action taken in connection with deficiencies noted during inspection.

The records required to furnish documentary evidence of quality, herein called quality assurance records, shall be identifiable and retrievable. These records shall be maintained in facilities that provide a suitable environment to minimize deterioration or damage and to prevent loss.

The requirements and responsibilities for quality assurance record control, transmittal, retention, and maintenance shall be established and documented. These record requirements shall be consistent with applicable design, manufacturing, and installation codes and standards, and with procurement document requirements.

17.2 IMPLEMENTATION

17.2.1 Records Identification

Quality Procedures shall define the quality assurance records necessary to furnish documentary evidence of the quality of safety related structures, systems, and components; and activities affecting quality. These records shall include plant operating logs; results of design reviews, inspections, tests, audits, and material analyses; qualification of personnel, procedures, and equipment; design records such as drawings and specifications; procurement documents; calibration records; and nonconformance or

17.2.1 Records Identification (Cont'd)

corrective action reports. As a minimum, inspection and test records shall identify:

a. Inspector or data recorder;

b. Method or type of observations;

c. Test or inspection results;

d. Statement of acceptability;

e. Date of observation; and

f. Deficiencies and nonconformances, and the action taken in connection with these deficient conditions, either by inclusion or by reference to other documents.

17.2.2 Responsibilities

Responsibilities shall be established and documented for the control, transfer, maintenance, and retention of quality assurance records. Quality Procedures shall provide guidance for determining the retention requirements of quality assurance records. Each organization responsible for the conduct of a quality activity shall be responsible for the maintenance of the subsequent quality assurance records unless retention responsibilities have been transferred by a prearranged agreement. In any case, the organization initiating the quality assurance records shall be responsible for their validity and approval.

17.2.3 Retrieval

Quality Procedures shall require that quality assurance records submitted for retention be legible, completely filled out, and adequately identifiable and retrievable for each item. The records shall be filed in the storage area or facility using a documented system to provide retrievability. Quality Procedures additionally require control of corrections and supplements issued for quality assurance records that are previously approved and filed, and that documented methods for control and accountability of records removed from the storage area be instituted.

17.2.4 Storage

Specified in the Quality Procedures are the construction features and location requirements for record storage facilities which assure that quality assurance records are protected from possible destruction by causes such as fire, flooding, theft, tornadoes, insects, rodents, and from possible deterioration by a combination of extreme variations in temperature and humidity. Specific instructions regarding the storage area are given for special records and for temporary storage facilities.

17.2.5 Records Transfer

The requirements for transfer of records are specified in Quality Procedures or Quality Instructions which require verifying the completeness of quality assurance records transferred from external organizations to the FPL department responsible for receipt and acceptance of the record. The organizations responsible for turnover, and the FPL departments responsible for acceptance of quality assurance records shall be specified in writing.

17.2.5 Records Transfer (Cont'd)

Contractors and suppliers that retain quality assurance records at their facilities as required by codes, standards, or contract requirements, shall transfer these records to FPL at the end of the required retention period unless otherwise authorized by written instructions from FPL. Fabrication and construction documentation originated for FPL by contractors shall be available at the construction site, or as specified by contract or procurement documents. When records are located at facilities remote from the site, an index or log shall be maintained at the site to identify these records and their location. Unless otherwise specified in writing, quality assurance records maintained by a manufacturer shall be accessible to FPL for the life of the items involved or until turnover of these records to FPL at the end of the required retention period.

18.1 GENERAL REQUIREMENTS

A comprehensive system of planned and periodic audits shall be carried out to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program. The audits shall be performed in accordance with the written procedures or checklists by appropriately trained personnel not having direct responsibilities in the areas being audited. Audit results shall be documented and reviewed by management having responsibility in the area audited. Follow-up action, including reaudit of deficient areas, shall be taken, where necessary.

18.2 IMPLEMENTATION

A comprehensive program of audits is carried out by the Quality Assurance Department during the design, procurement, construction, and operations phase of nuclear power plants. These audits are performed to verify that all safety related activities associated with nuclear power plants are carried out in accordance with the requirements of the FPL QA Program, and that the implementation is effective.

18.2.1 Personnel

Quality Procedures provide instructions for the training of QA Department personnel who perform audit activities, to assure that they are adequately indoctrinated and trained, and that they are qualified to carry out these activities. Quality Procedures provide for personnel qualified as Principal Auditors to be formally certified by Quality Assurance Department management. Certification shall be based on education, experience, training and other specified criteria.

18.2.2 Planning and Scheduling

Quality Procedures and Quality Instructions provide requirements for written audit plans and schedules. The audits are planned and scheduled on the basis of the following requirements, as appropriate:

a. Activities shall be audited as early in their life as practicable. Auditing shall be initiated early enough to assure effective quality assurance during the design, procurement and contracting activities.

b. Applicable elements of the internal and on-site QA Programs shall be audited at least once every two years during the operation phase of plant life following initial fuel loading. For other plants' phases, the applicable elements shall be audited at least once every year or once within the life of a quality related activity, whichever is shorter.

c. An annual evaluation of suppliers' quality performance history shall be performed to determine reaudit requirements. Reaudit requirements for suppliers shall be based on the supplier's quality performance and the complexity and criticality of the equipment or service being procured.

d. Audits shall be regularly scheduled for on-going activities.

e. Regularly scheduled audits shall be supplemented, as required to cover unforeseen events or changes in requirements.

The scope of audit activities shall include, as a minimum:

a. The determination of site features which affect plant safety (e.g., core sampling, site preparation, and meteorology).

18.2.2 Planning and Scheduling (Cont'd)

b. The preparation, review, approval, and control of the SAR, designs, specifications, procurement documents, instructions, procedures, and drawings.

c. Request for proposals and evaluation of bids.

d. Indoctrination and training programs.

e. Receiving and plant inspections.

f. Operation, maintenance, modification, and repair controls.

g. The implementation of operating and test procedures.

h. All criteria in Appendix B to 10 CFR Part 50.

i. Preplanned sample verification of the validity of Certificates of Conformance.

External audits shall be performed by the Quality Assurance Department on Architect/Engineers, NSSS vendors, constructors, and other suppliers of safety related materials and services to evaluate their QA programs, procedures and activities. Procurement documents require that FPL suppliers and contractors in turn perform audits on their sub-tier suppliers and contractors.

18.2.3 Conduct of Audits

Quality Procedures and Quality Instructions shall delineate requirements for the conduct of audits. These procedures and instructions shall require that:

a. Audits be conducted by trained and qualified personnel.

b. Personnel conducting audits shall not have direct responsibility in the area audited.

c. Checklists or procedures shall be used to ensure depth and continuity of audits.

d. Objective evidence shall be examined for compliance with quality assurance program requirements. This shall include examination of procedures and activities to assure that documented objective evidence is meaningful and in compliance with the overall Quality Assurance Program.

e. Audits shall include evaluation of work areas, activities, processes and items; and the review of documents and records.

18.2.4 Reporting of Audit Findings

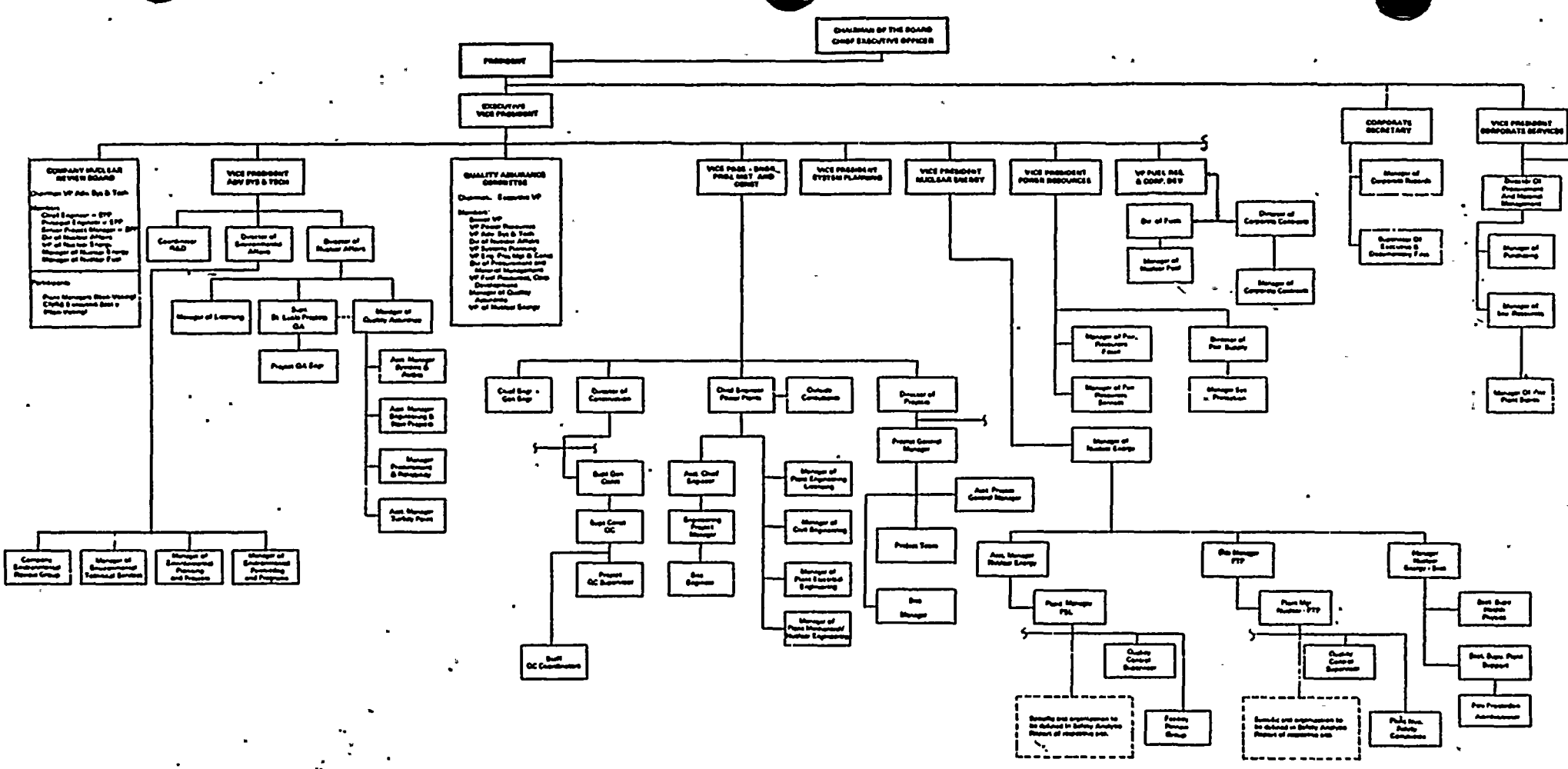
Audit findings shall be documented in written reports. Audit reports shall be distributed to the responsible management of the audited FPL organization within thirty calendar days after completion of the audit.

18.2.5 Follow-up

Responsible management of the audited organization shall take action to correct the deficiencies identified in the audit report and provide a written response within thirty calendar days after receipt of the report. This response shall include action taken and/or planned to correct deficiencies and to prevent recurrence of the deficiencies, and commitment dates for actions not yet complete. The mechanism for evaluation and follow-up of corrective action is described in TQR 16.0. The status of correction of deficiencies shall be followed until the corrective actions have been accomplished. When implementation of corrective action cannot be verified by other means, a reaudit of deficient areas shall be performed to accomplish verification.

18.2.6 Reports to Management

Quality Assurance Program status reports are periodically prepared by the QA Department and routed to the members of the QA Committee for their review. This status report summarizes the results of QA Department audit activities for the period, keeps all Committee members apprised of current conditions and program effectiveness, and when necessary, directs management attention to significant trends and problems.



FLORIDA POWER & LIGHT COMPANY	TOPICAL QUALITY ASSURANCE REPORT	APPENDIX A
		Rev. 5
	ORGANIZATION OF DEPARTMENTS AFFECTING QUALITY	Date May 7, 1982
	FIGURE 1-1	Page 1 of 1

QUALIFICATION AND EXPERIENCE REQUIREMENTS FOR FPL QUALITY ASSURANCE PERSONNEL

TITLE	EDUCATION AND BACKGROUND EXPERIENCE*
Manager of Quality Assurance	Shall satisfy the following set of requirements: Graduate of a four year accredited engineering or science college or university, plus seven years of industrial experience, including five (5) years of managerial experience in industry. At least two (2) years of this five (5) years experience shall be nuclear power plant experience in the implementation of the Quality Assurance Program. Six (6) months of the two (2) years experience shall be obtained within a Quality Assurance organization. A masters degree in engineering or business management is considered equivalent to two (2) years of general industry experience.
Assistant Manager of Quality Assurance	Shall satisfy one of the following sets of requirements: Graduate of a four year accredited engineering or science college or university, plus seven years of industrial experience including three years in positions of leadership, such as lead engineer, project engineer, audit team leader, etc. At least two years of this experience should be associated with nuclear facilities. A masters degree in engineering or business management is considered equivalent to two years of experience. Completion of college level work leading to an associates degree in a related discipline plus fifteen years of industrial experience including three years in positions of leadership, such as project engineer, audit team leader, supervisor, etc. At least five years of this experience should be associated with nuclear facilities. High school graduate, plus twenty years of industrial experience, including three years of positions of leadership, such as project engineer, audit team leader, supervisor, etc. At least five years of this experience should be associated with nuclear facilities.

* The education and experience requirements should not be treated as absolute when similar training or an outstanding record will provide reasonable assurance that a person can perform the required tasks.

BASELINE DOCUMENT MATRIX

This topical report contains the program requirements for Florida Power & Light Company's Quality Assurance Program. The Quality Assurance Program is described in detail in the Florida Power & Light Company Quality Assurance Manual.

The Regulatory Guides, codes, and standards specifically listed in the matrix of this appendix (on page 2) represent the baseline documents used in the preparation of FPL's QA Manual and this topical report. These documents, therefore, provide the basis for the FPL QA Program, but they are not considered to be part of the QA Program unless specifically addressed in the applicable SAR, technical specifications, etc.

The FPL Quality Assurance Program meets the requirements of the documents referenced in this appendix. Any alternatives or clarifications made to the requirements contained in these documents are stated on pages subsequent to the second page of this appendix.

BASELINE DOCUMENT MATRIX

GOVERNMENT DOCUMENT	DATED	REFERENCE INDUSTRY STANDARD	DRAFT REV. ISSUED DATE
10 CFR PART 50, APPENDIX B	2/19/75	ANSI-N45.2	1971
10 CFR PART 50.55(e)			
10 CFR PART 50.55a		ASME B&PV Code Section III & XI	Specified in the SAR document of the respective plant
Regulatory Guide 1.8 Rev. 1	9/75	ANSI-N18.1	1971
Regulatory Guide 1.28	6/7/72	ANSI-N45.2	1971
Regulatory Guide 1.30	8/11/72	ANSI-N45.2.4	1972
Regulatory Guide 1.33 Rev. 2	2/78	ANSI-N18.7	1976
Regulatory Guide 1.37	3/16/73	ANSI-N45.2.1	1973
Regulatory Guide 1.38 Rev. 2	5/77	ANSI-N45.2.2	1972
Regulatory Guide 1.39 Rev. 2	9/77	ANSI-N45.2.3	1973
Regulatory Guide 1.58 Rev. 1	9/80	ANSI-N45.2.6	1978
Regulatory Guide 1.64 Rev. 2	6/76	ANSI-N45.2.11	1974
Regulatory Guide 1.74	2/74	ANSI-N45.2.10	1973
Regulatory Guide 1.94 Rev. 1	6/76	ANSI-N45.2.5	1974
Regulatory Guide 1.116	6/76	ANSI-N45.2.8	1975
Regulatory Guide 1.88 Rev. 2	10/76	ANSI-N45.2.9	1974
Regulatory Guide 1.144 Rev. 1	9/80	ANSI-N45.2.12	1977
Regulatory Guide 1.123 Rev. 1	7/77	ANSI-N45.2.13	1976
Regulatory Guide 1.146	8/80	ANSI-N45.2.23	1978

Florida Power & Light Company position regarding conflicting guidance and exceptions:

TQAR Appendix C Clarification

The Regulatory Guides and industry standards listed in Appendix C to the Topical Quality Assurance Report take precedence over any Regulatory Guide or industry standard which may be referenced in any one of these documents.

Regulatory Guide 1.58, Revision 1/ANSI N45.2.6-1978

ANSI N45.2.6-1978, Paragraphs 1.1, 3.1, 3.2.2(a) and 4 (Table-1) identify requirements which apply to personnel who perform inspections, tests or nondestructive examinations or who participate in the approval of procedures, the handling of data or test results, or the control of reports and records.

FPL proposes an alternative to capability requirements for those who participate in: (1) the approval of procedures, (2) the handling of data or test results and (3) the control of reports and records. FPL accomplishes this by having personnel determined to be qualified and competent by management through consideration of education, training, and experience.

The Florida Power & Light Company position on the scope of ANSI N45.2.6-1978 is that personnel participating in testing who take data or make observations, where special training is not required to perform this function, need not be qualified in accordance with ANSI N45.2.6 but need only be trained to the extent necessary to perform the assigned function.

For leak testing conducted as part of the preoperational and operational testing programs, FPL considers that the qualification requirements of Regulatory Guide 1.8 (ANSI N18.1-1971) and ANSI N45.2.6-1978, Paragraph 3.0 to be an acceptable alternative to SNT-TC-1A-1975 requirements for leak testing, except for leak testing defined in and performed under Section III of the ASME Code, where in such cases, the Code shall govern.

For preoperational and operational inspection, examination and testing by Quality Control Inspectors, FPL considers that Position C.1 of Regulatory Guide 1.58, Revision 1 and ANSI N45.2.6-1978, Paragraph 3.0 are acceptable requirements for training and qualification, except for inspections, tests and examinations defined in and performed under Section III of the ASME Code, where in such cases, the Code shall govern.

For all other preoperational and operational inspection, examination and testing performed by operating plant and support personnel, FPL considers that training and qualification to the requirement of ANSI N18.1-1971 and Regulatory Guide 1.8 are sufficient for the type and scope of activities performed and that qualifications to ANSI N45.2.6-1978 is unnecessary and redundant. These preoperational and operational inspection, examination tests shall be supervised or directed by personnel qualified to Position C.1 of Regulatory Guide 1.58, Revision 1.

FPL shall comply with Position C.10 of Regulatory Guide 1.58, Revision 1, effective with Revision 4 of the Topical Quality Assurance Report, in that all new certifications issued for personnel shall meet the education and experience requirements or shall document objective evidence demonstrating that the individual indeed does have comparable or equivalent competence to that which would be gained from having the required education and experience.

FPL's position on ANSI N45.2.6-1978, Paragraph 2.3 is that an initial and periodic review (not to exceed two years) of personnel shall determine the capabilities in his qualified area. If during this review or at any other time, it is determined that the individual's capabilities are not in accordance with the specified requirements, that individual shall be removed from that activity until the required capability has been demonstrated. In addition, during this review a determination shall be made that an individual has been actively involved in the inspection process in his qualified area.

Regulatory Guide 1.70.6

Regulatory Guide 1.70.6, Paragraph 17.1.12 states that the "PSAR should describe the measures which assure that the error of calibration standards is less than the error of production measuring and test equipment." For projects with limited work authorizations for construction and for plants with operating licenses prior to May, 1976, FPL has chosen an "equal to or better" requirement for calibration standards as stated in TQR 12.0.

ANSI N45.2.9-1974

ANSI N45.2.9-1974, Section 3.2.5 requires Quality Assurance records be classified as lifetime or non-permanent and further defines lifetime and non-permanent in Section 2.2 of the Standard. FPL provides the following definitions as an alternative to the above.

Lifetime Records: Records which are required by the NRC facility operating license, the NRC construction permit, applicable parts of 10CFR, the FSAR, or other NRC commitments to be retained for the life of the plant.

Non-permanent Records: Records which are required by the NRC facility operating license, the NRC construction permit, applicable parts of 10CFR, the FSAR, or other NRC commitments to be retained for periods of time less than the life of the plant.

ANSI N45.2.9-1974, requirements for Section 5.4, "Preservation", and Section 5.6, "Facility", are clarified by FPL as follows:

QA records shall be stored in a manner as to protect contents from possible destruction by causes such as fire, flooding, tornados, insects, rodents, and from possible deterioration by a combination of extreme variations in temperature and humidity conditions.

The protection of QA records from fire shall meet the requirements of the NFPA 232-1975 Code by: 1) utilizing specially constructed storage rooms; 2) specially designated "QA-Approved" storage rooms; or 3) approved fire resistant file cabinets.

Where a specially constructed storage room is maintained to store the only copy of QA records, at least the following features should be considered in its construction:

(1) Reinforced concrete, concrete block, masonry, or equal construction.

(2) Concrete floor and roof with sufficient slope for drainage; if a floor drain is provided, a check valve (or equal) shall be included.

(3) Structure, doors, frames and hardware should be Class A fire-rated with a recommended four hour minimum rating.

(4) Sealant applied over walls as a moisture or condensation barrier.

(5) Surface sealant on floor providing a hard-wear surface to minimize concrete dusting.

(6) Foundation sealant and provision for drainage.

(7) Forced-air circulation with filter system.

(8) Adequate fire protection system.

(9) No pipes other than those providing fire protection to the storage facility are to be located within the facility.

Where additional storage is needed and the above considerations are not substantially met, the Manager of Quality Assurance, the Manager of Corporate Records and the FPL Nuclear Energy's Fire Protection Administrator or their designees shall document an evaluation based on the additional considerations of building and occupancy requirements, the type and number of records, and special fire and security measures. Upon their approval, the storage area shall be considered a specially designated "QA-Approved" storage room.

This team will also approve the use of fire resistant file cabinets.

A satisfactory alternative to the establishment of a specially constructed storage room is maintenance of duplicate QA records stored in separate records centers which are not subject to the same destructive force at the same time.

ANSI N45.2.10 - 1973

ANSI N45.2.10 - 1973 identifies terms and their definitions important to the uniform understanding of the intent of required quality assurance practices for the construction of nuclear power plants. Regulatory Guide 1.74 (2-74) endorses these terms and definitions and extends them through the operational phase and includes a clarification of procurement documents.

FPL has developed a glossary of terms and their definitions as part of the Quality Assurance Manual which is being used throughout its nuclear construction and operating plant activities.

The following definitions are currently listed in our glossary and are alternatives or clarifications to those listed in the ANSI Standard and Regulatory Guide:

Assembly	A combination of subassemblies or components or both, fitted together to form a workable unit.
Audit	A documented activity performed in accordance with written procedures or checklists to verify, by examination and evaluation of objective evidence, that applicable elements of the quality assurance program have been developed, documented and effectively implemented in accordance with specified requirements. An audit does not include surveillance or inspection for the purpose of process control or product acceptance.

Guidelines	Particular provisions which are considered good practice but which are not mandatory in programs intended to comply with Standards. The term "should" denotes a guideline; the term "shall" denotes a requirement; and the word "may" denotes permission, neither a requirement nor a recommendation.
Inspector (Owner's or Installer's)	A qualified inspector employed by the Owner or Installer, whose duties include the verification of quality related activities on installations.
Inspection	Examination, observation, or measurement to determine the conformance of materials, supplies, components, parts, appurtenances, systems, processes, or structures to predetermined requirements.
Procurement Documents	Contractually binding documents, including such documents as contracts, letters of intent, work orders, purchase orders or proposals and their acceptances which authorize the seller to perform services or supply equipment, material, or facilities on behalf of the purchaser.
Qualification (Personnel)	The characteristics or abilities gained through training or experience or both as measured against established requirements such as standards or tests that qualify an individual to perform a required function.
Quality Assurance	All those planned and systematic actions necessary to provide adequate confidence that a structure, system or component will perform satisfactorily in service. Quality Assurance includes quality control.

Quality Control	Those quality assurance actions related to the physical characteristics or material, structure, component or system, which provide a means to control the quality of the material, structure, component or system to predetermined requirements.
Storage	That period following the release of an item for shipment until turnover for start-up preoperational testing. This would include in-place storage.
System	An integral part of a nuclear power plant comprised of electrical, electronic, or mechanical components (or combinations thereof) that may be operated as a separate entity to perform a specific function.
Testing	Performance of those steps necessary to determine that systems or components function in accordance with predetermined specifications.

"Requirements" Clarification for Glossary

REQUIREMENT:	A mandatory action, denoted by the word shall. (See "Guidelines") Requirements are generally based on statutes or regulations, but may be internally generated within the company. "Shall" is therefore used for both external, legally enforceable actions and internal requirements not enforceable under current NRC practices.

Regulatory Guide 1.144/ANSI N45.2.12-1977

Regulatory Guide 1.144, Positions C.3 a&b, states in part that applicable elements of an organization's Quality Assurance Program should be audited at least annually or at least once within the life of the activity, whichever is shorter.

ANSI N18.7-1972, Paragraph 4.4 (endorsed by Regulatory Guide 1.33) states in part; "Audits of selected aspects of plant operation shall be performed with a frequency commensurate with their safety significance, and in such a manner as to assure that an audit of safety related activities is completed within a period of two years."

FPL has chosen a two year cycle for auditing elements of the internal and on-site QA Program during the operation phase of plant life following initial fuel loading. FPL's position is that the two year cycle: (1) allows more in-depth and meaningful audits in each regularly scheduled area, (2) permits more audits of ongoing activities, and (3) in conjunction with the planning and scheduling requirement of TQR 18.0 provides for a comprehensive audit program. The audit frequency requirements of Regulatory Guide 1.144 will be followed during other plants' phases.

In the case of suppliers, an annual evaluation of quality performance history shall be performed to determine reaudit requirements. Reaudit requirements for suppliers shall be based on the quality performance, and the complexity and criticality of the equipment or service being procured. A facility evaluation (audit) will be performed at least every three years and conducted in accordance with Quality Procedures and Quality Instructions for supplier evaluation.

ANSI N45.2.12, Paragraph 4.3.1 states: "A brief pre-audit conference shall be conducted at the audit site with cognizant organization management. The purpose of the conference shall be to confirm the audit scope, present the audit plan, introduce auditors, meet counterparts, discuss audit sequence and plans for the post-audit conference, and establish channels of communication." FPL will not require the pre-audit conference for audits of limited scope and of specific site activities conducted by the Construction and Operations Groups. This conference is omitted because the day-to-day contact of the auditors and plant management, the awareness on the part of plant management that these audits are conducted without pre-audit conferences, and the limited scope of the audits meet the intent of a pre-audit conference.

ANSI N45.2.13-1976

ANSI N45.2.13-1976 Section 1.3 provides a definition of "procurement document" which is different from the definition contained in ANSI N45.2.10-1973 and Regulatory Guide 1.74. The Florida Power & Light (FPL) Quality Assurance Program uses the definition of "procurement document" contained in ANSI N45.2.10-1973 as modified by Regulatory Guide 1.74.

ANSI N45.2.13-1976 Section 3.3.a requires that procurement documents be reviewed prior to release for bid and contract award. The FPL Quality Assurance Program requires procurement document reviews prior to bid and contract award for all safety related purchases with the exception of these accomplished by "Confirming Purchase Order". A "Confirming Purchase Order" is an order which is initially placed verbally with the supplier and then later confirmed with a written Purchase Order. A "Confirming Purchase Order" is only used when time restraints would prohibit the normal review and approval cycle. The following controls are provided in the FPL Quality Assurance Manual to assure that the intent of ANSI N45.2.13 is satisfied for "Confirming Purchase Orders".

(1) Quality Assurance must be contacted prior to contacting the supplier to place the order unless it is an emergency purchase after normal working hours in which case Quality Assurance is contacted the next working day.

(2) Prior to verbally placing the order, it must be verified that the intended supplier is on the FPL Quality Assurance Approved Supplier List.

(3) The verbally placed order must be promptly followed-up (confirmed) with a written procurement document which is subject to all reviews and approvals required for safety related purchases.

ANSI N45.2.13-1976 Section 1.1 states that the extent to which the individual requirements of this standard will apply will depend upon the nature and scope of the work to be performed and the required quality of the items or services purchased. For commercial grade items, FPL has determined that certain aspects of the individual requirements of ANSI N45.2.13 need not

apply. Commercial grade items are those (1) not subject to design or specification requirements that are unique to facilities or activities licensed by the NRC, and (2) used in applications other than facilities or activities licensed by the NRC, and (3) to be ordered from the manufacturer/supplier on the basis of specifications set forth in the manufacturer's published product description. These commercial items are subject to varying degrees of control as indicated in the FPL Quality Assurance Manual.

As a minimum, an evaluation is performed by qualified personnel to assure that the commercial item satisfies the necessary technical and quality requirements and the item is checked upon receipt to assure that the item received was the one ordered, damage was not sustained during shipment, and documentation, if required, was received.

Section 8.2 of ANSI N45.2.13 identifies those nonconformances which shall be submitted to the Purchaser.

Florida Power & Light's (FPL) position regarding the nonconformances to be reported is as follows:

Suppliers (including A/E's and Contractors) shall submit all nonconformances which consist of one or more of the following:

1) Technical or material requirements are violated.
2) Requirement in supplier documents which have been approved by the Purchaser is violated.
3) Nonconformances which would affect the quality of the item in regard to function of safety related features. In cases where the supplier cannot make this determination, they shall be submitted to the Purchaser for evaluation.

This policy assures that all nonconformances affecting safety related functions will be reviewed and approved by FPL. In all cases, the supplier's documentation on nonconformances is available for FPL's review.

ANSI N45.2.4-1972

ANSI N45.2.4-1972, Paragraph 2.5.2 requires that equipment be "suitably marked to indicate date of next required calibration". In lieu of marking equipment, FPL has chosen to control calibration of installed instrumentation and control equipment by maintaining records for each piece of equipment by instrument tag number (or equivalent) to show that established schedules and procedures for calibration have been followed.

Regulatory Guide 1.64, Rev. 2

FPL's exception to position C.2 is as follows:

Design verification shall be performed by technically qualified individual(s) or group(s) other than those who performed the design. The original designers and verifiers may both be from the design organization. Design verification by the designer's immediate supervisor shall be limited to those instances where the supervisor is the only qualified individual available within the design organization. These instances are further restricted to designs where the designs where the supervisor did not specify a singular design approach, or did not restrict design methods or alternatives, or did not specify design inputs (unless the specified design inputs have already been independently verified). Justification for verification by the designer's immediate supervisor should be documented along with the extent of the supervisor's involvement in the design.

ANSI N45.2.11-1974

ANSI N45.2.11-1974, Paragraph 11.4 requires that "audits shall include an evaluation of design quality assurance policies, practices, procedures and instructions . . . ." FPL's design quality assurance (and all other QA elements) policies, procedures and instructions are included in FPL's Quality Assurance Program documentation. The Quality Assurance Department evaluates all of this documentation in reviews performed during its development and revision. Accordingly, FPL does not require subsequent (and redundant) evaluations of these Quality Assurance Program policies, procedures and instructions during audits. FPL audits will include evaluations of the adequacy of the practices which are the implementation of these policies, procedures and instructions.

Regulatory Guide 1.38, Rev. 2 (5/77)

FPL will meet the requirements of Reg. Guide 1.38, Rev. 2, Position 2C, D and E for safety related applications during preoperational and operational activities. Restrictions imposed for tapes to be color constrasting will only be applied to the extent that these colors are dissimilar or otherwise distinguishable. This does not preclude using other tapes when precuations are taken to ensure these tapes do not come in contact with austentic stainless steel or nickel alloy materials.

Vapor barrier material (other than metal) shall be colored to contrast with or be otherwise distinguishable from safety related systems to prevent undisclosed entry into the system.

These requirements do not apply to components in storage which would require removal of such tapes and barriers to effect installation.

ANSI N45.2.2-1972

ANSI N45.2.2-1972 Sections 3.0, 4.0, and the Appendix address all the requirements applicable to the packaging and shipping of material. FPL in general does not package or ship material governed by this standard. Suppliers of material are required by purchase order to provide adequate packaging and shipping protection. Isolated cases of material packaging or shipping are treated on a case-by-case basis and receive protection comparable to that required by the manufacturer of that material. Loading, rigging and handling precautions identified in Section 4.3 are applied to material unloaded by FPL from a transport vehicle.

ANSI N45.2.2-1972 Section 5.2 requires that specific attributes of material and components received by FPL be inspected. For plants with operating licenses FPL verifies conformance to procurement documents during receipt inspections. Any of these attributes identified in these procurement documents are verified during this inspection.

ANSI N45.2.2-1972 Section 2.7 requires that items governed by this standard be classified into one of four levels by the buyer or the contractor. For plants with operating licenses, FPL intends to consider what care is appropriate for each item individually rather than generically classifying the material into protection levels and providing care required of that level. The following shall be considered when determining the handling, storage, and shipping requirements:

1. The vendor's recommended handling, shipping, and storage standards.

2. Environmental requirements which may include such requirements as inert gas atmosphere, humidity limits, temperature limits, chemical requirements, acceleration (g force) requirements.

3. Special tools or equipment which are provided and controlled as necessary to ensure safe and adequate handling. These tools or equipment shall be inspected and tested at specified times to verify that they are adequately maintained.

4. Packaging, covering or coatings required to meet environmental requirements such as barrier and wrap material, desiccants, pipe caps, plugs, contact preservatives, etc.

5. Container, crating, skids of sufficient strength to support the item (including stacking).

6. Cushioning, blocking, bracing, and anchoring to prevent movement during shipment or handling.

7. Special handling or storage procedures for unique situations.

8. Marking and identification of the item and its packaging.

9. Anticipated "shelf life" of the item.

FPL considers this to be a more effective approach since the quantity of spare and replacement material, parts and components governed by this standard will be afforded protection commensurate with the recommendations of Section 2.7 of this standard.

ANSI N45.2.2-1972 paragraph 6.4.1 requires the periodic verification of such items as identification and markings, protective covers, coating and preservatives, desiccants, and inert gas blankets, etc. In lieu of addressing these specific items, FPL (at plants under construction) considers all the necessary prevention maintenance requirements for equipment and/or components on a case by case basis.

ANSI N45.2.2-1972 Section 5.2, paragraph 5.2.1, requires certain preliminary inspections to be done "prior to unloading" of material which is received. We believe that the sequence specified in the standard is to facilitate commercial claims, and should these preliminary inspections occur "after unloading" that control of materials quality would not be degraded. Accordingly, required shipping damage inspections may be performed after unloading.

ANSI N45.2.2-1972, Paragraph 7.4 requires that an inspection program be established for handling equipment and rigging, including methods for identifying acceptable and nonconforming items. In lieu of having a program of periodic, documented inspections of rigging and handling equipment, FPL's practice is to have the individual user determine the equipment's acceptability prior to each use. This prior-to-use inspection is exactly the same as that required during periodic inspections, and uses criteria identified in ANSI N45.2.2-1972, paragraph 7.4. This practice also precludes the need for a system to indicate the acceptability of rigging and handling equipment. Implementation of this prior-to-use inspection will be assured through periodic surveillances and audits performed by Quality Assurance and Quality Control. Cranes are inspected on a periodic basis and will not be subjected to this prior-to-use inspection.

Certain mechanical components of the PSL-2 nuclear unit have been designed for a service environment of the site area because portions of the plant are exposed to the temperature, humidity, and ocean salt spray during operations. Extreme air temperature variations, snow or slush are not encountered during operations or in the out-of-doors storage environment. As an alternative to the rigid requirements of storage levels B and C in paragraph 6.1 of ANSI N45.2.2-1972, FPL proposes to store these particular mechanical components outdoors, but

within controlled areas, with sufficient periodic surveillances and inspections to minimize the possibility of damage or lowering of quality due to corrosion, contamination, deterioration, or physical damage. In cases where special environmental conditions are present (i.e. hurricanes, paint sprays, concrete pours, etc.) precautions or additional steps will be taken to further protect the items.

The requirements of ANSI N45.2.2, Paragraph 7.2 for items that require special handling instructions is clarified by FPL to be limited to those items covered in the scope of NUREG 0612, entitled "Control of Heavy Loads at Nuclear Power Plants".

Regulatory Guide 1.8, Rev. 1, ANSI N18.1-1971

ANSI N18.1 describes the training and education requirements for plant staff positions and is endorsed by Reg. Guide 1.8 with an exception. That exception is the requirements for the Supervisor - Radiation Protection. ANSI N18.1 is invoked by Technical Specifications (Appendix A of the Facility Operating License) at FPL nuclear plants. Reg. Guide 1.8 is also invoked by Technical Specifications at our St. Lucie plant and a license amendment has been approved for our Turkey Point plant to specify the Health Physics Supervisor qualifications addressed in Reg. Guide 1.8.

To avoid duplication of requirements, FPL will address Plant Staff Qualifications in only the Technical Specifications.

Regulatory Guide 1.33, Rev. 2, ANSI N18.7 - 1976

FPL's method of addressing Paragraphs 4.0, 5.2.2, 5.2.15 and 5.3 of ANSI 18.7 - 1976 as modified by Regulatory Guide 1.33, Rev. 2 is covered in Section 6 of each individual plant's Technical Specifications.

Paragraph 5.3.5(4) - Clarification - When FPL uses vendor manuals and drawings which provide adequate instructions for maintenance, these documents are attached or referenced with Plant Work Orders which are reviewed and approved by Supervisory and Quality Control personnel and are considered to be adequate procedures in themselves. These vendor manuals and drawings,

when received at site, are controlled documents and changes to the applicable sections and instructions of these documents require the same level of review and approval as the operating procedures.

FPL's method of addressing Section 5.2 of ANSI N18.7-1976, as modified by Regulatory Guide 1.33, Rev. 2, is by administratively controlling licensed operator hours on shift and by our Duty Call Supervisor system. Further, FPL has developed a response to NUEREG 0654 which provides staffing availability.

FPL's method of addressing Paragraph 5.2.8 of ANSI N18.7-1976, as modified by Regulatory Guide 1.33, Rev. 2, is covered in Section 4 of each plant's Technical Specifications.

FPL's method of addressing Paragraph 5.2.9 of ANSI N18.7-1976, as modified by Regulatory Guide 1.33, Rev. 2, is covered in 10 CFR 73 and each plant's Security Plan, and as such is not included in the Quality Assurance Program.

Chemical cleaning is not presently controlled as a special process per se; however, the requirements of ANSI N45.2.1-1973 and Regulatory Guide 1.37 dated 3/16/73 are part of the FPL QA Program and are met in our program. FPL proposes these requirements to be an alternative to the requirements of ANSI N18.7-1976, Paragraph 5.2.18. Further, TQR 9.0, Paragraph 9.2 explains the review of potential special processes and determination of their status as special processes.

FPL meets the intent of Section 5.2.19.3 of ANSI N18.7-1976 as modified by Regulatory Guide 1.33, Rev. 2, as applied to significant changes to operating procedures, by the technical review of the procedure change by knowledgeable plant professionals, by the safety review of the procedure change by the on-site facility review group, by the regulatory and QA review of the procedure by plant Quality Control, by training the licensed operators in the change through the training report system, and by trained, licensed operators using the revised operating procedure and observing the proper result. In addition, procedure changes will be reviewed to assure 10 CFR 50.59 requirements are met.

Appendix A of Regulatory Guide 1.33 lists "typical safety related activities which should be covered by written procedures". Regulatory Guide 1.33 is invoked by the Technical Specifications at FPL Nuclear Plants.

In order to avoid duplication of requirements invoked in our licensing documents, the FPL Quality Assurance Program does not list those required operating procedures specified in Appendix A.

ANSI N18.7 -1976

ANSI N18.7-1976, Section 4.3, requires that personnel performing the independent review and audit be specified in number and technical discipline. This standard is invoked by the Technical Specifications (Appendix A of the Facility Operating Licenses) which have been approved for the FPL nuclear plants at St. Lucie and Turkey Point. Specifically this function is performed by the Company Nuclear Review Board (CNRB) identified in Section 6.5.2 of the Technical Specifications.

To avoid duplication of requirements, FPL will address the personnel and functions of this independent review and audit only in the Technical Specifications.

ANSI N45.2.1-1973

ANSI N45.2.1-1973, Paragraphs 7.2.2, 7.2.3, and 7.3 address specific cleaning methods (Alkaline, Chelate, Acid) and make recommendations associated with several types of cleaning methods. FPL's QA manual does not specifically delineate these paragraphs. However, the procedure developed per Paragraph 2.2 of ANSI N45.2.1 will ensure that any specific cleaning method chosen will be properly considered and controlled.

ANSI N45.2.1-1973, Paragraph 5 states in part that, "Fitted and tackwelded joints (which will not be immediately sealed by welding) shall be wrapped with polyethylene or other non-halogenated plastic film until the welds can be completed". The FPL QA Manual shall require that the weld be covered to prevent entry of moisture and contaminants but will not specify the material to be employed. Materials employed to cover openings shall meet the requirements of Regulatory Guide 1.37, Position 4.

ANSI N45.2.1-1973, Paragraph 7.1 states in part, "provisions shall be made to collect leakage and protect insulation from being wetted". FPL Quality Assurance Program includes the above requirements. However, FPL's program allows the wetting of metallic type insulations which are not adversely affected by wetting.

ANSI N45.2.3-1973

For FPL's operating nuclear plants, alternative methods are followed to achieve equivalent objectives for the below listed sections of ANSI N45.2.3-1973:

The zone designations of Section 2.1 of N45.2.3 and the requirements associated with each zone are not consistent with the FPL Housekeeping requirements at our operating nuclear units. In lieu of the zone designation, cleanliness is maintained at a level consistent with the work being performed, so as to prevent the entry of foreign material into safety related systems. Documented cleanliness inspections are performed immediately prior to system closure. Control of personnel, tools, equipment, and supplies is established with approved procedures when the safety function of a system, component, or item may be jeopardized and also while the reactor system is opened for inspection, maintenance, or repair.

ANSI N45.2.4-1972

ANSI N45.2.4-1972, Paragraph 2.3 addresses installation specifications and requires the inclusion of inspection and test objectives. FPL maintains that test values and inspection scope are inherently contained in the applicable procedures.

ANSI N45.2.4-1972, Paragraph 6.1.2 requires that the inspection of installed equipment verify that "good and proper workmanship" has prevailed. FPL maintains that acceptable parameter compliance with codes and standards along with company preference is the verification of "good and proper workmanship".

ANSI N45.2.8-1975

ANSI N45.2.8-1975, Paragraph 4.6 addresses care of items to the extent that temporary use of equipment or facilities to which the standard applies that are to become part of the completed project may be desirable.

The following clarification applies to the above statement. For FPL plants in the construction phase (to the point of plant operation license) temporary use of equipment and facilities may be used according to need and/or situation. In this case, authorization for usage shall be provided along with all the documents, conditions, safeguards and evaluations to verify permanent plant equipment adequacy.

In the operations phase all equipment, including temporary equipment, is subject to identical controls to preclude adverse effects on safety and suitability for use.

ANSI N45.2.8-1975, Paragraph 2.3 requires that Measuring and Test Equipment (M&TE) used for inspection be identified on the Inspection Report. FPL may, as an option, employ a M&TE issue log which provides traceability between M&TE and the applicable inspections.

Planning Clarification

ANSI N45.2.4-1972, Paragraph 2.1; ANSI N45.2.6-1973, Paragraph 2.1;
ANSI N45.2.13-1976, Paragraph 7.2; ANSI N18.7-1972, Paragraph 5.1.6.3;
ANSI N45.2.8-1975, Paragraph 2.1 and Paragraph 2.2 include plans and/or planning as required.

The terms plan and/or planning are included in FPL's activities as indicated in the following clarification:

Planning is considered to be a management process or analytical tool used as an aid to help develop identification and/or development of program requirements, implementation activities, assignments and staffing, inspections, surveillances and audits, controls and other activities to assure completeness of the requirements. Planning, as such, is not always documented nor addressed as an end item and is considered to be an integral "process" within the developed item.

Plans which are considered to be end type or output type documents have the term "plan" in the title, such as ISI Master Plan, Audit Plan, Start-up Plan, and others, which as such will reflect directly the requirement of these standards in the appropriate documents.

Plans which are not considered to be end type or output type documents do not have the word plan in the title. However, certain procedures, instructions, flow charts, schedules and checklists may be considered to be plans reflecting planned actions which especially require step-by-step accomplishments. In these cases, the term plan may not appear in the title but considered to be a plan only in the indirect sense and identified as a procedure or other document. FPL considers the above practice to be in compliance with the "plan" requirements of these standards.

Regulatory Guide 1.68 (11/73)

Regulatory Guide 1.68 (11/73) entitled "Preoperational and Initial Start-up Test Programs for Water Cooled Power Reactors" is addressed in Section 14.2.1 of the St. Lucie Unit 2 FSAR which states in part, "The start-up test program is developed using the recommendations of Regulatory Guide 1.68". To avoid duplication of requirements, FPL will address Regulatory Guide 1.68 in the FSAR.

APPENDIX D

"GRAY, GREEN, AND ORANGE BOOK
MATRIX TO QA PROCEDURES

CANCELLED IN ENTIRETY

LIST OF CORPORATE QUALITY ASSURANCE PROCEDURES

QP NUMBER/TITLE	SECTION DESCRIPTION
1.1 CANCELLED	
2.1 CANCELLED (Terms and Definitions contained in the QA Manual Glossary)	
2.2 REVISION OF THE TOPICAL QUALITY ASSURANCE MANUAL	Provides instructions for the revision of the Florida Power & Light Company Topical Quality Assurance Report (FPL TQAR).
2.3 PREPARATION AND REVISION OF QUALITY PROCEDURES	Describes the instructions and methods used for establishing, preparing, issuing, revising and controlling Quality Procedures employed in supporting quality requirements.
2.4 PREPARATION AND REVISION OF QUALITY INSTRUCTIONS	Provides the responsibilities, guidelines and methods used for developing and revising Quality Instructions, based upon QP's, that involve quality activities within a department or organization and are unique to that activity.
2.5 QUALITY ASSURANCE INDOCTRINATION AND TRAINING	Describes the requirements for the indoctrination and training of personnel who perform, or are responsible for activities that affect quality.
2.6 CANCELLED	
2.7 IDENTIFICATION OF SAFETY RELATED STRUCTURES, SYSTEMS AND COMPONENTS	Describes the development and approval of documents identifying safety related structures, systems, and components.

LIST OF CORPORATE QUALITY ASSURANCE PROCEDURES

QP NUMBER/TITLE	SECTION DESCRIPTION
2.8 CLEANLINESS CONTROL METHODS	Provides criteria for securing good housekeeping. Assigns responsibilities for assuring that the cleanliness of material, systems and structures is maintained.
2.9 QUALIFICATION OF QA AUDIT AND QC INSPECTION AND CONSTRUCTION TEST PERSONNEL	Describes the personnel qualifications that are required to assure that competent QC inspectors, QA auditors, and construction test personnel perform these respective functions.
2.10 HOUSEKEEPING - OPERATING PLANTS	Describes the responsibilities and controls for housekeeping at operating nuclear power plants.
2.11 HOUSEKEEPING - CONSTRUCTION SITES	Describes the responsibilities and controls for housekeeping at nuclear power plants during construction.
2.12 FPL QA PROGRAM APPLICABILITY FOR FIRE PROTECTION SYSTEMS	Identifies the applicability of the FPL Quality Assurance Program for Fire Protection Systems.
2.13 LICENSING PROCESSING OF NRC REQUEST	Describes the system for providing responses to NRC initiated action requests.
3.1 EVALUATION OF CONTRACTOR DESIGN	Establishes the methods to evaluate the design and analysis of electrical, mechanical, structural and nuclear related systems and components. It further establishes the documentation of the control and evaluation to be recorded and maintained.

LIST OF CORPORATE QUALITY ASSURANCE PROCEDURES

QP NUMBER/TITLE	SECTION DESCRIPTION
3.2 IDENTIFICATION AND CONTROL OF DESIGN INTERFACES	Describes measures employed for identifying and controlling design interfaces, changes in design interfaces, and modifications that affect documents.
3.4 PLANT CHANGES AND MODIFICATIONS FOR OPERATING PLANTS	Establishes measures for controlling design changes or modifications in operating nuclear power plants.
3.5 DESIGN CONTROL AT THE CONSTRUCTION SITE	Defines the responsibilities and methods employed for the initiation, review, evaluation, approval and disposition of field initiated design changes and miscellaneous design documents such as field sketches and isometrics.
3.6 CONTROL OF FPL ORIGINATED DESIGN	Covers the preparation, review, and approval of design input documents, design analysis specifications, and design verification for safety related design work originated by FPL.
4.1 CONTROL OF REQUISITIONS AND THE ISSUANCE OF PURCHASE ORDERS FOR SPARE PARTS, REPLACEMENT ITEMS AND SERVICES	Provides a system to assure that the appropriate technical and quality requirements are placed upon suppliers who provide materials, equipment, and services for operating nuclear plants.
4.2 EVALUATION OF CONTRACTOR'S BIDS - TECHNICAL	Provides the basic evaluation factors for technical evaluations of contractor's bids to supply material, equipment, or services to FPL or FPL's Architect/Engineer.
4.3 CANCELLED	
4.4 REVIEW OF PROCUREMENT DOCUMENTS FOR ITEMS AND SERVICES OTHER THAN SPARE PARTS	Applies to all FPL issued purchase orders and contracts relating to a nuclear power plant, except those originated by operating plant personnel.

LIST OF CORPORATE QUALITY ASSURANCE PROCEDURES

QP NUMBER/TITLE	SECTION DESCRIPTION
5.1 OPERATING PLANT PROCEDURES	Describes measures which ensure that instructions and procedures used in operating plants are identified, prepared, reviewed, approved, issued and revised in accordance with regulatory and FPL requirements.
6.1 CONTROL OF CONSTRUCTION PROJECT CONTRACTOR DRAWINGS, SPECIFICATIONS AND PROCEDURES	Defines responsibilities and methods for the control and issue of contractor drawings, specifications and procedures to be used during the construction phase of nuclear power plants.
6.2 CONTROL OF DOCUMENTS ISSUED BY FLORIDA POWER & LIGHT COMPANY	Instructions are provided for controlling documents issued by FPL which prescribe activities affecting the quality of safety related items.
6.3 CANCELLED	
6.4 FPL DRAWING CONTROL	Describes the means to prepare, control, revise and issue engineering drawings, make changes to vendor drawings, and to maintain a master drawing file.
6.5 PTP DRAWING CONTROL	Provides instructions governing the review, approval, release, distribution, and revisions of drawings of Turkey Point Plant nuclear safety related structures, systems, and components.
7.1 RECEIPT INSPECTION OF MATERIALS, PARTS AND COMPONENTS FOR OPERATING PLANTS	Provides instructions for receipt inspection of materials, parts and components which have been obtained for use in nuclear safety applications at the operating plant site.

LIST OF CORPORATE QUALITY ASSURANCE PROCEDURES

QP NUMBER/TITLE	SECTION DESCRIPTION
7.2 RECEIPT INSPECTION OF MATERIALS, PARTS AND COMPONENTS FOR PLANTS UNDER CONSTRUCTION	Provides the quality requirements for receiving, receipt inspection and disposition of nuclear safety related materials, parts, and components received at the plant site or designated off-site storage facility.
7.3 CANCELLED	
7.4 EVALUATION OF SUPPLIERS OF SAFETY RELATED ITEMS OR SERVICES	Provides standards, measures, and guidelines for the evaluation of QA Programs of contractors or suppliers supplying items or services.
7.5 CANCELLED	
7.6 ACCEPTANCE OF ITEMS & SERVICES	Describes the responsibilities and requirements for accepting nuclear safety related items or services that are being procured for nuclear power plants.
7.8 REVIEW AND DISPOSITION OF SUPPLIER DEVIATION NOTICES	Describes the responsibilities and requirements for the review and disposition of nonconformances identified within a supplier's facility which have resulted or will result in an item which does not fully comply with the FPL procurement document quality and technical requirements.
8.1 IDENTIFICATION & CONTROL OF MATERIALS, PARTS AND COMPONENTS AT THE PLANT SITE	Delineates measures for assuring traceability, identification and control of items from the time they are received through usage at operating plants.

LIST OF CORPORATE QUALITY ASSURANCE PROCEDURES

QP NUMBER/TITLE	SECTION DESCRIPTION
8.2 IDENTIFICATION & CONTROL OF MATERIALS, PARTS AND COMPONENTS AT THE SITE DURING CONSTRUCTION	Provides guidance for assuring that contractors provide for identifying and controlling materials, parts, and components, including traceability, from receipt through usage during all phases of construction.
9.1 CONTROL OF SPECIAL PROCESSES FOR CONSTRUCTION	Delineates the responsibilities of organizations and personnel, and the control and documentation of special processes that are applied to safety related items.
9.2 CONTROL OF SPECIAL PROCESSES DURING OPERATING PHASE	Describes measures to assure adequate control over special processes applied to safety related items during the operating phase of nuclear power plants.
10.1 MOVED TO 7.2	
10.2 INSPECTION OF PLANT CONSTRUCTION	Defines the responsibilities and requirements for the planning, performance and documentation of inspection.
10.3 INSPECTION AND SURVEILLANCE OF MAINTENANCE ACTIVITIES, OPERATIONS AND FUEL HANDLING	Delineates responsibilities and requirements for the inspection and surveillance of safety related plant maintenance activities, operation of safety related systems, and fuel handling activities.
10.4 CANCELLED	
10.5 PREOPERATIONAL (BASELINE) EXAMINATION	Describes the means for assuring that the physical properties and characteristics of pressure retaining components are tested and measured; and the recorded, analyzed and evaluated results (baseline data) are retained for the life of the plant.

LIST OF CORPORATE QUALITY ASSURANCE PROCEDURES

QP NUMBER/TITLE	SECTION DESCRIPTION
10.6 INSERVICE INSPECTION (ISI)	Describes the means for assuring that the physical characteristics of safety related items and systems are inspected in accordance with the provisions of the ASME and that the B&PV Code-Section XI results are documented at specified times during the operating life of the plant.
11.1 TEST CONTROL - CONSTRUCTION	Establishes measures to assure that contractor testing of safety related material during the plant construction phase is controlled, accomplished, and documented.
11.2 TEST CONTROL - OPERATION	A description of the procedures and practices employed by FPL to control testing of plant functions and material that are within the scope of the QA Program during the plant operational phase.
11.3 TEST CONTROL - PREOPERATIONAL AND START-UP TESTS	Defines the procedures and practices employed to demonstrate the capabilities of a nuclear plant to satisfy safety related performance specifications.
11.4 TEST CONTROL PROGRAM	Defines the measures for control of proof test prior to installation, construction tests, preoperational tests, startup tests, operational tests and retests following repairs, replacements or modifications for nuclear safety related systems, structures, and components.
12.1 CALIBRATION AND CONTROL OF MEASURING AND TEST EQUIPMENT	Delineates the responsibilities for implementing the described program for maintenance, calibration and control of measuring and test equipment (M&TE).

LIST OF CORPORATE QUALITY ASSURANCE PROCEDURES

QP NUMBER/TITLE	SECTION DESCRIPTION
12.2 CALIBRATION CONTROL OF INSTALLED PLANT INSTRUMENTATION AND CONTROL EQUIPMENT	Describes the calibration program, delineates responsibilities, and establishes procedures for control over the calibration of installed instrumentation and plant control equipment.
13.1 HANDLING, STORAGE AND SHIPPING OF MATERIALS, PARTS AND COMPONENTS AT THE SITE DURING CONSTRUCTION	Establishes responsibilities and procedures to assure that measures are employed by contractors to: (1) control the handling, shipping and storage of material; (2) protect the quality of material by using proper handling, shipping, and storage techniques; (3) effectively control the disposition of discrepant items.
13.2 HANDLING, STORAGE AND SHIPPING OF MATERIALS, PARTS AND EQUIPMENT DURING PLANT OPERATION	Specifies the respective responsibilities of FPL personnel and the measures employed for controlling the handling, shipping and storage of materials during the plant's operational phase.
13.3 CONTROL OF RESERVED CENTRALLY STORED ELECTRICAL CABLE	Provides the requirements for the issuance and controls of centrally stored electrical cable for use in all operating nuclear power plants.
14.1 INSPECTION, TEST, AND OPERATING STATUS DURING PLANT OPERATION	Specifies the respective responsibilities of FPL personnel and the measures employed for identifying the status (Inspection-Test-Operation) of plant structures, systems and components.
14.2 INSPECTION TEST AND OPERATING STATUS DURING PLANT CONSTRUCTION	Provides requirements and responsibilities for the identification of the inspection, test and operating status of plant equipment up to turnover of the plant to the operating organization.

LIST OF CORPORATE QUALITY ASSURANCE PROCEDURES

QP NUMBER/TITLE	SECTION DESCRIPTION
15.1 CONTROL OF NONCONFORMING MATERIALS, PARTS, OR COMPONENTS - PLANTS UNDER CONSTRUCTION	Specifies the responsibilities of FPL departments and the process for exercising control over materials, structures, or activities that do not conform to specifications so that inadvertent use or installation does not occur.
15.2 CONTROL OF NONCONFORMING MATERIALS, PARTS, OR COMPONENTS - OPERATING PLANTS	Defines the objectives and responsibilities for controlling nonconforming items or services in order to prevent their inadvertent use, installation or application to operating nuclear power plants.
16.1 CORRECTIVE ACTION	Establishes the respective responsibilities of FPL personnel and the procedure for assuring that conditions identified by the FPL QA Department as being adverse to quality, are corrected.
16.2 CANCELLED (Combined with 16.1)	
16.3 CANCELLED (Combined with 16.1)	
16.4 EVALUATING AND REPORTING OF DEFECTS AND NONCOMPLIANCES FOR SUBSTANTIAL SAFETY HAZARDS IN ACCORDANCE WITH 10 CFR PART 21	Specifies the measures and responsibilities within Florida Power & Light to assure compliance to 10 CFR Part 21.
16.6 REPORTING OF 10 CFR 50.55(e) DEFICIENCIES	Specifies measures and responsibilities for the identification and reporting of 10 CFR 50.55(e) type deficiencies to the NRC during the plant construction phase.
17.1 THE COLLECTION AND STORAGE OF QUALITY ASSURANCE RECORDS FOR NUCLEAR POWER PLANTS	Identifies records and documents required to substantiate quality; and, describes measures employed for their maintenance, retention and retrieval.

LIST OF CORPORATE QUALITY ASSURANCE PROCEDURES

QP NUMBER/TITLE	SECTION DESCRIPTION
18.1 CONDUCT OF QUALITY ASSURANCE DEPARTMENT QUALITY AUDITS	Provides instructions for conducting audits of FPL Quality Assurance Program activities.
18.2 CANCELLED	
18.3 CANCELLED	
18.4 CANCELLED	

TOPICS TO BE ADDRESSED IN SAFETY ANALYSIS REPORTS

The FPL Topical Quality Assurance Report is the statement of Florida Power & Light Company Quality Assurance Program Requirements which do not vary with plant site. These stated requirements form a description of the FPL Quality Assurance Program which does not contain identification of the involvement of principal contractors such as the Architect/Engineer, Nuclear Steam Supply System vendor, or Constructor. The contractor involvement in the Program will be described in the plant Safety Analysis Report. In addition, other detailed aspects of the Quality Assurance Program vary from plant-to-plant or with plant site. These aspects will also be described in the plant SAR. The requirements of the FPL Quality Assurance Program shall apply to the nuclear safety related structures, systems and components as defined in the applicable plant SAR.