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MIDDLE SOUTH
UTILITIES SYSTEM

June 7, 1983

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Q-3-A35.29.18

Director of Nuclear Reactor Regulation
ATTENTION: Mr. G. W. Knighton, Chief
Licensing Branch Number 3
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: Waterford SES 3; Docket Number 50-382; Revised FSAR Chapter 17

Dear Sir:

Pursuant to changes to 10CFR50.54 and 55 published in the Federal Register, Volume 48, No. 6 dated Monday, January 10, 1983, please find attached for your review and acceptance the revised description of our QA Program, FSAR Chapter 17, for the Operations Phase of Waterford SES 3.

This revision constitutes a complete rewrite of the QA Program description for the Operations Phase previously accepted by the Commission and therefore revision indicator bars are not used. The scope of the change is threefold and can be summarized as follows:

a. This revision reflects several organizational changes in the LP&L Nuclear Operations Department including the establishment of the onsite Nuclear Operations Quality Assurance Group and the reporting relationship and lines of authority of the Quality Assurance Manager;

b. This revision includes programmatic changes resulting from (a) above; and

c. This change reflects exceptions to those Regulatory Guides noted in Table 17.2-1 required to constitute an acceptable QA Program. The exceptions discussed in this table while not explicitly addressed in our previous QA Program description were intended and implied. This change clarifies those exceptions and provides our alternative for meeting the intent of the regulatory guides committed to.

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LIMITED DISTRIBUTION

To ensure the Commission that this revision continues to satisfy the criteria of 10CFR50, Appendix B, we are also providing a copy of this revision cross-referenced to NUREG-0800, Revision 2, July, 1981, and to the 421 Series of the NRC Questions for Waterford SES 3. In addition, we are including a copy of the NUREG and Questions cross-referenced to the revised Chapter 17.

This revision provides an up-to-date description of the LP&L QA Program for the Operations Phase of Waterford SES 3 and will be incorporated in the next amendment scheduled for submittal in July, 1983.

Yours very truly,

T. F. Gerrets

T. F. Gerrets
Quality Assurance Manager

TFG:JMG:VBR

Attachments

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CHAPTER 17

QUALITY ASSURANCE

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17.0 QUALITY ASSURANCE

17.1 QUALITY ASSURANCE DURING DESIGN AND CONSTRUCTION

This section is not applicable to FSAR.

17.2 QUALITY ASSURANCE DURING OPERATIONS

The Louisiana Power & Light Company has established a comprehensive program for quality assurance during the operating phase of the Waterford-3 nuclear plant. This Nuclear Operations Quality Assurance Program (hereafter referred to in this document as The Quality Assurance Program) is applied to activities affecting the quality of those items which prevent or mitigate the consequences of postulated accidents which could cause undue risk to public health and safety. These activities include:

a) Turnover of the plant systems and equipment from the construction organization;

b) Startup testing;

c) Preoperational testing; and

d) Operation, maintenance, repair, modification and refueling.

The Quality Assurance Program as described herein complies with Regulatory Guide 1.33, Revision 2, 1978.

Table 17.2-1 contains a listing of those Regulatory Guides (including Revision Number and date) which LP&L is committed to for Waterford-3, any exceptions or conditions being noted. Table 17.2-2 identifies those LP&L manuals and program descriptions that document Quality Assurance Program requirements. Table 17.2-3 is a representative listing of quality affecting procedures controlled by the Document Control System, and Table 17.2-4 correlates the QA procedures to the criteria of 10CFR50, Appendix B. In addition, Figure 17.2-4 shows graphically the hierarchy of quality related programs, procedures and instructions.

17.2.1 ORGANIZATION

17.2.1.1 General

This section establishes the organizational structure for executing the Waterford-3 Quality Assurance Program. It also defines the quality assurance responsibilities of individuals and organizations performing quality affecting activities during preoperational testing and plant operation.

Most quality affecting activities are performed by personnel outside the Quality Assurance Section. An overview of the performance of these activities relative to QA program compliance is accomplished by the Quality Assurance Section through audits and surveillance.

17.2.1.2 Organizations Performing QA Functions

Figure 17.2-1 shows the lines of authority for the major LP&L organizations involved in quality assurance for Waterford-3 during preoperational testing and plant operations. Figure 17.2-2 illustrates how quality affecting activities of line and support organizations during the operational phase are under the cognizance of the Quality Assurance Manager and higher level corporate management. Figure 17.2-3 amplifies the onsite organization for quality assurance at Waterford-3.

The organizations and individuals listed below are involved in the implementation of the LP&L Quality Assurance Program and have quality assurance responsibilities as described in the following subsections:

a. LP&L Management
b. Senior Vice President-Nuclear Operations
c. Management Audit Group
d. Safety Review Committee
e. Quality Assurance Manager
f. Vice President-Nuclear Operations
g. Plant Manager-Nuclear
h. Quality Control Engineer
i. Plant Operations Review Committee
j. Nuclear Project Support Group
k. Nuclear Training Group
l. Nuclear Site Director
m. Nuclear Administrative Services Group
n. Purchasing and Material Section
o. Middle South Services
p. Suppliers/Contractors

17.2.1.2.1 LP&L Management

Louisiana Power & Light Company retains and exercises responsibility for the Quality Assurance Program for Waterford-3. The Nuclear Operations Department, directed by the Senior Vice President-Nuclear Operations, has overall responsibility for the Waterford-3 plant. The Senior Vice President-Nuclear Operations reports to the President of LP&L.

17.2.1.2.2 Senior Vice President-Nuclear Operations

The Senior Vice President-Nuclear Operations is responsible for establishing LP&L quality assurance and nuclear safety policies. Reporting to him are the Management Audit Group and the Safety Review Committee as well as the Vice President-Nuclear Operations. The Quality Assuance Manager reports functionally to the Senior Vice President-Nuclear Operations and formally to the President of LP&L.

The Senior Vice President-Nuclear Operations reviews summaries of Quality Assurance program status submitted to him by the Quality Assurance Manager. These summaries, in addition to his review of Management Audit results enable him to adequately evaluate the effectiveness of the QA Program. He approves and endorses the Nuclear Operations Quality Assurance Manual and revisions thereto which establish the documented program for implementation by LP&L organizations.

17.2.1.2.3 Management Audit Group

In order to obtain an independent evaluation of the LP&L Quality Assurance Program, the Senior Vice President-Nuclear Operations appoints a Management Audit Group that is independent of the Quality Assurance Section to conduct an annual management audit of the program. Members of the audit team must be qualified to appropriate standards. Audit results are documented and reviewed by responsible managers who are required to take commensurate corrective actions. Follow up audits are performed to verify effective corrective actions.

17.2.1.2.4 Safety Review Committee

The Safety Review Committee (SRC) is established to identify and evaluate significant risks which contribute to the potential for nuclear accidents and radiation exposure and to recommend what action should be taken to maximize the chances that potential accidents and losses can be tolerated and managed by LP&L. The SRC examines and judges the effectiveness of the overall Waterford-3 system for controlling risks, including the effectiveness of the PORC, Onsite Safety Review Subgroup, and quality assurance activities.

17.2.1.2.5 Quality Assurance Manager

The Quality Assurance Section under the direction of the Quality Assurance Manager has the authority and responsibility for developing, coordinating and assuring implementation of the LP&L Quality Assurance Program. The QA Manager maintains an overview of Waterford-3 quality affecting activities through audits and surveillance. He and his staff have sufficient authority and organizational freedom to effectively:

a) Identify quality assurance problems;

b) Initiate, recommend or provide solutions through designated channels; and

c) Verify implementation of solutions.

The Quality Assurance Manager and the Quality Assurance Engineers/Technicians under his direction have authority, which is delineated in writing, to stop or control further processing, delivery or installation of nonconforming

material. They have the authority to direct work stoppage when work is not being performed in accordance with approved drawings, specifications, procedures or regulatory requirements and/or when conditions exist which could be significantly adverse to quality if the work were to continue.

17.2.1.2.5.1 Responsibilities of the Quality Assurance Manager

The principal responsibilities of the QA Manager are:

a) Planning, organizing, and administering the Corporate Quality Assurance Program;

b) Developing, reviewing, approving and maintaining administrative control of the Quality Assurance Manual and changes thereto;

c) Defining the scope and content of QA training courses for personnel performing quality affecting activities;

d) Assuring effective implementation of the Quality Assurance Program through a comprehensive system of audits and surveillances;

e) Verifying satisfactory performance of quality assurance functions and activities at Waterford-3. In addition to the audit program noted above, this is achieved through:

1) Evaluating QA programs and activities of LP&L's suppliers and contractors of safety related material, spare parts and services;

2) Reviewing internally generated drawings and specifications and changes thereto to ensure inclusion of QA requirements;

3) Reviewing and concurring with quality related procurement documents;

4) Conducting pre-award evaluations for QA requirements of vendors, suppliers and contractors where applicable; and

5) Auditing activities of Middle South Services as they relate to Waterford-3.

f) Developing and maintaining Quality Assurance Section procedures;

g) Serving as a member of the Safety Review Committee;

h) Establishing and maintaining a qualified suppliers list for use in procuring quality related items and services;

i) Assisting the Training Director-Nuclear in establishing and administering that portion of the Training Program that addresses quality assurance; and

j) Analyzing conditions adverse to quality for quality trends.

17.2.1.2.5.2 Quality Assurance Manager's Qualifications

The principal qualifications for the Quality Assurance Manager are:

a) Graduate of a college or university with a Bachelor's degree in an engineering, science or related field, or equivalent capabilities;

b) A minimum of four years experience in quality assurance or a quality assurance related activity with at least two of those years in the nuclear power industry as a manager or supervisor;

c) Experience in development and implementation of quality assurance programs, plans and procedures;

d) Expertise in interpretation and application of Appendix B to 10CFR50 and related codes, standards and Regulatory Guides;

e) Knowledge of inspection and nondestructive testing requirements;

f) Ability to plan, to organize, and to administer a corporate QA program; and

g) Ability to maintain an effective working relationship with employees, contractors, suppliers, government agencies and the public.

17.2.1.2.5.3 General Office Quality Assurance Group

The General Office Quality Assurance Group is directed by a Quality Assurance Engineer-Nuclear who reports to the Quality Assurance Manager.

The General Office Quality Assurance Group has the responsibility for:

a) developing and maintaining LP&L QA policies and procedures;

b) assisting other LP&L groups in development of quality procedures and instructions;

c) conducting surveys and audits of major contractors and vendors to verify compliance with applicable requirements and guidance;

e) auditing those offsite groups within LP&L and Middle South Services who perform quality affecting activities for Waterford-3; maintaining documentation of quality assurance activities;

f) issuing and updating the Qualified Suppliers List (QSL) for use in procurement of quality related materials, spare parts, and services for Waterford-3; and

g) providing assistance in establishing and administering that portion of the Training Program which addresses quality assurance.

17.2.1.2.5.4 Nuclear Operations Quality Assurance Group (Onsite)

The Nuclear Operations Quality Assurance Group located onsite at Waterford-3 is headed by the Operations QA Engineer-Nuclear who reports directly to the QA Manager. This group assures that the QA Program at the site is being effectively implemented by:

a) Reviewing procurement documents to ensure inclusion of QA requirements;

b) Reviewing quality related program descriptions and administrative procedures to verify inclusion of requirements established by the Nuclear Operations Quality Assurance Manual;

c) Reviewing internally generated design drawings and specifications, and changes thereto to assure that the documents are prepared, reviewed, and approved in accordance with applicable procedures and contain the necessary QA requirements;

d) Interfacing with the plant Quality Control Group;

e) Conducting surveillances of plant activities to verify compliance with applicable requirements;

f) Providing assistance to other plant organizations on matters related to QA; and

g) Conducting audits of quality related activities as required.

Figure 17.2-3 indicates the lines of communication and audit between the onsite Operations Quality Assurance Group and the plant organizations.

17.2.1.2.5.5 Nuclear Construction Quality Assurance Group (Onsite)

The Nuclear Construction Quality Assurance Group located onsite at Waterford-3 is headed by the Construction QA Engineer-Nuclear who reports directly to the QA Manager. This group assures that the QA Program, of the PSAR, is being effectively implemented at the site during the construction phase.

17.2.1.2.5.6 Startup Quality Assurance Group (Onsite)

The Startup Quality Assurance Group is located onsite at Waterford-3 and reports directly to the Quality Assurance Manager. Its purpose is to maintain cognizance over quality affecting activities of the Waterford-3 Startup Group, including review of test procedures for adequacy of QA requirements, witness and verification of designated test and data recording activities, review of test documentation for completeness, and surveillance of the startup test program.

17.2.1.2.6 Vice President-Nuclear Operations

The Vice President-Nuclear Operations assists the Senior Vice President-Nuclear Operations in the administration of the Nuclear Operations Department. The Vice President-Nuclear Operations also serves as chairman of the Safety Review Committee.

17.2.1.2.7 Plant Manager-Nuclear

The Waterford-3 plant operations organization (Figure 17.2-3)is headed by the Plant Manager-Nuclear (hereinafter referred to as Plant Manager) who reports directly to the Senior Vice President-Nuclear Operations.

The Plant Manager, is responsible for operation and maintenance of the plant and has responsibility for implementation of necessary administrative and quality assurance measures in the plant. This responsibility includes:

a) Providing and maintaining a trained and qualified staff to safely operate and maintain the plant.

b) Assuring development and proper implementation of plant quality related procedures and instructions for activities such as plant operations, maintenance, repair, test and inspection;

c) Participating as a member of the Safety Review Committee;

d) Addressing matters brought to his attention by the Plant Operations Review Committee;

An Assistant Plant Manager, designated by the Plant Manager, is responsible for managing the plant in the absence of the Plant Manager. The responsibilities of an Assistant Plant Manager with regard to chairing the Plant Operations Review Committee are described in Chapter 13.

The Operations Superintendent, Shift Technical Advisor (STA) Coordinator, and Maintenance Superintendent report to the Assistant Plant Manager-Operations and Maintenance. The Technical Support Superintendent and the Health Physics Superintendent report to the Assistant Plant Manager-Plant Services. The Plant Staff is responsible for the development of plant procedures and instructions and for assuring that quality related activities are carried out in accordance with same. The Plant Staff is also responsible for the accuracy, adequacy, and completeness of records generated by the respective groups described above.

The Plant Manager directs the activities of the Startup (Phase III), Operations and Maintenance, Quality Control, Planning and Scheduling, and Plant Services organizations. The Plant Services Unit includes the Technical Support Group which provides day-to-day engineering and technical support for plant operation and maintenance activities.

17.2.1.2.8 Quality Control Engineer

The Waterford-3 Quality Control Engineer is responsible for:

a) Verifying by inspection/surveillance that quality related structures, systems, and components are maintained in accordance with documented instructions, procedures, and drawings;

b) Assisting in establishing and maintaining the QC portion of the Waterford-3 training program;

c) Developing and maintaining the Plant QC Group's procedures;

d) Assisting other Waterford-3 plant organizations in the development of procedures for activities affecting quality;

e) Conducting inspections/surveillances of quality affecting activities at Waterford-3;

f) Reviewing and concurring with maintenance, modification, and inspection procedures and changes thereto;

g) Serving on the Plant Operations Review Committee; and

h) Reporting on the effectiveness of the Waterford-3 quality control program to the Plant Manager.

17.2.1.2.8.1 Quality Control Organizational Freedom

Figures 17.2-1 and 17.2-3 show the lines of communication between the Quality Assurance Manager and the Quality Control Engineer necessary for resolving quality assurance and quality control problems. The Quality Control Engineer and his staff have the authority and organizational freedom to perform their QC functions effectively. They:

a) Identify quality control problems;

b) Initiate, recommend or provide problem solutions through designated channels; and

c) Verify implementation of satisfactory solutions.

In accordance with approved procedures, and as delineated herein, the QC Engineer and his staff have the authority to stop unsatisfactory work and to control the further processing, delivery, or installation of nonconforming material at Waterford-3. The QC Engineer and his staff do not have direct responsibility for performance of work which they verify/inspect for conformance with established requirements.

17.2.1.2.8.2 Quality Control Engineer's Qualifications

The qualifications of the Quality Control Engineer are:

a) A minimum of two years experience associated with nuclear facilities or if not, sufficient training to be acquainted with the relevant quality assurance aspects of a nuclear facility;

b) A working knowledge of Appendix B to 10CFR50 and applicable codes, standards, Regulatory Guides, plant procedures and technical specifications;

c) A college graduate or if not, sufficient training to be acquainted with the relevant quality assurance aspects of a nuclear facility; and

d) Familiarity with nuclear power plant inspection requirements and techniques.

17.2.1.2.9 Plant Operations Review Committee

The Plant Operations Review Committee (PORC) is established to ensure onsite review and evaluation of plant operation, maintenance and test programs. The PORC reports to the Plant Manager and advises him on matters related to nuclear safety, including referral of topics requiring review and potential action by the Safety Review Committee. PORC membership and responsibilities are in accordance with Section 6.0 of the Technical Specifications (FSAR, Chapter 16).

17.2.1.2.10 Nuclear Project Support Group

The Nuclear Project Support Group (NPSG) is responsible for providing licensing and technical support to the Waterford-3 plant staff and interfacing with Nuclear Project Support Group consultants and other outside organizations. During operations, this group includes personnel with support duties in Operational Engineering, Technical Services, Licensing, Onsite Safety Review, Emergency Planning, and Construction Engineering.

The Project Support Manager is responsible for support activities and reports to the Senior Vice President-Nuclear Operations. He determines when consultants and contractors are to be called in to deal with complex projects and problems beyond the scope of LP&L's plant and headquarters staff.

The functions of the Nuclear Project Support Group include:

a) Managing the offsite technical support of the design change process, including initiation, implementation and documentation of design changes, and coordinating this activity with the plant staff;

b) Providing technical input in the selection of outside contracted engineering sources for selected station modifications and managing contracted activities;

c) Coordinating and reviewing responses to federal, state, and local regulatory agencies;

d) Managing the preparation of FSAR updates and responses to IE bulletins, circulars and information notices;

e) Administering environmental licensing activities;

f) Supporting the plant staff in development and implementation of various Nuclear Operations Programs;

g) Coordinating the activities of Middle South Services relative to nuclear fuel material, conversion, enrichment, fabrication processes and in-core fuel management;

h) Conducting independent review of plant staff activities affecting safety;

i) Recommending corrective actions to be taken in regard to safety issues;

j) Reviewing selected plant operating, alarm and emergency procedures for technical adequacy; and

k) Reviewing and assessing the safety significance of NRC orders, bulletins, circulars, and generic letters; IE inspection reports; and operating experience information from other sources.

17.2.1.2.11 Nuclear Training Group

The Nuclear Training Group is headed by the Training Director-Nuclear who reports to the Senior Vice President-Nuclear Operations and has the responsibility to train all personnel involved in Nuclear Operations and Administration, including Management, General Office, Plant Staff, Nuclear Project Support Group, and Quality Assurance Staff. The Training Director-Nuclear's responsibilities include:

a) Directing the development and implementation of training programs and the operation of the training facilities/center for the Nuclear Operation Departments;

b) Directing the development, review, and maintenance of the Training operating and administrative procedures and approval of changes thereto;

c) Establishing and maintaining qualified training staff to carry out the development and implementation of the training programs and the training facilities;

d) Ensuring that training programs development and implementation are carried out in accordance with applicable procedures and QA requirements to assure safe and effective support to W-3;

e) Determining when Training consultants and contractors are to be called and management of contracted training activities;

f) Directing the preparation of training bid requests and the evaluation of training bids prior to recommendations for issuance of purchase orders for Training contracts/services;

g) Providing plant personnel, Quality Assurance personnel, and the Nuclear Project Support Group staff with indoctrination and training in Quality Assurance and the performance of quality affecting activities.

h) Serving as a member of the Safety Review Committee;

i) Addressing Training matters brought to his/her attention by the Safety Review Committee and the Plant Operations Review Committee;

j) Ensuring that operating experience at the plant and elsewhere, are factored in training in a timely manner.

The Training Director-Nuclear is assisted by Training Managers-Nuclear for implementation, development, and operation of the training center. A Training Manager-Nuclear, designated by the Training Director, is responsible for directing the Training organization in the absence of the Training Director-Nuclear. The responsibilities of the Training Managers-Nuclear are described in Chapter 13.

The Training Supervisors-Nuclear report to the Training Managers. Personnel assigned to these supervisory positions are responsible for monitoring quality affecting training activities of their units to assure that they are carried out in accordance with approved procedures. The Training Support Unit Supervisor is responsible for maintaining and updating training records generated in support of Nuclear Operations Department personnel training.

17.2.1.2.12 Nuclear Site Director

The Nuclear Site Director reports to the Senior Vice President-Nuclear Operations and is responsible for accomplishment of project engineering, construction, and preoperational test activities required prior to fuel loading.

17.2.1.2.12.1 Waterford Startup Group

The Lead Startup Engineer (LSE) is responsible for managing the Waterford 3 Startup activities. The LSE reports functionally to the Nuclear Site Director and administratively to the Plant Manager. Waterford 3 Startup Group's responsibilities include:

a) Preparation of startup administrative and test procedures;

b) Plan and coordinate tests;

c) Direct and supervise startup testing activities;

d) Document and evaluate test results;

e) Ensure orderly transfer of plant systems, components, and structures including a complete status of same; and

f) Provide assistance to Plant Staff during plant startup.

17.2.1.2.12.2 Joint Test Group

The Joint Test Group (JTG) is composed of personnel from LP&L's Waterford Startup Group, construction, contractors/consultants and Plant Staff. The JTG is responsible for procedure reviews and review of prerequisite (Phase I), preoperational (Phase II), and integrated (Phase III) test results. The JTG is also responsible for recommending the disposition of test results for Phase II and III testing to the PORC. The JTG is responsible for conducting a comprehensive review of the Phase II test program prior to initial fuel load and the start of Phase III testing. They function as an advisory group to the PORC during Phase III testing. The JTG reports through the Lead Startup Engineer (LSE).

17.2.1.2.13 Nuclear Administrative Services Group

The Nuclear Administrative Services Group is under the Administrative Services Manager-Nuclear who reports to the Senior Vice President-Nuclear Operations. This group provides support services including:

a) Administrative support and expediting services for the procurement of items, materials, equipment, and services;

b) Execution of the document control and quality assurance record storage program;

c) Storage and issue of quality related items and materials;

d) Implementation of the plant physical security program; and

e) Contract administration.

17.2.1.2.14 Purchasing and Materials Section

The LP&L Purchasing and Materials Section of the Corporate Services Department performs various functions to support procurement of quality and non-quality related material, equipment, spare parts and services. These functions include preparation and release of bid requests, coordination of bid evaluations by QA, engineering groups, etc., as required, and issuance of purchase orders.

17.2.1.2.15 Middle South Services

LP&L delegates to Middle South Services, Inc. (MSS), the authority to perform those quality assurance functions necessary to ensure that the nuclear fuel is designed and fabricated in accordance with regulatory requirements and accepted codes, standards, and specifications. The MSS Quality Assurance Section monitors the design and fabrication of the fuel through a program of audits of the fuel fabricator, including both design review audits and fuel fabrication audits. MSS also conducts audits of component suppliers as deemed necessary to ensure the quality of the fuel.

Formal audit reports are issued by MSS to document their audit activities and to identify nonconformances or other items requiring action by the fuel fabricator. Resolution of nonconformances or other items requiring action is verified by MSS and documented in follow-up reports. The LP&L Quality Assurance Manager is on distribution for all audit and follow-up reports pertaining to LP&L and Waterford 3.

MSS is also utilized to complement and supplement LP&L teams during QA audits and surveys. The MSS Quality Assurance Section interfaces with and reports through the LP&L QA Manager for the above activities. The MSS Quality Assurance Section conducts internal audits of those quality affecting activities associated with Waterford-3 that are performed by other MSS groups.

LP&L Management may use MSS to conduct supplemental internal management audits of the LP&L Quality Assurance Program. For this purpose, MSS QA reports to the LP&L Senior Vice President-Operations.

MSS also provides support to LP&L in the areas of Nuclear Engineering, Fuel Management, and Non-Destructive Examination (NDE) activities.

17.2.1.2.16 Suppliers/Contractors

Suppliers/Contractors of quality related material, equipment, spare parts and/or services are, as appropriate, required by the procurement documents to have a quality assurance program. In such cases, a line of communication

exists between the supplier/contractor and the LP&L QA organization. The overall responsibility for QA at Waterford-3 remains with LP&L at all times.

The quality assurance functions performed by suppliers of quality related items and services depend upon the nature of the activities, services, equipment, materials, systems, and/or components provided. Supplier QA program requirements are prescribed through procurement documents to provide controls and documentation in accordance with the scope of activities involved and their importance to safety.

17.2.2 QUALITY ASSURANCE PROGRAM

17.2.2.1 General

LP&L's objective is to design, construct, test, operate, maintain, and modify the Waterford-3 nuclear plant with the highest degree of functional integrity and reliability necessary to avoid undue risk to the health and safety of employees and the general public. It is the policy of LP&L that the program for the design and design changes, procurement, fabrication, installation, inspection, testing, operation, maintenance, repair, refueling and modification of Waterford-3 complies with the requirements of 10CFR50, Appendix B and related regulatory guidance.

This section describes LP&L's Nuclear Operations Quality Assurance Program (hereinafter referred to as the Quality Assurance Program) for Waterford-3 which assures that quality affecting activities are performed in a controlled manner and documented to provide objective evidence of compliance with NRC regulations and guidance. This program takes into account the need for special controls, processes, test equipment, tools and skills to attain the required quality, and the need for verification of quality by inspection, testing, surveillance and audit. This program will be fully implemented 90 days prior to fuel loading with applicable portions applied to preoperational testing before that time.

Program descriptions and procedures are developed by LP&L to assure that the Quality Assurance Program complies with the requirements of 10CFR50, Appendix B. These are applicable throughout the operational phase, including startup testing (Phase I, II, and III. See Chapter 14).

Additionally, as directed in appropriate procurement documents, contractors/suppliers of quality related equipment and services are required to demonstrate compliance with the provisions of LP&L's QA Program.

The Quality Assurance Program is implemented by those organizational groups and departments whose activities affect quality at Waterford-3 (Figure 17.2-1). The personnel within these groups and departments use approved procedures that control activities affecting the Quality Assurance Program. These approved procedures incorporate the requirements of the Regulatory

Guides and the NRC endorsed ANSI standards to which LP&L has specifically committed. Indoctrination and training programs are provided to train personnel in the requirements of the Quality Assurance Program.

17.2.2.2 Development of Program

Figure 17.2-4 depicts, in graphic form, the hierarchy of documents comprising LP&L's Quality Assurance Program. This figure illustrates the relationship of the various programs, procedures and instructions which control the quality affecting activities for Waterford-3.

The Quality Assurance Program defines the duties of individuals and organizations participating in quality affecting activities.

Corporate policies, goals and objectives are documented as Quality Assurance Requirements (QRs) in the Quality Assurance Manual. Policy statements issued by the Senior Vice President-Nuclear Operations provide the means for communicating to responsible organizations and individuals that quality policies and QRs are mandatory requirements which must be implemented and enforced. The hierarchy of documents in the QA program are as follows:

a) The first tier of documents consists of those government regulations; industry codes and standards; and LP&L policies, specifications, and criteria necessary to design, construct, operate and maintain Waterford-3. An integral part of this tier is Chapter 17.2 of the Waterford-3 FSAR.

b) At the second tier of documentation, the Quality Assurance Manual defines the responsibilities and authorities of LP&L personnel, contractors, vendors and suppliers during the operation and testing phases of Waterford-3. The Quality Assurance Manual establishes LP&L's policies and requirements to implement 10CFR50, Appendix B and its Regulatory Guides and ANSI Standards which are listed in Table 17.2-1.

The Quality Assurance Manual assigns to the Quality Assurance Manager the responsibility and authority for developing, coordinating and evaluating the implementation of the Quality Assurance Program and to the Vice President-Nuclear Operations the authority and responsibility for the execution of the administrative controls and quality assurance measures of the Nuclear Operations Department.

The Quality Assurance Manager is responsible for controlling the issuance and maintenance of the Quality Assurance Manual. The Quality Assurance Manager assures that both he and the Senior Vice President-Nuclear Operations approve the manual and its revisions. A listing of manual assignees is maintained and revisions are issued as necessary to ensure effective implementation of regulatory requirements. Personnel holding controlled copies of the manual are required to remove superseded and outdated pages when filing revisions.

17.2.2.3 Identification of Safety Related Structures, Systems and Components

The Quality Assurance Program provides control over activities affecting the quality of structures, systems, and components to an extent commensurate with their importance to safety. Table 3.2-1 of this FSAR provides the safety related classification of plant structures, systems, and components and identifies those items subject to the 10CFR50, Appendix B, Quality Assurance Program as herein described.

Procedures for preparation and control of procurement documents provide guidance for determination of classification of spare and replacement parts. These procedures require that applicable codes, standards and regulations, as well as the FSAR be reviewed and considered when determining the classification of spare or replacement parts or materials.

17.2.2.4 Resolution of Disputes

Disputes involving quality, arising from a difference of opinion between the QC Group and other plant groups (Maintenance, Operation, etc.) or contractor/suppliers of safety related equipment and services are normally resolved through the Plant Manager. If a satisfactory resolution cannot be reached, the Quality Control Engineer has the organizational freedom to bring the dispute to the attention of the Quality Assurance Manager using the line of communication shown in Figure 17.2-1.

Disputes involving quality, arising from a difference of opinion between the Quality Assurance Section and the Nuclear Operations Department are resolved through the LP&L Senior Vice President-Nuclear Operations.

Disputes involving quality, arising from a difference of opinion between the Quality Assurance Section and other departments within LP&L, but external to the Nuclear Operations Department, are normally resolved via direct interaction between managers involved. If a satisfactory resolution cannot be reached, the disputes are resolved through higher levels of management.

17.2.2.5 Quality Assurance Indoctrination and Training

Indoctrination and training programs are established for those personnel performing quality affecting activities. The program is designed to ensure that personnel involved are knowledgeable in the QA procedures/requirements and have the necessary proficiency to implement the requirements. The scope, objective and method of implementing the indoctrination and training program are documented in approved procedures.

The Quality Assurance Section assists the Training Group in developing and conducting any required quality assurance training. The Training Director-Nuclear is responsible for directing, developing, approving,

administering, and conducting training programs to assure that staff personnel are properly trained to perform activities in a safe and effective manner. The QA Manager reviews and concurs with the content of the QA Indoctrination and Training Program.

The QA Training and Indoctrination Program requires that:

a) Personnel responsible for performing activities that affect quality are instructed on the purpose, scope and implementation of quality related manuals, instructions and procedures;

b) Personnel performing activities that affect quality are trained and qualified in the principles, techniques, and requirements of the activity being performed;

c) Proficiency and requalification of personnel performing activities requiring certification are maintained by retraining, re-examining and/or recertifying on a periodic basis;

d) Proficiency tests be given to those personnel performing and verifying activities affecting quality, and acceptance criteria developed to determine if individuals are properly trained and qualified;

e) Certificates of qualification clearly delineate (1) the specific functions personnel are qualified to perform and (2) the criteria used to qualify personnel in each function; and

f) Documentation concerning training and qualification programs which describes the content, who attended, the duration of the training session, and results of comprehension tests are maintained in accordance with requirements of the Training Group records program.

The Quality Assurance Section conducts audits of other organizational units, such as vendors, suppliers, and contractors engaged in quality affecting activities to verify that personnel are adequately trained, indoctrinated and qualified.

17.2.2.6 Controlled Conditions for Quality Affecting Activities

Quality affecting activities are accomplished under controlled conditions by personnel with the necessary skills to attain the required quality. Activities affecting quality are performed with appropriate equipment, under suitable environmental conditions and with the assurance that prerequisites for inspections and tests have been satisfied.

17.2.2.7 Management Review of the QA Program

As part of his continuing involvement in the program, and in accordance with the management audit procedures, the Senior Vice President-Nuclear Operations ensures that a management audit of LP&L's Quality Assurance Program is conducted annually by a qualified independent auditing organization.

The information from these management audits in conjunction with summaries of the Quality Assurance Program status presented to him by the Quality Assurance Manager enables the Senior Vice President-Nuclear Operations to assess the scope, status, implementation and effectiveness of the program and to assure that the program complies with applicable regulatory requirements.

17.2.2.8 Startup Testing (Phase I, II, and III) and Systems Turnover

The startup test program is part of the overall Quality Assurance Program. This program meets the intent and guidance of applicable Regulatory Guides and standards listed in Table 17.2-1. The testing and turnover activities are accomplished by qualified personnel using approved and controlled procedures and drawings. Required records documenting the activities are controlled and maintained in accordance with program requirements. Responsibilities and control of quality related activities will be transferred from the principal contractors to the applicant during the phase out of design and construction and during preoperational testing and plant turnover in accordance with contractural requirements.

17.2.2.9 Maintenance of QA Program

Amendments to the FSAR and revisions to the Quality Assurance Manual are issued as necessary to support effective implementation of the QA program. The NRC is notified annually of any changes to the QA program description that do not reduce the commitments previously accepted by the NRC. If a change is contemplated which would reduce the commitments in the approved QA program description, the proposed change is submitted to the NRC for approval prior to implementing the change.

LP&L requires their principal contractors to notify LP&L of changes to their QA program description. Significant changes are reported, as applicable, to the NRC in writing. In addition, LP&L requires principal contractors to provide notification of changes which reduce the commitments to a subcontractor's QA program description which have the effect of changing the QA program of the principal contractor or LP&L.

17.2.2.10 Fire Protection Program

The QA Program for Fire Protection is under the control of the QA Manager. This program is defined in FSAR Subsection 9.5.1 and consists of the necessary QA criteria which are a part of the 10CFR50 Appendix B criteria described in this (17.2) section. The QA Manager's control of the Fire Protection QA Program includes formulating and/or verifying that the program incorporates suitable requirements and verifying the effectiveness of the program through review, surveillance, and audit.

17.2.3 DESIGN CONTROL

17.2.3.1 General

The Quality Assurance Manual establishes and describes the quality requirements for the design control of plant quality related systems, components, structures, and equipment, and modifications thereto. Procedures are established which address company activities regarding design control. These procedures assure that design activities associated with the preparation and review of design documents for Waterford-3 are executed in a planned, controlled, and orderly manner.

17.2.3.2 Design Control Measures

The Project Support Manager-Nuclear is responsible for design activities during the operational phase, beginning with system transfer to Plant Staff. The Project Support Group prepares, reviews, approves, and verifies design documents such as system descriptions, design input and criteria, design drawings, design analyses, computer programs, specifications and procedures.

The design control program includes design activities associated with the preparation and review of design documents, including the translation of applicable regulatory requirements and design bases into design, procurement and procedural documents. Included in the scope are such activities as field design engineering; physics, seismic, stress, thermal, hydraulic, radiation, and the SAR accident analyses; associated computer programs, compatibility of materials; accessibility for inservice inspection, maintenance and repair; quality standards; and safety significance. When a new design or design change is prepared during operations, quality standards must be specified in the design documents. Deviations and changes from these quality standards are controlled in accordance with approved procedures.

Procedures are established to assure that verified computer codes are certified for use and that their use is specified.

New designs and modifications proposed for existing designs which involve quality related structures, systems or components are reviewed in accordance with approved procedures to assure that:

a) Design characteristics can be controlled, inspected, and tested to ensure no adverse effect on safety; and

b) Inspection and test criteria are identified.

Internal and external design interface controls, procedures, and lines of communication are established and described for the review, approval, release, distribution and revision of documents involving design interfaces to assure structures, systems, and components are compatible geometrically, functionally, and with processes and environment.

17.2.3.2.1 Design Verification

Design verification processes such as design review, alternate calculations, and qualification testing are accomplished in accordance with approved procedures. Qualification testing of a prototype unit under adverse design conditions is required when a test program is used to confirm design adequacy.

If design verification is by other than qualification testing it is normally completed prior to drawing release. In cases where this cannot be done and design verification is deferred, the justification for such action is documented and the unverified portion of the design appropriately identified and controlled. The design verification will be complete prior to fuel loading or prior to relying upon the structure, system, or component to perform its quality-related function.

Procedural control is established for design documents that reflect commitments of the FSAR. Such design documents subject to procedural control include specifications, calculations, computer programs, system descriptions, the FSAR when used as a design document, and drawings including flow diagrams, piping and instrument drawings, control logic diagrams, electrical single line diagrams, structural drawings for major facilities, site arrangements, and equipment locations. Specialized reviews are used when uniqueness or special design considerations warrant.

Procedures require that individuals or groups responsible for design verification be other than the original designer or the designer's immediate supervisor. Under special circumstances, the designer's immediate supervisor may perform the verification if the following conditions apply:

a) The supervisor is the only technically qualified individual;

b) The need is individually documented and approved in advance by the responsible management; and

c) Quality assurance audits take into account the frequency and effectiveness of using supervisors as verifiers to guard against abuse.

The responsibilities of the design verifier are identified in appropriate procedures. The procedures specify the areas and features to be verified and the documentation requirements.

If the design verification method is by test alone, the following provisions are included:

a) Procedures provide criteria that specify when verification should be by test;

b) Prototype, component, or feature testing is performed as early as possible prior to installation of plant equipment, or prior to the point when the installation would become irreversible; and

c) Verification by test is performed under conditions that simulate the most adverse conditions as determined by analysis.

17.2.3.2.2 Design Changes

Quality related design and specification changes, including field changes, are subject to the same type of design controls and approvals as the original design. LP&L reserves the option of employing qualified organizations other than the original designer in order to modify or develop designs. Anyone preparing design changes reviews the original design and/or secures design information from the original designer, as appropriate. Errors and deficiencies identified during the design process are documented and corrective action taken to preclude repetition.

Materials, parts, and equipment which are commodity, catalogue (off the shelf), or which have been previously approved for a different application are reviewed for suitability. The organizations responsible for design reviews and other design activities are identified by written procedures which delineate the authority and responsibilities involved. Valid industry standards and specifications are utilized in the process of selecting suitable parts and materials.

Design changes are included within the scope of the Waterford-3 document control program. Design change notices are controlled documents. Any design change which might affect the performance of plant personnel duties is documented in a change notice and distributed to the affected parties. Working documents, such as drawings, specifications, and procedures, which are affected by design changes are also revised and controlled so that responsible parties remain informed.

17.2.3.3 Maintenance and Modification

A program is provided to ensure that quality related structures, systems, and components are maintained at the quality level required for performance of their intended functions. A preventative maintenance program is established which includes procedures dictating maintenance frequency and type.

Maintenance is performed in a manner which does not compromise plant safety. Maintenance or modification activities which affect the functioning of quality related structures, systems, or components are performed in a manner which will maintain a quality level at least equivalent to what was originally specified. Inspection and performance testing verify that quality related structures, systems, and components are still functioning adequately after maintenance or modifications are complete. The results are documented and maintained in accordance with applicable records management procedures.

The Plant Manager has final approval authority for station modifications.

17.2.3.4 Replacement or Repair

All malfunctions are promptly documented and evaluated to determine probable cause. If evidence indicates that common components in quality related systems have performed in an unsatisfactory manner, corrective measures are planned prior to replacement or repair of such components. Approved procedures for repair are made available prior to actual performance. Replacement parts must receive adequate evaluation and/or testing if they are not of a design which has been previously proven satisfactory. A phased replacement is considered, when possible, to permit inservice performance evaluation and minimize the possibility of a hidden deficiency developing into a systematic failure. An augmented testing and inspection program is implemented following a large scale component replacement or repair as necessary to demonstrate component reliability.

17.2.4 PROCUREMENT DOCUMENT CONTROL

17.2.4.1 General

Procurement document control applies to documents used to obtain materials, spare and replacement parts, components, and services required to modify, maintain, repair, test, inspect, or operate Waterford-3. The Quality Assurance Manual establishes requirements for controlling procurement of quality related items and services. Quality related suppliers/contractors and subtier suppliers are required, through procurement documents, to implement quality assurance programs consistent with the LP&L Quality Assurance Program. It is LP&L policy that the quality and design of purchased replacement materials, components, and spare parts are equal to or better than the original item.

17.2.4.2 Preparation of Procurement Documents

Nuclear Operations Department personnel are responsible for preparation of procurement documents for quality related parts, components, systems, and services. Their responsibilities include procurement planning, preparation,

purchased in accordance with the applicable codes and standards. Where commodity or catalogue items are to be used in quality related applications, the procurement documents may specify special inspections, tests, verifications or documentation required to assure suitability for the intended application.

17.2.4.4 QA Review and Approval

The Operations Quality Assurance Group reviews quality related procurement documents for Waterford-3. This review is conducted to verify:

a) Use of the proper source for the technical and quality requirements;

b) That appropriate technical and quality requirements are included;

c) That the technical and quality requirements can be verified by inspection or other methods; and

d) That technical and quality requirements are controlled through a program of planned and systematic actions.

17.2.4.5 Qualified Suppliers List

LP&L's General Office Quality Assurance Group is responsible for establishing and maintaining the Qualified Suppliers List. Prospective vendor/supplier/contractor organizations qualify for inclusion on this list through an evaluation of their quality assurance capabilities for providing quality related items and services. (see Subsection 17.2.7.2 for the basis used in the evaluation). Re-evaluation and requalification of suppliers on the qualified suppliers list is made on a periodic basis, as specified in applicable procedures.

17.2.4.6 Changes and Revisions

Changes and revisions affecting the technical and/or quality requirements of procurement documents are subject to at least the same review and approval as the original documents.

17.2.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

17.2.5.1 General

Instructions, procedures, and drawings for the operational phase of Waterford-3 are developed to prescribe those activities that affect the quality related functions. Activities affecting quality, such as designing,

procuring, installing, testing, inspecting, operating, maintaining, and modifying are accomplished in accordance with these documents. The Quality Assurance Manual establishes requirements for developing and controlling instructions and procedures for quality affecting activities.

17.2.5.2 Preparation of Instructions, Procedures and Drawings

Procedures are written to provide a controlled method for preparing, reviewing, changing, and approving instructions and procedures. Instructions, procedures, and drawings prescribing quality related activities are prepared by the LP&L organizational unit engaged in that activity, by external consultants, or by other LP&L groups as assigned. Appropriate department heads are responsible to provide instructions, procedures, and drawings as required for the administration, operation, maintenance, and modification of Waterford-3.

17.2.5.3 Contents of Instructions, Procedures, and Drawings

Instructions and procedures prescribing operational activities that affect quality related functions identify any special equipment and conditions required to perform the activity, provide applicable quantitative and qualitative acceptance criteria, and include provisions for documenting that activities were accomplished in accordance with these instructions. When appropriate, instructions and procedures include checklists of the elements of an activity to be observed or measured.

17.2.5.4 Review and Approval

Instructions, procedures, and drawings prescribing quality affecting activities are reviewed and approved by the individual in charge of the organization engaged in that activity. Whenever a quality related instruction, procedure, or drawing of one organization affects or involves the activities of another organization, the originating organization is responsible for ensuring that the affected organization reviews and concurs with the document content. The originating organization is responsible for resolving comments.

Instructions, procedures, and drawings for quality affecting activities are concurred with by Quality Assurance or by the Quality Control Engineer. Table 17.2-2 identifies procedures requiring QA concurrence. For onsite quality affecting activities the Quality Control Engineer reviews and concurs with test, calibration, special process, maintenance, modification, and repair instructions and work plans.

PORC reviews and recommends approval to the Plant Manager instructions and procedures, for quality affecting activities for plant operation in accordance with the Waterford-3 Technical Specifications (FSAR, Chapter 16). Such

documents are not approved for implementation until comments from the above reviews have been resolved. Control of these documents is in accordance with Subsection 17.2.6.

17.2.6 DOCUMENT CONTROL

17.2.6.1 General

The Quality Assurance Manual establishes requirements for document control. Documents and their revisions which control quality related systems, structures, components and activities are prepared, reviewed by qualified individuals, and approved by authorized personnel before release or issuance in accordance with written procedures. These procedures identify the organizations responsible for the actions and assure that changes to these documents are reviewed and approved by the same groups.

17.2.6.2 Review and Issuance of Controlled Documents

Document control procedures require that documents, including changes, be reviewed for adequacy and approved by authorized persons prior to issuance. This includes a quality assurance review of documents prescribing quality affecting activities as described in Subsection 17.2.5.4.

Controlled documents and revisions generated within LP&L which affect the quality related structures, systems, components and activities are prepared by the responsible group, consultants, other qualified groups within LP&L, or combinations of these organizations. These documents are reviewed for accuracy and completeness and for compliance with quality assurance policies and procedures. After review comments have been resolved, the documents are approved by the supervisor of the responsible group, effective dates assigned, and the documents distributed in accordance with applicable procedures and instructions. Controlled documents are distributed prior to starting an activity and, if necessary, are on hand at the locations where the prescribed activities are performed before work begins.

Master lists of controlled documents are updated and issued in accordance with applicable procedures to preclude the use of superseded documents. These master lists identify the current revision number of the instructions, procedures, specifications, drawings, and procurement specifications. Record copies of the documents are retained in accordance with appropriate records management procedures. Obsolete or superseded documents are controlled by approved written procedures to prevent inadvertent use.

Changes to quality related documents are reviewed and approved by the same organization that performed the original review and approval or by other qualified responsible organizations delegated by LP&L. Approved changes are included in the instructions, procedures, drawings and other appropriate documents associated with the change.

17.2.6.2.1 Quality Related Plant Procedures

Administrative procedures prescribe steps involved in the preparation and review of plant procedures. The procedures require that quality related maintenance, modification, and test instructions and procedures prepared by the plant staff be routed to the plant Quality Control Engineer for review and concurrence prior to implementation. The Quality Control Engineer may assign this review to qualified personnel within his group. The review is conducted in accordance with approved procedures to ensure:

a) That the need for inspection, identification of inspection personnel, and documentation of inspection results have been properly specified;

b) That the necessary inspection requirements, methods, and acceptance criteria have been identified; and

c) That hold and witness points are clearly identified and acceptance criteria provided.

Prepared checklists are used as guidelines in conducting and documenting the reviews.

17.2.6.2.2 As-built Drawings

Those drawings required for the safe operation of the plant reflecting the as-built status of Waterford-3 are transferred from the constructor to LP&L prior to receipt of the operating license. These drawings are stored in a controlled facility, with reproducible copies of those drawings required for plant operation and maintenance furnished to the Plant Manager. After receipt of the operating license the Nuclear Project Support Group is responsible for the revision and update of master drawings to reflect station modifications.

The Nuclear Project Support Group issues Station Modifications (SMs) which delineate the drawings affected by proposed modifications. The Plant Manager implements and maintains administrative controls which assure that as-built drawings utilized for plant operation and maintenance are obtained and disseminated upon completion of the related modification. The Operations Quality Assurance Group maintains surveillance over maintenance and modification activities including maintenance of the as-built drawings.

Field drawings and sketches may be prepared by plant personnel to clarify or provide additional details for operation, maintenance, or testing, and these are controlled in accordance with written instructions which specify requirements for identifying, reviewing, approving, and filing. They are reviewed for accuracy by at least one qualified person other than the originator. They are reviewed and approved by the originating group supervisor before issuance. Revisions are handled in the same manner as the original issue.

17.2.6.3 Types of Controlled Documents

The documents controlled under the Operational Quality Assurance Program include as a minimum:

a) Safety Analysis Report;

b) Design documents including calculations, drawings, specifications, change requests, analyses, and documents related to computer codes;

c) Procurement Documents;

d) Nuclear Operations Quality Assurance Manual;

e) Quality Assurance Procedures Manual;

f) Program Management Descriptions;

g) Inspection and test procedures for fabrication, construction, installation, test, maintenance, modification and operation;

h) Nonconformance Reports;

i) As-built Documents;

j) Emergency Plans;

k) Physical Security Plans;

l) Plant Operating Manual; and

m) Nuclear Administrative Procedures Manual.

17.2.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

17.2.7.1 General

Material, equipment and services whether purchased directly or through others, conform to procurement document specifications as described in Subsection

17.2.4. Provisions are made, as appropriate, for source evaluation and selection, review for objective evidence of quality, inspection at source, and inspection upon delivery. Quality assurance measures of suppliers are assessed at periodic intervals commensurate with the importance, quantity, and complexity of the product or services being purchased. This assessment employs audit, independent inspection or test to verify that documentation such as inspection records and certificates of conformance are valid. Where failures occur, the cause is evaluated to determine if the original equipment or the original design is appropriate for replacement or repair. Proposals (bids or quotations) by suppliers are reviewed to ensure that no exceptions are taken which would violate safety, technical, or quality requirements. The program requirements for control of purchased material, equipment and services are contained in the Quality Assurance Manual and implemented in accordance with approved written procedures.

17.2.7.2 Evaluation of Suppliers

Quality related equipment, materials and services are obtained from suppliers, contractors and consultants on the LP&L Qualified Suppliers List when required to assure compliance with codes, standards, and regulatory commitments. Suppliers, contractors and consultants are qualified for inclusion on the qualified suppliers list through an evaluation of their quality assurance capabilities for providing quality related items and services. The evaluations are conducted by qualified personnel and the results documented and maintained in accordance with QA records management procedures.

The evaluation of suppliers is based on one or more of the following criteria:

a) The supplier's ability to comply with those requirements of LP&L Quality Assurance Program which are applicable to the type of material, equipment or service being procured;

b) A review of the records and performance of suppliers who have provided articles similar to the type being procured; and

c) A survey of the supplier's facilities and quality assurance program to determine his capability to provide a specified service or to supply a product which meets design, manufacturing and quality requirements.

LP&L's Quality Assurance Manager is responsible for establishing and maintaining the Waterford-3 Qualified Supplier's List. The QC and engineering groups (plant or support personnel) participate in the evaluation of potential suppliers for providing quality related items and services as needed. Suppliers of quality related structures, systems, components and services for Waterford-3 are informed through procurement documents of their requirement to comply with 10CFR Part 21 for reporting defects and noncompliances that could create a substantial safety hazard.

17.2.7.3 Surveillance of Suppliers

Surveillance of quality related suppliers during fabrication, inspection, testing and shipment of materials, equipment, and components is planned and performed in accordance with written procedures to ensure conformance to the purchase order requirements. These procedures provide for:

a) Instructions that specify the characteristics or processes to be witnessed, inspected or verified, and accepted;

b) The method of surveillance and the extent of documentation required;

c) The personnel responsible for implementing these instructions; and

d) Audits and surveillance to ensure that the supplier complies with the quality requirements.

Surveillance is performed on those items where verification of procurement requirements cannot be determined upon receipt. Suppliers' quality related activities including the validity of certificates of conformance are periodically evaluated by audits, independent inspections or tests. The effectiveness of supplier quality control is assessed by LP&L at intervals consistent with the importance, complexity and quantity of the item or service being delivered.

17.2.7.4 Receiving Inspection

Receiving inspection of material, components and equipment is performed in accordance with written procedures which provide that:

a) The material, component or equipment is properly identified and corresponds to the requirements of the procurement documentation;

b) Material, components, equipment and records are inspected and judged acceptable in accordance with procurement document requirements prior to installation or use;

c) Inspection records or certificates of conformance attesting to the quality of material, components and equipment are available at Waterford-3 prior to installation and use; and

d) Accepted and released items have their inspection status identified prior to being forwarded to a controlled storage area or released for installation or further work.

17.2.7.5 Procurement of Commercial Items

Standard commodity or catalogue items or previously approved material, parts and equipment that are essential to the quality related functions of structures, systems and components are reviewed for suitability of application before selection of the item and its supplier. The preparer of the purchase requisition is responsible to clearly identify the commercial item to be procured and list the receiving inspection requirement. The item selected must be equal to or better than the original part. If the part is different from or an addition to the original design and constitutes a plant modification, the Nuclear Project Support Group reviews the material application and verifies the part's suitability for the intended use. Any additional inspection or test requirements are specified in the purchase requisition or attachments.

17.2.7.6 Spare and Replacement Parts

Spare and replacement parts for quality related systems, structures and components are subject to present Quality Assurance Program controls and to codes, standards, and technical requirements at least equivalent to or better than those used for the original equipment.

17.2.7.7 Records

Quality assurance records, when required by procurement documents, are collected and retained by quality related suppliers. Suppliers furnish the following records, as a minimum, to LP&L or its agent:

a) Documentation that identifies the purchased material or equipment and the specific procurement requirements (e.g., codes, standards, specifications) met by the items; and

b) Documentation that identifies any procurement requirements which have not been met, together with a description of those nonconformances dispositioned "accept-as-is" or "repair".

The review, evaluation, and acceptance of the required supplier records furnished to LP&L are described in procedures. Review and acceptance of the records is performed by QC personnel.

Documentation is available at Waterford-3 prior to installation or use of purchased material, components or equipment. The documentation is retained in accordance with quality assurance records management procedures.

received, stored, and issued at the plant site. The Plant Manager provides instructions for the identification and control of items drawn from stores, installed, or used. Quality Control ensures that proper documentation accompanies quality related items by surveillance of activities.

17.2.9 CONTROL OF SPECIAL PROCESSES

17.2.9.1 General

Special processes, including welding, heat treating and nondestructive testing, are identified and controlled to ensure that they are accomplished according to approved written qualified procedures. Procedures are qualified in accordance with applicable codes and standards, or, where no appropriate standards exist, to LP&L requirements. As required by applicable codes and standards, personnel performing special processes are qualified and their qualifications are documented. Applicable codes, standards, specifications, criteria and other special requirements are identified and used in qualifying procedures and personnel used to accomplish special processes.

17.2.9.2 Special Processes Subject to Controls

Special processes controlled by the Quality Assurance Manual include, but are not limited to, the following as they are applied to quality related items:

a) Welding;

b) Heat treating;

c) Radiography;

d) Ultrasonic examination;

e) Eddy current examination;

f) Magnetic particle examination;

g) Liquid penetrant examination;

h) Chemical cleaning;

i) Concrete placement (seismic applications);

j) Cadwelding; and

k) Protective coatings.

17.2.10 INSPECTION

17.2.10.1 General

Inspection is performed during maintenance, modification, repair, material receiving and storage activities affecting quality related items at Waterford-3 in accordance with requirements established by the Quality Assurance Manual. Maintenance and modification instructions and work plans are reviewed by Quality Control personnel to assure the inclusion of inspection requirements and to verify that methods and criteria are defined.

The inspection program at Waterford-3 is developed under the direction of the Senior Vice President-Nuclear Operations and the Plant Manager-Nuclear implements the program. Normal inspections are performed by qualified personnel reporting to the Quality Control Engineer. Special inspections, such as nuclear fuel receiving, are performed by qualified personnel reporting to the Plant Manager or his designee. For quality affecting activities (e.g., surveillance testing) where direct inspection is not utilized, QC monitors the activities in accordance with established procedures.

Inspection requiring expertise in a particular area such as preservice and inservice inspection, certain nondestructive testing and containment vessel leak rate tests and inspections, may be conducted by offsite LP&L, Middle South Services or contractor personnel. In such instances, the inspection activities are conducted under the LP&L QA program or under an LP&L approved contractor program.

17.2.10.2 Inspection Procedures, Instructions and Checklists

Inspection requirements are implemented using applicable procedures, instructions, checklists, drawings, and specifications.

Procedures, instructions, and checklists governing inspections provide for the following:

a) Criteria for determining when inspections are required and how they are performed;

b) Acceptance and rejection criteria;

c) Identification of individuals or groups responsible for performing inspections;

d) The points during fabrication, erection, installation, test, operation, or maintenance at which the inspections are to be performed;

e) Identification of characteristics and activities to be performed;

f) A description of the inspection method;

g) Identification of the required inspection, measuring, and test equipment;

h) Accuracy requirements for inspection, measuring and test equipment;

i) A method for recording the identity of the recording inspector or data recorder and recording the inspection results and/or observations;

j) A method for recording evidence of completing and verifying a manufacturing, inspection or test operation;

k) Identification of procedures, drawings, and specifications, including revision level used to conduct the inspection.

The procedure originator is responsible for ensuring that the accuracy requirements of the equipment are sufficient to obtain reliable data. The accuracy requirements are based on procurement or plant technical specifications. The Quality Control Group reviews quality related procedures to verify the inclusion of accuracy requirements of inspection equipment. The individuals performing the inspections are responsible for assuring that the equipment used meets the criteria noted in the procedure. The QC inspector is responsible for verifying that the inspection equipment meets the criteria of the procedure and that the inspection results are within the acceptance criteria of the procedure.

17.2.10.3 Indirect Inspection

When it is not possible or practical to verify conformance of processed material or products by direct inspection, indirect control is employed by monitoring processing methods, equipment and personnel. To ensure adequate control, both direct inspection and process monitoring are used when control by only one method is considered inadequate.

17.2.10.4 Inspection by Sampling Methods

Sampling inspection methods may be used when tests are destructive or when quality assurance records and inherent characteristics of the item indicate that a reduction in items inspected or tested can be achieved without jeopardizing the assurance of quality. When a sampling method is used to verify acceptability, the sampling procedures provide justification for the sample size and selection process.

17.2.10.5 Inspection of Replaced, Reworked or Repaired Items

Modifications, repairs and replacements are inspected in accordance with the original design and inspection requirements or acceptable alternatives. Further information on the disposition, inspection and documentation for repaired or reworked items is contained in Section 17.2.15.

17.2.10.6 Inspector Qualifications

Inspectors are qualified in accordance with Regulatory Guide 1.58 through experience, education and training programs to perform the assigned inspection tasks. Where required, inspectors are formally examined and certified. A file is maintained containing the credentials for each inspector. Inspector qualifications and certifications are kept current.

The Nuclear Training Group develops procedures for training programs for Quality Control inspectors. These procedures contain qualification criteria for inspection personnel for the various types of inspections. The Quality Control Engineer is responsible for certification of QC inspectors.

The inspector qualification program is reviewed and concurred with by the Quality Assurance Manager or his designee.

17.2.10.7 Identification of Hold Points

Quality related suppliers and vendors are required through procurement documents where applicable, to submit their manufacturing plans to LP&L, as indicated in the purchase order. This is done prior to manufacture in their shops or shops of their suppliers so that LP&L has the opportunity to identify mandatory inspection hold points for witness by an LP&L representative. Work may not proceed beyond these hold points without LP&L consent.

Work plans, procedures and instructions for maintenance, modification or test of quality related structures, systems or components are reviewed to verify inclusion of inspection requirements, criteria and hold points. Work in process does not proceed past the identified hold points without satisfaction of inspection requirements.

17.2.11 TEST CONTROL

17.2.11.1 General

Waterford-3 preoperational and startup tests are performed in accordance with the criteria of Regulatory Guide 1.68, as described in Chapter 14 of this FSAR. Following issuance of the operating license, testing is performed to

h) Provisions for assuring test prerequisites have been met; and

i) Provisions for assuring system arrangement is acceptable after test.

Preoperational and startup test procedures are developed by the Waterford-3 Startup Group and Plant Staff with appropriate inputs from the NSSS vendor and the Architect-Engineer.

Testing activities are performed using test procedures that have been reviewed, approved, and released for execution. Retesting activities are based on reviews and direction by the Joint Test Group or the Plant Operations Review Committee.

17.2.11.3 Evaluation of Completed Tests

Completed tests are documented and evaluated by a qualified responsible individual or group. This evaluation determines:

a) That the test procedures are adequate;

b) That the recorded data reveals the adequacy of the equipment or system to meet the specified requirements in the acceptance criteria; and

c) That nonconforming conditions or conditions which deviate from requirements are reported, evaluated and corrected.

Test data found to be in conformance with the requirements is accepted and approved by a qualified responsible person and appropriately documented.

The Joint Test Group reviews the results of preoperational and integrated (including startup) tests and makes recommendations regarding acceptability to PORC. The Plant Operations Review Committee is responsible to evaluate test results and advise the Plant Manager regarding acceptability. The Safety Review Committee reviews the results of special tests in accordance with Waterford 3 Technical Specifications. If test results do not meet acceptance criteria, the responsible organization initiates appropriate corrective action in accordance with written procedures.

17.2.11.4 Test of Modified, Repaired or Replaced Items

Modified, repaired or replaced items of quality related equipment are tested in accordance with the original design and testing requirements or acceptable alternatives.

17.2.11.5 Test Records

Test records include report forms completed during tests and identify the person responsible for conducting the test and indicate the date or period when the test was performed. The original test data report forms is reviewed for completeness, identified, indexed and stored in accordance with Section 17.2.17.

17.2.12 CONTROL OF MEASURING AND TEST EQUIPMENT

17.2.12.1 General

Measuring and test equipment (M&TE) utilized in or related to operation of quality related structures, systems and equipment is controlled in accordance with written procedures or instructions. The Quality Assurance Manual establishes requirements for control of M&TE, including measuring instruments, test instruments, tools, gauges, reference standards, transfer standards and nondestructive test equipment used in the measurement, inspection and monitoring of quality related structures, systems and components.

Requirements for the control of M&TE apply to M&TE used by the individuals or organizations participating in the installation, inspection, testing or maintenance of quality related structures, systems or components for Waterford-3. The extent to which these requirements apply depends upon the nature and scope of the work to be performed and the importance of the item or service involved. LP&L has established and implemented a calibration program for M&TE to be used during preoperational testing and operations.

17.2.12.2 Responsibility

The Plant Manager is responsible for ensuring that the affected groups establish and maintain a calibration control program. The Plant Operations Review Committee are responsible for reviewing calibration control procedures and for submitting recommendations to the Plant Manager or his designee.

The plant department head or supervisor of the group performing or contracting calibration activities is responsible for the calibration and control of M&TE under his cognizance. He ensures that the calibration program requirements are fully and effectively implemented within his department or group.

The QC Engineer is responsible for reviewing calibration procedures. He is responsible for conducting inspection/surveillance of calibration activities as required to assure procedural compliance.

The Quality Assurance Manager is responsible for performance of audits to verify that the calibration control program meets the requirements of the Quality Assurance Manual and that site procedures are properly implemented.

17.2.12.3 Requirements

The calibration program is designed to ensure the accuracy of M&TE. The calibration program provides for the prompt detection of inaccuracies and timely, effective corrective action. The calibration program includes the following requirements as a minimum:

a) Lists of M&TE which specifically identify items under the calibration program.

b) Reference standards and documented procedures for calibrating M&TE. Procedures such as published standard practices, written instructions that accompany purchased equipment, or other acceptable instructions may be used.

c) Calibration of M&TE is against standards that have an accuracy at least four times the required accuracy of the equipment being calibrated. When this is not possible, standards have an accuracy that assures the equipment being calibrated will be within required tolerance. The basis for the calibration is documented and approved by the QC Engineer.

d) M&TE is stored, calibrated, and used in environments which will not adversely affect its accuracy.

e) M&TE is calibrated at prescribed intervals to verify the required accuracy. The interval between calibrations is based upon experience, inherent stability, purpose or use, and the accuracy required of the equipment. Recalibration is performed on or before the designated calibration date. Reference standards are calibrated by qualified organizations.

f) M&TE is calibrated using reference standards whose calibration has known valid relationship to nationally recognized standards or accepted values of natural physical constants. If no national standard exists, the basis for calibration is documented.

g) M&TE is labeled to indicate its control status. The label indicates the date of last calibration, by whom it was calibrated, and when the next calibration is due. When labeling is not practical, an identifying code is used. If neither labeling or coding is practical, the calibration procedures provide for monitoring of records to ensure control. M&TE is identified to provide traceability to calibration test data. The methods to be used for identifying the equipment is specified in applicable station procedures.

h) M&TE found to be out of calibration is identified as nonconforming and removed from service. Equipment tested or calibrated by the nonconforming equipment since the last calibration is identified and sufficient

investigations performed to either reestablish the acceptability of the equipment or to confirm the nonconformance. The results of such investigations are documented. M&TE which has been subjected to possible damage is identified as nonconforming and removed from service until corrective measures are taken. M&TE consistently found to be out of calibration is identified as nonconforming, removed from service, and repaired or replaced. Lost/misplaced M&TE is treated the same as M&TE found to be out of calibration.

i) The following measures are taken for M&TE to maintain accuracy and obtain consistent results:

a) Environmental and handling controls;

b) Training and qualification of personnel;

c) Checking calibration status before use;

d) Documenting and recalibrating damaged M&TE; and

e) Limiting use to authorized personnel.

17.2.12.4 Procedures

Procedures are established for calibration (technique and frequency), maintenance and control of M&TE (instruments, tools, gauges, fixtures, reference and transfer standards, and nondestructive test equipment) that is used in the measurement, inspection and monitoring of structures, systems, and components.

Calibration procedures include at least:

a) The identity of the item to be calibrated;

b) Calibration equipment and reference standards to be used;

c) Checks, tests, measurements, and acceptance tolerances;

d) Sequence of operations;

e) Special instructions, when necessary; and

f) Means for traceability between test equipment and calibration test data.

17.2.12.5 Records

The status of M&TE under the calibration program is recorded. Records are maintained to show that established schedules and procedures for the calibration of M&TE have been followed. The records contain a history of

calibration or other means of control for each item showing the calibration interval, date of last calibration, and the conformance or nonconformance to required tolerance prior to and following adjustments. Records identify the equipment or reference standard to which the records apply, the procedure or instruction followed in performing the calibration, and the calibration date.

Equipment and identification lists, procedures, calibration records, personnel qualifications, and nonconformance reports are retained as required by codes, standards, and specifications and in accordance with Section 17.2.17.

17.2.13 HANDLING, STORAGE, AND SHIPPING

17.2.13.1 General

The Quality Assurance Manual establishes that quality related items are handled, stored, cleaned, and shipped in a manner to prevent deterioration, contamination, damage, or loss of identification. Procedures are provided for control of these activities. As appropriate, detailed instructions are provided for handling, cleaning, storing, maintaining while stored, and shipping specific items of equipment or material. Under normal circumstances, the manufacturer's instructions or recommendations are followed and are implemented to maintain material integrity and protection. Personnel performing these activities are knowledgeable of the work to be performed and the procedures employed.

17.2.13.2 Consumables

Procedure controls are established for chemicals, reagents, fuels, oil, lubricants, and other consumables to assure proper storage, handling, utilization, and disposition.

17.2.13.3 Material Handling Equipment

Material handling equipment such as cranes, forklifts, and cables are tested in accordance with established procedures.

17.2.14 INSPECTION, TEST, AND OPERATING STATUS

17.2.14.1 General

Inspection, test, and operating status of structures, systems, and equipment under the scope of the Quality Assurance Program are controlled and the status indicated in accordance with written procedures. The Quality Assurance Manual establishes requirements for controlling inspection, test, and operating status of items important to safety at Waterford-3.

17.2.14.2 Requirements

The Plant Manager develops procedures relating to operational status of the plant. These procedures require:

a) That the status (inoperative, test, or operational) of quality related systems and equipment be indicated; and

b) That the status of inspections and tests performed on quality related systems and equipment be indicated.

17.2.14.3 Identification System

The status of quality related systems and equipment is indicated by stamps, tags, labels, status boards, routing cards, logs, schedules, computerized readouts, or a combination thereof. The Technical Specifications establish the status of quality related structures, systems, and components required for the safe operation of the plant, including provisions for periodic and nonperiodic tests and inspections of various instruments, structures, components, systems, or parts of systems.

All systems and equipment at the plant are controlled to prevent their inadvertent operation, in accordance with the Waterford-3 Clearance Procedure which specifies the control of status indicators and the authority for application and removal.

Plant instructions that require equipment to be removed from service for maintenance, testing, or modification specify the equipment associated with these activities so that the appropriate type of clearance described in the Waterford-3 Clearance Procedure may be issued.

Required inspections, tests, and operations are performed in accordance with approved procedures. Cognizant plant supervisors, assure that necessary inspections and tests are conducted in their area of responsibility and the status of these inspections and tests is maintained current.

Changes to the requirements of these procedures and instructions, including altering the sequence, are controlled by established procedures.

17.2.15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

17.2.15.1 General

The Quality Assurance Manual establishes requirements for control of quality related nonconforming materials, parts, or components. These requirements are promulgated by procedures which control the identification, documentation,

segregation, review, disposition, notification to affected organizations, repair, rework, retest, and reinspection of nonconforming materials, parts, components, and, as applicable, services (including computer codes).

17.2.15.2 Control of Nonconforming Items

The Plant Manager provides for the following actions when quality related materials, parts, components, systems, or services do not conform to drawings, specifications, workmanship standards, or other applicable documents:

a) Identify the nonconforming items and clearly describe the nonconformance;

b) Document the nonconformance:

c) Segregate from acceptable items (where practical) and identify the nonconforming items as discrepant until properly dispositioned to prevent their inadvertent use or installation;

d) Review the nonconformance;

e) Provide approved written dispositions for the nonconformance;

f) Provide copies of reports which identify the nonconformance for distribution as required by appropriate procedures.

g) Notify affected organizations.

A technical evaluation is made to determine whether a nonconforming item may be accepted "as-is", reworked or repaired to an acceptable condition, or rejected. During plant operations, the Plant Manager is responsible for documenting, segregating, dispositioning, and reviewing nonconformances and for ensuring that corrective action is taken by cognizant persons or organizations.

The PORC provides an independent review of nonconformances, disposition, and closeout. Onsite Licensing performs a preliminary investigation of all potential 10 CFR 21 items generated at the site. Offsite Licensing performs the preliminary investigation for all offsite generated items. The preliminary investigation package is forwarded to the Licensing Engineering Supervisor and a committee established for 10 CFR 21 reportability determination. Following the reportability determination, the PORC reviews the package and the corrective action plan.

The Quality Control Engineer is responsible for conducting inspections to verify adequate implementation of corrective action concerning nonconformances. The Quality Assurance Section is responsible to conduct surveillances and audits to verify the adequacy of control measures for identification, notification, segregation, technical review, disposition, and documentation of nonconformances.

17.2.15.3 Quality Trends

Nonconformance reports are periodically analyzed by the Quality Assurance Section for quality trends and any significant results reported to the Vice President-Nuclear Operations for review and assessment.

17.2.15.4 Repair and Rework of Nonconforming Items

Reworked, repaired, and replaced items are inspected and tested in accordance with the original inspection and test requirements or acceptable alternatives. Nonconforming items are also reinspected in accordance with any additional requirements established by the technical evaluation. The rework, repair or inspection procedure is documented and made part of the inspection records. Rejected items are identified by tagging, and where practical, removed from the area to preclude further use or installation. Final alternative action in the case of rejected items may be the return of such material/equipment to the supplier or to scrap.

17.2.15.5 Records

Documentation of nonconforming materials, parts, or components is maintained in accordance with LP&L's quality assurance records management procedures. Information contained in the documentation includes but may not be limited to:

a) Identification of the nonconforming item;

b) Description of the nonconformance;

c) Inspection requirements;

d) Disposition of the nonconformance; and

e) Signature approval for disposition.

17.2.16 CORRECTIVE ACTION

17.2.16.1 General

Conditions adverse to quality, such as nonconforming items, equipment failures, malfunctions, deficiencies, and deviations are promptly identified and corrected. Significant conditions adverse to quality are those which are reportable to the NRC within 24 hours or within 30 days in accordance with the Technical Specifications, which are reportable under 10CFR Part 21, which represent gross or widespread noncompliance with procedural requirements which negates the effectiveness of quality assurance controls, or any condition which has recurred with such a frequency that it indicates past corrective actions (if any) have been ineffective.

Conditions adverse to quality are evaluated, reported to supervision and/or Quality Assurance, and corrected in a manner consistent with safety. Those conditions adverse to quality determined to be significant are documented, the cause of the condition identified, and corrective action taken to prevent recurrence.

The Quality Assurance Manual establishes requirements for corrective action. Methods for implementing these requirements are documented in the procedures listed in Tables 17.2-3 and 17.2-4.

17.2.16.2 Procedural Requirements

Procedures and instructions for corrective action of adverse conditions include provisions for:

a) Each person employed by LP&L to identify and report to his immediate supervisor or a QA representative conditions suspected to be adverse to quality within his area of responsibility;

b) Supervisory review and classification of reported conditions adverse to quality;

c) Correction of adverse conditions; and

d) Documenting conditions adverse to quality and initiating corrective action to preclude recurrence.

Corrective action reports become part of the plant quality assurance records. The Quality Control Engineer verifies implementation of corrective action for conditions adverse to quality within the plant (the Quality Assurance Manager for those external to the plant) and reviews documentation generated by the action before the corrective action report is closed.

17.2.16.3 Significant Conditions Adverse to Quality

For those conditions adverse to quality determined to be significant, the corrective action is reviewed by PORC and approved by the Plant Manager. He has the authority to cause immediate temporary corrective action to be taken. Licensing makes a determination of reportability under 10CFR Part 21.

17.2.16.4 Contractor Responsibility

Contractors performing services or activities pertaining to the quality related portions of the plant or any quality related systems or components are required to comply with LP&L approved procedures which require conditions adverse to quality to be identified, reported, and corrected.

17.2.17 QUALITY ASSURANCE RECORDS

17.2.17.1 General

Quality assurance records are those completed records that furnish documentary evidence of the quality of items or of activities affecting quality and those records required by the Technical Specifications. LP&L has established a Quality Assurance Records Management Program for Waterford-3. Requirements for control of QA records are established in the Quality Assurance Manual and procedures for their implementation are listed in Tables 17.2-3 and 17.2-4. This program meets the requirements of Regulatory Guide 1.88.

The Nuclear Administrative Services Manager is responsible for the management of quality assurance records and consequent assignment of records management responsibilities and authority. Organizations that initiate requests for services or materials are responsible for assuring that the applicable quality assurance records requirements are imposed upon the contractor or supplier/vendor.

17.2.17.2 Types of Records

Quality assurance records include but are not limited to the following:

a) Records completed during the design and construction of the plant, including design drawings and specifications; construction logs and results of reviews, inspections, tests, audits and monitoring of work performance; procurement documents; material analyses and certifications; NDE records; and other similar documents.

b) Documents and records compiled during operation, including operating logs; maintenance and modification records, reportable occurrences; results of reviews, inspections, tests and material analyses; monitoring of work performance; qualification of personnel, procedures and equipment; procurement documents and specifications; calibration records and nonconformance reports and corrective actions.

17.2.17.3 Inspection and Test Records

Inspection and test records include the following:

a) A description of the type of observation;

b) Evidence of completing and verifying a manufacturing, inspection or test operation;

c) The date and results of the inspection or test;

d) Information related to conditions adverse to quality;

e) Inspector and/or data recorder identification;

f) Evidence regarding the acceptability of the results; and

g) Action taken to resolve any discrepancies noted.

17.2.17.4 Corrections and Supplements

Quality assurance records required by codes and regulations are corrected or supplemented only in accordance with written procedures which provide for appropriate review and approval by the originating organization. The correction or supplement includes the date and the identification of the person authorized to issue each correction or supplement.

17.2.17.5 Retention and Storage of Records

Records are maintained current and complete and made available by applicable contractors and suppliers for audit by LP&L or its representative at any reasonable time. The records are maintained in facilities that provide a suitable environment to minimize deterioration and to prevent damage or loss. Written procedures are provided for records storage and maintenance.

The storage, location, preservation, retrieval, transmittal and disposition of quality assurance records for Waterford-3 is established by procedures. Quality assurance records are identifiable and retrievable. Singular record storage facilities are constructed, located and secured to prevent destruction of the records by fire, flooding, theft or deterioration by environmental conditions such as temperature and humidity. Dual record storage facilities may not meet all of these conditions.

Quality assurance records of suppliers and contractors are transferred to LP&L or retained and maintained in accordance with requirements of procurement documents which impose applicable codes and standards. Each organization responsible for the receipt of quality assurance records designates a responsible person or group for the review, acceptance, and forwarding for further processing of those quality assurance records they review. A listing of the required records is developed and available prior to or with the receipt of the records. The retention times of the records and the location of the record copies of the records is indicated in a records index. Records which may not be sent to and stored at the plant but retained by the safety related suppliers and contractors include but are not limited to the following:

a) Permanent records -

   1) Design calculations

   2) Verifications of design calculations

3) Technical evaluations, analyses and reports

b) Non-permanent records -

1) QA audits

2) Vendor audit reports

3) Pre-award QA surveys

Procurement documents specify that a manufacturer, supplier, consultant or contractor either retain radiographs produced by them for the life of the project and throughout commercial operation of Waterford-3 or that they send such radiographs to LP&L after being retained in accordance with contractural or code requirements. Radiographs received by LP&L from quality related consultants, contractors, manufacturers and suppliers are handled and stored in accordance with approved procedures.

17.2.18 AUDITS

17.2.18.1 General

The Quality Assurance Manager has the authority and organizational freedom (see Section 17.2.1) to schedule and perform internal and external audits of quality related programs and activities during the startup and operation of Waterford-3. Requirements for the audit program are established in the Quality Assurance Manual and procedures for its implementation are contained in the Quality Assurance Procedures Manual.

The audit system is designed to satisfy the requirements of 10CFR50, Appendix B, and the administrative section of the Technical Specifications. The Senior Vice President-Nuclear Operations has delegated to the Quality Assurance Manager the responsibility and authority to plan, schedule, conduct and report audits of activities associated with quality related functions of Waterford-3. Objectives of the audit program are:

a) To ensure that the LP&L Quality Assurance Program is defined and documented;

b) To verify on a regular basis by examination and evaluation of objective evidence that established requirements, methods, procedures and instructions are being implemented;

c) To assess the effectiveness of the Quality Assurance Program;

d) To identify program weaknesses and nonconformances; and

e) To verify correction of identified adverse conditions.

17.2.18.2 Audit Scope

Audits are conducted to verify that procedures and activities of LP&L organizations and its contractors/suppliers comply with the QA Program requirements. Audits are performed by the Quality Assurance Section to provide a comprehensive independent verification and evaluation of quality related procedures and activities. Additional audits are performed as required to verify and evaluate supplier QA programs, procedures, activities, and interface controls.

Audits include objective evaluation of work areas, activities and processes and the review of documents and records. Audits also include an objective evaluation of quality related practices, procedures and instructions, the effectiveness of their implementation and the compliance with policy directives.

Audits are performed in areas where 10CFR50, Appendix B, requirements are being implemented. These areas include, as a minimum, the quality related activities associated with:

a) Startup, operation, maintenance and modification;

b) The preparation, review, approval, and control of designs, specifications, procurement documents, instructions, procedures, and drawings;

c) Receipt inspection;

d) Indoctrination and training programs;

e) Implementation of operating and test procedures; and

f) Calibration of measuring and test equipment.

g) Interface control among LP&L organizations and contractors/consultants.

In addition to the above, audits are conducted of the Radiological Environmental Monitoring Program, the Emergency Plan, the Fire Protection Plan, the Security Plan, and any other areas required by LP&L Management, the Quality Assurance Manager or regulatory agencies. These audits are conducted in accordance with requirements of the guidance documents listed in Table 17.2-1.

17.2.18.3 Audit Planning and Scheduling

The Quality Assurance Manager is responsible for determining the need for audits of quality related programs and activities. The audit program includes a documented schedule of audits showing the organizations to be audited, the dates of the audits, and the areas to be audited, in accordance with

regulatory position C.4 of Regulatory Guide 1.33 and Section 6 of the Waterford-3 Technical Specifications. Audits are scheduled based on the status and safety importance of the activities to be audited. Audit frequency is determined by the requirement to ensure effective quality assurance during the startup testing and operational phases. The audit schedule is approved by the Quality Assurance Manager.

QA audits are planned and conducted in accordance with approved procedures. Audit planning includes preparation of checklists or procedures that will ensure consistency and completeness in the evaluation. Unresolved items noted during previous audits are reviewed prior to checklist preparation and included for re-audit as appropriate.

17.2.18.4 Audit Performance

Audits are performed using prepared checklists or audit procedures. The audit checklist is a guide and does not restrict the audit scope when additional investigation is needed. Audit notification, pre-audit conference, audit process and post-audit conference is in accordance with established procedures.

17.2.18.5 Audit Personnel

Audits are conducted by qualified LP&L auditors who are experienced, trained, and familiar with requirements and standards applicable to the area or activity being audited. Audit team members are independent of any direct responsibilities for the activities which they audit. Auditors participate in the LP&L Auditor Training Program and maintain proficiency through review and study of codes and standards related to quality assurance and through active participation in the audit program. LP&L lead auditors are certified in accordance with Regulatory Guide 1.146. Audit teams may include consultants and technical specialists not certified as auditors so long as they are under direct supervision of a certified lead auditor.

17.2.18.6 Audit Reporting and Follow-up

Audit procedures require that upon completion of an audit, findings are reported to responsible management of the organization audited. Any audit finding which requires immediate resolution is reported without delay to appropriate supervision. All findings are discussed in the exit interview.

Formal audit reports are issued within 30 working days of the exit interview. Distribution includes the Vice President-Nuclear Operations, the Quality Assurance Manager and the manager responsible for corrective action in the area audited. It is the responsibility of the cognizant manager to review the audit report and to take action as necessary to ensure that corrective action is accomplished in a timely manner. The QA Manager or the audit team leader is responsible for follow-up action (including re-audits) as required to

ensure that corrective action has been taken and is effective. Audit findings are documented in the audit report and corrective actions and re-audits are documented with reference to the original audit.

17.2.18.7 Management Audits

An independent review and evaluation of the Operational Quality Assurance Program is performed annually at the direction of the Senior Vice President-Nuclear Operations. In combination with regular reports and assessments provided by the Quality Assurance Manager, these program audits enable the Senior Vice President-Operations to adequately evaluate effectiveness of the Quality Assurance Program.

17.2.18.8 Analysis of Audit Data

Audit data is analyzed by the Quality Assurance Manager who reports any significant quality problems and the effectiveness of the QA program, including the need for re-audit of deficient areas, to the Senior Vice President-Nuclear Operations.

Table 17.2-1

REGULATORY GUIDANCE DOCUMENTS

Document	Comment
1. Appendix B to 10CFR50 - "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants	No exceptions.
2. 10CFR50 Part 55 - "Operators Licenses"	No exceptions
3. A. Regulatory Guide 1.8, Revision 1-R, September 1975, "Personnel Selection and Training" (Endorses ANSI N18.1-1971)	The qualifications of personnel in the Health Physics, Radwaste, and Chemistry Departments are in accordance with this Regulatory Guide and ANSI N18.1-1971.
B. ANSI/ANS 3.1-1978, "Standard for Selection and Training of Personnel for Nuclear Power Plants"	1. The qualifications of personnel other than those in the Health Physics, Radwaste and Chemistry Departments are in accordance with this standard. Specific commitments are shown in Table 13.1-3. 2. Members of the Independent Safety Engineering Group meet the qualification requirements of NUREG-0731-1980 instead of section 4.7.2 of this standard.
4. Regulatory Guide 1.30, August 1972 - "Quality Assurance Requirements for the Installation, Inspection and Testing of Instrumentation and Electrical Equipment" (Endorses ANSI N45.2.4-1972)	1. LP&L applies the provisions of this Regulatory Guide and its endorsed standard to Class IE equipment only.

Table 17.2-1

REGULATORY GUIDANCE DOCUMENTS

	Document	Comment
4.		2. Each safety-related item of process instrumentation is identified with a unique number. This number is used in instrument maintenance records so that current calibration status, including data such as the date of the calibration and identity of the person that performed the calibration, can be readily determined. Such information may also be contained on tags or labels that may be attached to installed instrumentation.
5.	Regulatory Guide 1.33, Rev.2, February 1978 "Quality Assurance Program Requirements (Operations) (Endorses ANSI N18.7-1976)	1. ANSI N18.7 references certain other standards to which LP&L takes exception. LP&L's exceptions and appropriate alternatives to the following standards are listed in this table. 2. LP&L's alternative to the requirement of Regulatory Position Section C.3 is as follows: Proposed changes to Technical Specifications are reviewed by the independent review body before submittal to the NRC for approval. However, when LP&L believes a need for prompt submittal of proposed changes to the Technical Specifications or license amendment is required, the independent body review may be done concurrent with submittal to the NRC. When a proposed change to the license is submitted on an emergency basis, LP&L will state in the transmittal letter that the

Table 17.2-1

REGULATORY GUIDANCE DOCUMENTS

Document	Comment
5.	2. proposed change is requested on an emergency basis and that the independent body review is being conducted concurrently. 3. ANSI N18.7, Section 5.2.7, Maintenance and Modification: LP&L preplans and performs maintenance of equipment in accordance with written procedures except in emergency or abnormal conditions where immediate action is required to: a. Protect the health and safety of the public. b. Protect equipment or personnel. c. Prevent the deterioration of plant conditions to a potentially unsafe or unstable level. 4. Section 5.2.7.1, Maintenance Program LP&L may use approved procedures or vendor manuals for repair of safety related equipment. 5. LP&L will provide procedures for the activities in Appendix A of Regulatory Guide 1.33 as discussed in Section C-1 of this Regulatory Guide. However, LP&L does not consider all activities listed to be "safety related" (e.g., activities in 7.e).

Table 17.2-1

REGULATORY GUIDANCE DOCUMENTS

Document	Comment
6. Regulatory Guide 1.37, March 1973 - "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water Cooled Nuclear Plants" (Endorses ANSI N45.2.1-1973)	No exceptions
7. Regulatory Guide 1.38, Rev.2, May 1977 - "Quality Assurance Requirements for Packaging, Shipping and Receiving, Storage and Handling of Items for Water Cooled Nuclear Power Plants" (Endorses ANSI N45.2.2-1972)	For the storage of new fuel assemblies and neutron startup sources, LP&L commits to the storage requirements of Level B of ANSI N45.2.2-1972 less the flooding prevention requirements and will minimize dust and other particles contacting these items by planing a fire retardant polyethylene cover over these items or the cell locations in which the items are stored.
8. Regulatory Guide 1.39, Rev.2, September 1977 "Housekeeping Requirements for Water Cooled Nuclear Power Plants" (Endorses ANSI N45.2.3-1973)	The applicable portions of N45.2.3-1973 are followed at Waterford-3 within the guidelines of the Quality Assurance Manual. The zone designations of Section 2.1 of N45.2.3 and the requirements associated with each zone are not consistent with the requirements for an operating plant. Instead, procedures or instructions for housekeeping activities which include the applicable requirements outlined in Section 2.1 of N45.2.3 and which take into account radiation control considerations, security considerations, and personnel and equipment safety considerations are developed on a case basis.

Table 17.2-1

REGULATORY GUIDANCE DOCUMENTS

Document	Comment
9. Regulatory Guide 1.58, Rev. 1, September 1980 "Qualification of Nuclear Power Plant Inspection, Examination and Testing Personnel" (Endorses ANSI N45.2.6-1978)	Startup testing personnel are qualified to Regulatory Guide 1.58, Rev. 0, August 1973 as described in Section 14.2 of the Waterford 3 FSAR with the exception that the required physical reexamination shall be performed every two years and not annually as specified.
10. Regulatory Guide 1.64, Rev.2, June 1976 - "Quality Assurance Requirements for the Design of Nuclear Power Plants" (Endorses ANSI N45.2.11)	No exceptions
11. Regulatory Guide 1.70, Rev.2, September 1975 "Standard Format and Contents of Safety Analysis Reports for Nuclear Power Plants	No exceptions
12. Regulatory Guide 1.74, February 1974 - "Quality Assurance Terms and Definitions" (Endorses ANSI N45.2.10-1973)	No exceptions
13. Regulatory Guide 1.88, Rev.2, October 1976 "Collection, Storage and Maintenance of Nuclear Power Plant Quality Assurance Records" (Endorses ANSI N45.2.9, 1974)	No exceptions

Table 17.2-1

REGULATORY GUIDANCE DOCUMENTS

Document	Comment
14. Regulatory Guide 1.94, Rev.1, April 1976 - "Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During Construction Phase of Nuclear Power Plants (Endorses ANSI N45.2.5-1974)	No exceptions
15. Regulatory Guide 1.116, Rev.0-R, May 1977 - "Quality Assurance Requirements for Installation, Inspection and Testing of Mechanical Equipment and Systems" (Endorses ANSI N45.2.8-1975)	No exceptions.
16. Regulatory Guide 1.123, Rev.1, July 1977 - "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants" (Endorses ANSI N45.2.13-1976)	No exceptions
17. Regulatory Guide 1.144, Rev.1, September 1980 "Auditing of Quality Assurance Programs for Nuclear Power Plants" (Endorses ANSI N45.2.12)	LP&L takes exception to the following paragraphs of N45.2.12: Para. 2.3 - Training - Technical Specialists who assist in performing audits in their area of special expertise will not necessarily be trained in audit techniques; however, they will always be accompanied by a trained and qualified auditor. Para. 4.4 - Reports - Audit reports will be issued within 30 working days of the post audit meeting.

Table 17.2-1

REGULATORY GUIDANCE DOCUMENTS

Document	Comment
18. Regulatory Guide 1.146, August 1980 - "Qualifications of Quality Assurance Program Audit Personnel for Nuclear Power Plants" (Endorses ANSI N45.2.23-1978)	No exceptions

Table 17.2-2

LP&L NUCLEAR OPERATIONS QUALITY ASSURANCE PROGRAM DOCUMENTATION

Identification	Description	Approval and Control
1. FSAR Chapter 17.2, "Quality Assurance During the Operating Phase."	A description of the Operational Quality Assurance Program for Waterford-3 Nuclear Plant.	Prepared by the Quality Assurance Section. Coordinated with the nuclear operations and support organizations. Approved by the Senior Vice President-Nuclear Operations and controlled by Licensing.
2. Nuclear Operations Quality Assurance Manual	A manual consisting of a set of quality requirements (QRs) issued to control QA activities LP&L. These QRs establish corporate policy for the Operational Nuclear Quality Assurance Program, assign responsibilities to various LP&L organizations for program implementation, and specify requirements for activities affecting quality.	Prepared by the Quality Assurance Section. Coordinated with affected organizations. Submitted by the QA Manager and approved by Senior Vice President-Nuclear Operations and issued and controlled by the QA Section.
3. Quality Assurance Procedures Manual	A set of procedures (QPs) prepared and issued to specify and control the internal activities of the Quality Assurance Section. Included are procedures for nuclear procurement activities performed by the Corporate Purchasing and Materials section.	Prepared, issued, and controlled by the QA Section. Coordinated with other organizations as applicable. Approved by the QA Manager.

Table 17.2-2

LP&L NUCLEAR OPERATIONS QUALITY ASSURANCE PROGRAM DOCUMENTATION

Identification	Description	Approval and Control
4. Nuclear Management System Control Manual	A manual consisting of a set of Program Descriptions (PMDs) which prescribe the management policy, direction, and controls of safe and efficient operation of the Waterford-3 Nuclear Plant. This manual implements the requirements of the Nuclear Operations Quality Assurance Manual.	Prepared, issued, and controlled by the Nuclear Operations Department. Coordinated with other affected organizations, and approved by the Senior Vice President-Nuclear Operations. PMDs which prescribe quality related activities are reviewed for concurrence by the Assurance Manager or his designee before issue.
5. Waterford-3 Plant Operating Manual	A manual consisting of a set of procedures which prescribe required aspects of plant management and operation. This manual provides the mechanism through which the administrative controls and quality assurance requirements are implemented during the operation of Waterford-3.	Prepared by cognizant plant groups/ departments. Reviewed by the QC Engineer and PORC. Approved by the Plant Manager. Issued and controlled by plant document control. Procedures which govern "quality related" activities are reviewed for concurrence by the QA Manager or his desginee before issue.
6. Startup Administrative Procedures	A set of procedures (SAPs) which identify to LP&L contractor groups and others their respective responsibilities and the procedures which govern the administration of the Startup Test Program. These administrative procedures govern startup activities, prescribe areas of responsibility, identify the tasks of be performed, and outline the interface procedures.	Prepared by cognizant individuals in the startup group. Reviewed by the Startup Joint Test Group and approved by the Lead Startup Engineer. Issued and controlled by plant document control. Procedures which govern "quality related" activities are reviewed and concurred with by the QA Manager or his designee before issue.

Table 17.2-2

LP&L NUCLEAR OPERATIONS QUALITY ASSURANCE PROGRAM DOCUMENTATION

Identification	Description	Approval and Control
7. Nuclear Administrative Procedures	A set of procedures (NAPs) which prescribe activities and responsibilities within the Nuclear Project Support Group.	Prepared by cognizant personnel within the Project Support Group. Coordinated with affected personnel and/or organizations and approved by the Project Support Manager and reviewed for concurrence by the QA Manager. Issued and controlled by Project Support Document Control.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATIONS QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
1.	QR-1.0	Organization	Establishes the organizational structure and delineates the authority and responsibilities of individuals and organizations performing quality assurance activities.
2.	QR-2.0	Quality Assurance Program	Defines the scope of the Operational Nuclear Quality Assurance Program and establishes that activities affecting structures, systems and components important to safety will be conducted in accordance with approved procedures.
3.	QR-3.0	Design Control	Establishes requirements for the control of design of structures, systems and components important to safety, including the design of plant modifications.
4.	QR-4.0	Procurement Document Control	Establishes requirements for the control of procurement of structures, systems, components, materials and services important to safety.
5.	QR-5.0	Instruction, Procedures, and Drawings	Establishes requirements for the development and control of instructions, procedures and drawings for the operational phase of Waterford-3.
6.	QR-6.0	Document Control	Establishes requirements for the control of documents for structures, systems and components important to safety and identifies the types of documents to be controlled.
7.	QR-7.0	Control of Purchased Material, Equipment and Services	Establishes requirements for control purchased material, equipment and services, including control of suppliers and receiving inspection.
8.	QR-8.0	Identification and Control of Materials, Parts and Components	Establishes requirements for control of materials, parts and components.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATION QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
18.	QR-18.0	Audits	Establishes requirements for audits of activities important to safety including audit program scope and methods.
19.	QP-2.1	Preparation and Revision of Quality Procedures	Describes the responsibilities for and the steps to be taken in developing, implementing, revising and controlling quality assurance procedures.
20.	QP-2.2	Preparation and Revision of Quality Requirements	Describes the responsibilities and methods for establishing, preparing, revising, issuing and controlling quality requirements.
21.	QP-2.3	Training and Qualification of Audit Personnel	Defines the responsibilities and and methods of administering QA auditor training and outlines required auditor qualifications.
22.	QP-4.7	Preparation and Processing of Procurement Documents	Defines requirements for preparation and processing of quality related procurement documents.
23.	QP-4.9	Evaluation of Supplier/ Contractor QA Programs	Defines responsibilities and methods for evaluation of supplier/contractor QA programs.
24.	QP-4.11	Qualified Supplier List	Defines the responsibilities and procedures for establishing a qualified suppliers list.
25.	QP-18.1	Conduct of Quality Assurance Audits	Defines responsibilities and methods utilized by the Quality Assurance Section for conducting internal and external audits of quality related activities.
26.	QP-18.2	Scheduling of Quality Assurance Audits	Defines responsibilities and methods for developing a schedule of audits to be conducted by the Quality Assurance Section.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATION QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
27.	PMD-GO-001	Policy and Organization	Defines the Nuclear Operations Department organization, assigns responsibilities and establishes safe operation as the highest priority goal of the department. Assigns to the Plant Manager the overall responsibility to implement the quality assurance program at the plant and to stop work in any activity which is not in conformance with QA program requirements.
28.	PMD-GO-002	Procurement and Stores	Defines responsibility of the Quality Control Engineer and other plant personnel relative to procurement, inspection and storage of spare parts, materials and services.
29.	PMD-GO-023	Station Modification	Defines responsibilities for the control of station modifications and describes the program from initiation through implementation and final closeout, including approvals, safety review and quality control.
30.	PMD-GO-27	Program Preparation	Defines a standard format for development of Program Descriptions (PMDs) and establishes a mechanism for their review, approval and control.
31.	PMD-OP-001	Operations Organization and Administration	Describes a clearly defined and properly staffed plant operations organization which assigns responsibilities appropriately and delegates authority for safe and reliable operation.
32.	PMD-OP-004	Tag Out	Provides a mechanism to control and document the removal and replacement of equipment and systems from as operational status in order to perform maintenance, inspections, tests or modifications.
33.	PMD-OP-006	Plant Status Controls	Ensures that the plant is maintained in a condition that guarantees availability of equipment and systems necessary for safe operation.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATION QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
42.	POM-QP-1-004	Stop Work (Station Quality Control)	Describes authority, responsibilities and steps of the Quality Control Group in stopping work that is adverse to quality.
43.	POM-QP-1-005	Quality Control Inspector Qualifications and Training	Describes QA Inspector training and qualification requirements.
44.	POM-QP-1-009	Nondestructive Examination	Establishes direction for the implementation and use of the Middle South Services NDE Manual.
45.	POM-QP-1-010	Issue and Control of QC Inspector Identification Stamps	Establishes a method for issuing, using, and controlling identification stamps used by QC inspectors.
46.	POM-QP-1-011	QC Inspection	Establishes a uniform method of performing and documenting inspection activities.
47.	POM-QP-1-012	QC Inspection Seals	Specifies the methods and responsibilities for controlling inspection seals.
48.	POM-QP-2-001	QC Receipt Inspection	Establishes the responsibilities and provides direction to QC personnel for conducting receipt inspections of materials, parts and components.
49.	POM-QP-2-003	QC Surveillance	Provides instructions to the QC Group for reporting discrepancies found during unscheduled observations of daily activities.
50.	POM-QP-2-004	QC Housekeeping Inspection	Provides direction to QC personnel performing general housekeeping inspections.
51.	POM-QP-2-007	QC Materials Storage Inspection	Establishes guidelines for performing QC warehouse inspections.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATION QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
52.	POM-QP-2-008	QC Cleanliness Inspection	Specifies measures to be used by the QC Group in performance of cleanliness inspections of material, components, equipment and facilities.
53.	POM-PE-2-019	Processing of Station Modifications	Specifies the process for preparation, routing, review, approval and implementation of station modifications.
54.	POM-UNT-1-007	Nonconformances and Corrective Action	Establishes measures for determining and documenting nonconforming conditions and for assuring actions to correct the conditions that lead to the nonconformance.
55.	POM-UNT-8-001	Preparation of Station Procurement Documents	Delineates the required methods for the preparation of purchase requisitions for material, equipment and services important to safety.
56.	POM-UNT-8-002	Processing of Station Procurement Documents	Defines the requirements for onsite processing and review of purchase requisitions.
57.	POM-UNT-8-003	Procurement Procedure	Provides a mechanism to procure items through a controlled process of transferring ownership from construction or other organizations to LP&L.
58.	POM-UNT-8-011	Storing, Issuing, Shipping, and Receiving	Defines the primary responsibilities and methods for the receipt, inspection, storage, issuance and documentation of materials in the plant warehouse.
59.	NAP-003	Operation of Nuclear Records	Provides instruction to control the identification, routing, collection, retention, retrieval and maintenance of documents required for permanent records.
60.	NAP-004	Waterford-3 Project Support Group Organi- Responsibilities	Describes the Nuclear Support Group organizational structure and zation and responsibilities.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATION QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
61.	NAP-008	Orientation Training of Nuclear Project Support Personnel	Prescribes the training program for Nuclear Project Support Group Personnel.

Key: QR - Quality Requirement. These requirements, issued in the Nuclear Operations Quality Assurance Manual, are approved and controlled by the Quality Assurance Manager and approved by the Senior Vice President-Nuclear Operations.

QP - Quality Procedure. These procedures are issued in the Quality Assurance Procedures Manual. They are approved and controlled by the Quality Assurance Manager.

PMD - Program Management Description. These programs are issued in the Nuclear Management System Control Manual. They are approved and controlled by the Senior Vice President-Nuclear Operations. Those PMDs that affect quality are concurred with by the Quality Assurance Manager.

NAP - Nuclear Administration Procedure. These procedures in the Nuclear Project Support Group Administrative Manual, are approved and controlled by the Project Support Manager. They are concurred with by the Quality Assurance Manager.

POM - Plant Operation Manual. The procedures in this manual are approved and controlled by the Plant Manager. Those POMs affecting quality are concurred with by the Quality Assurance Manager.

Table 17.2-4

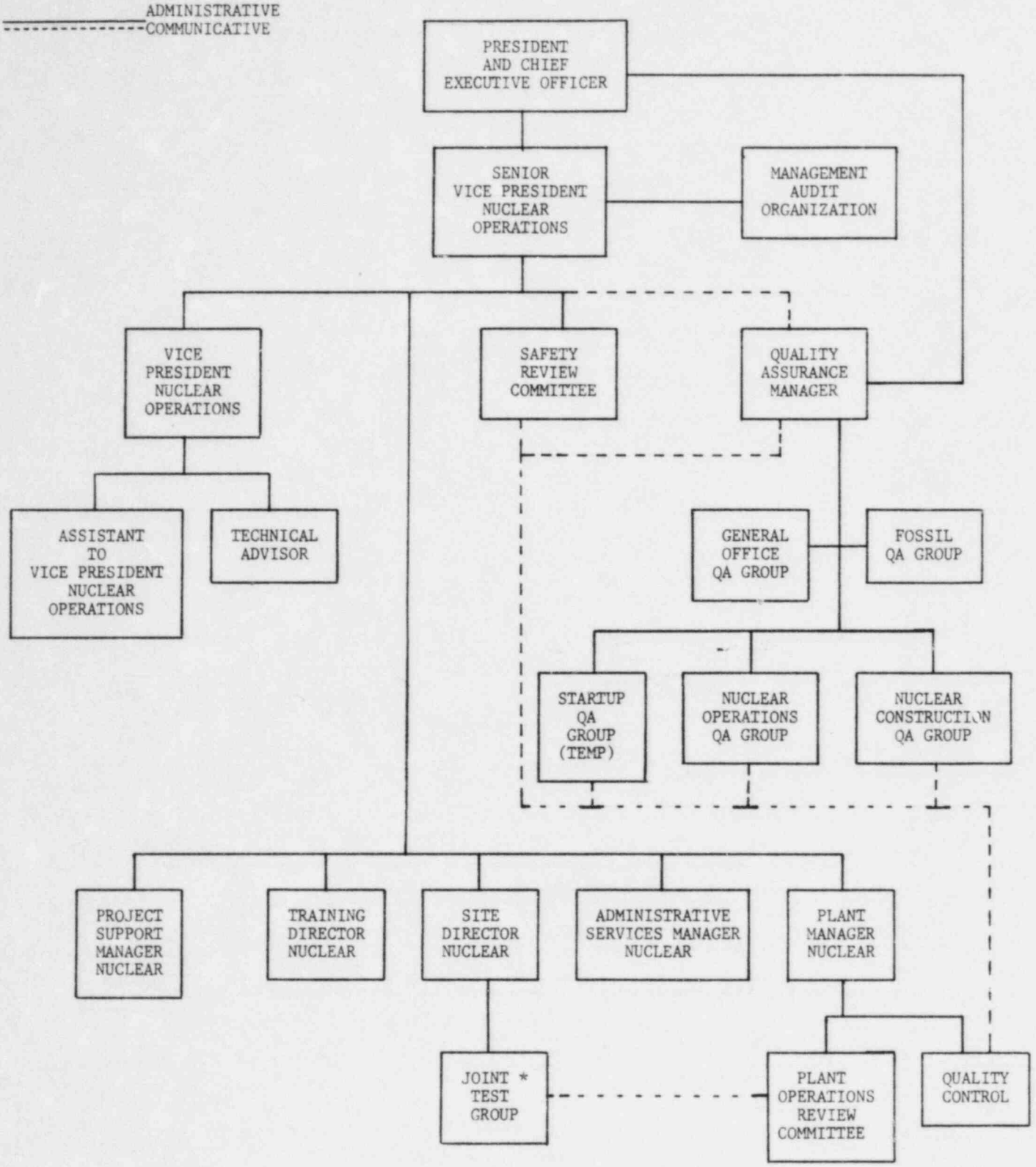
10CFR50, APPENDIX B, IMPLEMENTING PROCEDURE MATRIX

	Appendix B Criterion	Quality Assurance	Project Support	Plant Operations	Administrative Services	Training
I.	Organization	QR-1.0 QP-1.1	QR-1.0 PMD-GO-001 NAP-004	QR-1.0 PMD-GO-001 PMD-QP-001 PMD-QP-001 POM-QP-1-001 POM-QP-1-004	QR-1.0 PMD-GO-001	QR-1.0 PMD-GO-001
II.	Quality Assurance Program	QR-2.0 QP-2.2 QP-2.3 QP-2.5	QR-2.0 PMD-GO-001 PMD-QP-001 PMD-TR-002 PMD-TR-0110 POM-QP-1-005 POM-QP-2-004 POM-QP-2-008	QR-2.0 PMD-GO-001 PMD-TR-002 PMD-TR-010	QR-2.0 PMD-GO-001 PMD-TR-002 PMD-TR-010	QR-2.0 PMD-GO-001 PMD-TR-002 PMD-TR-010
III.	Design Control	QR-3.0	QR-3.0 PMD-GO-023 NAP-301 NAP-302 NAP-303 NAP-304	QR-3.0 PMD-GO-023	QR-3.0 PMD-GO-023	QR-3.0 PMD-GO-023
IV.	Procurement Document Control	QR-4.0 QP-4.7	QR-4.0	QR-4.0 PMD-GO-002 POM-QP-1-006 POM-UNT-8-001 POM-UNT-8-002 POM-UNT-8-003	QR-4.0 PMD-GO-002	QR-4.0
V.	Instructions, Procedures, and Drawings	QR-5.0 QP-2.1 QP-2.2	QR-5.0 PMD-GO-027	QR-5.0 PMD-GO-027	QR-5.0 PMD-GO-027	QR-5.0 PMD-GO-027

Table 17.2-4

10CFR50, APPENDIX B, IMPLEMENTING PROCEDURE MATRIX

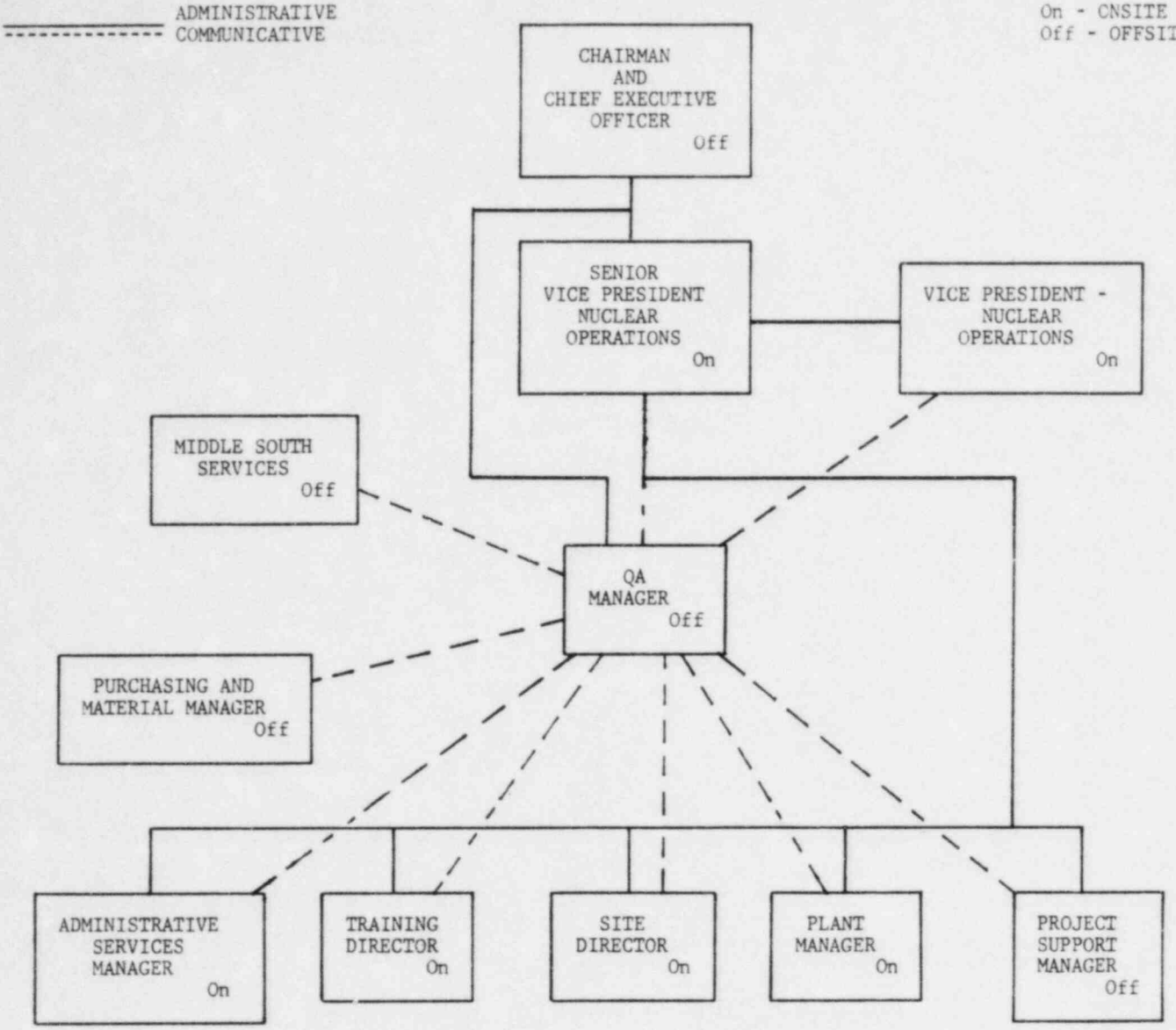
	Appendix B Criterion	Quality Assurance	Project Support	Plant Operations	Administrative Services	Training
XVI.	Correction Action	QR-16.0	QR-16.0	QR-16.0 POM-QP-2-003 POM-UNT-1-007	QR-16.0	QR-16.0
XVII.	Quality Assurance Records	QR-17.0	QR-17.0 NAP-003	QR-17.0	QR-17.0	QR-17.0
XVIII.	Audits	QR-18.0 QP-18.1 QP-18.2	QR-18.0	QR-18.0	QR-18.0	QR-18.0



* The JTG, Site Director, & Startup QA Group, will exist until Waterford 3 is operational.

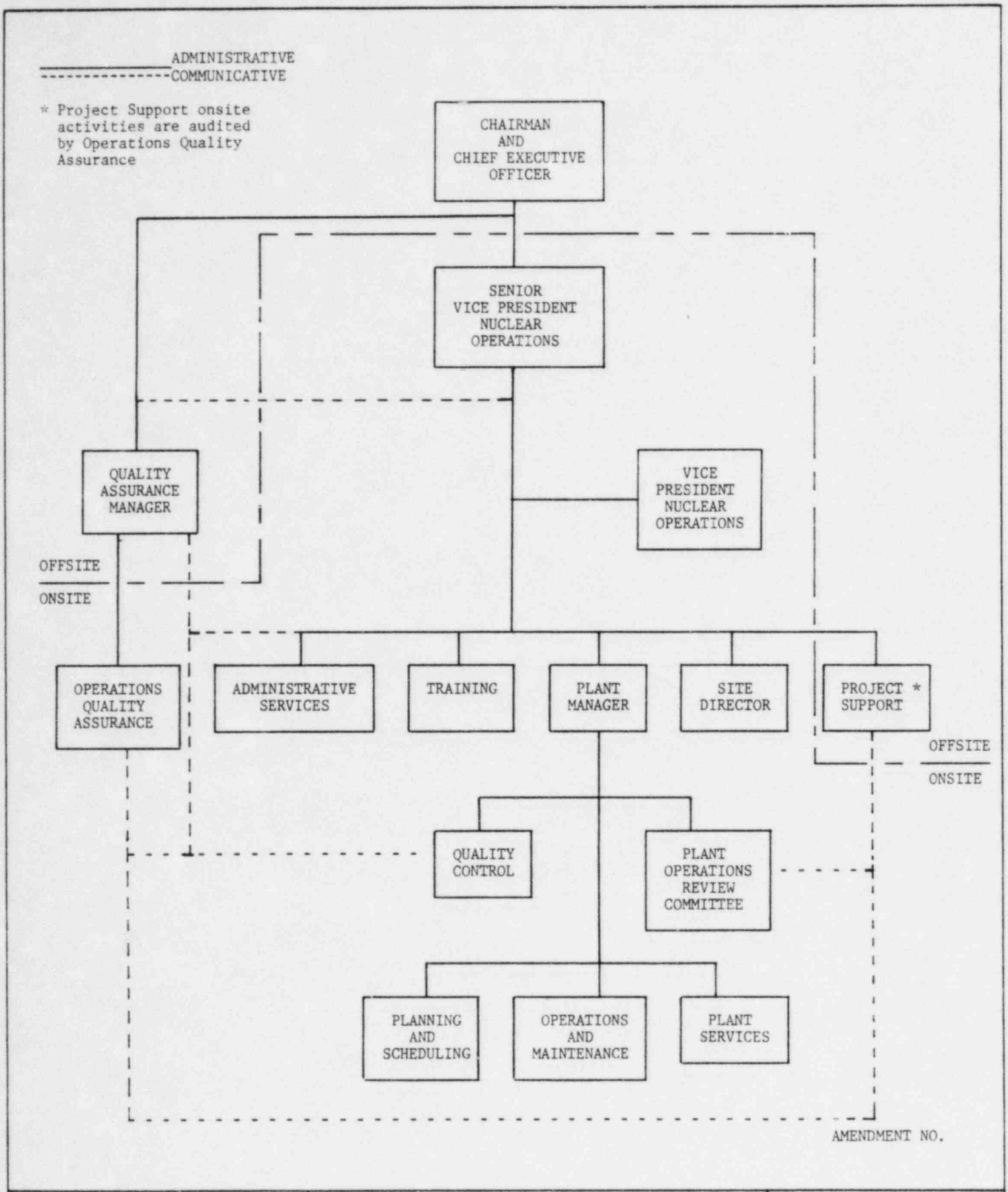
AMENDMENT NO.

LOUISIANA POWER & LIGHT CO. WATERFORD STEAM ELECTRIC STATION	CORPORATE ORGANIZATION FOR OPERATIONAL NUCLEAR QUALITY ASSURANCE	FIGURE 17.2-1

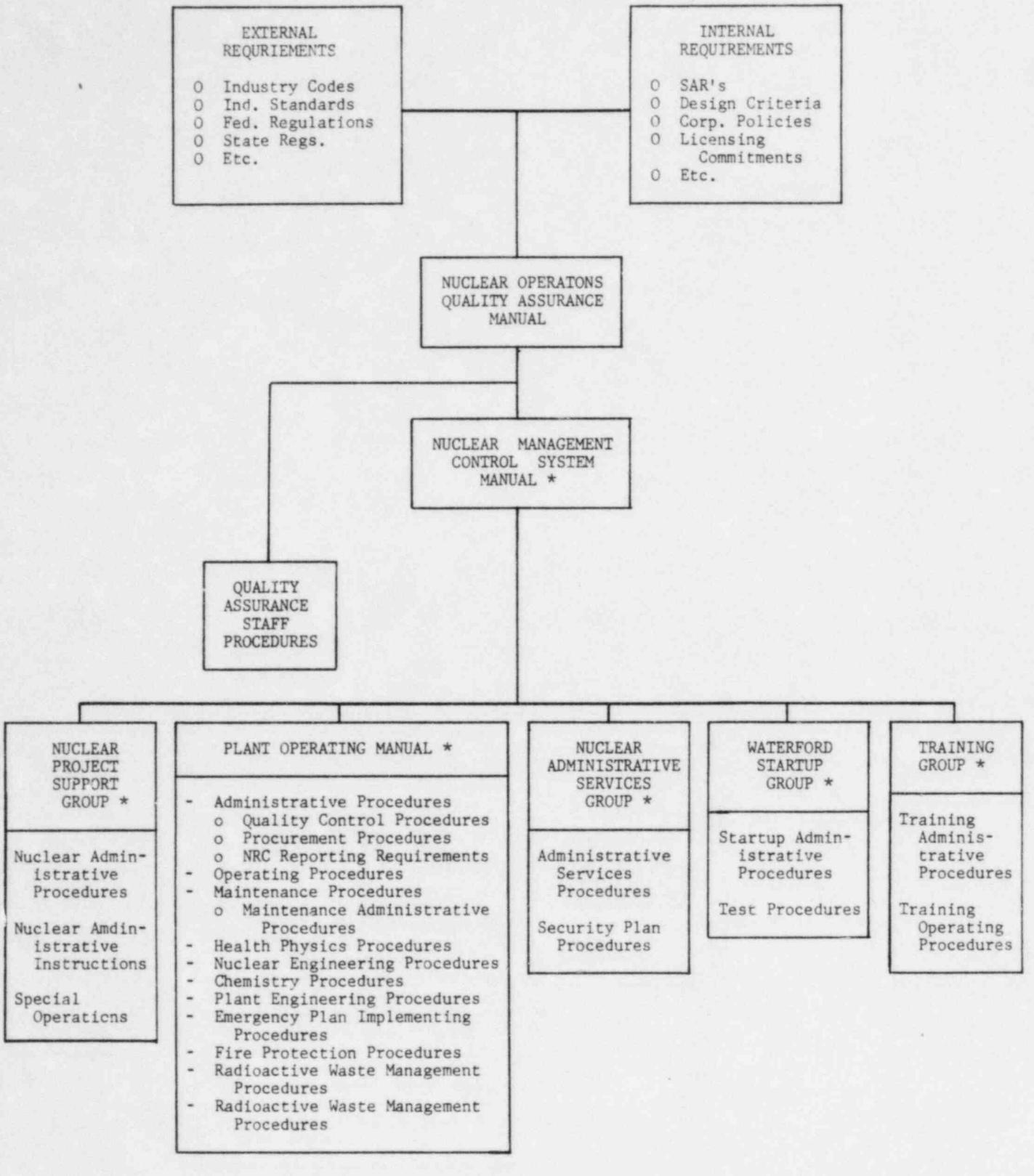


AMENDMENT NO.

LOUISIANA POWER & LIGHT CO. WATERFORD STEAM ELECTRIC STATION	ORGANIZATION AFFECTING QUALITY DURING PREOPERATIONAL TESTING AND OPERATIONS	FIGURE 17.2-2



LOUISIANA POWER & LIGHT CO. WATERFORD STEAM ELECTRIC STATION	ONSITE ORGANIZATION FOR OPERATIONAL NUCLEAR QUALITY ASSURANCE	FIGURE 17.2-3



* Certain quality affecting documents in these areas require review and concurrence by the QA Manager or his designee.

AMENDMENT NO.

LOUISIANA POWER & LIGHT CO. WATERFORD STEAM ELECTRIC STATION	HIERARCHY OF QUALITY RELATED REQUIREMENTS, PROGRAMS, AND PROCEDURES	FIGURE 17.2-4

CHAPTER 17

QUALITY ASSURANCE

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QUALITY ASSURANCE

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17.0 QUALITY ASSURANCE

17.1 QUALITY ASSURANCE DURING DESIGN AND CONSTRUCTION

This section is not applicable to FSAR.

17.2 QUALITY ASSURANCE DURING OPERATIONS

The Louisiana Power & Light Company has established a comprehensive program for quality assurance during the operating phase of the Waterford-3 nuclear plant. This Nuclear Operations Quality Assurance Program (hereafter referred to in this document as The Quality Assurance Program) is applied to activities affecting the quality of those items which prevent or mitigate the consequences of postulated accidents which could cause undue risk to public health and safety. These activities include:

a) Turnover of the plant systems and equipment from the construction organization;

b) Startup testing;

c) Preoperational testing; and

d) Operation, maintenance, repair, modification and refueling.

The Quality Assurance Program as described herein complies with Regulatory Guide 1.33, Revision 2, 1978.

Table 17.2-1 contains a listing of those Regulatory Guides (including Revision Number and date) which LP&L is committed to for Waterford-3, any exceptions or conditions being noted. Table 17.2-2 identifies those LP&L manuals and program descriptions that document Quality Assurance Program requirements. Table 17.2-3 is a representative listing of quality affecting procedures controlled by the Document Control System, and Table 17.2-4 correlates the QA procedures to the criteria of 10CFR50, Appendix B. In addition, Figure 17.2-4 shows graphically the hierarchy of quality related programs, procedures and instructions.

17.2.1 ORGANIZATION

17.2.1.1 General

This section establishes the organizational structure for executing the Waterford-3 Quality Assurance Program. It also defines the quality assurance responsibilities of individuals and organizations performing quality affecting activities during preoperational testing and plant operation.

17.1.1A2

Most quality affecting activities are performed by personnel outside the Quality Assurance Section. An overview of the performance of these activities relative to QA program compliance is accomplished by the Quality Assurance Section through audits and surveillance.

17.2.1.2 Organizations Performing QA Functions

Figure 17.2-1 shows the lines of authority for the major LP&L organizations involved in quality assurance for Waterford-3 during preoperational testing and plant operations. Figure 17.2-2 illustrates how quality affecting activities of line and support organizations during the operational phase are under the cognizance of the Quality Assurance Manager and higher level corporate management. Figure 17.2-3 amplifies the onsite organization for quality assurance at Waterford-3.

17.1.1A3

The organizations and individuals listed below are involved in the implementation of the LP&L Quality Assurance Program and have quality assurance responsibilities as described in the following subsections:

a. LP&L Management
b. Senior Vice President-Nuclear Operations
c. Management Audit Group
d. Safety Review Committee
e. Quality Assurance Manager
f. Vice President-Nuclear Operations
g. Plant Manager-Nuclear
h. Quality Control Engineer
i. Plant Operations Review Committee
j. Nuclear Project Support Group
k. Nuclear Training Group
l. Nuclear Site Director
m. Nuclear Administrative Services Group
n. Purchasing and Material Section
o. Middle South Services
p. Suppliers/Contractors

17.1.1A5

17.2.1.2.1 LP&L Management

Louisiana Power & Light Company retains and exercises responsibility for the Quality Assurance Program for Waterford-3. The Nuclear Operations Department, directed by the Senior Vice President-Nuclear Operations, has overall responsibility for the Waterford-3 plant. The Senior Vice President-Nuclear Operations reports to the President of LP&L.

17.1.1A1
17.1.1A2

17.2.1.2.2 Senior Vice President-Nuclear Operations

The Senior Vice President-Nuclear Operations is responsible for establishing LP&L quality assurance and nuclear safety policies. Reporting to him are the Management Audit Group and the Safety Review Committee as well as the Vice President-Nuclear Operations. The Quality Assuance Manager reports functionally to the Senior Vice President-Nuclear Operations and formally to the President of LP&L.

17.1.1C1

material. They have the authority to direct work stoppage when work is not being performed in accordance with approved drawings, specifications, procedures or regulatory requirements and/or when conditions exist which could be significantly adverse to quality if the work were to continue.

17.1.1B4

17.2.1.2.5.1 Responsibilities of the Quality Assurance Manager

17.1.1C2
17.1.1C3

The principal responsibilities of the QA Manager are:

a) Planning, organizing, and administering the Corporate Quality Assurance Program;

17.1.1B1(c)

b) Developing, reviewing, approving and maintaining administrative control of the Quality Assurance Manual and changes thereto;

c) Defining the scope and content of QA training courses for personnel performing quality affecting activities;

d) Assuring effective implementation of the Quality Assurance Program through a comprehensive system of audits and surveillances;

17.1.1B2

e) Verifying satisfactory performance of quality assurance functions and activities at Waterford-3. In addition to the audit program noted above, this is achieved through:

1) Evaluating QA programs and activities of LP&L's suppliers and contractors of safety related material, spare parts and services;

17.1.3E2

2) Reviewing internally generated drawings and specifications and changes thereto to ensure inclusion of QA requirements;

3) Reviewing and concurring with quality related procurement documents;

4) Conducting pre-award evaluations for QA requirements of vendors, suppliers and contractors where applicable; and

5) Auditing activities of Middle South Services as they relate to Waterford-3.

f) Developing and maintaining Quality Assurance Section procedures;

g) Serving as a member of the Safety Review Committee;

h) Establishing and maintaining a qualified suppliers list for use in procuring quality related items and services;

i) Assisting the Training Director-Nuclear in establishing and administering that portion of the Training Program that addresses quality assurance; and

j) Analyzing conditions adverse to quality for quality trends.

17.2.1.2.5.2 Quality Assurance Manager's Qualifications

17.1.1C2 The principal qualifications for the Quality Assurance Manager are:

a) Graduate of a college or university with a Bachelor's degree in an engineering, science or related field, or equivalent capabilities;

b) A minimum of four years experience in quality assurance or a quality assurance related activity with at least two of those years in the nuclear power industry as a manager or supervisor;

c) Experience in development and implementation of quality assurance programs, plans and procedures;

d) Expertise in interpretation and application of Appendix B to 10CFR50 and related codes, standards and Regulatory Guides;

e) Knowledge of inspection and nondestructive testing requirements;

f) Ability to plan, to organize, and to administer a corporate QA program; and

g) Ability to maintain an effective working relationship with employees, contractors, suppliers, government agencies and the public.

17.2.1.2.5.3 General Office Quality Assurance Group

The General Office Quality Assurance Group is directed by a Quality Assurance Engineer-Nuclear who reports to the Quality Assurance Manager.

The General Office Quality Assurance Group has the responsibility for:

a) developing and maintaining LP&L QA policies and procedures;

b) assisting other LP&L groups in development of quality procedures and instructions;

c) conducting surveys and audits of major contractors and vendors to verify compliance with applicable requirements and guidance;

e) auditing those offsite groups within LP&L and Middle South Services who perform quality affecting activities for Waterford-3; maintaining documentation of quality assurance activities;

f) issuing and updating the Qualified Suppliers List (QSL) for use in procurement of quality related materials, spare parts, and services for Waterford-3; and

g) providing assistance in establishing and administering that portion of the Training Program which addresses quality assurance.

17.2.1.2.5.4 Nuclear Operations Quality Assurance Group (Onsite)

17.1.1B6 The Nuclear Operations Quality Assurance Group located onsite at Waterford-3 is headed by the Operations QA Engineer-Nuclear who reports directly to the QA
17.1.1C3 Manager. This group assures that the QA Program at the site is being effectively implemented by:

a) Reviewing procurement documents to ensure inclusion of QA requirements;

b) Reviewing quality related program descriptions and administrative procedures to verify inclusion of requirements established by the Nuclear Operations Quality Assurance Manual;

c) Reviewing internally generated design drawings and specifications, and changes thereto to assure that the documents are prepared, reviewed, and approved in accordance with applicable procedures and contain the necessary QA requirements;

d) Interfacing with the plant Quality Control Group;

e) Conducting surveillances of plant activities to verify compliance with applicable requirements;

f) Providing assistance to other plant organizations on matters related to QA; and

g) Conducting audits of quality related activities as required.

Figure 17.2-3 indicates the lines of communication and audit between the onsite Operations Quality Assurance Group and the plant organizations.

17.2.1.2.5.5 Nuclear Construction Quality Assurance Group (Onsite)

The Nuclear Construction Quality Assurance Group located onsite at Waterford-3 is headed by the Construction QA Engineer-Nuclear who reports directly to the QA Manager. This group assures that the QA Program, of the PSAR, is being effectively implemented at the site during the construction phase.

17.2.1.2.5.6 Startup Quality Assurance Group (Onsite)

The Startup Quality Assurance Group is located onsite at Waterford-3 and reports directly to the Quality Assurance Manager. Its purpose is to maintain cognizance over quality affecting activities of the Waterford-3 Startup Group, including review of test procedures for adequacy of QA requirements, witness and verification of designated test and data recording activities, review of test documentation for completeness, and surveillance of the startup test program.

17.2.1.2.6 Vice President-Nuclear Operations.

The Vice President-Nuclear Operations assists the Senior Vice President-Nuclear Operations in the administration of the Nuclear Operations Department. The Vice President-Nuclear Operations also serves as chairman of the Safety Review Committee.

17.2.1.2.7 Plant Manager-Nuclear

The Waterford-3 plant operations organization (Figure 17.2-3)is headed by the Plant Manager-Nuclear (hereinafter referred to as Plant Manager) who reports directly to the Senior Vice President-Nuclear Operations.

The Plant Manager, is responsible for operation and maintenance of the plant and has responsibility for implementation of necessary administrative and quality assurance measures in the plant. This responsibility includes:

a) Providing and maintaining a trained and qualified staff to safely operate and maintain the plant.

b) Assuring development and proper implementation of plant quality related procedures and instructions for activities such as plant operations, maintenance, repair, test and inspection;

c) Participating as a member of the Safety Review Committee;

d) Addressing matters brought to his attention by the Plant Operations Review Committee;

An Assistant Plant Manager, designated by the Plant Manager, is responsible for managing the plant in the absence of the Plant Manager. The responsibilities of an Assistant Plant Manager with regard to chairing the Plant Operations Review Committee are described in Chapter 13.

The Operations Superintendent, Shift Technical Advisor (STA) Coordinator, and Maintenance Superintendent report to the Assistant Plant Manager-Operations and Maintenance. The Technical Support Superintendent and the Health Physics Superintendent report to the Assistant Plant Manager-Plant Services. The Plant Staff is responsible for the development of plant procedures and instructions and for assuring that quality related activities are carried out in accordance with same. The Plant Staff is also responsible for the accuracy, adequacy, and completeness of records generated by the respective groups described above.

The Plant Manager directs the activities of the Startup (Phase III), Operations and Maintenance, Quality Control, Planning and Scheduling, and Plant Services organizations. The Plant Services Unit includes the Technical Support Group which provides day-to-day engineering and technical support for plant operation and maintenance activities.

17.2.1.2.8 Quality Control Engineer

17.1.1B2 The Waterford-3 Quality Control Engineer is responsible for:

17.1.1B6 a) Verifying by inspection/surveillance that quality related structures, systems, and components are maintained in accordance with documented instructions, procedures, and drawings;

6421.1

b) Assisting in establishing and maintaining the QC portion of the Waterford-3 training program;

c) Developing and maintaining the Plant QC Group's procedures;

d) Assisting other Waterford-3 plant organizations in the development of procedures for activities affecting quality;

e) Conducting inspections/surveillances of quality affecting activities at Waterford-3;

f) Reviewing and concurring with maintenance, modification, and inspection procedures and changes thereto;

g) Serving on the Plant Operations Review Committee; and

h) Reporting on the effectiveness of the Waterford-3 quality control program to the Plant Manager.

17.2.1.2.8.1 Quality Control Organizational Freedom

17.1.1B3 Figures 17.2-1 and 17.2-3 show the lines of communication between the Quality
17.1.1B4 Assurance Manager and the Quality Control Engineer necessary for resolving
17.1.1B6 quality assurance and quality control problems. The Quality Control Engineer and his staff have the authority and organizational freedom to perform their QC functions effectively. They:

a) Identify quality control problems;

b) Initiate, recommend or provide problem solutions through designated channels; and

c) Verify implementation of satisfactory solutions.

In accordance with approved procedures, and as delineated herein, the QC Engineer and his staff have the authority to stop unsatisfactory work and to control the further processing, delivery, or installation of nonconforming material at Waterford-3. The QC Engineer and his staff do not have direct responsibility for performance of work which they verify/inspect for conformance with established requirements.

b) Providing technical input in the selection of outside contracted engineering sources for selected station modifications and managing contracted activities;

c) Coordinating and reviewing responses to federal, state, and local regulatory agencies;

d) Managing the preparation of FSAR updates and responses to IE bulletins, circulars and information notices;

e) Administering environmental licensing activities;

f) Supporting the plant staff in development and implementation of various Nuclear Operations Programs;

g) Coordinating the activities of Middle South Services relative to nuclear fuel material, conversion, enrichment, fabrication processes and in-core fuel management;

h) Conducting independent review of plant staff activities affecting safety;

i) Recommending corrective actions to be taken in regard to safety issues;

j) Reviewing selected plant operating, alarm and emergency procedures for technical adequacy; and

k) Reviewing and assessing the safety significance of NRC orders, bulletins, circulars, and generic letters; IE inspection reports; and operating experience information from other sources.

17.2.1.2.11 Nuclear Training Group

The Nuclear Training Group is headed by the Training Director-Nuclear who reports to the Senior Vice President-Nuclear Operations and has the responsibility to train all personnel involved in Nuclear Operations and Administration, including Management, General Office, Plant Staff, Nuclear Project Support Group, and Quality Assurance Staff. The Training Director-Nuclear's responsibilities include:

a) Directing the development and implementation of training programs and the operation of the training facilities/center for the Nuclear Operation Departments;

b) Directing the development, review, and maintenance of the Training operating and administrative procedures and approval of changes thereto;

c) Establishing and maintaining qualified training staff to carry out the development and implementation of the training programs and the training facilities;

d) Ensuring that training programs development and implementation are carried out in accordance with applicable procedures and QA requirements to assure safe and effective support to W-3;

e) Determining when Training consultants and contractors are to be called and management of contracted training activities;

f) Directing the preparation of training bid requests and the evaluation of training bids prior to recommendations for issuance of purchase orders for Training contracts/services;

g) Providing plant personnel, Quality Assurance personnel, and the Nuclear Project Support Group staff with indoctrination and training in Quality Assurance and the performance of quality affecting activities.

h) Serving as a member of the Safety Review Committee;

i) Addressing Training matters brought to his/her attention by the Safety Review Committee and the Plant Operations Review Committee;

j) Ensuring that operating experience at the plant and elsewhere, are factored in training in a timely manner.

The Training Director-Nuclear is assisted by Training Managers-Nuclear for implementation, development, and operation of the training center. A Training Manager-Nuclear, designated by the Training Director, is responsible for directing the Training organization in the absence of the Training Director-Nuclear. The responsibilities of the Training Managers-Nuclear are described in Chapter 13.

The Training Supervisors-Nuclear report to the Training Managers. Personnel assigned to these supervisory positions are responsible for monitoring quality affecting training activities of their units to assure that they are carried out in accordance with approved procedures. The Training Support Unit Supervisor is responsible for maintaining and updating training records generated in support of Nuclear Operations Department personnel training.

17.2.1.2.12 Nuclear Site Director

The Nuclear Site Director reports to the Senior Vice President-Nuclear Operations and is responsible for accomplishment of project engineering, construction, and preoperational test activities required prior to fuel loading.

17.2.1.2.12.1 Waterford Startup Group

The Lead Startup Engineer (LSE) is responsible for managing the Waterford 3 Startup activities. The LSE reports functionally to the Nuclear Site Director and administratively to the Plant Manager. Waterford 3 Startup Group's responsibilities include:

a) Preparation of startup administrative and test procedures;

b) Plan and coordinate tests;

c) Direct and supervise startup testing activities;

d) Document and evaluate test results;

e) Ensure orderly transfer of plant systems, components, and structures including a complete status of same; and

f) Provide assistance to Plant Staff during plant startup.

17.2.1.2.12.2 Joint Test Group

The Joint Test Group (JTG) is composed of personnel from LP&L's Waterford Startup Group, construction, contractors/consultants and Plant Staff. The JTG is responsible for procedure reviews and review of prerequisite (Phase I), preoperational (Phase II), and integrated (Phase III) test results. The JTG is also responsible for recommending the disposition of test results for Phase II and III testing to the PORC. The JTG is responsible for conducting a comprehensive review of the Phase II test program prior to initial fuel load and the start of Phase III testing. They function as an advisory group to the PORC during Phase III testing. The JTG reports through the Lead Startup Engineer (LSE).

17.2.1.2.13 Nuclear Administrative Services Group

The Nuclear Administrative Services Group is under the Administrative Services Manager-Nuclear who reports to the Senior Vice President-Nuclear Operations. This group provides support services including:

a) Administrative support and expediting services for the procurement of items, materials, equipment, and services;

b) Execution of the document control and quality assurance record storage program;

c) Storage and issue of quality related items and materials;

d) Implementation of the plant physical security program; and

exists between the supplier/contractor and the LP&L QA organization. The overall responsibility for QA at Waterford-3 remains with LP&L at all times.

The quality assurance functions performed by suppliers of quality related items and services depend upon the nature of the activities, services, equipment, materials, systems, and/or components provided. Supplier QA program requirements are prescribed through procurement documents to provide controls and documentation in accordance with the scope of activities involved and their importance to safety.

17.2.2 QUALITY ASSURANCE PROGRAM

17.2.2.1 General

17.1.2A2 LP&L's objective is to design, construct, test, operate, maintain, and modify the Waterford-3 nuclear plant with the highest degree of functional integrity and reliability necessary to avoid undue risk to the health and safety of employees and the general public. It is the policy of LP&L that the program for the design and design changes, procurement, fabrication, installation, inspection, testing, operation, maintenance, repair, refueling and modification of Waterford-3 complies with the requirements of 10CFR50, Appendix B and related regulatory guidance.

This section describes LP&L's Nuclear Operations Quality Assurance Program (hereinafter referred to as the Quality Assurance Program) for Waterford-3 which assures that quality affecting activities are performed in a controlled manner and documented to provide objective evidence of compliance with NRC regulations and guidance. This program takes into account the need for special controls, processes, test equipment, tools and skills to attain the required quality, and the need for verification of quality by inspection, testing, surveillance and audit. This program will be fully implemented 90 days prior to fuel loading with applicable portions applied to preoperational testing before that time.

17.2.2.2
Q421.5

Program descriptions and procedures are developed by LP&L to assure that the Quality Assurance Program complies with the requirements of 10CFR50, Appendix B. These are applicable throughout the operational phase, including startup testing (Phase I, II, and III. See Chapter 14).

17.1.2A1(6)

Additionally, as directed in appropriate procurement documents, contractors/suppliers of quality related equipment and services are required to demonstrate compliance with the provisions of LP&L's QA Program.

The Quality Assurance Program is implemented by those organizational groups and departments whose activities affect quality at Waterford-3 (Figure 17.2-1). The personnel within these groups and departments use approved procedures that control activities affecting the Quality Assurance Program. These approved procedures incorporate the requirements of the Regulatory

In addition to controlling the issuance and maintenance of the Quality Assurance Manual, the Quality Assurance Manager is responsible for review and approval of those Nuclear Operations Department procedures that are designated as quality affecting (Figure 17.2-4).

The Quality Assurance Procedures Manual provides detailed procedures to specify and control the activities of the Quality Assurance Section, and also provides guidance for LP&L corporate procurement activities.

c) At the third tier of documentation is the Nuclear Operations Department Management Control Manual which through its Program Descriptions, describes the management policies for the safe operation of Waterford-3. This manual establishes the Nuclear Operations Department's plans for the execution of the quality assurance controls for Waterford-3. It defines the interrelationships between the Nuclear Operations Department and other departments or groups that have support functions and the division of responsibilities for task performance within the major Nuclear Operations Department groups.

The individual Nuclear Operations Department groups assigned responsibilities under the scope of the Nuclear Operations Department Management Control Manual are responsible for the development, maintenance, and implementation of procedures and instructions to detail respective elements of program performance.

d) At the fourth tier of documentation is the Plant Operating Manual (POM) which consists of a series of procedures that address required aspects of plant management and operations. These procedures:

1) Implement the policy and direction of the PMDs to provide control over quality-related operations and activities to a degree consistent with their importance to safety;

2) Provide a clear understanding of the operating philosophy at Waterford-3; and

3) Delineate the responsibilities and authorities of Waterford-3 plant personnel.

e) The Startup Administrative Procedures identify to individuals associated with the Startup Test Program their respective responsibilities and the procedures which govern the administration of the Startup Test Program.

f) The Nuclear Administrative Procedures prescribe activities and responsibilities which apply to the Nuclear Project Support Group based on LP&L's commitments to codes, standards, and quality assurance requirements.

administering, and conducting training programs to assure that staff personnel are properly trained to perform activities in a safe and effective manner. The QA Manager reviews and concurs with the content of the QA Indoctrination and Training Program.

The QA Training and Indoctrination Program requires that:

17.1-2 D

a) Personnel responsible for performing activities that affect quality are instructed on the purpose, scope and implementation of quality related manuals, instructions and procedures;

b) Personnel performing activities that affect quality are trained and qualified in the principles, techniques, and requirements of the activity being performed;

c) Proficiency and requalification of personnel performing activities requiring certification are maintained by retraining, re-examining and/or recertifying on a periodic basis;

d) Proficiency tests be given to those personnel performing and verifying activities affecting quality, and acceptance criteria developed to determine if individuals are properly trained and qualified;

e) Certificates of qualification clearly delineate (1) the specific functions personnel are qualified to perform and (2) the criteria used to qualify personnel in each function; and

f) Documentation concerning training and qualification programs which describes the content, who attended, the duration of the training session, and results of comprehension tests are maintained in accordance with requirements of the Training Group records program.

The Quality Assurance Section conducts audits of other organizational units, such as vendors, suppliers, and contractors engaged in quality affecting activities to verify that personnel are adequately trained, indoctrinated and qualified.

17.2.2.6 Controlled Conditions for Quality Affecting Activities

17.1.2A(a) Quality affecting activities are accomplished under controlled conditions by personnel with the necessary skills to attain the required quality. Activities affecting quality are performed with appropriate equipment, under suitable environmental conditions and with the assurance that prerequisites for inspections and tests have been satisfied.

17.2.2.7 Management Review of the QA Program

17.1.2C1 As part of his continuing involvement in the program, and in accordance with the management audit procedures, the Senior Vice President-Nuclear Operations ensures that a management audit of LP&L's Quality Assurance Program is conducted annually by a qualified independent auditing organization.

The information from these management audits in conjunction with summaries of the Quality Assurance Program status presented to him by the Quality Assurance Manager enables the Senior Vice President-Nuclear Operations to assess the scope, status, implementation and effectiveness of the program and to assure that the program complies with applicable regulatory requirements.

17.2.2.8 Startup Testing (Phase I, II, and III) and Systems Turnover

17.1.2A1(b) The startup test program is part of the overall Quality Assurance Program. This program meets the intent and guidance of applicable Regulatory Guides and standards listed in Table 17.2-1. The testing and turnover activities are accomplished by qualified personnel using approved and controlled procedures and drawings. Required records documenting the activities are controlled and maintained in accordance with program requirements. Responsibilities and control of quality related activities will be transferred from the principal contractors to the applicant during the phase out of design and construction and during preoperational testing and plant turnover in accordance with contractural requirements.

17.2.2.9 Maintenance of QA Program

17.1.2B2 Amendments to the FSAR and revisions to the Quality Assurance Manual are issued as necessary to support effective implementation of the QA program.
Q421.10 The NRC is notified annually of any changes to the QA program description that do not reduce the commitments previously accepted by the NRC. If a change is contemplated which would reduce the commitments in the approved QA program description, the proposed change is submitted to the NRC for approval prior to implementing the change.

LP&L requires their principal contractors to notify LP&L of changes to their QA program description. Significant changes are reported, as applicable, to the NRC in writing. In addition, LP&L requires principal contractors to provide notification of changes which reduce the commitments to a subcontractor's QA program description which have the effect of changing the QA program of the principal contractor or LP&L.

17.2.2.10 Fire Protection Program

17.1.2A1(a) Q421.3 Q421.4 Q421.30 The QA Program for Fire Protection is under the control of the QA Manager. This program is defined in FSAR Subsection 9.5.1 and consists of the necessary QA criteria which are a part of the 10CFR50 Appendix B criteria described in this (17.2) section. The QA Manager's control of the Fire Protection QA Program includes formulating and/or verifying that the program incorporates suitable requirements and verifying the effectiveness of the program through review, surveillance, and audit.

17.2.3 DESIGN CONTROL

17.2.3.1 General

17.1.3A 17.1.3B The Quality Assurance Manual establishes and describes the quality requirements for the design control of plant quality related systems, components, structures, and equipment, and modifications thereto. Procedures are established which address company activities regarding design control. These procedures assure that design activities associated with the preparation and review of design documents for Waterford-3 are executed in a planned, controlled, and orderly manner.

17.2.3.2 Design Control Measures

17.1.3A 17.1.3B The Project Support Manager-Nuclear is responsible for design activities during the operational phase, beginning with system transfer to Plant Staff. The Project Support Group prepares, reviews, approves, and verifies design documents such as system descriptions, design input and criteria, design 17.1.2A1(c) drawings, design analyses, computer programs, specifications and procedures.

The design control program includes design activities associated with the preparation and review of design documents, including the translation of applicable regulatory requirements and design bases into design, procurement and procedural documents. Included in the scope are such activities as field design engineering; physics, seismic, stress, thermal, hydraulic, radiation, and the SAR accident analyses; associated computer programs, compatibility of materials; accessibility for inservice inspection, maintenance and repair; quality standards; and safety significance. When a new design or design change is prepared during operations, quality standards must be specified in the design documents. Deviations and changes from these quality standards are 17.1.3C2 controlled in accordance with approved procedures.

17.1.3E6 Q421.11 Procedures are established to assure that verified computer codes are certified for use and that their use is specified.

New designs and modifications proposed for existing designs which involve quality related structures, systems or components are reviewed in accordance with approved procedures to assure that:

a) Design characteristics can be controlled, inspected, and tested to ensure no adverse effect on safety; and

b) Inspection and test criteria are identified.

17.1.3D Internal and external design interface controls, procedures, and lines of communication are established and described for the review, approval, release, distribution and revision of documents involving design interfaces to assure structures, systems, and components are compatible geometrically, functionally, and with processes and environment.

17.2.3.2.1 Design Verification

17.1.3E3 Design verification processes such as design review, alternate calculations, and qualification testing are accomplished in accordance with approved procedures. Qualification testing of a prototype unit under adverse design conditions is required when a test program is used to confirm design adequacy.

17.1.3E4 If design verification is by other than qualification testing it is normally completed prior to drawing release. In cases where this cannot be done and design verification is deferred, the justification for such action is documented and the unverified portion of the design appropriately identified and controlled. The design verification will be complete prior to fuel loading or prior to relying upon the structure, system, or component to perform its quality-related function.

17.1.3E4 Procedural control is established for design documents that reflect commitments of the FSAR. Such design documents subject to procedural control include specifications, calculations, computer programs, system descriptions, the FSAR when used as a design document, and drawings including flow diagrams, piping and instrument drawings, control logic diagrams, electrical single line diagrams, structural drawings for major facilities, site arrangements, and equipment locations. Specialized reviews are used when uniqueness or special design considerations warrant.

17.1.3E4 Procedures require that individuals or groups responsible for design verification be other than the original designer or the designer's immediate supervisor. Under special circumstances, the designer's immediate supervisor may perform the verification if the following conditions apply:
Q421.12

a) The supervisor is the only technically qualified individual;

b) The need is individually documented and approved in advance by the responsible management; and

c) Quality assurance audits take into account the frequency and effectiveness of using supervisors as verifiers to guard against abuse.

17.1.3E2(d) The responsibilities of the design verifier are identified in appropriate procedures. The procedures specify the areas and features to be verified and the documentation requirements.

17.1.3E5 (TYPO IN SRP) If the design verification method is by test alone, the following provisions are included:

a) Procedures provide criteria that specify when verification should be by test;

b) Prototype, component, or feature testing is performed as early as possible prior to installation of plant equipment, or prior to the point when the installation would become irreversible; and

c) Verification by test is performed under conditions that simulate the most adverse conditions as determined by analysis.

17.2.3.2.2 Design Changes

Q421.13
17.1.3E6 (TYPO IN SRP)
17.1.3F1
17.1.3C1 Quality related design and specification changes, including field changes, are subject to the same type of design controls and approvals as the original design. LP&L reserves the option of employing qualified organizations other than the original designer in order to modify or develop designs. Anyone preparing design changes reviews the original design and/or secures design information from the original designer, as appropriate. Errors and deficiencies identified during the design process are documented and corrective action taken to preclude repetition.

Materials, parts, and equipment which are commodity, catalogue (off the shelf), or which have been previously approved for a different application are reviewed for suitability. The organizations responsible for design reviews and other design activities are identified by written procedures which delineate the authority and responsibilities involved. Valid industry standards and specifications are utilized in the process of selecting suitable parts and materials.

17.2.3.2 Q421.14 Design changes are included within the scope of the Waterford-3 document control program. Design change notices are controlled documents. Any design change which might affect the performance of plant personnel duties is documented in a change notice and distributed to the affected parties. Working documents, such as drawings, specifications, and procedures, which are affected by design changes are also revised and controlled so that responsible parties remain informed.

17.2.3.3 Maintenance and Modification

A program is provided to ensure that quality related structures, systems, and components are maintained at the quality level required for performance of their intended functions. A preventative maintenance program is established which includes procedures dictating maintenance frequency and type.

Maintenance is performed in a manner which does not compromise plant safety. Maintenance or modification activities which affect the functioning of quality related structures, systems, or components are performed in a manner which will maintain a quality level at least equivalent to what was originally specified. Inspection and performance testing verify that quality related structures, systems, and components are still functioning adequately after maintenance or modifications are complete. The results are documented and maintained in accordance with applicable records management procedures.

The Plant Manager has final approval authority for station modifications.

17.2.3.4 Replacement or Repair

All malfunctions are promptly documented and evaluated to determine probable cause. If evidence indicates that common components in quality related systems have performed in an unsatisfactory manner, corrective measures are planned prior to replacement or repair of such components. Approved procedures for repair are made available prior to actual performance. Replacement parts must receive adequate evaluation and/or testing if they are not of a design which has been previously proven satisfactory. A phased replacement is considered, when possible, to permit inservice performance evaluation and minimize the possibility of a hidden deficiency developing into a systematic failure. An augmented testing and inspection program is implemented following a large scale component replacement or repair as necessary to demonstrate component reliability.

17.2.4 PROCUREMENT DOCUMENT CONTROL

17.2.4.1 General

Procurement document control applies to documents used to obtain materials, spare and replacement parts, components, and services required to modify, maintain, repair, test, inspect, or operate Waterford-3. The Quality Assurance Manual establishes requirements for controlling procurement of quality related items and services. Quality related suppliers/contractors and subtier suppliers are required, through procurement documents, to implement quality assurance programs consistent with the LP&L Quality Assurance Program. It is LP&L policy that the quality and design of purchased replacement materials, components, and spare parts are equal to or better than the original item.

17.2.4.2 Preparation of Procurement Documents

17.1.481 Nuclear Operations Department personnel are responsible for preparation of procurement documents for quality related parts, components, systems, and services. Their responsibilities include procurement planning, preparation,

purchased in accordance with the applicable codes and standards. Where commodity or catalogue items are to be used in quality related applications, the procurement documents may specify special inspections, tests, verifications or documentation required to assure suitability for the intended application.

17.2.4.4 QA Review and Approval

17.1.4B1 The Operations Quality Assurance Group reviews quality related procurement documents for Waterford-3. This review is conducted to verify:

a) Use of the proper source for the technical and quality requirements;

b) That appropriate technical and quality requirements are included;

c) That the technical and quality requirements can be verified by inspection or other methods; and

d) That technical and quality requirements are controlled through a program of planned and systematic actions.

17.2.4.5 Qualified Suppliers List

17.1.2B1(d) LP&L's General Office Quality Assurance Group is responsible for establishing and maintaining the Qualified Suppliers List. Prospective vendor/supplier/contractor organizations qualify for inclusion on this list through an evaluation of their quality assurance capabilities for providing quality related items and services. (see Subsection 17.2.7.2 for the basis used in the evaluation). Re-evaluation and requalification of suppliers on the qualified suppliers list is made on a periodic basis, as specified in applicable procedures.

17.2.4.6 Changes and Revisions

17.1.4A1 17.1.4B1 Changes and revisions affecting the technical and/or quality requirements of procurement documents are subject to at least the same review and approval as the original documents.

17.2.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

17.2.5.1 General

17.1.5A Instructions, procedures, and drawings for the operational phase of Waterford-3 are developed to prescribe those activities that affect the quality related functions. Activities affecting quality, such as designing,

procuring, installing, testing, inspecting, operating, maintaining, and modifying are accomplished in accordance with these documents. The Quality Assurance Manual establishes requirements for developing and controlling instructions and procedures for quality affecting activities.

17.2.5.2 Preparation of Instructions, Procedures and Drawings

17.1.5A Procedures are written to provide a controlled method for preparing, reviewing, changing, and approving instructions and procedures. Instructions, procedures, and drawings prescribing quality related activities are prepared by the LP&L organizational unit engaged in that activity, by external consultants, or by other LP&L groups as assigned. Appropriate department heads are responsible to provide instructions, procedures, and drawings as required for the administration, operation, maintenance, and modification of Waterford-3.

17.2.5.3 Contents of Instructions, Procedures, and Drawings

17.1.5B Instructions and procedures prescribing operational activities that affect quality related functions identify any special equipment and conditions required to perform the activity, provide applicable quantitative and qualitative acceptance criteria, and include provisions for documenting that activities were accomplished in accordance with these instructions. When appropriate, instructions and procedures include checklists of the elements of an activity to be observed or measured.

17.2.5.4 Review and Approval

17.1.2B1 (b) Instructions, procedures, and drawings prescribing quality affecting activities are reviewed and approved by the individual in charge of the organization engaged in that activity. Whenever a quality related instruction, procedure, or drawing of one organization affects or involves the activities of another organization, the originating organization is responsible for ensuring that the affected organization reviews and concurs with the document content. The originating organization is responsible for resolving comments.

17.1.5A Instructions, procedures, and drawings for quality affecting activities are
17.1.2B1(b) concurred with by Quality Assurance or by the Quality Control Engineer. Table
17.1.16.1 17.2-2 identifies procedures requiring QA concurrence. For onsite quality affecting activities the Quality Control Engineer reviews and concurs with test, calibration, special process, maintenance, modification, and repair instructions and work plans.

PORC reviews and recommends approval to the Plant Manager instructions and procedures, for quality affecting activities for plant operation in accordance with the Waterford-3 Technical Specifications (FSAR, Chapter 16). Such

documents are not approved for implementation until comments from the above reviews have been resolved. Control of these documents is in accordance with Subsection 17.2.6.

17.2.6 DOCUMENT CONTROL

17.2.6.1 General

17.1.6A1
17.1.6A2 The Quality Assurance Manual establishes requirements for document control. Documents and their revisions which control quality related systems, structures, components and activities are prepared, reviewed by qualified individuals, and approved by authorized personnel before release or issuance in accordance with written procedures. These procedures identify the organizations responsible for the actions and assure that changes to these documents are reviewed and approved by the same groups.

17.2.6.2 Review and Issuance of Controlled Documents

17.1.6A2 Document control procedures require that documents, including changes, be reviewed for adequacy and approved by authorized persons prior to issuance. This includes a quality assurance review of documents prescribing quality affecting activities as described in Subsection 17.2.5.4.

Controlled documents and revisions generated within LP&L which affect the quality related structures, systems, components and activities are prepared by the responsible group, consultants, other qualified groups within LP&L, or combinations of these organizations. These documents are reviewed for accuracy and completeness and for compliance with quality assurance policies and procedures. After review comments have been resolved, the documents are approved by the supervisor of the responsible group, effective dates assigned, and the documents distributed in accordance with applicable procedures and instructions. Controlled documents are distributed prior to starting an
17.1.6A4 activity and, if necessary, are on hand at the locations where the prescribed activities are performed before work begins.

17.1.6B2 Master lists of controlled documents are updated and issued in accordance with applicable procedures to preclude the use of superseded documents. These master lists identify the current revision number of the instructions, procedures, specifications, drawings, and procurement specifications. Record copies of the documents are retained in accordance with appropriate records management procedures. Obsolete or superseded documents are controlled by
17.1.6B1 approved written procedures to prevent inadvertent use.

17.1.6A3 Changes to quality related documents are reviewed and approved by the same organization that performed the original review and approval or by other qualified responsible organizations delegated by LP&L. Approved changes are included in the instructions, procedures, drawings and other appropriate documents associated with the change.

17.2.6.2.1 Quality Related Plant Procedures

17.1.6A2 Administrative procedures prescribe steps involved in the preparation and review of plant procedures. The procedures require that quality related
17.2.6.2 maintenance, modification, and test instructions and procedures prepared by the plant staff be routed to the plant Quality Control Engineer for review and concurrence prior to implementation. The Quality Control Engineer may assign this review to qualified personnel within his group. The review is conducted in accordance with approved procedures to ensure:

a) That the need for inspection, identification of inspection personnel, and
Q421.15 documentation of inspection results have been properly specified;

b) That the necessary inspection requirements, methods, and acceptance criteria have been identified; and

c) That hold and witness points are clearly identified and acceptance criteria provided.

Prepared checklists are used as guidelines in conducting and documenting the reviews.

17.2.6.2.2 As-built Drawings

17.1.6C1 Those drawings required for the safe operation of the plant reflecting the as-built status of Waterford-3 are transferred from the constructor to LP&L prior to receipt of the operating license. These drawings are stored in a controlled facility, with reproducible copies of those drawings required for plant operation and maintenance furnished to the Plant Manager. After receipt of the operating license the Nuclear Project Support Group is responsible for the revision and update of master drawings to reflect station modifications.

The Nuclear Project Support Group issues Station Modifications (SMs) which delineate the drawings affected by proposed modifications. The Plant Manager implements and maintains administrative controls which assure that as-built drawings utilized for plant operation and maintenance are obtained and disseminated upon completion of the related modification. The Operations Quality Assurance Group maintains surveillance over maintenance and modification activities including maintenance of the as-built drawings.

Field drawings and sketches may be prepared by plant personnel to clarify or provide additional details for operation, maintenance, or testing, and these are controlled in accordance with written instructions which specify requirements for identifying, reviewing, approving, and filing. They are reviewed for accuracy by at least one qualified person other than the originator. They are reviewed and approved by the originating group supervisor before issuance. Revisions are handled in the same manner as the original issue.

17.2.6.3 Types of Controlled Documents

17.1.6A1 The documents controlled under the Operational Quality Assurance Program include as a minimum:

a) Safety Analysis Report;

b) Design documents including calculations, drawings, specifications, change requests, analyses, and documents related to computer codes;

c) Procurement Documents;

d) Nuclear Operations Quality Assurance Manual;

e) Quality Assurance Procedures Manual;

f) Program Management Descriptions;

g) Inspection and test procedures for fabrication, construction, installation, test, maintenance, modification and operation;

h) Nonconformance Reports;

i) As-built Documents;

j) Emergency Plans;

k) Physical Security Plans;

l) Plant Operating Manual; and

m) Nuclear Administrative Procedures Manual.

17.2.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

17.2.7.1 General

Material, equipment and services whether purchased directly or through others, conform to procurement document specifications as described in Subsection

17.2.4. Provisions are made, as appropriate, for source evaluation and selection, review for objective evidence of quality, inspection at source, and inspection upon delivery. Quality assurance measures of suppliers are assessed at periodic intervals commensurate with the importance, quantity, and complexity of the product or services being purchased. This assessment
17.1.7A1 employs audit, independent inspection or test to verify that documentation such as inspection records and certificates of conformance are valid. Where
17.1.7A2 failures occur, the cause is evaluated to determine if the original equipment or the original design is appropriate for replacement or repair. Proposals (bids or quotations) by suppliers are reviewed to ensure that no exceptions are taken which would violate safety, technical, or quality requirements. The program requirements for control of purchased material, equipment and services are contained in the Quality Assurance Manual and implemented in accordance with approved written procedures.

17.2.7.2 Evaluation of Suppliers

Quality related equipment, materials and services are obtained from suppliers, contractors and consultants on the LP&L Qualified Suppliers List when required to assure compliance with codes, standards, and regulatory commitments. Suppliers, contractors and consultants are qualified for inclusion on the qualified suppliers list through an evaluation of their quality assurance capabilities for providing quality related items and services. The evaluations are conducted by qualified personnel and the results documented and maintained in accordance with QA records management procedures.

17.1.7A3 The evaluation of suppliers is based on one or more of the following criteria:

a) The supplier's ability to comply with those requirements of LP&L Quality Assurance Program which are applicable to the type of material, equipment or service being procured;

b) A review of the records and performance of suppliers who have provided articles similar to the type being procured; and

c) A survey of the supplier's facilities and quality assurance program to determine his capability to provide a specified service or to supply a product which meets design, manufacturing and quality requirements.

17.1.7A1 LP&L's Quality Assurance Manager is responsible for establishing and maintaining the Waterford-3 Qualified Supplier's List. The QC and engineering groups (plant or support personnel) participate in the evaluation of potential suppliers for providing quality related items and services as needed. Suppliers of quality related structures, systems, components and services for Waterford-3 are informed through procurement documents of their requirement to comply with 10CFR Part 21 for reporting defects and noncompliances that could create a substantial safety hazard.

17.2.7.3 Surveillance of Suppliers

17.1.7A2 Surveillance of quality related suppliers during fabrication, inspection, testing and shipment of materials, equipment, and components is planned and performed in accordance with written procedures to ensure conformance to the purchase order requirements. These procedures provide for:

a) Instructions that specify the characteristics or processes to be witnessed, inspected or verified, and accepted;

b) The method of surveillance and the extent of documentation required;

c) The personnel responsible for implementing these instructions; and

d) Audits and surveillance to ensure that the supplier complies with the quality requirements.

17.1.7B5 Surveillance is performed on those items where verification of procurement requirements cannot be determined upon receipt. Suppliers' quality related activities including the validity of certificates of conformance are periodically evaluated by audits, independent inspections or tests. The effectiveness of supplier quality control is assessed by LP&L at intervals consistent with the importance, complexity and quantity of the item or service being delivered.

17.2.7.4 Receiving Inspection

17.1.7B1 Receiving inspection of material, components and equipment is performed in accordance with written procedures which provide that:

a) The material, component or equipment is properly identified and corresponds to the requirements of the procurement documentation;

b) Material, components, equipment and records are inspected and judged acceptable in accordance with procurement document requirements prior to installation or use;

c) Inspection records or certificates of conformance attesting to the quality of material, components and equipment are available at Waterford-3 prior to installation and use; and

17.1.7B2 d) Accepted and released items have their inspection status identified prior to being forwarded to a controlled storage area or released for installation or further work.

17.2.7.5 Procurement of Commercial Items

17.1.784 Standard commodity or catalogue items or previously approved material, parts and equipment that are essential to the quality related functions of structures, systems and components are reviewed for suitability of application before selection of the item and its supplier. The preparer of the purchase requisition is responsible to clearly identify the commercial item to be procured and list the receiving inspection requirement. The item selected must be equal to or better than the original part. If the part is different from or an addition to the original design and constitutes a plant modification, the Nuclear Project Support Group reviews the material application and verifies the part's suitability for the intended use. Any additional inspection or test requirements are specified in the purchase requisition or attachments.

17.2.7.6 Spare and Replacement Parts

17.1.744 Spare and replacement parts for quality related systems, structures and components are subject to present Quality Assurance Program controls and to codes, standards, and technical requirements at least equivalent to or better than those used for the original equipment.

17.2.7.7 Records

17.1.783 Quality assurance records, when required by procurement documents, are collected and retained by quality related suppliers. Suppliers furnish the following records, as a minimum, to LP&L or its agent:

a) Documentation that identifies the purchased material or equipment and the specific procurement requirements (e.g., codes, standards, specifications) met by the items; and

b) Documentation that identifies any procurement requirements which have not been met, together with a description of those nonconformances dispositioned "accept-as-is" or "repair".

The review, evaluation, and acceptance of the required supplier records furnished to LP&L are described in procedures. Review and acceptance of the records is performed by QC personnel.

Documentation is available at Waterford-3 prior to installation or use of purchased material, components or equipment. The documentation is retained in accordance with quality assurance records management procedures.

17.2.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS AND COMPONENTS

17.2.8.1 General

17.1.8A The identification and control of materials, parts and components is accomplished in accordance with written requirements and apply to materials, parts, or components in any stage of fabrication, storage, installation or use. The Quality Assurance Manual establishes requirements for the identification and control of materials, parts, and components.

Materials, parts and components identified as nonconforming is handled in accordance with Subsection 17.2.15.

17.2.8.2 Requirements for Identification and Control

17.1.8B1 Identification by means of heat numbers, serial numbers, date coding, lot numbers, part numbers or other appropriate means is required by procurement documents. When identification markings are employed, they are clear, unambiguous and indelible. The inclusion of identification requirements in design documents is checked during design verification by the design organization.

17.1.8B1 Procedures include provisions to prevent the use of incorrect or defective items by requiring that identification be maintained either on the item or on records traceable to the item. The identification of materials, parts and components is verified to ensure that only correct and accepted items are used and installed.

17.2.8.3 Traceability

17.1.8B2 Purchased materials and parts important to the function of quality related structures, systems, and components are identified to enable the items to be traced to documents such as drawings, specifications, purchase orders, manufacturing, and inspection documents, deviation reports, and physical and chemical test reports. When traceability is required, identification will be maintained for each part of subdivided items either on the part or in the documentation traceable to the part. Replacement parts and materials are similarly identified by coded part numbers to records and documents.

Inventory and issue controls are documented in applicable plant procedures as part of the measures to control purchased items and maintain traceability to plant locations.

17.2.8.4 Responsibility for Identification and Control

17.1.8A 17.1.8B3 The Administrative Services Manager provides instructions for the identification and control of items for quality related applications which are

17.1.8A
17.1.8B3 received, stored, and issued at the plant site. The Plant Manager provides instructions for the identification and control of items drawn from stores, installed, or used. Quality Control ensures that proper documentation accompanies quality related items by surveillance of activities.

17.2.9 CONTROL OF SPECIAL PROCESSES

17.2.9.1 General

17.1.9A1 Special processes, including welding, heat treating and nondestructive testing, are identified and controlled to ensure that they are accomplished according to approved written qualified procedures. Procedures are qualified in accordance with applicable codes and standards, or, where no appropriate standards exist, to LP&L requirements. As required by applicable codes and standards, personnel performing special processes are qualified and their qualifications are documented. Applicable codes, standards, specifications, criteria and other special requirements are identified and used in qualifying procedures and personnel used to accomplish special processes.

17.2.9.2 Special Processes Subject to Controls

17.1.9A1
Q421.17 Special processes controlled by the Quality Assurance Manual include, but are not limited to, the following as they are applied to quality related items:

a) Welding;

b) Heat treating;

c) Radiography;

d) Ultrasonic examination;

e) Eddy current examination;

f) Magnetic particle examination;

g) Liquid penetrant examination;

h) Chemical cleaning;

i) Concrete placement (seismic applications);

j) Cadwelding; and

k) Protective coatings.

17.2.9.3 Special Process Procedures

17.1.9B2 Procedures for performing special processes are written, qualified, and approved before use. Personnel responsible for performing special processes are qualified to the procedure before implementation. Special process control procedures specify the preparatory steps, processing details, conditions to be maintained during the process and inspection and testing requirements.

17.2.9.4 Qualification of Personnel, Procedures and/or Equipment

17.1.9A2 The Senior Vice President-Nuclear Operations ensures that personnel (both internal and external to LP&L) performing special processes for Waterford-3 are qualified and are using procedures qualified to meet applicable codes, specifications and standards. Qualifications of personnel and procedures are verified by QA during surveillances and audits.

17.1.9B1 Personnel, procedures and/or equipment connected with special processes are qualified/certified in accordance with applicable codes, standards and specifications. Qualification/certification may be provided by authorized agencies or by individuals within the LP&L organization who are qualified for the special processes to be performed. Certification includes necessary training followed by an examination of each individual. The period of validity for certification of personnel is in accordance with criteria described in applicable codes, standards and specifications. Personnel failing re-test are not allowed to perform the special process pending recertification.

A Level III inspector for the type of nondestructive examination (NDE) process addressed reviews and approves the NDE procedures. For special processes not covered by existing codes or standards, or when the quality requirements exceed the requirements of established codes or standards, the necessary qualifications of personnel, procedures and/or equipment are defined.

17.2.9.5 Records

17.1.9B3 Current qualification records of plant special process personnel, procedures and equipment are maintained by the responsible plant supervisor and reviewed by the Quality Control Group. Special process control records of vendors may be retained by the vendor or supplied to LP&L as specified by contract or purchase order.

17.2.9.3 Special Process Procedures

17.1.9B2 Procedures for performing special processes are written, qualified, and approved before use. Personnel responsible for performing special processes are qualified to the procedure before implementation. Special process control procedures specify the preparatory steps, processing details, conditions to be maintained during the process and inspection and testing requirements.

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A Level III inspector for the type of nondestructive examination (NDE) process addressed reviews and approves the NDE procedures. For special processes not covered by existing codes or standards, or when the quality requirements exceed the requirements of established codes or standards, the necessary qualifications of personnel, procedures and/or equipment are defined.

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17.2.10 INSPECTION

17.2.10.1 General

17.1.10A
17.1.10B1 Inspection is performed during maintenance, modification, repair, material receiving and storage activities affecting quality related items at Waterford-3 in accordance with requirements established by the Quality Assurance Manual. Maintenance and modification instructions and work plans are reviewed by Quality Control personnel to assure the inclusion of inspection requirements and to verify that methods and criteria are defined.

17.1.10B1
Q421.18 The inspection program at Waterford-3 is developed under the direction of the Senior Vice President-Nuclear Operations and the Plant Manager-Nuclear implements the program. Normal inspections are performed by qualified personnel reporting to the Quality Control Engineer. Special inspections, such as nuclear fuel receiving, are performed by qualified personnel reporting to the Plant Manager or his designee. For quality affecting activities (e.g., surveillance testing) where direct inspection is not utilized, QC monitors the activities in accordance with established procedures.

Inspection requiring expertise in a particular area such as preservice and inservice inspection, certain nondestructive testing and containment vessel leak rate tests and inspections, may be conducted by offsite LP&L, Middle South Services or contractor personnel. In such instances, the inspection activities are conducted under the LP&L QA program or under an LP&L approved contractor program.

17.2.10.2 Inspection Procedures, Instructions and Checklists

17.1.10C1 Inspection requirements are implemented using applicable procedures, instructions, checklists, drawings, and specifications.

17.1.10A Procedures, instructions, and checklists governing inspections provide for the following:

a) Criteria for determining when inspections are required and how they are performed;

b) Acceptance and rejection criteria;

c) Identification of individuals or groups responsible for performing inspections;

d) The points during fabrication, erection, installation, test, operation, or maintenance at which the inspections are to be performed;

e) Identification of characteristics and activities to be performed;

Q421.20
17.1.10A

f) A description of the inspection method;

g) Identification of the required inspection, measuring, and test equipment;

h) Accuracy requirements for inspection, measuring and test equipment;

17.1.10C3

i) A method for recording the identity of the recording inspector or data recorder and recording the inspection results and/or observations;

j) A method for recording evidence of completing and verifying a manufacturing, inspection or test operation;

k) Identification of procedures, drawings, and specifications, including revision level used to conduct the inspection.

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Q421.32

The procedure originator is responsible for ensuring that the accuracy requirements of the equipment are sufficient to obtain reliable data. The accuracy requirements are based on procurement or plant technical specifications. The Quality Control Group reviews quality related procedures to verify the inclusion of accuracy requirements of inspection equipment. The individuals performing the inspections are responsible for assuring that the

17.1.11A

equipment used meets the criteria noted in the procedure. The QC inspector

17.1.10C3

is responsible for verifying that the inspection equipment meets the criteria of the procedure and that the inspection results are within the acceptance criteria of the procedure.

17.2.10.3 Indirect Inspection

When it is not possible or practical to verify conformance of processed material or products by direct inspection, indirect control is employed by monitoring processing methods, equipment and personnel. To ensure adequate control, both direct inspection and process monitoring are used when control by only one method is considered inadequate.

17.2.10.4 Inspection by Sampling Methods

Sampling inspection methods may be used when tests are destructive or when quality assurance records and inherent characteristics of the item indicate that a reduction in items inspected or tested can be achieved without jeopardizing the assurance of quality. When a sampling method is used to verify acceptability, the sampling procedures provide justification for the sample size and selection process.

17.2.10.5 Inspection of Replaced, Reworked or Repaired Items

Modifications, repairs and replacements are inspected in accordance with the original design and inspection requirements or acceptable alternatives. Further information on the disposition, inspection and documentation for repaired or reworked items is contained in Section 17.2.15.

17.2.10.6 Inspector Qualifications

Inspectors are qualified in accordance with Regulatory Guide 1.58 through experience, education and training programs to perform the assigned inspection tasks. Where required, inspectors are formally examined and certified. A file is maintained containing the credentials for each inspector. Inspector
17.1.10B2 qualifications and certifications are kept current.

The Nuclear Training Group develops procedures for training programs for Quality Control inspectors. These procedures contain qualification criteria for inspection personnel for the various types of inspections. The Quality Control Engineer is responsible for certification of QC inspectors.

17.1.10A
17.1.10B1 The inspector qualification program is reviewed and concurred with by the
17.2.10.2(b) Quality Assurance Manager or his designee.

17.2.10.7 Identification of Hold Points

17.1.10C2 Quality related suppliers and vendors are required through procurement documents where applicable, to submit their manufacturing plans to LP&L, as indicated in the purchase order. This is done prior to manufacture in their shops or shops of their suppliers so that LP&L has the opportunity to identify mandatory inspection hold points for witness by an LP&L representative. Work may not proceed beyond these hold points without LP&L consent.

Work plans, procedures and instructions for maintenance, modification or test of quality related structures, systems or components are reviewed to verify inclusion of inspection requirements, criteria and hold points. Work in process does not proceed past the identified hold points without satisfaction of inspection requirements.

17.2.11 TEST CONTROL

17.2.11.1 General

17.1.11A1 Waterford-3 preoperational and startup tests are performed in accordance with the criteria of Regulatory Guide 1.68, as described in Chapter 14 of this FSAR. Following issuance of the operating license, testing is performed to

demonstrate that quality related systems and equipment will perform satisfactorily in service and malfunctions are identified in a timely manner. This includes surveillance, functional, and special tests.

The Quality Assurance Manual establishes requirements for control of quality related tests. Appropriate procedures document methods for implementing the QA manual requirements.

Q421.22 Q421.32 Test program procedures include criteria for determining when a test is required and how testing activities are performed. Test program procedures also require system engineers to review specifications provided by the Architect-Engineer, test guidelines supplied by the NSSS vendor and equipment technical manuals in order to determine the test equipment accuracy that is necessary to satisfactorily perform a test.

17.2.11.2 Content of Test Procedures

17.1.11B Written test procedures for structures, systems and components are prepared in accordance with Regulatory Guides 1.33 and 1.68, as applicable, and provide, as required, for the following:

a) The requirements and acceptance limits contained in applicable design and procurement documents;

b) Instructions for performing the test;

c) Test prerequisites such as:

1) Calibrated instruments;

2) Adequate and appropriate equipment;

3) Trained, qualified and licensed or certified personnel;

4) Completeness of item to be tested;

5) Suitable and controlled environmental conditions;

6) Provisions for data collection and storage; and

7) Status of system.

17.1.11A d) Criteria for determining accuracy requirements of test equipment;

e) Mandatory inspection hold points;

f) Acceptance and rejection criteria;

g) Methods of documenting or recording test data and results;

h) Provisions for assuring test prerequisites have been met; and

i) Provisions for assuring system arrangement is acceptable after test.

Preoperational and startup test procedures are developed by the Waterford-3 Startup Group and Plant Staff with appropriate inputs from the NSSS vendor and the Architect-Engineer.

Testing activities are performed using test procedures that have been reviewed, approved, and released for execution. Retesting activities are based on reviews and direction by the Joint Test Group or the Plant Operations Review Committee.

17.2.11.3 Evaluation of Completed Tests

17.1.11C.1 Q421.21 Completed tests are documented and evaluated by a qualified responsible individual or group. This evaluation determines:

a) That the test procedures are adequate;

b) That the recorded data reveals the adequacy of the equipment or system to meet the specified requirements in the acceptance criteria; and

c) That nonconforming conditions or conditions which deviate from requirements are reported, evaluated and corrected.

Test data found to be in conformance with the requirements is accepted and approved by a qualified responsible person and appropriately documented.

The Joint Test Group reviews the results of preoperational and integrated (including startup) tests and makes recommendations regarding acceptability to PORC. The Plant Operations Review Committee is responsible to evaluate test results and advise the Plant Manager regarding acceptability. The Safety Review Committee reviews the results of special tests in accordance with Waterford 3 Technical Specifications. If test results do not meet acceptance criteria, the responsible organization initiates appropriate corrective action in accordance with written procedures.

17.2.11.4 Test of Modified, Repaired or Replaced Items

Modified, repaired or replaced items of quality related equipment are tested in accordance with the original design and testing requirements or acceptable alternatives.

17.2.11.5 Test Records

Test records include report forms completed during tests and identify the person responsible for conducting the test and indicate the date or period when the test was performed. The original test data report forms is reviewed for completeness, identified, indexed and stored in accordance with Section 17.2.17.

17.2.12 CONTROL OF MEASURING AND TEST EQUIPMENT

17.2.12.1 General

17.1.12.1 Measuring and test equipment (M&TE) utilized in or related to operation of quality related structures, systems and equipment is controlled in accordance with written procedures or instructions. The Quality Assurance Manual establishes requirements for control of M&TE, including measuring instruments, test instruments, tools, gauges, reference standards, transfer standards and nondestructive test equipment used in the measurement, inspection and monitoring of quality related structures, systems and components.

Requirements for the control of M&TE apply to M&TE used by the individuals or organizations participating in the installation, inspection, testing or maintenance of quality related structures, systems or components for Waterford-3. The extent to which these requirements apply depends upon the nature and scope of the work to be performed and the importance of the item or service involved. LP&L has established and implemented a calibration program for M&TE to be used during preoperational testing and operations.

17.2.12.2 Responsibility

17.1.12.2 Q421.23 The Plant Manager is responsible for ensuring that the affected groups establish and maintain a calibration control program. The Plant Operations Review Committee are responsible for reviewing calibration control procedures and for submitting recommendations to the Plant Manager or his designee.

The plant department head or supervisor of the group performing or contracting calibration activities is responsible for the calibration and control of M&TE under his cognizance. He ensures that the calibration program requirements are fully and effectively implemented within his department or group.

The QC Engineer is responsible for reviewing calibration procedures. He is responsible for conducting inspection/surveillance of calibration activities as required to assure procedural compliance.

The Quality Assurance Manager is responsible for performance of audits to verify that the calibration control program meets the requirements of the Quality Assurance Manual and that site procedures are properly implemented.

17.2.12.3 Requirements

The calibration program is designed to ensure the accuracy of M&TE. The calibration program provides for the prompt detection of inaccuracies and timely, effective corrective action. The calibration program includes the following requirements as a minimum:

a) Lists of M&TE which specifically identify items under the calibration program.

b) Reference standards and documented procedures for calibrating M&TE. Procedures such as published standard practices, written instructions that accompany purchased equipment, or other acceptable instructions may be used.

17.1.12.6 17.1.12.7 c) Calibration of M&TE is against standards that have an accuracy at least four times the required accuracy of the equipment being calibrated. When this is not possible, standards have an accuracy that assures the equipment being calibrated will be within required tolerance. The basis for the calibration is documented and approved by the QC Engineer.

d) M&TE is stored, calibrated, and used in environments which will not adversely affect its accuracy.

17.1.12.6 e) M&TE is calibrated at prescribed intervals to verify the required accuracy. The interval between calibrations is based upon experience, inherent stability, purpose or use, and the accuracy required of the equipment. Recalibration is performed on or before the designated calibration date. Reference standards are calibrated by qualified organizations.

17.1.12.8 f) M&TE is calibrated using reference standards whose calibration has known valid relationship to nationally recognized standards or accepted values of natural physical constants. If no national standard exists, the basis for calibration is documented.

17.1.12.4 17.1.12.5 g) M&TE is labeled to indicate its control status. The label indicates the date of last calibration, by whom it was calibrated, and when the next calibration is due. When labeling is not practical, an identifying code is used. If neither labeling or coding is practical, the calibration procedures provide for monitoring of records to ensure control. M&TE is identified to provide traceability to calibration test data. The methods to be used for identifying the equipment is specified in applicable station procedures.

17.1.12.9 h) M&TE found to be out of calibration is identified as nonconforming and removed from service. Equipment tested or calibrated by the nonconforming equipment since the last calibration is identified and sufficient

investigations performed to either reestablish the acceptability of the equipment or to confirm the nonconformance. The results of such investigations are documented. M&TE which has been subjected to possible damage is identified as nonconforming and removed from service until corrective measures are taken. M&TE consistently found to be out of calibration is identified as nonconforming, removed from service, and repaired or replaced. Lost/misplaced M&TE is treated the same as M&TE found to be out of calibration.

i) The following measures are taken for M&TE to maintain accuracy and obtain consistent results:

a) Environmental and handling controls;

b) Training and qualification of personnel;

c) Checking calibration status before use;

d) Documenting and recalibrating damaged M&TE; and

e) Limiting use to authorized personnel.

17.2.12.4 Procedures

17.1.12.3 Procedures are established for calibration (technique and frequency), maintenance and control of M&TE (instruments, tools, gauges, fixtures, reference and transfer standards, and nondestructive test equipment) that is used in the measurement, inspection and monitoring of structures, systems, and components.

Calibration procedures include at least:

a) The identity of the item to be calibrated;

b) Calibration equipment and reference standards to be used;

c) Checks, tests, measurements, and acceptance tolerances;

d) Sequence of operations;

e) Special instructions, when necessary; and

f) Means for traceability between test equipment and calibration test data.

17.2.12.5 Records

The status of M&TE under the calibration program is recorded. Records are maintained to show that established schedules and procedures for the calibration of M&TE have been followed. The records contain a history of

calibration or other means of control for each item showing the calibration interval, date of last calibration, and the conformance or nonconformance to required tolerance prior to and following adjustments. Records identify the equipment or reference standard to which the records apply, the procedure or instruction followed in performing the calibration, and the calibration date.

Equipment and identification lists, procedures, calibration records, personnel qualifications, and nonconformance reports are retained as required by codes, standards, and specifications and in accordance with Section 17.2.17.

17.2.13 HANDLING, STORAGE, AND SHIPPING

17.2.13.1 General

17.1.13.1
17.1.13.2

The Quality Assurance Manual establishes that quality related items are handled, stored, cleaned, and shipped in a manner to prevent deterioration, contamination, damage, or loss of identification. Procedures are provided for control of these activities. As appropriate, detailed instructions are provided for handling, cleaning, storing, maintaining while stored, and shipping specific items of equipment or material. Under normal circumstances, the manufacturer's instructions or recommendations are followed and are implemented to maintain material integrity and protection. Personnel performing these activities are knowledgeable of the work to be performed and the procedures employed.

17.2.13.2 Consumables

17.1.13.2
Q421.24

Procedure controls are established for chemicals, reagents, fuels, oil, lubricants, and other consumables to assure proper storage, handling, utilization, and disposition.

17.2.13.3 Material Handling Equipment

Material handling equipment such as cranes, forklifts, and cables are tested in accordance with established procedures.

17.2.14 INSPECTION, TEST, AND OPERATING STATUS

17.2.14.1 General

17.2.14.1

Inspection, test, and operating status of structures, systems, and equipment under the scope of the Quality Assurance Program are controlled and the status indicated in accordance with written procedures. The Quality Assurance Manual establishes requirements for controlling inspection, test, and operating status of items important to safety at Waterford-3.

17.2.14.2 Requirements

17.1.14.1 The Plant Manager develops procedures relating to operational status of the plant. These procedures require:
17.1.14.4

a) That the status (inoperative, test, or operational) of quality related systems and equipment be indicated; and

b) That the status of inspections and tests performed on quality related systems and equipment be indicated.

17.2.14.3 Identification System

17.1.14.1 The status of quality related systems and equipment is indicated by stamps, tags, labels, status boards, routing cards, logs, schedules, computerized readouts, or a combination thereof. The Technical Specifications establish the status of quality related structures, systems, and components required for the safe operation of the plant, including provisions for periodic and nonperiodic tests and inspections of various instruments, structures, components, systems, or parts of systems.
17.1.14.2

All systems and equipment at the plant are controlled to prevent their inadvertent operation, in accordance with the Waterford-3 Clearance Procedure which specifies the control of status indicators and the authority for application and removal.

Plant instructions that require equipment to be removed from service for maintenance, testing, or modification specify the equipment associated with these activities so that the appropriate type of clearance described in the Waterford-3 Clearance Procedure may be issued.

Required inspections, tests, and operations are performed in accordance with approved procedures. Cognizant plant supervisors, assure that necessary inspections and tests are conducted in their area of responsibility and the status of these inspections and tests is maintained current.

17.1.14.3 Changes to the requirements of these procedures and instructions, including altering the sequence, are controlled by established procedures.

17.2.15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

17.2.15.1 General

17.1.15.1 The Quality Assurance Manual establishes requirements for control of quality related nonconforming materials, parts, or components. These requirements are promulgated by procedures which control the identification, documentation,

segregation, review, disposition, notification to affected organizations, repair, rework, retest, and reinspection of nonconforming materials, parts, components, and, as applicable, services (including computer codes).

17.2.15.2 Control of Nonconforming Items

The Plant Manager provides for the following actions when quality related materials, parts, components, systems, or services do not conform to drawings, specifications, workmanship standards, or other applicable documents:

Q421.26

a) Identify the nonconforming items and clearly describe the nonconformance;

b) Document the nonconformance:

c) Segregate from acceptable items (where practical) and identify the nonconforming items as discrepant until properly dispositioned to prevent their inadvertent use or installation;

d) Review the nonconformance;

e) Provide approved written dispositions for the nonconformance;

f) Provide copies of reports which identify the nonconformance for distribution as required by appropriate procedures.

g) Notify affected organizations.

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17.1.15.2
17.1.15.3
Q421.26

A technical evaluation is made to determine whether a nonconforming item may be accepted "as-is", reworked or repaired to an acceptable condition, or rejected. During plant operations, the Plant Manager is responsible for documenting, segregating, dispositioning, and reviewing nonconformances and for ensuring that corrective action is taken by cognizant persons or organizations.

17.1.15.1
17.1.15.2

The PORC provides an independent review of nonconformances, disposition, and closeout. Onsite Licensing performs a preliminary investigation of all potential 10 CFR 21 items generated at the site. Offsite Licensing performs the preliminary investigation for all offsite generated items. The preliminary investigation package is forwarded to the Licensing Engineering Supervisor and a committee established for 10 CFR 21 reportability determination. Following the reportability determination, the PORC reviews the package and the corrective action plan.

17.1.15.2

The Quality Control Engineer is responsible for conducting inspections to verify adequate implementation of corrective action concerning nonconformances. The Quality Assurance Section is responsible to conduct surveillances and audits to verify the adequacy of control measures for identification, notification, segregation, technical review, disposition, and documentation of nonconformances.

17.2.15.3 Quality Trends

17.1.15.5 Nonconformance reports are periodically analyzed by the Quality Assurance Section for quality trends and any significant results reported to the Vice President-Nuclear Operations for review and assessment.

17.2.15.4 Repair and Rework of Nonconforming Items

17.1.15.4 Reworked, repaired, and replaced items are inspected and tested in accordance with the original inspection and test requirements or acceptable alternatives. Nonconforming items are also reinspected in accordance with any additional requirements established by the technical evaluation. The rework, repair or inspection procedure is documented and made part of the inspection records. Rejected items are identified by tagging, and where practical, removed from the area to preclude further use or installation. Final alternative action in the case of rejected items may be the return of such material/equipment to the supplier or to scrap.

17.2.15.5 Records

Documentation of nonconforming materials, parts, or components is maintained in accordance with LP&L's quality assurance records management procedures. Information contained in the documentation includes but may not be limited to:

a) Identification of the nonconforming item;

b) Description of the nonconformance;

c) Inspection requirements;

d) Disposition of the nonconformance; and

e) Signature approval for disposition.

17.2.16 CORRECTIVE ACTION

17.2.16.1 General

17.1.16.1 Conditions adverse to quality, such as nonconforming items, equipment
17.1.16.2 failures, malfunctions, deficiencies, and deviations are promptly identified and corrected. Significant conditions adverse to quality are those which are reportable to the NRC within 24 hours or within 30 days in accordance with the Technical Specifications, which are reportable under 10CFR Part 21, which represent gross or widespread noncompliance with procedural requirements which negates the effectiveness of quality assurance controls, or any condition which has recurred with such a frequency that it indicates past corrective actions (if any) have been ineffective.

17.1.16.2 Conditions adverse to quality are evaluated, reported to supervision and/or Quality Assurance, and corrected in a manner consistent with safety. Those conditions adverse to quality determined to be significant are documented, the cause of the condition identified, and corrective action taken to prevent recurrence.

The Quality Assurance Manual establishes requirements for corrective action. Methods for implementing these requirements are documented in the procedures listed in Tables 17.2-3 and 17.2-4.

17.2.16.2 Procedural Requirements

Procedures and instructions for corrective action of adverse conditions include provisions for:

a) Each person employed by LP&L to identify and report to his immediate supervisor or a QA representative conditions suspected to be adverse to quality within his area of responsibility;

b) Supervisory review and classification of reported conditions adverse to quality;

c) Correction of adverse conditions; and

17.1.16.4 17.1.16.2 d) Documenting conditions adverse to quality and initiating corrective action to preclude recurrence.

Corrective action reports become part of the plant quality assurance records. The Quality Control Engineer verifies implementation of corrective action for 17.1.16.3 conditions adverse to quality within the plant (the Quality Assurance Manager for those external to the plant) and reviews documentation generated by the action before the corrective action report is closed.

17.2.16.3 Significant Conditions Adverse to Quality

For those conditions adverse to quality determined to be significant, the 17.1.16.4 corrective action is reviewed by PORC and approved by the Plant Manager. He has the authority to cause immediate temporary corrective action to be taken. Licensing makes a determination of reportability under 10CFR Part 21.

17.2.16.4 Contractor Responsibility

Contractors performing services or activities pertaining to the quality related portions of the plant or any quality related systems or components are required to comply with LP&L approved procedures which require conditions adverse to quality to be identified, reported, and corrected.

17.1.16.2 Conditions adverse to quality are evaluated, reported to supervision and/or Quality Assurance, and corrected in a manner consistent with safety. Those conditions adverse to quality determined to be significant are documented, the cause of the condition identified, and corrective action taken to prevent recurrence.

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Contractors performing services or activities pertaining to the quality related portions of the plant or any quality related systems or components are required to comply with LP&L approved procedures which require conditions adverse to quality to be identified, reported, and corrected.

17.2.17 QUALITY ASSURANCE RECORDS

17.2.17.1 General

17.1.17.1 Quality assurance records are those completed records that furnish documentary evidence of the quality of items or of activities affecting quality and those records required by the Technical Specifications. LP&L has established a Quality Assurance Records Management Program for Waterford-3. Requirements for control of QA records are established in the Quality Assurance Manual and procedures for their implementation are listed in Tables 17.2-3 and 17.2-4. This program meets the requirements of Regulatory Guide 1.88.

17.1.17.2 Q421.27 The Nuclear Administrative Services Manager is responsible for the management of quality assurance records and consequent assignment of records management responsibilities and authority. Organizations that initiate requests for services or materials are responsible for assuring that the applicable quality assurance records requirements are imposed upon the contractor or supplier/vendor.

17.2.17.2 Types of Records

17.1.17.1 Quality assurance records include but are not limited to the following:

a) Records completed during the design and construction of the plant, including design drawings and specifications; construction logs and results of reviews, inspections, tests, audits and monitoring of work performance; procurement documents; material analyses and certifications; NDE records; and other similar documents.

b) Documents and records compiled during operation, including operating logs; maintenance and modification records, reportable occurrences; results of reviews, inspections, tests and material analyses; monitoring of work performance; qualification of personnel, procedures and equipment; procurement documents and specifications; calibration records and nonconformance reports and corrective actions.

17.2.17.2

17.2.17.3 Inspection and Test Records

17.1.17.3 Inspection and test records include the following:

a) A description of the type of observation;

b) Evidence of completing and verifying a manufacturing, inspection or test operation;

c) The date and results of the inspection or test;

d) Information related to conditions adverse to quality;

e) Inspector and/or data recorder identification;

f) Evidence regarding the acceptability of the results; and

g) Action taken to resolve any discrepancies noted.

17.2.17.4 Corrections and Supplements

Quality assurance records required by codes and regulations are corrected or supplemented only in accordance with written procedures which provide for appropriate review and approval by the originating organization. The correction or supplement includes the date and the identification of the person authorized to issue each correction or supplement.

17.2.17.5 Retention and Storage of Records

17.1.17.4 Records are maintained current and complete and made available by applicable contractors and suppliers for audit by LP&L or its representative at any reasonable time. The records are maintained in facilities that provide a suitable environment to minimize deterioration and to prevent damage or loss. Written procedures are provided for records storage and maintenance.

The storage, location, preservation, retrieval, transmittal and disposition of quality assurance records for Waterford-3 is established by procedures. Quality assurance records are identifiable and retrievable. Singular record storage facilities are constructed, located and secured to prevent destruction of the records by fire, flooding, theft or deterioration by environmental conditions such as temperature and humidity. Dual record storage facilities may not meet all of these conditions.

Quality assurance records of suppliers and contractors are transferred to LP&L or retained and maintained in accordance with requirements of procurement documents which impose applicable codes and standards. Each organization responsible for the receipt of quality assurance records designates a responsible person or group for the review, acceptance, and forwarding for further processing of those quality assurance records they review. A listing of the required records is developed and available prior to or with the receipt of the records. The retention times of the records and the location of the record copies of the records is indicated in a records index. Records which may not be sent to and stored at the plant but retained by the safety related suppliers and contractors include but are not limited to the following:

a) Permanent records -

1) Design calculations

2) Verifications of design calculations

3) Technical evaluations, analyses and reports

b) Non-permanent records -

1) QA audits

2) Vendor audit reports

3) Pre-award QA surveys

Procurement documents specify that a manufacturer, supplier, consultant or contractor either retain radiographs produced by them for the life of the project and throughout commercial operation of Waterford-3 or that they send such radiographs to LP&L after being retained in accordance with contractural or code requirements. Radiographs received by LP&L from quality related consultants, contractors, manufacturers and suppliers are handled and stored in accordance with approved procedures.

17.2.18 AUDITS

17.2.18.1 General

17.1-18A1 The Quality Assurance Manager has the authority and organizational freedom (see Section 17.2.1) to schedule and perform internal and external audits of quality related programs and activities during the startup and operation of Waterford-3. Requirements for the audit program are established in the Quality Assurance Manual and procedures for its implementation are contained in the Quality Assurance Procedures Manual.

The audit system is designed to satisfy the requirements of 10CFR50, Appendix B, and the administrative section of the Technical Specifications. The Senior Vice President-Nuclear Operations has delegated to the Quality Assurance Manager the responsibility and authority to plan, schedule, conduct and report audits of activities associated with quality related functions of Waterford-3. Objectives of the audit program are:

a) To ensure that the LP&L Quality Assurance Program is defined and documented;

b) To verify on a regular basis by examination and evaluation of objective evidence that established requirements, methods, procedures and instructions are being implemented;

c) To assess the effectiveness of the Quality Assurance Program;

d) To identify program weaknesses and nonconformances; and

e) To verify correction of identified adverse conditions.

17.2.18.2 Audit Scope

17.1.18A1 Audits are conducted to verify that procedures and activities of LP&L organizations and its contractors/suppliers comply with the QA Program requirements. Audits are performed by the Quality Assurance Section to provide a comprehensive independent verification and evaluation of quality related procedures and activities. Additional audits are performed as required to verify and evaluate supplier QA programs, procedures, activities, and interface controls.

17.1.18A3 Audits include objective evaluation of work areas, activities and processes and the review of documents and records. Audits also include an objective evaluation of quality related practices, procedures and instructions, the effectiveness of their implementation and the compliance with policy directives.

17.1.18A4 Audits are performed in areas where 10CFR50, Appendix B, requirements are being implemented. These areas include, as a minimum, the quality related activities associated with:

a) Startup, operation, maintenance and modification;

b) The preparation, review, approval, and control of designs, specifications, procurement documents, instructions, procedures, and drawings;

c) Receipt inspection;

d) Indoctrination and training programs;

e) Implementation of operating and test procedures; and

f) Calibration of measuring and test equipment.

g) Interface control among LP&L organizations and contractors/consultants.

In addition to the above, audits are conducted of the Radiological Environmental Monitoring Program, the Emergency Plan, the Fire Protection Plan, the Security Plan, and any other areas required by LP&L Management, the Quality Assurance Manager or regulatory agencies. These audits are conducted in accordance with requirements of the guidance documents listed in Table 17.2-1.

17.2.18.3 Audit Planning and Scheduling

17.1.18A2 The Quality Assurance Manager is responsible for determining the need for audits of quality related programs and activities. The audit program includes a documented schedule of audits showing the organizations to be audited, the dates of the audits, and the areas to be audited, in accordance with

regulatory position C.4 of Regulatory Guide 1.33 and Section 6 of the Waterford-3 Technical Specifications. Audits are scheduled based on the status and safety importance of the activities to be audited. Audit frequency is determined by the requirement to ensure effective quality assurance during the startup testing and operational phases. The audit schedule is approved by the Quality Assurance Manager.

QA audits are planned and conducted in accordance with approved procedures. Audit planning includes preparation of checklists or procedures that will ensure consistency and completeness in the evaluation. Unresolved items noted during previous audits are reviewed prior to checklist preparation and included for re-audit as appropriate.

17.2.18.4 Audit Performance

17.1.18B2 Audits are performed using prepared checklists or audit procedures. The audit checklist is a guide and does not restrict the audit scope when additional investigation is needed. Audit notification, pre-audit conference, audit process and post-audit conference is in accordance with established procedures.

17.2.18.5 Audit Personnel

17.1.18B2 Audits are conducted by qualified LP&L auditors who are experienced, trained, and familiar with requirements and standards applicable to the area or activity being audited. Audit team members are independent of any direct responsibilities for the activities which they audit. Auditors participate in the LP&L Auditor Training Program and maintain proficiency through review and study of codes and standards related to quality assurance and through active participation in the audit program. LP&L lead auditors are certified in accordance with Regulatory Guide 1.146. Audit teams may include consultants and technical specialists not certified as auditors so long as they are under direct supervision of a certified lead auditor.

17.2.18.6 Audit Reporting and Follow-up

Audit procedures require that upon completion of an audit, findings are reported to responsible management of the organization audited. Any audit finding which requires immediate resolution is reported without delay to appropriate supervision. All findings are discussed in the exit interview.

Formal audit reports are issued within 30 working days of the exit interview. Distribution includes the Vice President-Nuclear Operations, the Quality Assurance Manager and the manager responsible for corrective action in the area audited. It is the responsibility of the cognizant manager to review the audit report and to take action as necessary to ensure that corrective action is accomplished in a timely manner. The QA Manager or the audit team leader is responsible for follow-up action (including re-audits) as required to

Table 17.2-1

REGULATORY GUIDANCE DOCUMENTS

Document	Comment
1. Appendix B to 10CFR50 - "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants	No exceptions.
2. 10CFR50 Part 55 - "Operators Licenses"	No exceptions
3. A. Regulatory Guide 1.8, Revision 1-R, September 1975, "Personnel Selection and Training" (Endorses ANSI N18.1-1971)	The qualifications of personnel in the Health Physics, Radwaste, and Chemistry Departments are in accordance with this Regulatory Guide and ANSI N18.1-1971.
B. ANSI/ANS 3.1-1978, "Standard for Selection and Training of Personnel for Nuclear Power Plants"	1. The qualifications of personnel other than those in the Health Physics, Radwaste and Chemistry Departments are in accordance with this standard. Specific commitments are shown in Table 13.1-3. 2. Members of the Independent Safety Engineering Group meet the qualification requirements of NUREG-0731-1980 instead of section 4.7.2 of this standard.
4. Regulatory Guide 1.30, August 1972 - "Quality Assurance Requirements for the Installation, Inspection and Testing of Instrumentation and Electrical Equipment" (Endorses ANSI N45.2.4-1972)	1. LP&L applies the provisions of this Regulatory Guide and its endorsed standard to Class IE equipment only.

Table 17.2-1

REGULATORY GUIDANCE DOCUMENTS

Document	Comment
5.	2. proposed change is requested on an emergency basis and that the independent body review is being conducted concurrently. 3. ANSI N18.7, Section 5.2.7, Maintenance and Modification: LP&L preplans and performs maintenance of equipment in accordance with written procedures except in emergency or abnormal conditions where immediate action is required to: a. Protect the health and safety of the public. b. Protect equipment or personnel. c. Prevent the deterioration of plant conditions to a potentially unsafe or unstable level. 4. Section 5.2.7.1, Maintenance Program LP&L may use approved procedures or vendor manuals for repair of safety related equipment. 5. LP&L will provide procedures for the activities in Appendix A of Regulatory Guide 1.33 as discussed in Section C-1 of this Regulatory Guide. However, LP&L does not consider all activities listed to be "safety related" (e.g., activities in 7.e).

Table 17.2-1

REGULATORY GUIDANCE DOCUMENTS

Document	Comment
6. Regulatory Guide 1.37, March 1973 - "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water Cooled Nuclear Plants" (Endorses ANSI N45.2.1-1973)	No exceptions
7. Regulatory Guide 1.38, Rev.2, May 1977 - "Quality Assurance Requirements for Packaging, Shipping and Receiving, Storage and Handling of Items for Water Cooled Nuclear Power Plants" (Endorses ANSI N45.2.2-1972)	For the storage of new fuel assemblies and neutron startup sources, LP&L commits to the storage requirements of Level B of ANSI N45.2.2-1972 less the flooding prevention requirements and will minimize dust and other particles contacting these items by planing a fire retardant polyethylene cover over these items or the cell locations in which the items are stored.
8. Regulatory Guide 1.39, Rev.2, September 1977 "Housekeeping Requirements for Water Cooled Nuclear Power Plants" (Endorses ANSI N45.2.3-1973)	The applicable portions of N45.2.3-1973 are followed at Waterford-3 within the guidelines of the Quality Assurance Manual. The zone designations of Section 2.1 of N45.2.3 and the requirements associated with each zone are not consistent with the requirements for an operating plant. Instead, procedures or instructions for housekeeping activities which include the applicable requirements outlined in Section 2.1 of N45.2.3 and which take into account radiation control considerations, security considerations, and personnel and equipment safety considerations are developed on a case basis.

Table 17.2-1

REGULATORY GUIDANCE DOCUMENTS

Document	Comment
9. Regulatory Guide 1.58, Rev. 1, September 1980 "Qualification of Nuclear Power Plant Inspection, Examination and Testing Personnel" (Endorses ANSI N45.2.6-1978)	Startup testing personnel are qualified to Regulatory Guide 1.58, Rev. 0, August 1973 as described in Section 14.2 of the Waterford 3 FSAR with the exception that the required physical reexamination shall be performed every two years and not annually as specified.
10. Regulatory Guide 1.64, Rev.2, June 1976 - "Quality Assurance Requirements for the Design of Nuclear Power Plants" (Endorses ANSI N45.2.11)	No exceptions
11. Regulatory Guide 1.70, Rev.2, September 1975 "Standard Format and Contents of Safety Analysis Reports for Nuclear Power Plants	No exceptions
12. Regulatory Guide 1.74, February 1974 - "Quality Assurance Terms and Definitions" (Endorses ANSI N45.2.10-1973)	No exceptions
13. Regulatory Guide 1.88, Rev.2, October 1976 "Collection, Storage and Maintenance of Nuclear Power Plant Quality Assurance Records" (Endorses ANSI N45.2.9, 1974)	No exceptions

Table 17.2-1

REGULATORY GUIDANCE DOCUMENTS

Document	Comment
14. Regulatory Guide 1.94, Rev.1, April 1976 - "Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During Construction Phase of Nuclear Power Plants (Endorses ANSI N45.2.5-1974)	No exceptions
15. Regulatory Guide 1.116, Rev.0-R, May 1977 - "Quality Assurance Requirements for Installation, Inspection and Testing of Mechanical Equipment and Systems" (Endorses ANSI N45.2.8-1975)	No exceptions.
16. Regulatory Guide 1.123, Rev.1, July 1977 - "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants" (Endorses ANSI N45.2.13-1976)	No exceptions
17. Regulatory Guide 1.144, Rev.1, September 1980 "Auditing of Quality Assurance Programs for Nuclear Power Plants" (Endorses ANSI N45.2.12)	LP&L takes exception to the following paragraphs of N45.2.12: Para. 2.3 - Training - Technical Specialists who assist in performing audits in their area of special expertise will not necessarily be trained in audit techniques; however, they will always be accompanied by a trained and qualified auditor. Para. 4.4 - Reports - Audit reports will be issued within 30 working days of the post audit meeting.

Table 17.2-1

REGULATORY GUIDANCE DOCUMENTS

Document	Comment
18. Regulatory Guide 1.146, August 1980 - "Qualifications of Quality Assurance Program Audit Personnel for Nuclear Power Plants" (Endorses ANSI N45.2.23-1978)	No exceptions

Table 17.2-2

LP&L NUCLEAR OPERATIONS QUALITY ASSURANCE PROGRAM DOCUMENTATION

Identification	Description	Approval and Control
4. Nuclear Management System Control Manual	A manual consisting of a set of Program Descriptions (PMDs) which prescribe the management policy, direction, and controls of safe and efficient operation of the Waterford-3 Nuclear Plant. This manual implements the requirements of the Nuclear Operations Quality Assurance Manual.	Prepared, issued, and controlled by the Nuclear Operations Department. Coordinated with other affected organizations, and approved by the Senior Vice President-Nuclear Operations. PMDs which prescribe quality related activities are reviewed for concurrence by the Assurance Manager or his designee before issue.
5. Waterford-3 Plant Operating Manual	A manual consisting of a set of procedures which prescribe required aspects of plant management and operation. This manual provides the mechanism through which the administrative controls and quality assurance requirements are implemented during the operation of Waterford-3.	Prepared by cognizant plant groups/ departments. Reviewed by the QC Engineer and PORC. Approved by the Plant Manager. Issued and controlled by plant document control. Procedures which govern "quality related" activities are reviewed for concurrence by the QA Manager or his desginee before issue.
6. Startup Administrative Procedures	A set of procedures (SAPs) which identify to LP&L contractor groups and others their respective responsibilities and the procedures which govern the administration of the Startup Test Program. These administrative procedures govern startup activities, prescribe areas of responsibility, identify the tasks of be performed, and outline the interface procedures.	Prepared by cognizant individuals in the startup group. Reviewed by the Startup Joint Test Group and approved by the Lead Startup Engineer. Issued and controlled by plant document control. Procedures which govern "quality related" activities are reviewed and concurred with by the QA Manager or his designee before issue.

Table 17.2-2

LP&L NUCLEAR OPERATIONS QUALITY ASSURANCE PROGRAM DOCUMENTATION

Identification	Description	Approval and Control
7. Nuclear Administrative Procedures	A set of procedures (NAPs) which prescribe activities and responsibilities within the Nuclear Project Support Group.	Prepared by cognizant personnel within the Project Support Group. Coordinated with affected personnel and/or organizations and approved by the Project Support Manager and reviewed for concurrence by the QA Manager. Issued and controlled by Project Support Document Control.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATIONS QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
1.	QR-1.0	Organization	Establishes the organizational structure and delineates the authority and responsibilities of individuals and organizations performing quality assurance activities.
2.	QR-2.0	Quality Assurance Program	Defines the scope of the Operational Nuclear Quality Assurance Program and establishes that activities affecting structures, systems and components important to safety will be conducted in accordance with approved procedures.
3.	QR-3.0	Design Control	Establishes requirements for the control of design of structures, systems and components important to safety, including the design of plant modifications.
4.	QR-4.0	Procurement Document Control	Establishes requirements for the control of procurement of structures, systems, components, materials and services important to safety.
5.	QR-5.0	Instruction, Procedures, and Drawings	Establishes requirements for the development and control of instructions, procedures and drawings for the operational phase of Waterford-3.
6.	QR-6.0	Document Control	Establishes requirements for the control of documents for structures, systems and components important to safety and identifies the types of documents to be controlled.
7.	QR-7.0	Control of Purchased Material, Equipment and Services	Establishes requirements for control purchased material, equipment and services, including control of suppliers and receiving inspection.
8.	QR-8.0	Identification and Control of Materials, Parts and Components	Establishes requirements for control of materials, parts and components.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATIONS QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
9.	QR-9.0	Control of Special Processes	Establishes requirements for control of special processes including welding, heat treating, NDE and chemical cleaning.
10.	QR-10.0	Inspection	Establishes requirements for inspection of materials and activities important to safety including criteria for determining when and how inspections are performed.
11.	QR-11.0	Test Control	Describes the scope of the test control program and establishes requirements for test procedures and instructions.
12.	QR-12.0	Control of Measuring and Test Equipment	Establishes requirements for control measuring and test equipment used for inspections, tests and monitoring of equipment and activities important to safety.
13.	QR-13.0	Handling, Storage and Shipping	Establishes requirements for handling, storage and shipping of structures, systems and components important to safety.
14.	QR-14.0	Inspection, Test and Operating Status	Establishes requirements for control of inspection, test and operating status of items and equipment important to safety.
15.	QR-15.0	Nonconforming Materials, Parts or Components	Establishes requirements for identification, documentation, segregation, review and disposition of nonconforming materials, parts and components.
16.	QR-16.0	Corrective Action	Establishes requirements for establishment of an effective corrective action program with followup to verify proper implementation.
17.	QR-17.0	Quality Assurance Records	Establishes requirements for a quality assurance records program including identification of types and content of records.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATION QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
18.	QR-18.0	Audits	Establishes requirements for audits of activities important to safety including audit program scope and methods.
19.	QP-2.1	Preparation and Revision of Quality Procedures	Describes the responsibilities for and the steps to be taken in developing, implementing, revising and controlling quality assurance procedures.
20.	QP-2.2	Preparation and Revision of Quality Requirements	Describes the responsibilities and methods for establishing, preparing, revising, issuing and controlling quality requirements.
21.	QP-2.3	Training and Qualification of Audit Personnel	Defines the responsibilities and and methods of administering QA auditor training and outlines required auditor qualifications.
22.	QP-4.7	Preparation and Processing of Procurement Documents	Defines requirements for preparation and processing of quality related procurement documents.
23.	QP-4.9	Evaluation of Supplier/ Contractor QA Programs	Defines responsibilities and methods for evaluation of supplier/contractor QA programs.
24.	QP-4.11	Qualified Supplier List	Defines the responsibilities and procedures for establishing a qualified suppliers list.
25.	QP-18.1	Conduct of Quality Assurance Audits	Defines responsibilities and methods utilized by the Quality Assurance Section for conducting internal and external audits of quality related activities.
26.	QP-18.2	Scheduling of Quality Assurance Audits	Defines responsibilities and methods for developing a schedule of audits to be conducted by the Quality Assurance Section.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATION QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
27.	PMD-GO-001	Policy and Organization	Defines the Nuclea. Operations Department organization, assigns responsibilities and establishes safe operation as the highest priority goal of the department. Assigns to the Plant Manager the overall responsibility to implement the quality assurance program at the plant and to stop work in any activity which is not in conformance with QA program requirements.
28.	PMD-GO-002	Procurement and Stores	Defines responsibility of the Quality Control Engineer and other plant personnel relative to procurement, inspection and storage of spare parts, materials and services.
29.	PMD-GO-023	Station Modification	Defines responsibilities for the control of station modifications and describes the program from initiation through implementation and final closeout, including approvals, safety review and quality control.
30.	PMD-GO-27	Program Preparation	Defines a standard format for development of Program Descriptions (PMDs) and establishes a mechanism for their review, approval and control.
31.	PMD-OP-001	Operations Organization and Administration	Describes a clearly defined and properly staffed plant operations organization which assigns responsibilities appropriately and delegates authority for safe and reliable operation.
32.	PMD-OP-004	Tag Out	Provides a mechanism to control and document the removal and replacement of equipment and systems from as operational status in order to perform maintenance, inspections, tests or modifications.
33.	PMD-OP-006	Plant Status Controls	Ensures that the plant is maintained in a condition that guarantees availability of equipment and systems necessary for safe operation.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATION QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
34.	PMD-QP-001	Quality Control Organization and Administration	Ensures through review and inspection verification that systems, parts and components important to safety maintained in accordance with documented plant procedures, instructions and drawings.
35.	PMD-UNT-001	Records Management and Document Control	Provides the methods for collection, retention and control of plant records and for the control and distribution of plant documents.
36.	PMD-MD-005	Measuring and Test Equipment Control	Ensures the control of measuring and test equipment used in support of construction, startup and plant operation.
37.	PMD-MD-009	Control of Special Processes	Ensures the proper control of special processes, including welding, heat treatment, nondestructive examination and chemical cleaning.
38.	PMD-TR-002	General Employee Training	Ensures that onsite personnel are indoctrinated in the general procedures for nuclear plant and personal safety.
39.	PDM-TR-010	Nuclear Operations Department Training Program	Ensures that Nuclear Operations Department personnel possess the fundamental technical background, skills and plant-specific qualifications necessary to perform their position functions safely and efficiently and to understand the impact of their actions on plant operations and safety.
40.	POM-QP-1-001	Quality Control Group Organization and Responsibilities	Delineates the organizational status, qualifications and responsibilities of the of the Plant Quality Control (QC) Group.
41.	POM-QP-1-003	QA Review of Procedures, Completed Test Procedures and Test Records	Provides direction to QA personnel for performing reviews of test and inspection plans and calibration, special process, maintenance, modification and repair procedures.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATION QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
42.	POM-QP-1-004	Stop Work (Station Quality Control)	Describes authority, responsibilities and steps of the Quality Control Group in stopping work that is adverse to quality.
43.	POM-QP-1-005	Quality Control Inspector Qualifications and Training	Describes QA Inspector training and qualification requirements.
44.	POM-QP-1-009	Nondestructive Examination	Establishes direction for the implementation and use of the Middle South Services NDE Manual.
45.	POM-QP-1-010	Issue and Control of QC Inspector Identification Stamps	Establishes a method for issuing, using, and controlling identification stamps used by QC inspectors.
46.	POM-QP-1-011	QC Inspection	Establishes a uniform method of performing and documenting inspection activities.
47.	POM-QP-1-012	QC Inspection Seals	Specifies the methods and responsibilities for controlling inspection seals.
48.	POM-QP-2-001	QC Receipt Inspection	Establishes the responsibilities and provides direction to QC personnel for conducting receipt inspections of materials, parts and components.
49.	POM-QP-2-003	QC Surveillance	Provides instructions to the QC Group for reporting discrepancies found during unscheduled observations of daily activities.
50.	POM-QP-2-004	QC Housekeeping Inspection	Provides direction to QC personnel performing general housekeeping inspections.
51.	POM-QP-2-007	QC Materials Storage Inspection	Establishes guidelines for performing QC warehouse inspections.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATION QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
52.	POM-QP-2-008	QC Cleanliness Inspection	Specifies measures to be used by the QC Group in performance of cleanliness inspections of material, components, equipment and facilities.
53.	POM-PE-2-019	Processing of Station Modifications	Specifies the process for preparation, routing, review, approval and implementation of station modifications.
54.	POM-UNT-1-007	Nonconformances and Corrective Action	Establishes measures for determining and documenting nonconforming conditions and for assuring actions to correct the conditions that lead to the nonconformance.
55.	POM-UNT-8-001	Preparation of Station Procurement Documents	Delineates the required methods for the preparation of purchase requisitions for material, equipment and services important to safety.
56.	POM-UNT-8-002	Processing of Station Procurement Documents	Defines the requirements for onsite processing and review of purchase requisitions.
57.	POM-UNT-8-003	Procurement Procedure	Provides a mechanism to procure items through a controlled process of transferring ownership from construction or other organizations to LP&L.
58.	POM-UNT-8-011	Storing, Issuing, Shipping, and Receiving	Defines the primary responsibilities and methods for the receipt, inspection, storage, issuance and documentation of materials in the plant warehouse.
59.	NAP-003	Operation of Nuclear Records	Provides instruction to control the identification, routing, collection, retention, retrieval and maintenance of documents required for permanent records.
60.	NAP-004	Waterford-3 Project Support Group Organi- Responsibilities	Describes the Nuclear Support Group organizational structure and zation and responsibilities.

Table 17.2-3

TYPICAL LP&L NUCLEAR OPERATION QUALITY ASSURANCE PROGRAM DOCUMENTS

	Document	Activity Addressed	Document Content
61.	NAP-008	Orientation Training of Nuclear Project Support Personnel	Prescribes the training program for Nuclear Project Support Group Personnel.

Key: QR - Quality Requirement. These requirements, issued in the Nuclear Operations Quality Assurance Manual, are approved and controlled by the Quality Assurance Manager and approved by the Senior Vice President-Nuclear Operations.

QP - Quality Procedure. These procedures are issued in the Quality Assurance Procedures Manual. They are approved and controlled by the Quality Assurance Manager.

PMD - Program Management Description. These programs are issued in the Nuclear Management System Control Manual. They are approved and controlled by the Senior Vice President-Nuclear Operations. Those PMDs that affect quality are concurred with by the Quality Assurance Manager.

NAP - Nuclear Administration Procedure. These procedures in the Nuclear Project Support Group Administrative Manual, are approved and controlled by the Project Support Manager. They are concurred with by the Quality Assurance Manager.

POM - Plant Operation Manual. The procedures in this manual are approved and controlled by the Plant Manager. Those POMs affecting quality are concurred with by the Quality Assurance Manager.

Table 17.2-4

10CFR50, APPENDIX B, IMPLEMENTING PROCEDURE MATRIX

	Appendix B Criterion	Quality Assurance	Project Support	Plant Operations	Administrative Services	Training
I.	Organization	QR-1.0 QP-1.1	QR-1.0 PMD-GO-001 NAP-004	QR-1.0 PMD-GO-001 PMD-QP-001 PMD-QP-001 POM-QP-1-001 POM-QP-1-004	QR-1.0 PMD-GO-001	QR-1.0 PMD-GO-001
II.	Quality Assurance Program	QR-2.0 QP-2.2 QP-2.3 QP-2.5	QR-2.0 PMD-GO-001 PMD-QP-001 PMD-TR-002 PMD-TR-0110 POM-QP-1-005 POM-QP-2-004 POM-QP-2-008	QR-2.0 PMD-GO-001 PMD-TR-002 PMD-TR-010	QR-2.0 PMD-GO-001 PMD-TR-002 PMD-TR-010	QR-2.0 PMD-GO-001 PMD-TR-002 PMD-TR-010
III.	Design Control	QR-3.0	QR-3.0 PMD-GO-023 NAP-301 NAP-302 NAP-303 NAP-304	QR-3.0 PMD-GO-023	QR-3.0 PMD-GO-023	QR-3.0 PMD-GO-023
IV.	Procurement Document Control	QR-4.0 QP-4.7	QR-4.0	QR-4.0 PMD-GO-002 POM-QP-1-006 POM-UNT-8-001 POM-UNT-8-002 POM-UNT-8-003	QR-4.0 PMD-GO-002	QR-4.0
V.	Instructions, Procedures, and Drawings	QR-5.0 QP-2.1 QP-2.2	QR-5.0 PMD-GO-027	QR-5.0 PMD-GO-027	QR-5.0 PMD-GO-027	QR-5.0 PMD-GO-027

Table 17.2-4

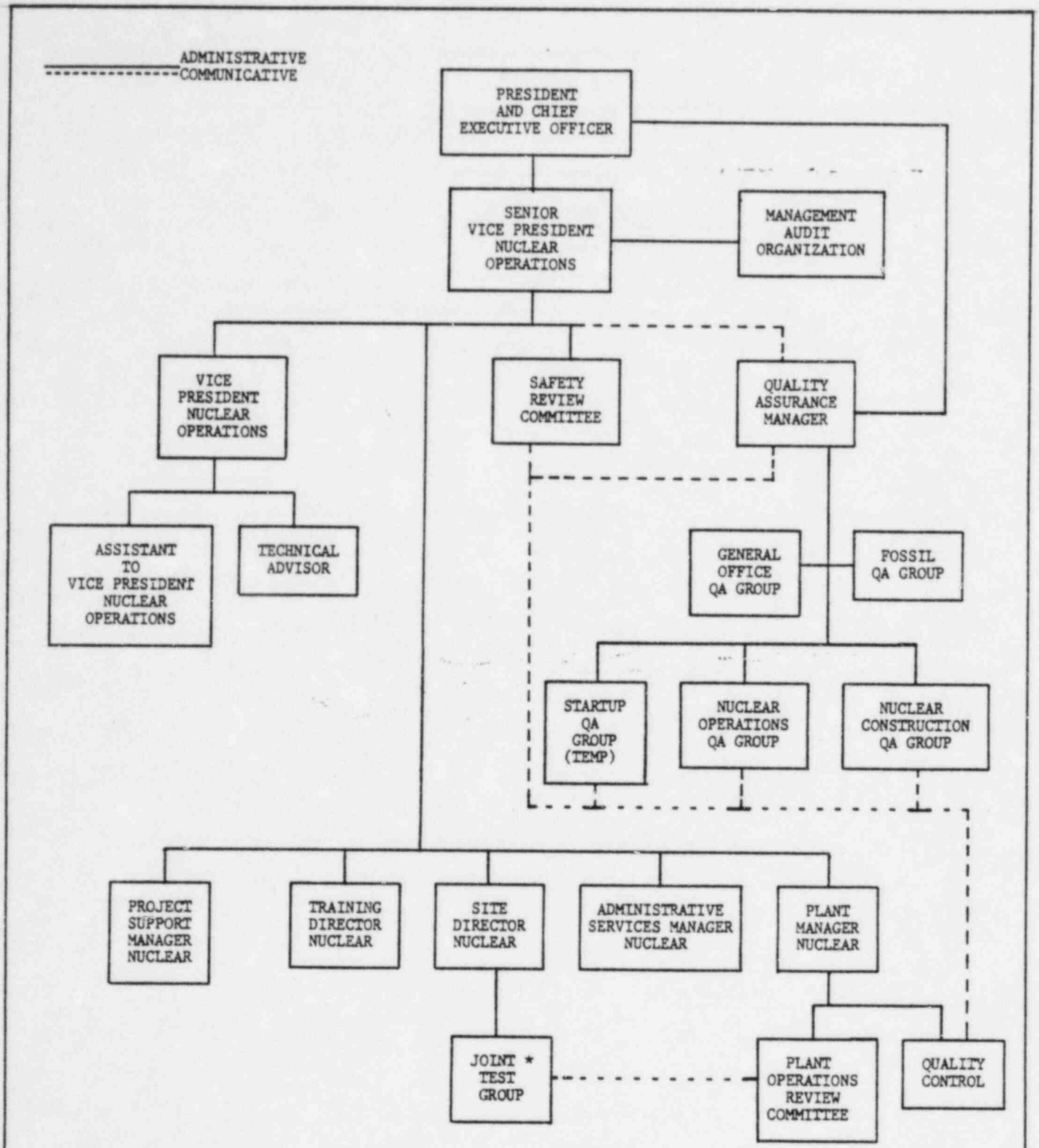
10CFR50, APPENDIX B, IMPLEMENTING PROCEDURE MATRIX

	Appendix B Criterion	Quality Assurance	Project Support	Plant Operations	Administrative Services	Training
VI.	Document Control	QR-6.0	QR-6.0	QR-6.0 PMD-UNT-001 POM-QP-1-003	QR-6.0 PMD-UNT-001	QR-6.0
VII.	Control of Purchased Material, Equipment and Services	QR-7.0 QP-4.9 QP-4.11	QR-7.0	QR-7.0 PMD-GO-002 POM-QP-2-001 POM-QP-2-007	QR-7.0	QR-7.0
VIII.	Identification and Control of Materials, Parts and Components	QR-8.0	QR-8.0	QR-8.0	QR-8.0	QR-8.0
IX.	Control of Special Process	QR-9.0	QR-9.0	QR-9.0 PMD-MD-009 POM-QP-1-009	QR-9.0	QR-9.0
X.	Inspection	QR-10.0	QR-10.0	QR-10.0 POM-QP-1-010 POM-QP-1-011 POM-QP-1-012	QR-10.0	QR-10.0
XI.	Test Control	QR-11.0	QR-11.0	QR-11.0	QR-11.0	QR-11.0
XII.	Control of Measuring and Test Equipment	QR-12.0	QR-12.0	QR-12.0 PMD-MD-005	QR-12.0	QR-12.0
XIII,	Handling, Storage, and Shipping	QR-13.0	QR-13.0	QR-13.0 POM-UNT-8-011	QR-13.0	QR-13.0
XV.	Nonconforming Materials, Parts, or Components	QR-15.0	QR-15.0	QR-15.0 POM-UNT-1-007	QR-15.0	QR-15.0

Table 17.2-4

10CFR50, APPENDIX B, IMPLEMENTING PROCEDURE MATRIX

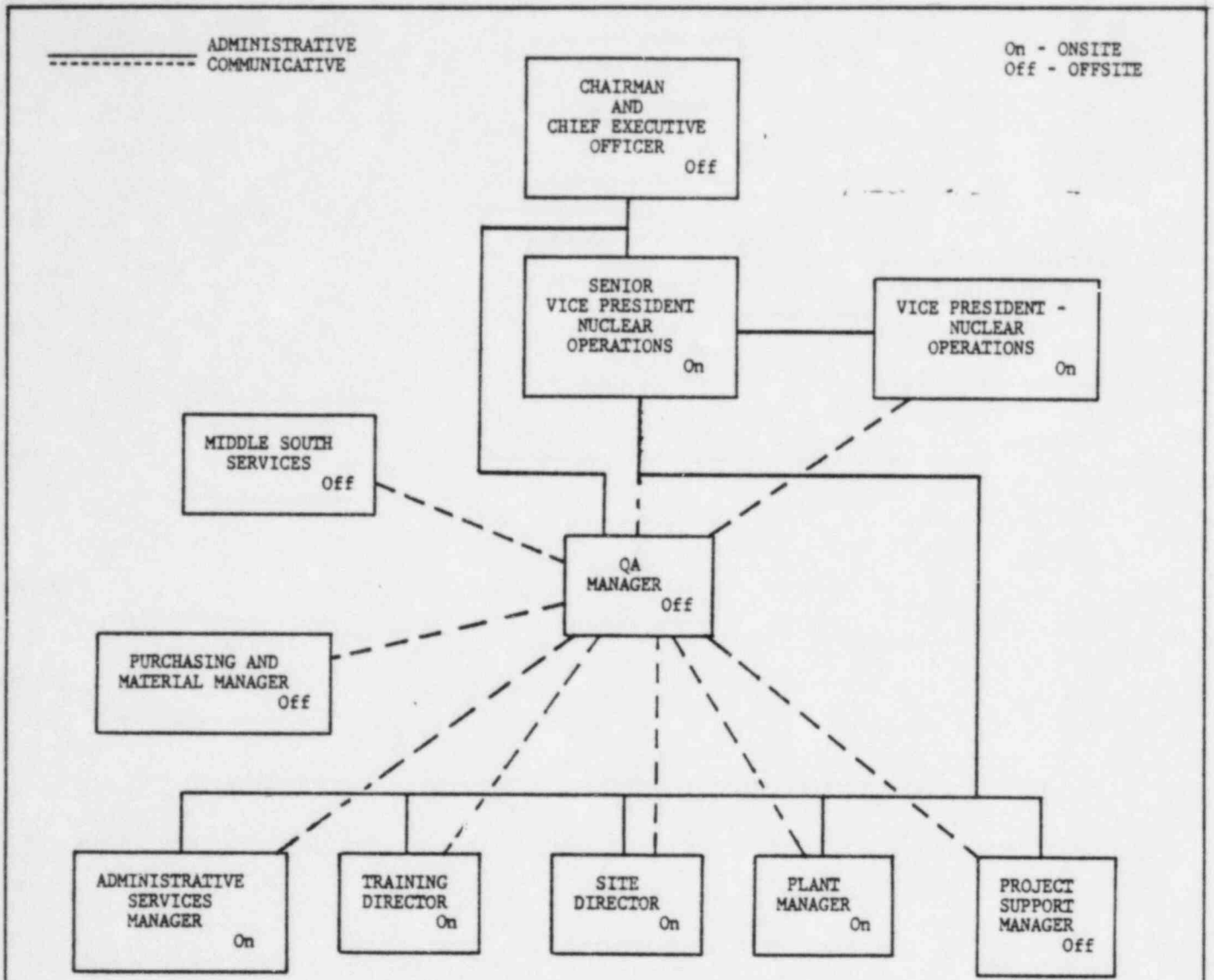
	Appendix B Criterion	Quality Assurance	Project Support	Plant Operations	Administrative Services	Training
XVI.	Correction Action	QR-16.0	QR-16.0	QR-16.0 POM-QP-2-003 POM-UNT-1-007	QR-16.0	QR-16.0
XVII.	Quality Assurance Records	QR-17.0	QR-17.0 NAP-003	QR-17.0	QR-17.0	QR-17.0
XVIII.	Audits	QR-18.0 QP-18.1 QP-18.2	QR-18.0	QR-18.0	QR-18.0	QR-18.0



* The JTG, Site Director, & Startup QA Group, will exist until Waterford 3 is operational.

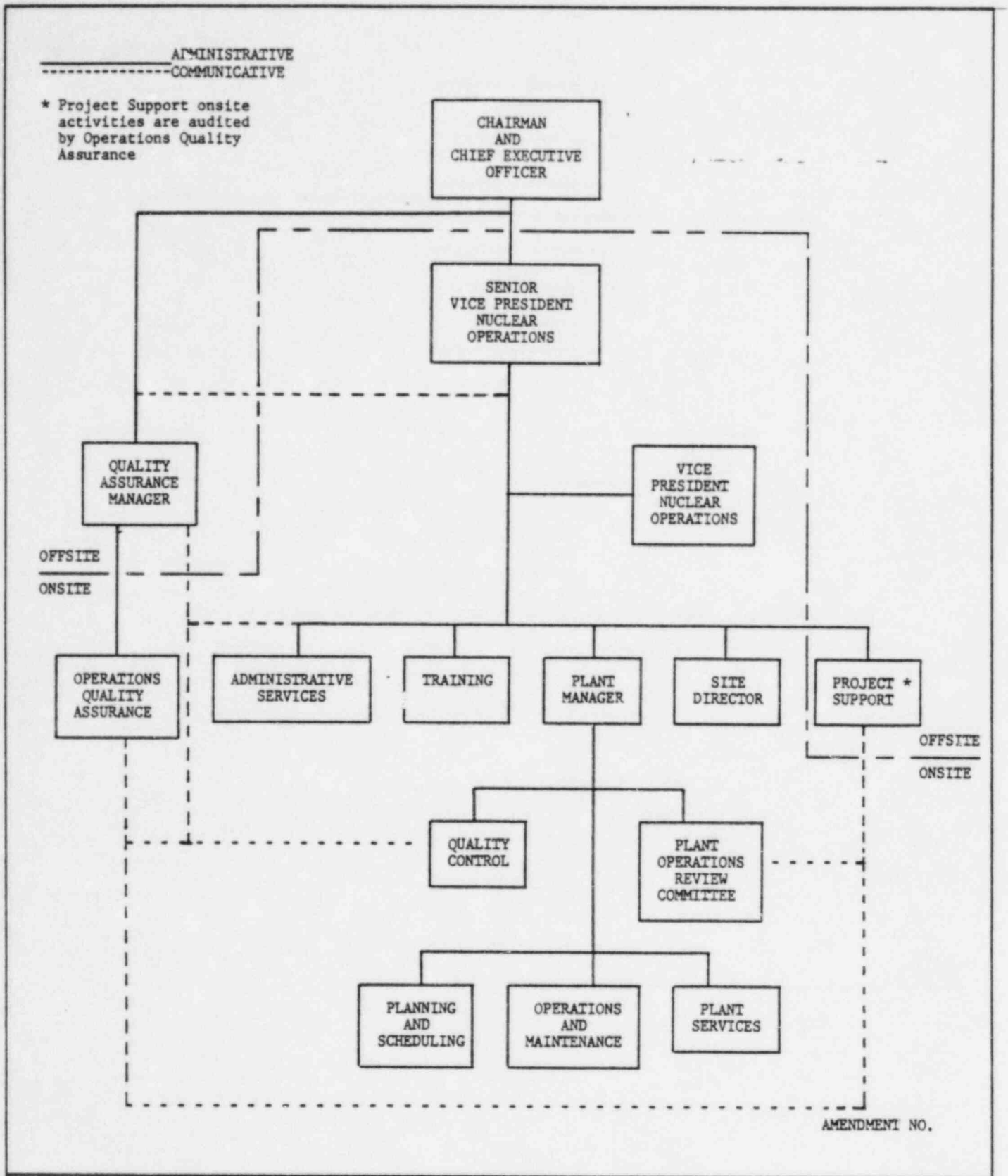
AMENDMENT NO.

LOUISIANA POWER & LIGHT CO. WATERFORD STEAM ELECTRIC STATION	CORPORATE ORGANIZATION FOR OPERATIONAL NUCLEAR QUALITY ASSURANCE	FIGURE 17.2-1

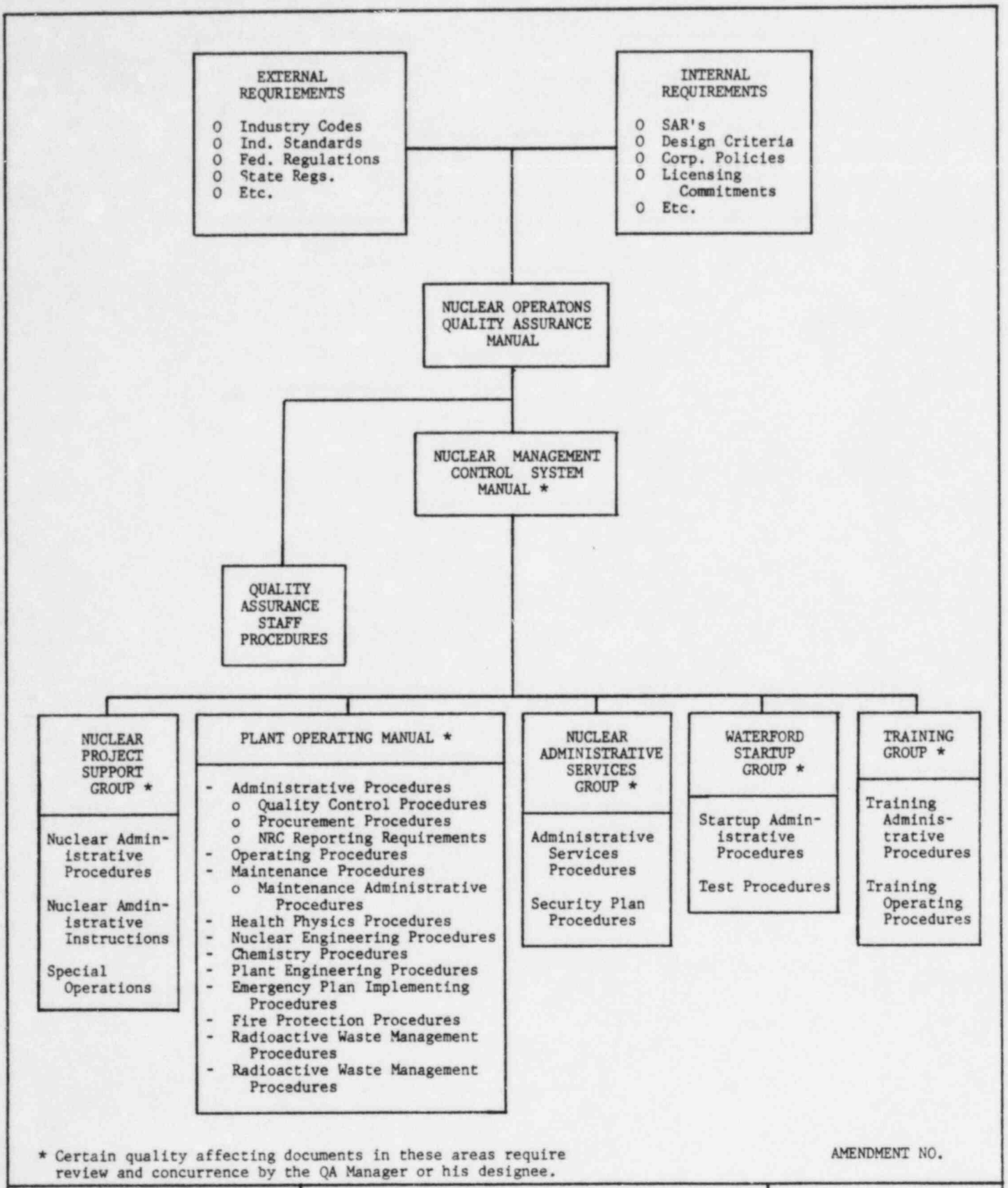


AMENDMENT NO.

LOUISIANA POWER & LIGHT CO. WATERFORD STEAM ELECTRIC STATION	ORGANIZATION AFFECTING QUALITY DURING PREOPERATIONAL TESTING AND OPERATIONS	FIGURE 17.2-2



LOUISIANA POWER & LIGHT CO. WATERFORD STEAM ELECTRIC STATION	ONSITE ORGANIZATION FOR OPERATIONAL NUCLEAR QUALITY ASSURANCE	FIGURE 17.2-3



* Certain quality affecting documents in these areas require review and concurrence by the QA Manager or his designee.

AMENDMENT NO.

LOUISIANA POWER & LIGHT CO. WATERFORD STEAM ELECTRIC STATION	HIERARCHY OF QUALITY RELATED REQUIREMENTS, PROGRAMS, AND PROCEDURES	FIGURE 17.2-4

U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

OFFICE OF NUCLEAR REACTOR REGULATION

17.1 QUALITY ASSURANCE DURING THE DESIGN AND CONSTRUCTION PHASES

REVIEW RESPONSIBILITIES

Primary - Quality Assurance Branch (QAB)

Secondary - Mechanical Engineering Branch
Instrumentation & Control Systems Branch
Power Systems Branch
Accident Evaluation Branch
Radiological Assessment Branch
Hydrologic & Geotechnical Engineering Branch
Containment Systems Branch

I. AREAS OF REVIEW

QAB reviews and evaluates the description of the quality assurance (QA) program for the design and construction phases in each application for a construction permit (CP), a manufacturing license, or a standardized design approval in accordance with applicable portions of this section of the Standard Review Plan. The secondary review branches review the listing of structures, systems, and components (QA list) covered by the QA program for their areas of review responsibility in accordance with 2A1 of this section of the Standard Review Plan and documents the acceptability of the listing including any items that should be added or clarified by memo to the QAB. The review by MEB in this regard also addresses the areas of review responsibility normally assigned to ASB, RSB, CEB, PSB (except electrical), and SEB.

Pre-Docketing

Prior to docketing a CP application, the NRC performs a substantive review of the applicant's QA program description relative to ongoing design and procurement activities. This review and associated inspection are performed immediately after tendering of a CP application to determine that a satisfactory QA program has been established and is being implemented.

The pre-docketing substantive review places particular emphasis on the areas of organization, QA program, design control, procurement document control, and

audit. The application is not docketed unless the established and implemented program in these areas has no substantive deviation from NRC QA guidance applicable to activities conducted prior to docketing. Representatives from the offices of NRR and IE may meet with the applicant's representatives nine to twelve months prior to tendering of the application to provide a clear understanding of what is expected in the QA program description and the implemented program in order for the program to be accepted during the substantive review and associated inspection.

Where an NRC-accepted QA topical report is referenced in the application, the referenced QA program is not re-reviewed except for conformance to the applicable staff positions in this SRP section and the Regulatory Guides in effect at the time of docketing the application. For the case of CP applications referencing a standard design that includes an approved QA program directly or by reference, the applicant need not conform to new or revised Regulatory Guides unless they contain regulatory positions determined to be significant to safety, as indicated in the implementation section of each guide.

Post-Docketing

The QAB review, after docketing, covers the QA controls to be applied by the applicant and principal contractors to activities that may affect the quality of structures, systems, and components important to safety. These activities include site testing and evaluation (starting with evaluation of exposed excavated surfaces, determination of site characteristics, and testing), designing, purchasing, fabricating, constructing, handling, shipping, storing, cleaning, erecting, installing, inspecting, and testing. This review extends to the determination of how the applicable requirements of the eighteen criteria of Appendix B to 10 CFR 50 are satisfied by the proposed QA program.

The areas of review are as follows:

1. ORGANIZATION

   A. Organizational description and charts of the lines, interrelationships and areas of responsibility and authority for all organizations performing quality-related activities, including the applicant's organization and principal contractors (architect engineer, nuclear steam supply system vendor, constructor, and construction manager when other than the constructor).

   B. Organizational location, degree of independence from the performing organization, and authority of the individuals assigned the responsibility for performing QA functions.

   C. Organizational provisions for assuring the proper implementation of the QA program.

2. QUALITY ASSURANCE PROGRAM

   A. Scope of the QA program.

   B. Provisions to assure proper definition of the QA program.

   C. Programmatic provisions to assure proper implementation of the QA program.

D. Provisions to assure adequacy of personnel qualifications.

3. DESIGN CONTROL

A. Scope of the QA program for design activities.

B. The organizational structure, activity, and responsibility of the positions or groups responsible for design activities.

C. Provisions to carry out design activities in a planned, controlled, and orderly manner.

D. Provisions for interface control.

E. Provisions to verify or check the technical adequacy of design documents.

F. Provisions to control design changes.

4. PROCUREMENT DOCUMENT CONTROL

A. Provisions which assure that applicable regulatory requirements, technical requirements, and QA program requirements are included or referenced in procurement documents.

B. Provisions for review and approval of procurement documents.

5. INSTRUCTIONS, PROCEDURES, AND DRAWINGS

A. Provisions for assuring that activities affecting quality are prescribed by and accomplished in accordance with documented instructions, procedures, or drawings.

B. Provisions for including quantitative and qualitative acceptance criteria in instructions, procedures, and drawings.

6. DOCUMENT CONTROL

A. Provisions to assure that documents, including changes, are reviewed for adequacy, approved for release by authorized personnel, and distributed and used at the location where the prescribed activity is performed.

B. Provisions to prevent the inadvertent use of obsolete or superseded documents.

7. CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

A. Provisions for the control of purchased material, equipment, and services; for selection of suppliers; and for assessing the adequacy of quality.

B. Provisions to assure that documented evidence of the conformance of material and equipment to procurement requirements is available at the plant site prior to installation or use.

8. IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

   A. Provisions to identify and control materials, parts, and components.

   B. Provisions to assure that incorrect or defective items are not used.

9. CONTROL OF SPECIAL PROCESSES

   A. Provisions to assure the acceptability of special processes such as welding, heat treating, nondestructive testing, and chemical cleaning.

   B. Provisions to assure that special processes are performed by qualified personnel using qualified procedures and equipment.

10. INSPECTION

   A. Provisions for the inspection of activities affecting quality, including the items and activities to be covered.

   B. Organizational responsibilities and qualifications established for individuals or groups performing inspections.

   C. Prerequisites to be provided in the written inspection procedures with provisions for documenting and evaluating inspection results.

11. TEST CONTROL

   A. Provisions for tests which assure that structures, systems, and components will perform satisfactorily in service.

   B. Prerequisites to be provided in written test procedures with provisions for documenting and evaluating test results.

   C. Personnel qualification programs established for test personnel.

12. CONTROL OF MEASURING AND TEST EQUIPMENT

   Provisions to assure that tools, gages, instruments, and other measuring and testing devices are properly identified, controlled, calibrated, and adjusted at specified intervals.

13. HANDLING, STORAGE, AND SHIPPING

   Provisions to control handling, storage, shipping, cleaning, and preservation of items in accordance with work and inspection instructions to prevent damage, loss, and deterioration by environmental conditions such as temperature or humidity.

14. INSPECTION, TEST, AND OPERATING STATUS

   Provisions to indicate the inspection, test, and operating status of items to prevent inadvertent use or bypassing of inspection and tests.

15. NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

Provisions to control the use or disposition of nonconforming materials, parts, or components.

16. CORRECTIVE ACTION

Provisions to assure that conditions adverse to quality are promptly identified and corrected and that measures are taken to preclude repetition.

17. QUALITY ASSURANCE RECORDS

Provisions for the identification, retention, retrieval, and maintenance of records that furnish evidence of activities affecting quality.

18. AUDITS

A. Provisions for audits to verify compliance with all aspects of the QA program and to determine the effectiveness of the QA program.

B. Responsibilities and procedures for auditing, documenting and reviewing audit results, and designating management levels to review and assess audit results.

II. ACCEPTANCE CRITERIA

The applicant (and its principal contractors such as the NSSS vendor, A/E, constructor and construction manager) must establish a QA program for the design and construction phases in accordance with Appendix B to 10 CFR Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." The applicant's QA program (including its principal contractors) must describe in the PSAR or SSAR how each criterion of Appendix B will be met. The acceptance criteria used by the QAB to evaluate this QA program are listed in the following eighteen subsections. The acceptance criteria include a commitment to comply with the regulations, regulatory positions presented in the appropriate issue of the Regulatory Guides, and the Branch Technical Position listed in subsection V. Thus, the commitment constitutes an integral part of the QA program description and requirements. Exceptions and alternatives to these acceptance criteria may be adopted by applicants provided adequate justification is given; the QAB review allows for considerable flexibility in defining methods and controls while still satisfying pertinent regulations. When the QA program description meets the applicable acceptance criteria of this subsection or provides acceptable exceptions or alternatives, the program is considered to be in compliance with pertinent NRC regulations.

The review will ascertain that the commitments and the description of how the commitments are implemented, to the extent necessary, are objective and stated in inspectable terms.

The Organization (17.1.1) elements responsible for the QA program are acceptable if:

17.2.1.2.1 1A1.* The responsibility for the overall program is retained and exercised by the applicant.

17.2.1.1 17.2.1.2.1 17.2.1.2.16 1A2. The applicant has identified and described major delegation of work involved in establishing and implementing the QA program or any part thereof to other organizations.

1A3. When major portions of the applicant's program are delegated:

17.2.1.2 a. Applicant describes how responsibility is exercised for the overall program. The extent of management oversight should be addressed including the location, qualifications, and criteria for determining the number of personnel performing these functions.

b. Applicant evaluates the performance (frequency and method stated - once per year although longer cycle acceptable with other evaluations of individual elements) of work by the delegated organization.

c. Qualified individual(s) or organizational element(s) are identified within the applicant's organization as responsible for the quality of the delegated work prior to initiation of activities.

N/A 1A4. Clear management controls and effective lines of communication exist for QA activities among the applicant and the principal contractors to assure direction of the QA program.

17.2.1.2 1A5. Organization charts clearly identify all the "onsite" and "offsite" organizational elements which function under the cognizance of the QA program (such as design, engineering, procurement, manufacturing, construction, inspection, test, instrumentation and control, nuclear engineering, etc.), the lines of responsibility, and a description of the criteria for determining the size of the QA organization including the inspection staff.

17.2.1.2 1A6. The applicant (and principal contractors) describes the QA responsibilities of each of the organizational elements noted on the organization charts.

17.2.1.2.5 1B1. The applicant (and principal contractors) identifies a management position that retains overall authority and responsibility for the QA program (normally, this position is the QA Manager) and this position has the following characteristics:

17.2.1.2.5 (FIGS. 17.2-1 17.2-2) a. Is at the same or higher organization level as the highest line manager directly responsible for performing activities affecting quality (such as engineering, procurement, construction, and operation) and is sufficiently independent from cost and schedule.

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* The alphanumeric designation for each acceptance criterion in subsection II indicates its relationship to the areas of review identified in subsection I.

FIG 17.2-2

b. Has effective communication channels with other senior management positions.

17.2.1.2.5.1

c. Has responsibility for approval of QA Manual(s).

17.2.1.2.5

d. Has no other duties or responsibilities unrelated to QA that would prevent his full attention to QA matters.

17.2.1.2.5 17.2.1.2.5(e) 17.2.1.2.8

1B2. Verification of conformance to established requirements (except for designs, ref. 3E2) is accomplished by individuals or groups within the QA organization who do not have direct responsibility for performing the work being verified or by individuals or groups trained and qualified in QA concepts and practices and independent of the organization responsible for performing the task.

17.2.1.2.5 17.2.1.2.8.1

1B3. Persons and organizations performing QA functions have direct access to management levels which will assure the ability to:

a. Identify quality problems.

b. Initiate, recommend, or provide solutions through designated channels.

c. Verify implementation of solutions.

Those persons and organizations with the above authority are identified and a description of how those actions are carried out is provided.

17.2.1.2.5 17.2.1.2.8.1

1B4. a. Designated QA personnel, sufficiently free from direct pressures for cost/schedule, have the responsibility delineated in writing to stop unsatisfactory work and control further processing, delivery, or installation of nonconforming material.

b. The organizational positions with stop work authority are identified.

17.2.2.4

1B5. Provisions are established for the resolution of disputes involving quality, arising from a difference of opinion between QA personnel and other department (engineering, procurement, manufacturing, etc.) personnel.

17.2.1.2.5.4 17.2.1.2.8

1B6. Designated QA individuals are involved in day-to-day plant activities important to safety (i.e., the QA organization routinely attends and participates in daily plant work schedule and status meetings to assure they are kept abreast of day-to-day work assignments throughout the plant and that there is adequate QA coverage relative to procedural and inspection controls, acceptance criteria, and QA staffing and qualification of personnel to carry out QA assignments).

17.2.1.2.2

1C1. Policies regarding the implementation of the QA program are documented and made mandatory. These policies are established at the Corporate President or Vice President level.

17.2.1.2.5.1

1C2. Position description (see 1B1) assures that the individual directly responsible for the definition, direction, and effectiveness of the overall QA program has sufficient authority to effectively implement

17.2.2.10 d. The identification of fire protection in SRP Section 9.5.1 as a system covered by the QA program or identification of the QA controls for fire protection. These controls are reviewed and accepted using the guidelines contained in BTP ASB 9.5-1 and 10 CFR Part 50 Appendix B as appropriate.

17.2.2.6 e. A commitment that special equipment, environmental conditions, skills, or processes will be provided as necessary.

17.2.2.1 2A2. A brief summary of the company's corporate QA policies is given.

2B1. a. Provisions are established to assure that quality-affecting procedures required to implement the QA program are consistent with QA program commitments and corporate policies and are properly documented, controlled, and made mandatory through a policy statement or equivalent document signed by the responsible official.

17.2.2.2

17.2.5.4 b. The QA organization reviews and documents concurrence with these quality-related procedures.
TABLE 17.2-2
FIG 17.2-4

17.2.2.2 c. The organizational group or individual having responsibility for the policy statement should be identified.

17.2.4.5 d. The quality affecting procedural controls of the principal contractors should be provided for the applicant's review with documented agreement of acceptance prior to initiation of activities affected by the program.

2B2. Provisions are included for notifying NRC of changes (1) for review and acceptance in the accepted description of the QA program as presented or referenced in the SAR or SSAR prior to implementation, and (2) in organizational elements within 30 days after announcement. (Note - editorial changes or personnel reassignments of a non-substantive nature do not require NRC notification).

17.2.2.9

2B3. The applicant (and the principal contractors) commits to comply with the regulatory position in the appropriate issue of the Regulatory Guides listed in Subsection V; to comply with 10 CFR Part 50, §50.55a; to conduct activities under 10 CFR Part 50, §50.55(e) in accordance with the QA program; and to comply with 10 CFR Part 50 Appendix A, General Design Criterion 1. For systems, components, and structures covered by the ASME Code Section III (Classes 1, 2 and 3), the quality assurance code requirements should be supplemented by the specific guidance addressed in the regulatory positions of the applicable Regulatory Guides. The commitment identifies the Regulatory Guides and ANSI standard by number, title, and revision or date. Any alternatives or exceptions are clearly identified and supporting information presented in the docket. QA Regulatory Guides should be addressed which have an implementation date prior to the submittal or docket date of the QA program description.

17.2.2.2
TABLE 17.2-1

Although primary responsibility for Regulatory Guides 1.26 and 1.29 is assigned to ASB (SRP Sections 3.2.1 and 3.2.2), their use as acceptance criteria in this SRP section is necessary to assure that

adequate quality assurance requirements are specified for systems, components, and structures addressed by those guides.

The QA organization and the necessary technical organizations participate early in the QA program definition stage to determine and identify the extent QA controls are to be applied to specific structures, systems, and components. This effort involves applying a defined graded approach to certain structures, systems, and components in accordance with their importance to safety and affects such disciplines as design, procurement, document control, inspection tests, special processes, records, audits, and others described in 10 CFR Part 50, Appendix B.

TABLE 17.2-3

2B4. Existing or proposed QA procedures are identified reflecting that Regulatory Guides listed in subsection VI, General Design Criterion 1 of Appendix A to 10 CFR Part 50, 10 CFR Part 50, §50.55a, and each criterion of 10 CFR Part 50, Appendix B will be met by documented procedures. In addition, activities conducted under 10 CFR Part 50, §50.55(e) shall conform to the requirement of the QA program.

17.2.2
TABLE 17.2-4

2B5. A description is provided that emphasizes how the docketed QA program description, particularly the 10 CFR Part 50 regulations and Regulatory Guides listed in subsection V, will be properly carried out.

17.2.1.2.3
17.2.1.2.15
17.2.18.7
17.2.2.7
17.2.18.8

2C1. A description is provided of how management (above or outside the QA organization) regularly assesses the scope, status, adequacy, and compliance of the QA program to 10 CFR Part 50, Appendix B. These measures should include:

a. Frequent contact with program status through reports, meetings, and/or audits.

b. Performance of an annual assessment preplanned and documented. Corrective action is identified and tracked.

N/A

2C2. Quality-related activities (such as design, procurement, and site investigation) initiated prior to formal NRC acceptance of the QA program are controlled under a QA program in accordance with this SRP and, accordingly, with the requirements of 10 CFR Part 50, Appendix B. Approved procedures and a sufficient number of trained personnel should be available to implement the applicable portion of the QA program prior to the initiation of the activity.

N/A

2C3. A summary description is provided on how responsibilities and control of quality-related activities are transferred from the principal contractors to the applicant during the phaseout of design and construction and during preoperational testing and plant turnover.

17.2.2.5

2D. Indoctrination, training, and qualification programs are established such that:

a. Personnel responsible for performing quality-affecting activities are instructed as to the purpose, scope, and implementation of the quality-related manuals, instructions, and procedures.

b. Personnel verifying activities affecting quality are trained and qualified in the principles, techniques, and requirements of the activity being performed.

c. For formal training and qualification programs, documentation includes the objective, content of the program, attendees, and date of attendance.

d. Proficiency tests are given to those personnel performing and verifying activities affecting quality, and acceptance criteria are developed to determine if individuals are properly trained and qualified.

e. Certificate of qualifications clearly delineates (a) the specific functions personnel are qualified to perform and (b) the criteria used to qualify personnel in each function.

f. Proficiency of personnel performing and verifying activities affecting quality is maintained by retraining, reexamining, and/or recertifying as determined by management or program commitment.

TABLE 17.2-1

g. The description of the training program provisions listed above satisfies the regulatory position in Regulatory Guide 1.58.

Activities related to Design Control (17.1.3) are acceptable if:

17.2.3.1
17.2.3.2

3A. The scope of the design control program includes design activities associated with the preparation and review of design documents including the correct translation of applicable regulatory requirements and design bases into design, procurement and procedural documents. Included in the scope are such activities as field design engineering; physics, seismic, stress, thermal, hydraulic, radiation, and the SAR accident analyses; associated computer programs; compatibility of materials; accessibility for inservice inspection, maintenance, and repair; and quality standards.

17.2.3.1
17.2.3.2

3B. Organizational responsibilities are described for preparing, reviewing, approving, and verifying design documents such as system descriptions, design input and criteria, design drawings, design analyses, computer programs, specifications, and procedures.

17.2.3.2.2

3C1. Errors and deficiencies in approved design documents, including design methods (such as computer codes), that could adversely affect structures, systems, and components important to safety are documented; and action is taken to assure that all errors and deficiencies are corrected.

17.2.3.2

3C2. Deviations from specified quality standards are identified and procedures are established to ensure their control.

17.2.3.2

3D. Internal and external design interface controls, procedures, and lines of communication among participating design organizations and across technical disciplines are established and described for the review, approval, release, distribution, and revision of documents involving design interfaces to assure structures, systems, and

components are compatible geometrically, functionally, and with processes and environment.

3E1. Procedures are established and described requiring a documented check to verify the dimensional accuracy and completeness of design drawing and specifications.

17.2.1.2.5.1(e) 3E2. Procedures are established and described requiring that design drawings and specifications be reviewed by the QA organization to assure that the documents are prepared, reviewed, and approved in accordance with company procedures and that the documents contain the necessary quality assurance requirements such as inspection and test requirements, acceptance requirements, and the extent of documenting inspection and test results.

17.2.1.3.2.1 3E3. Guidelines or criteria are established and described for determining the method of design verification (design review, alternate calculations, or test).

17.2.1.3.2.1 3E4. Procedures are established and described for design verification activities which assure the following:

a. The verifier is qualified and is not directly responsible for the design (i.e., neither the performer or his immediate supervisor). In exceptional circumstances, the designer's immediate supervisor can perform the verification provided:

(1) The supervisor is the only technically qualified individual.

(2) The need is individually documented and approved in advance by the supervisor's management.

(3) QA audits cover frequency and effectiveness of use of supervisors as design verifiers to guard against abuse.

b. Design verification, if other than by qualification testing of a prototype or lead production unit, is completed prior to release for procurement, manufacturing, construction or to another organization for use in other design activities. In those cases where this timing cannot be met, the design verification may be deferred, providing that the justification for this action is documented and the unverified portion of the design output document and all design output documents, based on the unverified data, are appropriately identified and controlled. Construction site activities associated with a design or design change should not proceed without verification past the point where the installation would become irreversible (i.e., require extensive demolition and rework). In all cases, the design verification should be complete prior to fuel load for a plant under construction, or in the case of an operating plant, prior to relying upon the component, system, or structure to perform its function.

c. Procedural control is established for design documents that reflect the commitments of the SAR; this control differentiates between documents that receive formal design verification by

interdisciplinary or multi-organizational teams and those which can be reviewed by a single individual (a signature and date is acceptable documentation for personnel certification). Design documents subject to procedural control include, but are not limited to, specifications, calculations, computer programs, system descriptions, SAR when used as a design document, and drawings including flow diagrams, piping and instrument diagrams, control logic diagrams, electrical single line diagrams, structural systems for major facilities, site arrangements, and equipment locations. Specialized reviews should be used when uniqueness or special design considerations warrant.

17.2.3.2.1 d. The responsibilities of the verifier, the areas and features to be verified, the pertinent considerations to be verified, and the extent of documentation are identified in procedures.

17.2.3.2.1 3E3. The following provisions are included if the verification method is only by test:

a. Procedures provide criteria that specify when verification should be by test.

b. Prototype, component or feature testing is performed as early as possible prior to installation of plant equipment, or prior to the point when the installation would become irreversible.

c. Verification by test is performed under conditions that simulate the most adverse design conditions as determined by analysis.

17.2.3.2 3E4. Procedures are established to assure that verified computer codes are certified for use and that their use is specified.

17.2.3.2.2 3F1. Design and specification changes, including fields changes, are subject to the same design controls that were applicable to the original design.

TABLE 17.2-1 3F2. The description of the design control provisions satisfies the criteria of Regulatory Guide 1.64.

Activities related to Procurement Document Control (17.1.4) are acceptable if:

17.2.4.3 17.2.4.6 4A1. Procedures are established for the review of procurement documents to determine that quality requirements are correctly stated, inspectable, and controllable; there are adequate acceptance and rejection criteria; and procurement documents have been prepared, reviewed, and approved in accordance with QA program requirements. To the extent necessary, procurement documents should require contractors and subcontractors to provide an acceptable quality assurance program. The review and documented concurrence of the adequacy of quality requirements stated in procurement documents is performed by independent personnel trained and qualified in QA practices and concepts.

17.2.4.3(b) 4A2. Procedures are established to assure that procurement documents identify applicable regulatory, technical, administrative, and

reporting requirements; drawings; specifications; codes and industrial standards; test and inspection requirements; and special process instructions that must be complied with by suppliers.

17.2.4.2 17.2.4.4 17.2.4.6

4B1. Organizational responsibilities are described for (1) procurement planning; (2) the preparation, review, approval, and control of procurement documents; (3) supplier selection; (4) bid evaluations; and (5) review and concurrence of supplier QA programs prior to initiation of activities affected by the program. The involvement of the QA organization is described.

TABLE 17.2-1

4B2. The description of the procurement document control provisions listed above satisfies the regulatory position in Regulatory Guide 1.123.

Activities related to Instructions, Procedures, and Drawings (17.1.5) are acceptable if:

17.2.5.1 17.2.5.2

5A. Organizational responsibilities are described for assuring that activities affecting quality are (1) prescribed by documented instructions, procedures, and drawings and (2) accomplished through implementation of these documents.

17.2.5.3

5B. Procedures are established to assure that instructions, procedures, and drawings include quantitative (such as dimensions, tolerances, and operating limits) and qualitative (such as workmanship samples) acceptance criteria for determining that important activities have been satisfactorily accomplished.

Activities related to Document Control (17.1.6) are acceptable if:

17.2.6.1 17.2.6.3

6A1. The scope of the document control program is described, and the types of controlled documents are identified. As a minimum, controlled documents include:

a. Design documents (e.g., calculations, drawings, specifications, analyses) including documents related to computer codes.

b. Procurement documents.

c. Instructions and procedures for such activities as fabrication, construction, modification, installation, test, and inspection.

d. As-built documents.

e. Quality assurance and quality control manuals and quality-affecting procedures.

f. Topical reports.

g. SAR.

h. Nonconformance reports.

17.2.6.1 17.2.6.2

6A2. Procedures for the review, approval, and issuance of documents and changes thereto are established and described to assure technical

adequacy and inclusion of appropriate quality requirements prior to implementation. The QA organization, or an individual other than the person who generated the document but qualified in quality assurance, reviews and concurs with these documents with regards to QA-related aspects.

17.2.1.2.5
17.2.6.2.1

6A3. Procedures are established to assure that changes to documents are reviewed and approved by the same organizations that performed the initial review and approval or by other qualified responsible organizations delegated by the applicant.

17.2.6.2

6A4. Procedures are established to assure that documents are available at the location where the activity will be performed prior to commencing the work.

17.2.6.2

6B1. Procedures are established and described to assure that obsolete or superseded documents are removed and replaced by applicable revisions in work areas in a timely manner.

17.2.6.2

6B2. A master list or equivalent document control system is established to identify the current revision of instructions, procedures, specifications, drawings, and procurement documents. When such a list is used, it should be updated and distributed to predetermined responsible personnel.

17.2.6.2

6C1. Procedures are established and described to provide for the preparation of as-built drawings and related documentation in a timely manner to accurately reflect the actual plant design.

17.2.6.2.2

Activities related to Control of Purchased Material, Equipment, and Services (17.1.7) are acceptable if:

7A1. Organizational responsibilities are described for the control of purchased material, equipment, and services including interfaces between design, procurement, and QA organizations.

17.2.7.1

7A2. Verification of suppliers' activities during fabrication, inspection, testing, and shipment of materials, equipment, and components is planned and performed with QA organization participation in accordance with written procedures to assure conformance to the purchase order requirements. These procedures, as applicable to the method of procurement, provide for:

17.2.7.1
17.2.7.2
17.2.7.3

a. Specifying the characteristics or processes to be witnessed, inspected or verified, and accepted; the method of surveillance and the extent of documentation required; and those responsible for implementing these procedures.

b. Audits, surveillance, or inspections which assure that the supplier complies with the quality requirements.

7A3. Selection of suppliers is documented and filed. If an LCVIP letter of confirmation or the "CASE" Register is used to establish the qualifications of the supplier, the documentation should identify the "letter" or "audit" used.

17.2.7.1

17.2.7.6 7A4. Procurement of spare or replacement parts for structures, systems, and components important to safety is subject to present QA program controls, to codes and standards, and to technical requirements equal to or better than the original technical requirements, or as required to preclude repetition of defects.

7B1. Receiving inspection is performed to assure:

17.2.7.4 a. The material, component, or equipment is properly identified and corresponds to the identification on the purchase document and the receiving documentation.

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

c. Specified inspection, test and other records, (such as certificates of conformance attesting that the material, components, and equipment conform to specified requirements) are available at the nuclear power plant prior to installation or use.

17.2.7.4 (d) 7B2. Items accepted and released are identified as to their inspection status prior to forwarding them to a controlled storage area or releasing them for installation or further work.

17.2.7.7 7B3. The supplier furnishes the following records to the purchaser:

a. Documentation that identifies the purchased item and the specific procurement requirements (e.g., codes, standards, and specifications) met by the item.

b. Documentation identifying any procurement requirements that have not been met.

c. A description of those nonconformances from the procurement requirements dispositioned "accept as is" or "repair."

The review and acceptance of these documents should be described in the purchaser's QA program.

17.2.7.5 7B4. For commercial "off-the-shelf" items where specific quality assurance controls appropriate for nuclear applications cannot be imposed in a practicable manner, special quality verification requirements shall be established and described to provide the necessary assurance of an acceptable item by the purchaser.

17.2.7.3 7B5. Suppliers' certificates of conformance are periodically evaluated by audits, independent inspections, or tests to assure they are valid and the results documented.

TABLE 17.2-1 7B6. The description of the control of procurement provisions listed above satisifies the regulatory position in Regulatory Guide 1.38 and Regulatory Guide 1.123.

17.2.10.2 (QC) 17.2.10.6 (QA) required or define how and when inspections are performed. The QA organization participates in the above functions.

10B1. Organizational responsibilities for inspection are described. Individuals performing inspections are other than those who performed or directly supervised the activity being inspected and do not report directly to the immediate supervisors who are responsible for the activity being inspected. If the individuals performing inspections are not part of the QA organization, the inspection procedures, personnel qualification criteria, and independence from undue pressure such as cost and schedule should be reviewed and found acceptable by the QA organization prior to the initiation of the activity.

17.2.10.1

17.2.10.6

10B2. A qualification program for inspectors (including NDT personnel) is established and documented, and the qualifications and certifications of inspectors are kept current.

17.2.10.6

10C1. Inspection procedures, instructions, or checklists provide for the following:

17.2.10.2

a. Identification of characteristics and activities to be inspected.

b. A description of the method of inspection.

c. Identification of the individuals or groups responsible for performing the inspection operation in accordance with the provisions of item 10B1.

d. Acceptance and rejection criteria.

e. Identification of required procedures, drawings and specifications and revisions.

f. Recording inspector or data recorder and the results of the inspection operation.

g. Specifying necessary measuring and test equipment including accuracy requirements.

10C2. Procedures are established and described to identify, in pertinent documents, mandatory inspection hold points beyond which work may not proceed until inspected by a designated inspector.

17.2.10.7

10C3. Inspection results are documented, evaluated and their acceptability determined by a responsible individual or group.

17.2.10.2

Activities related to Test Control (17.1.11) are acceptable if:

11A1. The description of the scope of the test control program indicates an effective test program has been established for tests including proof tests prior to installation and preoperational tests. Program procedures provide criteria for determining the accuracy requirements of test equipment and criteria for determining when a test is required or how and when testing activities are performed.

17.2.11.1

17.2.11.2 11B1. Test procedures or instructions provide as required for the following:

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

b. Instructions for performing the test.

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

d. Mandatory inspection hold points for witness by owner, contractor, or inspector (as required).

e. Acceptance and rejection criteria.

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

g. Provisions for assuring test prerequisites have been met.

17.2.11.3 11C1. Test results are documented, evaluated, and their acceptability determined by a responsible individual or group.

Activities related to Control of Measuring and Test Equipment (17.1.12) are acceptable if:

17.2.12.1 12.1 The scope of the program for the control of measuring and test equipment is described and the types of equipment to be controlled are established. This information indicates an effective calibration program has been established.

17.2.12.2 12.2 QA and other organizations' responsibilities are described for establishing, implementing, and assuring effectiveness of the calibration program.

17.2.12.4 17.2.12.2 12.3 Procedures are established and described for calibration (technique and frequency), maintenance, and control of the measuring and test equipment (instruments, tools, gages, fixtures, reference and transfer standards, and nondestructive test equipment) that is used in the measurement, inspection, and monitoring of structures, systems, and components. The review and documented concurrence of these procedures is described and the organization responsible for these functions is identified.

17.2.12.3 12.4 Measuring and test equipment is identified and traceable to the calibration test data.

17.2.12.3 12.5 Measuring and test equipment is labeled or tagged or "otherwise controlled" to indicate due date of the next calibration. The method of "otherwise controlled" should be described.

17.2.12.3 12.6 Measuring and test equipment is calibrated at specified intervals based on the required accuracy, purpose, degree of usage, stability characteristics, and other conditions affecting the measurement.

17.2.12.3 Calibration of this equipment should be against standards that have an accuracy of at least four times the required accuracy of the equipment being calibrated or, when this is not possible, have an accuracy that assures the equipment being calibrated will be within required tolerance and that the basis of acceptance is documented and authorized by responsible management. The management authorized to perform this function is identified.

12.7 Calibrating standards have greater accuracy than standards being calibrated. Calibrating standards with the same accuracy may be used if it can be shown to be adequate for the requirements and the 17.2.12.3 basis of acceptance is documented and authorized by responsible management. The management authorized to perform this function is identified.

12.8 Reference and transfer standards are traceable to nationally recognized 17.2.12.3 standards; where national standards do not exist, provisions are established to document the basis for calibration.

12.9 Measures are taken and documented to determine the validity of previous inspections performed and the acceptability of items inspected 17.2.12.3 or tested since the last calibration when measuring and test equipment is found to be out of calibration. Inspections or tests are repeated on items determined to be suspect.

Activities related to Handling, Storage, and Shipping (17.1.13) are acceptable if:

13.1 Special handling, preservation, storage, cleaning, packaging, and 17.2.13.1 shipping requirements are established and accomplished by suitably trained individuals in accordance with predetermined work and inspection instructions.

13.2 Procedures are established and described to control the cleaning, 17.2.13.1 handling, storage, packaging, and shipping of materials, components, and systems in accordance with design and procurement requirements to preclude damage, loss, or deterioration by environmental conditions such as temperature or humidity.

13.3 The description of the control of handling, storage, and shipping TABLE 17.2-1 listed above satisfies the regulatory position in Regulatory Guide 1.38.

Activities related to Inspection, Test, and Operating Status (17.1.14) are acceptable if:

14.1 Procedures are established to indicate the inspection, test, and 17.2.14.1 operating status of structures, systems, and components throughout fabrication, installation, and test.

14.2 Procedures are established and described to control the application 17.2.14.3 and removal of inspection and welding stamps and status indicators such as tags, markings, labels, and stamps.

17.2.14.3

14.3 Procedures are established and described to control altering the sequence of required tests, inspections, and other operations important to safety. Such actions should be subject to the same controls as the original review and approval.

17.2.14.2

14.4 The status of nonconforming, inoperative, or malfunctioning structures, systems, and components is documented and identified to prevent inadvertent use. The organization responsible for this function is identified.

Activities related to Nonconforming Materials, Parts, or Components (17.1.15) are acceptable if:

17.2.15.1

15.1 Procedures are established and described for identification, documentation, segregation, review, disposition, and notification to affected organizations of nonconforming materials, parts, components and as applicable to services (including computer codes) if disposition is other than to scrap. The procedures provide identification of authorized individuals for independent review of nonconformances, including disposition and closeout.

17.2.15.2

17.2.15.2

15.2 QA and other organizational responsibilities are described for the definition and implementation of activities related to nonconformance control. This includes identifying those individuals or groups with authority for the disposition of nonconforming items.

17.2.15.5

15.3 Documentation identifies the nonconforming item; describes the nonconformance, the disposition of the nonconformance, and the inspection requirements; and includes signature approval of the disposition. Nonconformances are corrected or resolved prior to the initiation of the preoperational test program on the item.

17.2.15.4

15.4 Reworked, repaired, and replacement items are inspected and tested in accordance with the original inspection and test requirements or acceptable alternatives.

17.2.15.3

15.5 Nonconformance reports are periodically analyzed by the QA organization to show quality trends, and the significant results are reported to upper management for review and assessment.

Activities related to Corrective Action (17.1.16) are acceptable if:

17.2.16.1

17.2.5.4

16.1 Procedures are established and described indicating an effective corrective action program has been established. The QA organization reviews and documents concurrence with the procedures.

17.2.16.1

17.2.16.2

16.2 Corrective action is documented and initiated following the determination of a condition adverse to quality (such as a nonconformance, failure, malfunction, deficiency, deviation, and defective material and equipment) to preclude recurrence. The QA organization is involved in the documented concurrence of the adequacy of the corrective action.

17.2.16.2

16.3 Followup action is taken by the QA organization to verify proper implementation of corrective action and to close out the corrective action in a timely manner.

17.2.16.2(d)
17.2.16.3

16.4 Significant conditions adverse to quality, the cause of the conditions, and the corrective action taken to preclude repetition are documented and reported to immediate management and upper levels of management for review and assessment.

Activities related to Quality Assurance Records (17.1.17) are acceptable if:

17.2.17.1
17.2.17.2

17.1 The scope of the records program is described. QA records include results of reviews, inspections, tests, audits, and material analyses; monitoring of work performance; qualification of personnel, procedures, and equipment; and other documentation such as drawings, specifications, procurement documents, calibration procedures and reports; nonconformance reports; and corrective action reports.

17.2.17.1

17.2 QA and other organizations are identified and their responsibilities are described for the definition and implementation of activities related to QA records.

17.2.17.3

17.3 Inspection and test records contain the following where applicable:

a. A description of the type of observation.

b. The date and results of the inspection or test.

c. Information related to conditions adverse to quality.

d. Inspector or data recorder identification.

e. Evidence as to the acceptability of the results.

f. Action taken to resolve any discrepancies noted.

17.2.17.5

17.4 Suitable facilities for the storage of records are described and satisfy the regulatory position given in Regulatory Guide 1.88 (endorses N45.2.9). Alternatives to the fire protection rated provisions are acceptable if records storage facilities conform to NFPA No. 232 Class 1 for permanent-type records and that the 2-hour fire rating requirement contained in the proposed N45.2.9 standard is met by applicants in any one of the following three ways. Specifically, (1) a 2-hour vault meeting NFPA No. 232; (2) 2-hour rated file containers meeting NFPA No. 232 (Class B); or (3) a 2-hour rated fire resistant file room meeting NFPA No. 232 if the following additional provisions are provided.

1. Early warning fire detection and automatic fire suppression should be provided, with electronic supervision at a constantly attended central station.

2. Records should be stored in fully enclosed metal cabinets. Records should not be permitted on open steel shelving. No storage of records should be permitted on the floor of the facility. Adequate access and aisle ways should be maintained at all times throughout the facility.

3. Work not directly associated with records storage or retrieval should be prohibited within the records storage facility. Examples of such prohibited activities include but are not limited to: records reproduction, film developing, and fabrication of microfiche cards.

4. Smoking and eating/drinking should be prohibited throughout the records storage facility.

5. Ventilation, temperature, and humidity control equipment should be protected inside with standard fire-door dampers where they penetrate fire barriers bounding the storage facility.

~~17.5~~ The description of the control of records provisions listed above satisfies the regulatory position of Regulatory Guide 1.88.

TABLE 17.2-1

Activities related to Audits (17.1.18) are acceptable if:

18A1. Audits to assure that procedures and activities comply with the overall QA program are performed by:

17.2.18.1
17.2.18.2

a. The QA organization to provide a comprehensive independent verification and evaluation of quality-related procedures and activities.

b. The applicant (and principal contractors) to verify and evaluate the QA programs, procedures, and activities of suppliers.

18A2. An audit plan is prepared identifying audits to be performed, their frequencies, and schedules. Audits should be regularly scheduled based upon the status and safety importance of the activities being performed and are initiated early enough to assure effective QA during design, procurement, manufacturing, construction, installation, inspection, and testing.

17.2.18.3

18A3. Audits include an objective evaluation of quality-related practices, procedures, instructions; activities and items; and review of documents and records to ensure that the QA program is effective and properly implemented.

17.2.18.2

18A4. Provisions are established requiring that audits be performed in all areas where the requirements of Appendix B to 10 CFR Part 50 are applicable. Areas which are often neglected but should be included are activities associated with:

17.2.18.2

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

b. The preparation, review, approval, and control of early procurements. (PSAR only).

c. Indoctrination and training programs.

d. Interface control among the applicant and the principal contractors.

e. Corrective action, calibration, and nonconformance control systems.

f. SAR and SSAR commitments.

g. Activities associated with computer codes.

18B1. Audit data are analyzed by the QA organization and the resulting reports indicating any quality problems and the effectiveness of the QA program, including the need for reaudit of deficient areas, are reported to management for review and assessment.

17.2.18.8

18B2. Audits are performed in accordance with pre-established written procedures or checklists and conducted by trained personnel having no direct responsibilities in the areas being audited.

17.2.18.4
17.2.18.5

18B3. The description of the conduct of audit provisions satisfies the regulatory position in Regulatory Guides 1.144 and 1.146.

TABLE 17.2-1

III. REVIEW PROCEDURES

Each element of the QA program description will be reviewed against the acceptance criteria described in subsection II, including the regulations, Regulatory Guides, and Branch Technical Position listed in subsection V. QAB will interface with the secondary review branches to assure that they have documented to the QAB by memo the acceptability of the identification of structures, systems, and components covered by the QA program (Q-List). QAB will process the necessary requests for additional information to the applicant and coordinate the response with the appropriate branches for acceptance. Changes to the QA program will be evaluated to assure at a minimum that such changes have not degraded the previously approved program. Consideration should be given to the current regulatory position in the area of the change in determining acceptability of the change. The reviewer's judgment during the review is to be based on an assessment of the material presented, the similarity of the material to that recently reviewed on other plants, and whether items of special safety significance are involved. Any exceptions or alternatives to this SRP section, including the regulations and regulatory positions presented in the Regulatory Guides in subsection V, will be carefully reviewed to assure that they are clearly defined and that an adequate basis exists for acceptance.

The acceptability of the QA program is determined by the following review procedures:

1. The QA program description is reviewed in detail to determine if each of the criteria of 10 CFR Part 50, Appendix B has been acceptably addressed and if there is an adequate commitment to comply with the regulations and regulatory positions in the appropriate issue of the Regulatory Guides in subsection V, as identified by number, title, revision or date. The QA program description is also reviewed to assure that the applicant's approach to meeting the QA criteria and commitments is acceptable.

2. The measures described to implement 10 CFR Part 50, Appendix B are evaluated for:

   a. Technical acceptability (i.e., do they meet the Regulations and Regulatory Guides?)

b. Workability (i.e., do they seem to fit into an overall plan of action that can be implemented?)

c. Management support (i.e., do QA program measures have adequate review, approval, and endorsement of management?)

This evaluation is based primarily on the acceptance criteria contained in subsection II.

3. The duties, responsibility, and authority of personnel performing QA functions are reviewed to assure they provide sufficient independence to effectively perform these functions.

4. Through review of information provided, meetings with the applicant, by review of the acceptability of QA program and plant activities including performance and capability of personnel, and by review of the Office of Inspection and Enforcement position statement and inspection reports, a judgment is made of the applicant's capability to carry out its QA responsibilities.

5. Satisfaction with program commitments and descriptions of how the commitments will be met, organizational arrangements, and capabilities to fulfill QA requirements should lead to the conclusion of acceptability, as described in subsection IV.

IV. EVALUATION FINDINGS

The reviewer verifies that sufficient information has been provided and that his review is sufficiently complete and adequate to support conclusions of the following type to be included in the staff's Safety Evaluation Report:

Based on our detailed review and evaluation of the QA program description contained in the (topical report or SAR) for (nuclear facility), we conclude that:

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

2. The QA program describes requirements, procedures, and controls that, when properly implemented, comply with the requirements of Appendix B to 10 CFR Part 50 with the requirements of 10 CFR Part 50, §50.55a and §55(e); with the criteria contained in SRP Section 17.1; and with the regulatory positions presented in the following Regulatory Guides.

Reg. Guide/ANSI Std.	Title	Revision or Date

A brief description of the applicant's QA program is provided highlighting the more important aspects of the program.

3. The QA program covers activities affecting structures, systems, and components important to safety as identified in the PSAR.

Accordingly, the staff concludes that the applicant's description of the QA program is in compliance with applicable NRC regulations and industry standards and can be implemented for the (specify) phases of (specify application).

V. IMPLEMENTATION

The following is intended to provide guidance to applicants and licensees regarding the NRC staff's plan for using this SRP Section.

Except in those cases in which the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the method described herein will be used by the staff in its evaluation of conformance with Commission regulations.

Implementation schedules for conformance to parts of the method discussed herein are contained in the referenced guides and NUREGs.

VI. REFERENCES

1. 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants."

2. 10 CFR Part 50, §50.55a, "Codes and Standards."

3. 10 CFR Part 50, §50.55(e), "Conditions of Construction Permits" (reporting significant QA deficiencies).

4. 10 CFR Part 50, §50.34(a.7), "Contents of Application; Technical Information" (Preliminary Safety Analysis QA program description).

5. 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants."

6. Regulatory Guide 1.8, "Personnel Selection and Training" (endorses ANSI/ANS 3.1).

7. Regulatory Guide 1.26, "Quality Group Classification, and Standards for Water, Steam, and Radioactive Waste Containing Components of Nuclear Power Plants."

8. Regulatory Guide 1.28, "Quality Assurance Program Requirements (Design and Construction)" (endorses N45.2).

9. Regulatory Guide 1.29, "Seismic Design Classification."

10. Regulatory Guide 1.30, "Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment" (endorses N45.2.4).

11. Regulatory Guide 1.37, "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants" (endorses N45.2.1).

12. Regulatory Guide 1.38, "Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants" (endorses N45.2.2).

13. Regulatory Guide 1.39, "Housekeeping Requirements for Water-Cooled Nuclear Power Plants" (endorses N45.2.3).

14. Regulatory Guide 1.58, "Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel" (endorses N45.2.6).

15. Regulatory Guide 1.64, "Quality Assurance Requirements for the Design of Nuclear Power Plants" (endorses N45.2.11).

16. Regulatory Guide 1.74, "Quality Assurance Terms and Definitions" (endorses N45.2.10).

17. Regulatory Guide 1.88, "Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records" (endorses N45.2.9).

18. Regulatory Guide 1.94, "Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants" (endorses N45.2.5).

19. Regulatory Guide 1.116, "Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems" (endorses N45.2.8).

20. Regulatory Guide 1.123, "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants" (endorses N45.2.13).

21. Regulatory Guide 1.144, "Auditing of Quality Assurance Programs for Nuclear Power Plants" (endorses N45.2.12).

22. Regulatory Guide 1.146, "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants" (endorses N45.2.23).

23. Branch Technical Position (BTP) ASB 9.5-1 (attached to SRP Section 9.5.1).

U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

OFFICE OF NUCLEAR REACTOR REGULATION

17.2 QUALITY ASSURANCE DURING THE OPERATIONS PHASE

REVIEW RESPONSIBILITIES

Primary - Quality Assurance Branch (QAB)

Secondary - Mechanical Engineering Branch
Instrumentation & Control Systems Branch
Power Systems Branch
Accident Evaluation Branch
Radiological Assessment Branch
Hydrologic & Geotechnical Engineering Branch
Containment Systems Branch

I. AREAS OF REVIEW

QAB reviews and evaluates the applicant's operational quality assurance (QA) program as described in the FSAR. The review at the operating license stage addresses both the "offsite" and "onsite" QA controls to be applied to those activities that may affect the quality of items important to safety during the operation, maintenance, and modification of a nuclear power plant. The review covers the QA controls to be applied to those activities (e.g., designing, constructing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, maintaining, modifying, operating, inspecting, and testing) that may affect the quality of structures, systems, and components important to safety. The secondary review branches review the listing of structures, systems, and components (QA list) covered by the QA program for their areas of review responsibility in accordance with 2A1 of this section of the Standard Review Plan and documents the acceptability of the listing including any items that should be added or clarified by memo to the QAB. The review by MEB in this regard also addresses the areas of review responsibility normally assigned to ASB, RSB, CEB, PSB (except electrical), and SEB.

The review extends to the determination of how the applicable requirements of the 18 criteria of Appendix B to 10 CFR Part 50 are satisfied by the proposed QA program.

Where an NRC-accepted QA topical report is referenced in the application, the referenced QA program is not re-reviewed except for conformance to the applicable staff positions in this SRP section and the Regulatory Guides in effect at the time of docketing the application.

The review will not involve an evaluation of the QA program for the design and construction phase and, therefore, the QAP description for design and construction should not be addressed in the FSAR except for a commitment for continued implementation of the PSAR QA program for the remaining design and construction activities and the preoperational test program or referenced as applicable for repair and modifications only during the operations phase. However, as desired, changes to the QA program for design and construction may be presented in the FSAR for staff review and approval. Staff review will only address the program changes.

The areas of review for this SRP section are the same as those described in SRP Section 17.1 except:

1. Organization (item 1) delete from part A: "including the applicant's organization and principal contractors (architect engineer, nuclear steam supply system vendor, constructor, and construction manager when other than the constructor)."

2. Audits (item 18) add a part C: "Provisions for the audit of operating activities important to safety independent of the operating organization."

II. ACCEPTANCE CRITERIA

The applicant must establish a QA program for the operations phase, including activities such as operation, maintenance, and modification of the nuclear power plant, in accordance with Appendix B to 10 CFR Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." The QA program description presented in the FSAR must discuss how each criterion of Appendix B will be met. The acceptance criteria used by the QAB to evaluate the program are listed below. The acceptance criteria include commitments to comply with the regulatory positions presented in the appropriate issue of the Regulatory Guides including the requirements of ANSI Standard N45.2.12 and the Branch Technical Position listed in subsection V of SRP Section 17.1. Thus, these commitments constitute an integral part of the QA program description and requirements. Exceptions and alternatives to these acceptance criteria may be taken by applicants provided adequate justification is given; and the QAB review allows for considerable flexibility in defining methods and controls for satisfying pertinent regulations. When the QA program description meets the acceptance criteria of this SRP section or provides acceptable exceptions or alternatives, the program is considered to be in compliance with pertinent NRC regulations. The review will ascertain that the commitments and the description of how the commitments are implemented, to the extent necessary, are objective and stated in inspectable terms.

The Organization (SRP Section 17.2.1) elements responsible for the QA program are acceptable if:

1. The criteria described in 17.1.1* are satisfied except for:

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* Refers to the acceptance criteria given in subsection II of SRP Section 17.1.

a. Item 1A4.

b. The organizational elements within the parenthesis in item 1A5 be expanded to include operations and maintenance.

c. The requirements that principal contractors describe QA responsibilities be deleted in Item 1A6.

d. The requirements that a QA position be identified for principal contractors as described in Item 1B1, be deleted.

e. "The person at the construction site responsible for directing and managing the site QA program..." described in Item 1C3, be changed to "The person...responsible for...the onsite QA program," and continue on with remaining sentence starting with "has appropriate organizational...."

The Quality Assurance Program (SRP Section 17.2.2) description is acceptable if:

1. The criteria described in 17.1.2 are satisfied except for:

   a. Item 2A1b.

   b. The requirement for the principal contractors to provide a commitment to comply with the regulations and regulatory positions in the Regulatory Guides addressed in Item 2B3.

   c. Item 2C2.

   d. Item 2C3.

17.2.2.1 2. Provisions are established for assuring the QA program for operations is implemented at least 90 days prior to fuel loading.

17.2.1.2.12 17.2.2.1 3. Confirmation is provided to commit to continued implementation of the PSAR QA program for the remaining design and construction activities and the preoperational test program or an acceptable alternative is provided.

Activities related to Design Control (SRP Section 17.2.3) are acceptable if:

1. The criteria described in 17.1.3 are satisfied.

17.2.3.2.2 2. Measures are provided to assure that responsible plant personnel are made aware of design changes/modifications which may affect the performance of their duties.

Activities related to Procurement Document Control (17.2.4) are acceptable if:

1. The criteria described in 17.1.4 are satisfied.

Activities related to Instructions, Procedures, and Drawings (17.2.5) are acceptable if:

1. The criteria described in 17.1.5 are satisfied.

Activities related to Document Control (17.2.6) are acceptable if:

1. The criteria described in 17.1.6 are satisfied.

2. Maintenance, modification and inspection procedures are reviewed by qualified personnel knowledgeable in QA disciplines (normally the QA organization) to determine: 17.2.6.2.1

   a. The need for inspection, identification of inspection personnel, and documentation of inspection results.

   b. That the necessary inspection requirements, methods, and acceptance criteria have been identified.

Activities related to Control of Purchased Material, Equipment, and Services (17.2.7) are acceptable if:

1. The criteria described in 17.1.7 are satisfied.

Activities related to Identification and Control of Materials, Parts, and Components (17.2.8) are acceptable if:

1. The criteria described in 17.1.8 are satisfied.

Activities related to the Control of Special Processes (17.2.9) are acceptable if:

1. The criteria described in 17.1.9 are satisfied.

Activities related to Inspection (17.2.10) are acceptable if:

1. The criteria described in 17.1.10 are satisfied.

2. When inspections associated with normal operations of the plant (such as routine maintenance, surveillance, and tests) are performed by individuals other than those who performed or directly supervised the work, but are within the same group, the following controls are met:

   a. The quality of the work can be demonstrated through a functional test when the activity involves breaching a pressure retaining item.

   b. The qualification criteria for inspection personnel are reviewed and found acceptable by the QA organization prior to initiating the inspection. 17.2.10.6

Activities related to Test Control (17.2.11) are acceptable if:

1. The criteria described in 17.1.11 are satisfied.

Activities related to Control of Measuring and Test Equipment (17.2.12) are acceptable if:

1. The criteria described in 17.1.12 are satisfied.

Activities related to Handling, Storage, and Shipping (17.2.13) are acceptable if:

1. The criteria described in 17.1.13 are satisfied.

2. Provisions are described for the storage of chemicals, reagents (including control of shelf life), lubricants, and other consumable materials.

17.2.13.2

Activities related to Inspection, Test, and Operating Status (17.2.14) are acceptable if:

1. The criteria described in 17.1.14 are satisfied.

Activities related to Nonconforming Materials, Parts, or Components (17.2.15) are acceptable if:

1. The criteria described in 17.1.15 are satisfied.

Activities related to Corrective Action (17.2.16) are acceptable if:

1. The criteria described in 17.1.16 are satisfied.

Activities related to Quality Assurance Records (17.2.17) are acceptable if:

1. The criteria described in 17.1.17 are satisfied.

2. QA records include operating logs, maintenance and modification procedures, and related inspection results, reportable occurrences, and other records required by Technical Specifications.

17.2.17.2

Activities related to Audits (17.2.18) are acceptable if:

1. The criteria described in 17.1.18 are satisfied.

N/A

2. Where the "onsite" QA organization does not report to the "offsite" organization:

   a. The "offsite" QA organization conducts audits sufficient to verify adequacy of activities conducted by the "onsite" QA organization.

   b. The "offsite" QA organization reviews and concurs in the schedule and scope of audits performed by the "onsite" QA organization.

   c. Results of audits performed by the "onsite" QA organization are provided to the "offsite" QA organization for review and assessment.

III. REVIEW PROCEDURES

Same as SRP Section 17.1 except that the Office of Inspection & Enforcement (I&E) does not provide a position statement to QAB relative to their assessment of the QA program implementation for SER input. I&E provides this assessment to the Licensing Project Manager. QAB reviews a description of the I&E summary

of completed QA program activities to further determine that the facility has been designed and constructed in accordance with PSAR program commitments.

IV. EVALUATION FINDINGS

Same as SRP Section 17.1.

V. IMPLEMENTATION

Same as SRP Section 17.1.

VI. REFERENCES

Same as SRP Section 17.1 except replace item 8, Regulatory Guide 1.28, "Quality Assurance Program Requirements (Design and Construction)" (endorses N45.2) with Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)" (endorses N18.7); replace 10 CFR Part 50, §50.34(a.7) with 10 CFR Part 50, §50.34 (b.6ii), "Final Safety Analysis Report"; and delete 10 CFR Part 50, §50.55(e), "Conditions of Construction Permits."

Question No.

421.1 (17.1.1)

17.2.1.2.5
17.2.1.2.8.1

Describe provisions which assure that all personnel performing QA/QC functions (including those outside the QA/QC organization) have sufficient authority and organizational freedom to perform these functions effectively and without reservation and do not have direct responsibility for performing the work being verified.

Response

As stated in FSAR Subsection 17.2.1.2.2.3 paragraph 2 - "The Quality Control Engineer and his staff have the authority delineated here in writing, to, in accordance with approved procedure, stop unsatisfactory work or control further processing, delivery, or installation of nonconforming material at Waterford-3. The Quality Control Engineer and his staff do not have direct responsibility for performing the work which they verify to be in conformance with established requirements."

As stated in FSAR Subsection 17.2.1.2.2.4 paragraph 1 - "The Quality Control Engineer and his staff have sufficient authority and organizational freedom to perform their QC functions effectively and without reservation. They can:

a) Identify quality assurance problems;

b) Initiate, recommend or provide evaluations through designated channels and

c) Verify implementation of Solutions."

There exists a line of communication between the station Quality Control Engineer and the Quality Assurance Manager (see Figure 17.2-1). This line of communication was designated to among other things provide an avenue of consultation concerning quality matters that may involve plant managements disregard for the station Quality Control Groups authority and organizational freedom to perform the above stated functions.

As stated in FSAR Subsection 17.2.1.2.3.3 - "LP&L Quality Assurance Manager and the Quality Assurance Engineers/Technicians have authority, delineated here in writing and in accordance with approved procedures, to stop unsatisfactory work....". The QA Group does not have direct responsibility for performing the work being verified. The QA Group's authority described above is assured through the Groups direct reporting line to the Vice President-Power Production, who is ultimately responsible for the Quality Assurance Program in LP&L's organization.

QA/QC functions are normally performed by personnel assigned to the QA and QC groups. However, there may be instances when personnel outside the QA/QC organization perform QA/QC functions.

In these instances, these personnel will not have had direct responsibility for the work which is being verified. These individuals will be accompanied by or their work monitored by the QA or QC organization.

In accordance with ANSI N 18.7-1976 Section 5.2.17, endorsed by Reg. Guide 1.33, Rev. 2, 2/78. When inspections are conducted by individuals outside the QA/QC organization the inspections will be performed by qualified individuals other than those who performed or directly supervised the activity being inspected. Inspection of operating activites (work functions associated with normal operation of the plant, routine maintenance, and certain technical services routinely assigned to the onsite operating organization) may be conducted by second-line supervisory personnel or by other qualified personnel not assigned first-line supervisory responsiblity for conduct of the work. These independent inspections, i.e., those performed by individuals not assigned first-line supervisory responsibility for the conduct of the work, are not intended to dilute or replace the clear responsiblity of first-line supervisors for the quality of work performed under their supervision.

Question No.

421.2 (17.2.1) Describe those specific QA responsibilities assigned to the QA Engineer of Middle South Services and the reporting responsibility and interface between Waterford and Middle South Services QA.

17.2.1.2.15

Response

Louisiana Power & Light Company delegates to Middle South Services, Inc., a wholly owned subsidiary of Middle South Utilities, Inc., the responsibility for performing those quality assurance functions necessary to ensure that its nuclear fuel is designed and fabricated in accordance with regulatory requirements and accepted codes, standards and specifications.

The MSS Quality Assurance section monitors the design and fabrication of the fuel through a program of audits of the fuel fabricator, including both design review audits and fuel fabrication audits. MSS also conducts audits of component suppliers as deemed necessary to ensure the quality of the fuel.

Formal audit reports are issued by MSS to document their audit activities and to identify nonconformances or other items requiring action by the fuel fabricator. Resolution of nonconformances or other items requiring action is verified by MSS and documented in follow-up reports. The LP&L Quality Assurance Manager is on distribution for all audit and follow-up reports.

MSS is also utilized to complement and supplement LP&L QA Audit/Survey teams in audits and surveys.

The MSS Quality Assurance Section interfaces with and reports through the LP&L QA Manager for the above activities.

The MSS Quality Assurance Section conducts internal audits of those safety related activities in connection with Waterford-3 performed by other MSS groups.

LP&L Management utilizes MSS in conducting internal management audits of the LP&L Quality Assurance Program. In this particular case MSS QA reports to the LP&L Vice-Precident Power Production.

Question No.

421.3
(17.2.2)

17.2.2.10

The response in Section VII of your July 1, 1977 submittal does not indicate whether the QA program for Fire Protection is under the management control of the QA organization. This control should consist of (1) formulating and/or verifying that the Fire Protection QA program incorporates suitable requirements and is acceptable to the management responsible for Fire Protection (2) verifying the effectiveness of the QA program for Fire Protection through review, surveillance, and audits. Other QA program functions for meeting the Fire Protection program requirements may be performed by personnel outside of the QA organization. The QA program for Fire Protection should be part of the overall plant QA program. These QA criteria apply to those items within the scope of the Fire Protection program, such as Fire Protection Systems, emergency lighting, communication and emergency breathing apparatus as well as the Fire Protection requirements of applicable safety related equipment. Provide a response that addresses this concern.

Response

The LP&L fire protection program is under the management control of LP&L's QA organization as stated in FSAR Amendment 3, Subsection 9.5.1, paragraph 8.0.

Question No.

421.4
17.2.2.10 (17.2.2) Although you have addressed the ten specific quality assurance criteria in Branch Technical Position ASB 9.5-1, we find that your response does not present sufficient detail. In order for the QAB to determine whether these criteria will be met, additional detailed description is necessary. Examples of the detail we would expect Louisiana Power & Light Company to consider are provided in Attachment 6 of Mr. D.B. Vassallo's letter of August 29, 1977. If however, you choose not to provide this detail, you may apply the same controls to each criterion that are commensurate with the controls described in your Quality Assurance Program description, Section 17.2 (when accepted by NRC). These controls would apply to the remaining construction activities and for the operations phase of Waterford Steam Electric Station, Unit No. 3. If you select this method, a statement to this effect would be adequate for our review of the Fire Protection Quality Assurance Program for Fire Protection.

Response

Details concerning how specific quality assurance criteria in Branch Technical Position ASB 9.5-1 will be met have been provided in FSAR Amendment 3, Subsection 9.5.1, paragrpah 8.0.

Question No.

421.5 (17.2.2) Describe measures which assure that the QA program will be implemented at least 90 days prior to fuel loading.

17.2.2.1

Response

The quality procedures that have been identified as being required for QA program implementation have been written and approved. Therefore, it is considered that the LP&L QA program is implemented at the present time. Table 17.2-2 of the FSAR has been revised to reflect the current status of the QA Procedures Manual.

Question No.

421.6 (17.2.2) Table 17.2-1 identifies dates and revision number for several of the quality assurance regulatory guidance documents which are not consistent with the document implementation date and your application docketing date. Also, Table 17.2-1 reflects dates which do not agree with those dates contained in Section 17.2 of the FSAR. Therefore, it is requested that you update Table 17.2-1 and the applicable sections in 17.2 to be consistent with the following Regulatory Guides; 1.8, Rev. 1-R; 1.28, Rev. 1; 1.33, Rev. 2; 1.38, Rev. 2; 1.39, Rev. 2; 1.116, Rev. 0-R; and ANSI N45.2.12, Draft 3, Rev. 4 (2/22/74); or ANSI N45.2.12, Draft 4, Rev. 2 (1/1/76) as supplemented by Regulatory Position 4 of Regulatory Guide 1.33, Rev. 2 (2/78).

Response

Table 17.2-1 has been modified to correct the inconsistencies described in the above NRC question. Also, conflicts between quality assurance regulatory guidance document revisions specified in Table 17.2-1 and those specified in Section 17.2 of the FSAR have been located and corrected.

Question No.

421.8 (17.2.2) Provide a description emphasizing how the docketed QA program, particularly the Regulatory Guides and the NRC endorsed ANSI Standard listed in the QA program, will be properly carried out.

Response

The LP&L docketed QA program will be properly carried out by those personnel in the organizational groups and departments that affect quality at Waterford-3 (see Figure 17.2-2). These personnel will be utilizing documented approved implementing procedures that prescribe their activities that affect the Quality Assurance Program at Waterford-3. The implementing procedures incorporate the requirements of the docketed QA program, particularly the Regulatory Guides and the NRC - endorsed ANSI Standard. Internal Administrative procedures for writing procedures require that the preparer and reviewer of procedures gather the commitment documents, which includes the Regulatory Guides and the NRC-endorsed ANSI Standard, and utilize them in performing their respective function. Subsection 17.2.2.2 of the Waterford 3 FSAR describes the development of the LP&L Quality Assurance Program, including quality procedures (QP's). Table 17.2-2 contains a listing of Quality Procedures. Table 17.2-3 contains a matrix of QP's cross referenced to each criterion of Appendix B to 10CFR50. Some of these procedures will be generic procedures that will describe interfaces within the LP&L organization and therefore, will require specific procedures or instructions by the implementing groups. Quality Assurance/Quality Control Indoctrination and Training Programs are utilized to train personnel with regards to the requirements of the Quality Assurance Program, particularly the Regulatory Guides and the NRC - endorsed ANSI Standard requirements that are incorporated in implementing procedures. Finally the Quality Assurance Audit Program and Quality Control Inspection Program will function to verify that the Program is properly carried out.

Question No.

421.9 (17.2.2) In Table 17.2-1 and in Section 17.2 of the FSAR, phrases such as "follow the guidance of, "accomplished in accordance with," and "is consistent with the provisions of" are not clear as to the degree to which you intend to comply with the Regulatory Guides. To preclude any misinterpretations regarding the commitment statement, we ask that you commit to comply with the regulatory positions in the following Regulatory Guides and ANSI standard (identify by no., revision., and/or date). Please modify your statements accordingly.

Response

The phrases referred to above have been revised to say "LP&L commits to comply with the regulatory positions in Regulatory Guides and ANSI standard (identify by no., revision no., and/or date)." 6

Question No.

421.10 (17.2.2) Describe provisions which assure that the NRC will be notified of changes (1) for review and acceptance in the accepted description of the QA program as presented or referenced in the SAR prior to implementation, and (2) in organizational elements within 30 days after announcement. (Note - editorial changes or personnel reassignments of a nonsubstantive nature do not require NRC notification).

17.2.2.9

Response

The NRC will be notified of changes, for review and acceptance in the accepted description of the QA program as presented or referenced in the SAR prior to implementation, by amendment of the FSAR. The NRC will be notified of substantive changes in organizational elements within 30 days after announcement by letter. The above method has been successfully used by LP&L during the construction phase of Waterford-3.

Question No.

17.2.3.2

421.11 (17.2.3) Describe measures which assure that procedures are established to assure that verified computer codes are certified for use and that their use is specified.

Response

Ebasco and CE QA programs include procedures that require verification and certification of computer codes. Audits are performed by their respective QA departments to assure that these procedures are followed. Procedures also require that analyses which make use of computer codes include a description of, or reference to, the code and its documentation.

Question No.

421.12 (17.2.3) Modify your statement on FSAR page 17.2-17 to indicate that the the design verification will be accomplished by individuals or groups that are neither the original designer nor the designer's immediate supervision.

17.2.3.2.1

Response

Individuals or groups responsible for design verification will be other than the original designer and the designer's immediate supervisor. Under special circumstances, the designer's immediate supervisor can perform the verification provided:

(1) The supervisor is the only technically qualified individual.

(2) The need is individually documented and approved in advance by the responsible management.

(3) QA audits cover frequency and effectiveness of use of supervisor's as design verifier to guard against abuse.

Question No.

421.13 (17.2.3) Indicate whether field changes are subject to the same design controls that were applicable to the original design.

17.2.3.2.2

Response

Safety related design and specification changes, including field changes, shall be subject to the design controls that are commensurate with those applied to the original design.

Question No.

421.14 (17.2.3) Describe measures to assure that responsible plant personnel are made aware of design changes/modifications which may affect the performance of their duties.

17.2.3.2.2

Response

Design changes/modifications are included within the scope of the Waterford-3 document control program. The provisions of the document control program assure that responsible plant personnel are made aware of the design changes/modifications which may affect the performance of their duties.

As stated in FSAR Subsection 17.2.6.2 paragraphs two and three respectively:

"Current appropriate documents are distributed prior to starting an activity and are on hand at the locations where the prescribed activities are performed prior to commencing the work."

"Master listings of controlled documents shall be updated and issued in accordance with applicable procedures to predetermined, responsible personnel to preclude the use of superseded documents. The master listings identify the current revision, number of instructions, procedures, specifications, drawings and procurement documents."

Design change notices are controlled documents and would be handled as stated above. Modifications which may affect the performance of plant personnel duties will be documented in a change notice and controlled as stated above. Working documents such as drawings, specifications and procedures affected by the design change/modification will be revised and controlled as stated above.

Question No.

421.15 (17.2.6)

17.2.6.2.1

Describe how maintenance, modification, and inspection procedures are reviewed by qualified personnel knowledgeable in QA disciplines to determine:

a) The need for inspection, identification of inspection personnel, and documentation of inspection results.

b) That the necessary inspection requirements, methods, and acceptance criteria have been identified.

Response

Subsection 17.2.1.2.2.1 of the FSAR, paragraph 1 states in part that "Additional responsibilities of the Quality Control Engineer include...e) Reviewing and concurring with inspection plans; test, calibration, special process, maintenance, modification and repair procedures; drawings and specifications; and changes thereto..."

Station administrative procedures have been developed that prescribe steps involved in the preparation and review of station procedures. These procedures require that safety related maintenance, modification, and inspection procedures prepared by the station groups be routed to the station Quality Control Engineer for his review and concurrence prior to their implementation. The Quality Control Engineer assigns the review of the procedures to personnel; normally from within his group, that are qualified through internal QC procedures. The review is conducted in accordance with approved procedure to determine:

a. The need for inspection, identification of inspection personnel, and documentation of inspection results

b. That the necessary inspection requirements, methods, and acceptance criteria have been identified.

Prepared checklists are used as guidelines in conducting and documenting the reviews. The checklist are developed from controlled source material such as station technical specifications, drawings, vendor manuals, etc.

Question No.

421.16 (17.2.7) Describe the interface involvement among design, procurement, and QA organizations in the control of purchased items.

Response

Procurement actions can be placed into two major classes with the interface between the above listed groups described for each class. The two classes are: | 23 | 23

(A) Procurement of spare and replacement safety-related parts and

(B) Procurement of new safety-related equipment, not part of or different than existing design of Waterford-3. | 23

Classification A | 23

In the case of the first class of procurement listed above, during the Preoperational Startup Phase, a Spare Parts Group located at the station, designated by the Plant Manager - Nuclear, shall prepare the initial procurement document (Purchase Requisition - PR). The Spare Parts Group (SPG) consists of qualified cognizant personnel with experience in applicable technical areas. The SPG prepares the PR after researching existing sources of controlled documentation such as the original purchase order, specifications, drawings, vendor manuals, etc. At this point the PR is routed to the group head of the group requesting the part for that group's review and the group head's signature. During the Operations Phase the respective plant group heads will be responsible for designating qualified cognizant personnel with experience in applicable technical areas to prepare Purchase Requisitions. | 23 | 23

After the group head's comments are resolved by the PR partner, the PR is routed to a technical reviewer other than the preparer. The technical reviewer is also a qualified cognizant individual with experience in the applicable technical areas. The technical reviewer conducts his review utilizing the source documents stated above. Technical comments are resolved by the PR preparer.

After technical reviewer comments have been resolved, the PR is routed to a quality reviewer other than the preparer. The quality reviewer may be the same individual that does the technical review as long as his is other than the preparer of the PR and he is designated as qualified by the plant Quality Control Engineer. The PR is routed to the Quality Control Engineer for this approval after technical and Quality comments have been resolved by the PR preparer. | 23

The PR is then routed to the Plant Manager - Nuclear for approval. In special cases based on the amount of the investment as well as other factors, the PR is also routed to the Vice President - Power Production for approval. | 23

After receiving the above approval the PR is routed to the Purchasing Section, where the Buyer transfers the PR requirements to inquiry documents, when bids are sought for potential suppliers, and/or to purchase order documents when bidding is not used or after selecting the successful bidder. Technical and/or quality exceptions taken by suppliers against procurement documents requirements are routed by the Purchasing Section Buyer back to the SPG for review and evaluation. Resultant changes to PR requirements are routed for additional technical and quality reviews.

Once a potential supplier of a safety-related part is selected by the Purchasing Section Buyer; the Buyer must contact the Quality Assurance Manager or his designated QA Engineer for a Quality Assurance Evaluation of the supplier if the supplier is not lsited on the LP&L Qualified Suppliers List. The Quality Assurance Manager maintains the qualified suppliers list and controls the issuance of the list to the Buyer.

The Quality Assurance Manager notifies the Buyer as to the acceptance status of the potential supplier piror to the order being placed.

After receiving the Quality Assurance notification, the Buyer may issue the purchase order or submit a second choice potential supplier to the QA Group for evaluation depending upon the results of the QA evaluation of the first choice potential supplier.

When the ordered part reaches the plant, it is inspected against purchase order requirements by the Quality Control Engineer or his representative. Other groups may also participate in the inspection to provide technical expertise where required. | 23

When a nonconformance in the supplied part is identified during inspection, the part is tagged hold and the condition is evaluated by the Plant Operations Review Committee (PORC). When supplier corrective action is required, the Purchasing Section Buyer is contacted by the PORC representative so that the Buyer can in turn notify the supplier concerning the nonconformance.

After corrective action has been taken on the nonconforming item, the item shall be reinspected by the QC Engineer or his representative. When the nonconformance is verified as being corrected the item is retagged as acceptable.

Question No.

17.2.9.2

421.17 (17.2.9) Describe the criteria for determining those processes that are controlled as special processes. As complete a listing as possible of those processes considered to be special processes at Waterford-3 should be provided.

Response

The criterion used for determining those processes that are controlled as special processes is that which is stated in ANSI N 18.7 - 1976 entitled, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants." This standard was endorsed by NRC Regulatory Guide 1.33 (Rev. 2, 2/78) which LP&L has committed to comply with in our Quality Assurance Program (see Table 17.2-1).

"...Special processes are those that require interim inprocess controls in addition to final inspection to assure quality including such processes as welding, heat treating, chemical cleaning, and nondestructive examination."

The standard also states that "...Qualification of personnel, procedures, and equipment shall comply with the requirements of applicable codes and standards..."

FSAR Subsection 17.2.9.2 states that, "...Special processes include, but are not limited to:

a) Welding,
b) Heat treating,
c) Radiography,
d) Ultrasonic testing,
e) Eddy current testing,
f) Magnetic particle examination,
g) Liquid penetrant examination and
h) Chemical cleaning"

To complete the list of special processes, the following processes shall be added to the above list:

i) Concrete Placement - (Seismic applications)
j) Cadwelding
k) Protective Coatings

Question No.

421.19 (17.2.10) Describe how inspection program procedures provide criteria for determining the accuracy requirements of inspection equipment.

17.2.10.2.

Response

The criteria for the accuracy requirements of inspection equipment are contained in the prerequisites section of inspection procedures. The procedure originator is responsible for assuring that the accuracy requirements of the equipment will be sufficient to obtain reliable data. The accuracy requirements are based on procurement or station technical specifications. The Quality Control Group reviews safety related inspection procedures to verify inclusion of criteria for determining accuracy requirements of inspection equipment. The personnel performing the procedure are responsible for assuring that the equipment used meets the criteria noted in the procedures. The QC Inspector is responsible for verifying that the inspection equipment meets the criteria of the procedure and that the inspection results are within the acceptance criteria of the procedure.

Question No.

17.2.10.2

421.20 (17.2.10) Describe those provisions which assure that inspection procedures, instructions, or checklists provide, as required, for specifying necessary measuring and test equipment including accuracy requirements.

Response

Measuring and test equipment, including the accuracy requirements of such equipment, is specified in procedures in the same manner as inspection equipment. The provision for specifying inspection equipment in procedures are addressed in Question 421.19.

Question No.

421.21 (17.2.11) Identify the individual or group responsible for evaluating and determining the acceptability of test results.

17.2.11.3

Response

The Joint Test Group (JTG) is responsible for evaluation and determination of acceptability of test results prior to the issuance of an operating license. These results are approved by the Lead Start-up Engineer (LSE). Upon issuance of an operating license, the Plant Operations and Review Committee (PORC) will be responsible for the evaluation of test results and the approval of these results will be the responsibility of the Station Superintendent.

Question No.

421.22 (17.2.11) Describe those provisions which assure that program procedures provide criteria for determining the accuracy requirements of test equipment and criteria for determining when a test is required or how and when testing activities are performed.

17.2.11.1

Response

Test procedures are developed by the Waterford-3 Startup Group with inputs from the NSSS vendor, the Architect-Engineer and the Startup Group Staff. Test program procedures include provisions which require system engineers to review specifications provided by the Architect-Engineer, test guidelines supplied by the NSS vendor, and Equipment Technical Manuals in order to determine the accuracy of the test equipment that is necessary to satisfactorily perform a test.

Testing activities are based on the requirements of Regulatory Guide 1.68 and any retesting activities are based on reviews and decisions by the Joint Test Group or the Plant Operating Review Committee. Testing activities will be performed as scheduled using test procedures that have been reviewed, approved, and specifically released for execution. Further information regarding testing activities is given in Chapter 14.

Question No.

421.23 (17.2.12) Describe the organizational responsibilities for establishing implementing, and assuring effectiveness of the calibration program.

17.2.12.2

Response

During operations, the Station Superintendent is responsible for assuring that the affected departments establish and maintain a calibration control program. He has the responsibility for assuring that written procedures governing calibration activities and calibration schedules are reviewed and approved.

The Plant Operating Review Committee (POPC) is responsible for reviewing calibration control procedures and for submitting recommendations to the Station Superintendent or his designee.

The Station Department Head or Supervisor of the group performing or contracting calibration activities is responsible for the calibration and control of plant M&TE under his cognizance. He shall assure that the calibration program requirements are fully and effectively implemented within his department or group.

The Station QC Engineer is responsible for conducting inspections to verify that calibration control procedures are performed. He shall assure that written approved procedures exist which implement the requirements of the calibration program. He shall be responsible for surveillance of the storage and handling of M&TE and reference standards.

The Manager of Quality Assurance is responsible for performing activity audits to verify that the calibration control program meets the requirements of the calibration program and that site procedures are properly implemented.

Question No.

421.24 (17.2.13) Describe those controls established for the storage and use of chemicals, reagents (including control of shelf life), lubricants, and other consumable materials.

17.2.13.2

Response

Chemicals and Reagents

Chemical and Environmental Administrative Procedure #013 will establish guidelines for purchasing, storage and inventory of chemicals and reagents, and for the disposal of chemicals and reagents with expired shelf lives. All chemicals located in laboratories will be the minimum amount required for normal laboratory usage and will be marked with an expiration date derived from the individual chemical's shelf life. Each reagent shelf life is specified in the Chemical and Environmental Test Procedure applicable to the analysis which employs the use of the individual reagents. Standard solutions which require traceability to the National Bureau of Standards will have written certificates verifying that traceability from the manufacturer.

Bulk Chemicals

Bulk chemicals will be purchased to Louisiana Power & Light specifications. Guidelines for storage and use will be developed from vendor and/or manufacturers recommendations.

Lubricants

Controls necessary for storage and use of lubricants will be established in accordance with applicable reference documents, vendor recommendations, and regulatory guides and standards.

Question No.

421.25 (17.2.15) Describe measures which assure that procedures provide for an independent review of nonconformances (including computer codes), disposition, and closeout.

17.2.15.2

Response

The following statement shall supplement Subsection 17.2.15 of the Waterford-3 FSAR:

The Quality Procedure (QP) that prescribes the handling of nonconformances, QP 15.1 - "Nonconformances and Corrective Action", and those related station implementing procedures shall provide for an independent review of nonconformances (including computer codes), disposition, and closeout. The independent review shall be performed by members of the Plant Operations Review Committee (PORC) or by a qualified independent source designated by the PORC.

Question No.

421.26 (17.2.15) Describe those organizational responsibilities established for the definition and implementation of activities related to nonconformance control. This includes identifying those individuals or groups with authority for the disposition of nonconforming items.

17.2.15.2

Response

During operations, the Waterford-3 Station Superintendent is responsible for the station's activities of documenting, segregating, dispositioning and reviewing nonconformances. He is responsible for assuring that corrective action is taken by cognizant committees, organizations, consultants or vendors.

The individual that identifies a nonconforming condition is required by procedure to document the condition on a nonconformance report (NCR) or report it to his supervisor that the supervisor can document it on an NCR.

The Quality Control Engineer is responsible for maintaining and issuing sequential NCR numbers and maintaining log sheets for NCR's

The Plant Operation Review Committee (PORC) shall be responsible for determining the action required to correct a nonconformance, designating other qualified personnel, engineering organizations, consultants, or vendors to make the determination where required. PORC shall provide an independent review of nonconformances (including computer codes), disposition, and closeout. PORC shall also be responsible for determining whether a nonconformance is reportable under 10CFR Part 21.

The Quality Control Engineer is responsible for conducting inspections to verify adequate implementation of corrective action concerning nonconformances.

The Quality Assurance Department shall be responsible for assuring, through audits, that the control measures for identification, notification, segregation, technical review, disposition and documentation of nonconformances are adequate.

Question No.

421.27 (17.2.17) Describe the organizational responsibilities established for the definition and implementation of activities related to QA record.

17.2.17.1

Response

During operations, the Station Superintendent is responsible for implementing requirements for the management of quality assurance records. He assigns records management responsibilities and authority.

Station Departments that initiate requests for services or materials are responsible for ensuring that the applicable quality assurance records requirements are imposed upon the contractor or supplier/vendor.

The Central File Supervisor at Waterford-3 is responsible for maintaining records generated at the station in accordance with QP 17.1. The LP&L Power Production Document Control Clerk at the General Office is responsible for maintenance of records generated or retained at the LP&L General Office.

The Quality Assurance Department shall review and audit the retention of records files for adequacy, completeness, and conformance with physical storage requirements.

Question No.

421.28 (17.2.1)

17.2.1.2.8.1

FIGS. 17.2-1, 2, & 3

Figure 17.2-1 and page 17.2-3 indicate that the QC Engineer reports to the Assistant Station Superintendent with a communication link to the QA Manager. Page 17.2-5, Paragraph 17.2.1.2.3, states that the QA Manager and QC Engineers/Technicians are independent of undue influence and responsibilities for production schedules or costs. The reporting responsibility of the QA Manager is acceptable; however, the reporting responsibility of the QC Engineers/Technicians needs further justification. Please clarify or further explain whether the Assistant Station Superintendent, to whom the QC Engineers/Technicians report, is sufficiently free from undue influences and responsibilities from schedules and costs in accordance with the provisions of Criterion I of Appendix B to 10 CFR Part 50

Response

The Assistant Station Superintendent is sufficiently free from undue influence and responsibilities from schedule and costs. The Assistant Station Superintendent assists the Station Superintendent in all phases of plant management and assumes all the duties and responsibilities of the Station Superintendent in his absence. Further independence of the Quality Control organization is assured through direct access to levels of management which are responsible for effective implementation of the Quality Assurance Program. This is accomplished by close communicatin between the Station QC Engineer and the LP&L QA Manager. Any undue pressures on the Quality Control Group would be immediately brought to the attention of the LP&L QA Manager who would take prompt corrective action. During the construction phase of Waterford-3, LP&L management has demonstrated its full support of the LP&L Quality Assurance Program and will continue to do so during the operations phase regardless of the reporting structures involved.

Question No.

421.29 Please correct the following typographical errors or inadvertent omissions:

a. Page 17.2-18, Section 17.2.4.1 lists a 3/78 date for Regulatory Guide 1.33. This date should be 2/78.

b. Page 17.2-36, Section 17.2.13 does not reference the applicable regulatory guide.

c. Page 17.2-50, The description for QP 4.7 and 4.8 should identify the QP numbers where additional controls exist.

Response

The above stated typographical errors and inadvertent omissions have been corrected in Amendment 9 to Section 17.2 of FSAR Chapter 17.

Question No.

421.30 (17.2.2)

17.2.2.10

The response to Question 421.3 does not clearly describe whether the QA program for fire protection is under the management control of the QA organization. Therefore, provide a description to assure that the QA program for fire protection is under the management control of the QA organization. This control consists of (1) formulating and/or verifying that the fire protection QA program incorporates suitable requirements and is acceptable to the management responsible for fire protection and (2) verifying the effectiveness of the QA program for fire protection through review, surveillance, and audits. Performance of other QA program functions for meeting the fire protection program requirements may be performed by personnel outside of the QA organization.

Response

The QA program for fire protection is under the management control of the LP&L QA organization and is included as a part of the overall LP&L QA program. The LP&L QA Manager is responsible for assuring that the fire protection QA program described in FSAR Subsection 9.5.1, Subsections 8.0 through 8.10 is effectively implemented. Certain QA program functions for meeting fire protection program requirements are performed by personnel outside of the QA organization and this is explained in Subsections 8.0 through 8.10. The methods described in Subsection 8.0 through 8.10 assure that the fire protection QA program incoporates suitable requirements and is acceptable to the management responsible for fire protection. The LP&L QA organization assures that these methods are implemented through regularly scheduled audits of the fire protection QA program.

Question No.

421.31 (17.2.2) The response to Question 421.22 implies that your description applies to the preoperational testing phase instead of the operational phase. Please clarify your response to include provisions which assure that, during the operational phase, program procedures provide criteria for determining the accuracy requirements of test equipment and criteria for determining where a test is required or how and when testing activities are performed.

Response

Test procedures are developed by the Waterford-3 Startup Group Staff with inputs from the NSSS vendor and the Architect-Engineer. Test program procedures include provisions which require system engineers to review specifications provided by the Architect-Engineer, test guidelines supplied by the NSSS vendor, and equipment technical manuals in order to determine the accuracy of the test equipment that is necessary to satisfactorily perform a test.

Testing activities are based on the requirements of Regulatory Guide 1.68 and any retesting activities are based on reviews and decisions by the Joint Test Group or the Plant Operating Review Committee. Testing activities will be performed as scheduled using test procedures that have been reviewed, approved, and specifically released for execution. Further infomation regarding testing activities is given in Chapter 14.

Test Program procedures developed and qualified during the preoperational testing phase will be modified as necessary to convert them into plant operational phase test procedures where applicable. The same type provisions as stated above will be applied in assuring that the final procedures have or reference the location of accuracy requirements of test equipment and criteria for determining when a test is required or how and when testing activities are performed. The operations phase test procedures will be developed in accordance with the requirements of Regulatory Guide 1.33, Rev. 2, 2/78.

Question No.

421.32 (17.2.10) 17.2.10.2 17.2.11.1

Describe the criteria for determining the accuracy requirements of inspection equipment and criteria for determining when inspections are required. Describe those provisions which assure that your QA program will include how these criteria will be used.

Response

Accuracy requirements of inspection equipment are determined from procurement or station technical specifications, published standard practices, manufacturer's written instructions or other approved procedures.

Inspections are performed as required by codes, standards, and specifications. When inspections are not specifically required by codes, standards, and specifications, inspection requirements are based on the safety significance and complexity of the item or activity and the degree of standardization of the item or activity.

The Quality Control Group verifies that appropriate inspection equipment is called out in procedures. The personnel performing the procedure are responsible for assuring that the equipused meets the criteria noted in the procedures. The QC inspector is responsible for verifying that the inspection equipment meets the criteria of the procedure and that the inspection results are within the acceptance criteria of the procedure.

Question No.

421.33 The responses to 421 series of NRC questions appear to be separated from 17.2 of the FSAR. Incorporate or reference all responses to these questions in Section 17.2 of the FSAR to provide a fully integrated QA program description.

Response

The responses to 421 series of NRC questions have now, where necessary, been incorporated into the applicable Sections of 17.2 of the FSAR. To help locate where the responses were incorporated, a reference list is stated below:

Question #	Response Paragraph #	Location Incorporated into FSAR Section 17.2
421.1 (17.1.1)	1 thru 4	As stated in response
421.1 (17.1.1)	5 and 6	17.2.1.1 (Inserted as paragraphs 2 & 3)
421.2 (17.2.1)	Entire Response	17.2.1.2.5 (Inserted as paragraph 4 thru 10)
421.3 (17.2.2)	Entire Response	17.2.2.11 (New Section, as paragraph 1)
421.4 (17.2.2)	Entire Response	17.2.2.11 (New Section, as paragraph 2)
421.5 (17.2.2)	Entire Response	17.2.2.2 (Inserted as paragraph 4)
421.6 (17.2.2)	Entire Response	Previously corrected in Amendment 5 as stated in response
421.7 (17.2.2)	Entire Response	17.2.2.2 (Inserted as paragraph 8)
421.8 (17.2.2)	Sentences 1 thru 4 & 9 & 10 of Single Paragraph Response	17.2.2.1 (Inserted as paragraph 6)
421.8 (17.2.2)	Sentences 5 thru 8	17.2.2.2 (Already existed in paragraph 3)

Question #	Response Paragraph #	Location Incorporated into FSAR Section 17.2
421.9 (17.2.2)	Applicable Portion of Response	Previously incorporated in Amendment 5 as shown below: 17.2.2.1 (paragraph 3)
		17.2.3.1 (paragraph 1)
		17.2.4.1 (paragraph 1)
		17.2.5.1 (paragraph 1)
		17.2.6.1 (paragraph 1)
		17.2.7.1 (paragraph 1)
		17.2.8.1 (paragraph 1)
		17.2.9.1 (paragraph 1)
		17.2.10.1 (paragraph 1)
		17.2.11.1 (paragraph 1)
		17.2.12.1 (paragraph 1)
		17.2.13.1 (paragraph 1)
		17.2.14.1 (paragraph 1)
		17.2.15.1 (paragraph 1)
		17.2.16.1 (paragraph 1)
		17.2.17.1 (paragraph 1)
		17.2.18.1 (paragraph 1)
421.10 (17.2.2)	Entire Response	17.2.2.9 (Inserted as paragraph 2)
421.11 (17.2.3)	Entire Response	17.2.3.1 (Inserted as paragraph 3)
421.12 (17.2.3)	Entire Response	17.2.3.4 (Substitute for existing paragraph 8)
421.13 (17.2.3)	Entire Response	17.2.3.4 (Already existed in what is now paragraph 9)

Question #	Response Paragraph #	Location Incorporated into FSAR Section 17.2
421.14 (17.2.3)	Paragraphs 1 and 4	17.2.3.4 (Inserted as paragraphs 15 & 16)
421.14 (17.2.6)	Remaining Paragraphs	17.2.6.2 (Already existed as paragraphs 2 and 3)
421.15 (17.2.6)	Paragraph 1	17.2.1.2.2.1 (Already existed as paragraph 1e)
421.15 (17.2.6)	Paragraphs 2 and 3	17.2.6.1 (Inserted as paragraphs 3 and 4)
421.16 (17.2.7)	Entire Response	17.2.7.2.6 (New Section "Procurement Cycle")
421.17 (17.2.9)	Paragraphs 1, 2 & 3	17.2.9.1 (Inserted as paragraphs 3, 4 & 5)
421.17 (17.2.9)	Paragraphs 4 and 5	17.2.9.2 (Added to list of special processes)