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Don

Attached are draft revisions to the Part 11 QAPD and changed pages from Part 2 FSAR Chapter 13 for the Levy COLA that address organization changes based on the Progress Energy-Duke Energy merger, as requested. These changes are planned to be submitted as part of LNP COLA R5.

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CHAPTER 13

CONDUCT OF OPERATIONS

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CHAPTER 13

CONDUCT OF OPERATIONS

13.1 ORGANIZATIONAL STRUCTURE OF APPLICANT

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

STD DEP 1.1-1

DCD Subsection 13.1.1, Combined License Information, is renumbered in this FSAR section to 13.1.4.

LNP COL 13.1-1

This section describes the organizational positions of a nuclear power station and the interface with it's owner/applicant corporations including their associated functions and responsibilities. The position titles below the executive level used in the text are generic and describe the function of the position.

Table 13.1-201, Generic Position/Site Specific Position Cross Reference, provides a cross-reference to identify the corresponding generic position titles. Changes to the organization described herein are reviewed under the provisions of 10 CFR 50.54 (a) to ensure that any reduction in commitments in the QAPD (as accepted by the NRC) are submitted to and approved by the NRC, prior to implementation.

STD DEP 1.1-1

13.1.1 MANAGEMENT AND TECHNICAL SUPPORT ORGANIZATION

Duke Energy has over 40 years of experience in the design, construction, and operation of nuclear generating stations. The Duke Energy Nuclear Generation organization operates twelve nuclear units at seven sites: Catawba Nuclear Plant Units 1 and 2, McGuire Nuclear Plant Units 1 and 2, Oconee Nuclear Plant Units 1, 2 and 3, Harris Nuclear Plant Unit 1, Brunswick Nuclear Plant Units 1 and 2, H.B. Robinson Nuclear Plant Unit 2, and Crystal River Nuclear Plant Unit 3. The Nuclear Generation organization includes, but is not limited to Nuclear Engineering, Nuclear Operations, Corporate Governance and Operations Support, Nuclear Major Projects, Nuclear Development, and Nuclear Oversight.

13.1.1.1 Design, Construction, and Operating Responsibilities

The Duke Energy Chief Executive Officer has overall responsibility for functions involving design, construction, and operation of Duke Energy's nuclear plants. Line responsibilities for those functions are assigned to the Executive Vice President – Nuclear Generation / Chief Nuclear Officer (CNO) and the Executive Vice President – Energy Supply. The CNO directs the Senior Vice President for each nuclear site group in the operation of his applicable unit(s), the Senior Vice President – Nuclear Engineering, the Vice President – Corporate Governance and Operations Support, the Vice President – Nuclear Major Projects, the Vice President - Nuclear Development, and the Vice President – Nuclear Oversight in

the support of the nuclear fleet. The Executive Vice President – Energy Supply, via an interface agreement with Nuclear Generation .~~The Executive Vice President – Energy Supply~~ directs the Vice President – Project Management and Construction in the design and construction of new nuclear plant generation. The Executive Vice President – Nuclear Generation / Chief Nuclear Officer (CNO) directs Vice President – Nuclear Development in the preparation and integration of the new nuclear plants into the Nuclear Generation operating fleet. The first priority and responsibility of each member of the nuclear staff throughout the life of the plant is nuclear safety. Decision making for station activities is performed in a conservative manner with expectations of this core value regularly communicated to appropriate personnel by management interface, training, and station directives.

Lines of authority, decision making, and communication are clearly and unambiguously established to enable the understanding of the various project members, including contractors, that utility management is in charge and directs the project.

The corporate organization as shown in Figures 13.1-203 and 13AA-201 provide for design, construction, and preoperational activities and oversight of NSSS vendor and Architect/Engineer management and technical support organizations for design, construction, and preoperational activities as discussed in Appendix 13AA.

13.1.1.2 Provisions for Technical Support Functions

Before beginning preoperational testing, the Vice President – Nuclear Development, the Site Executive in charge of LNP, the Vice President – Corporate Governance and Operations Support and the Senior Vice President – Nuclear Engineering establish the organization of managers, functional managers, supervisors, and staff sufficient to perform required functions for support of safe plant operation. These functions include the following:

- Nuclear, mechanical, structural, electrical, thermal-hydraulic, metallurgical and material, and instrumentation and controls engineering.
- Safety review.
- Quality assurance, audit and surveillance.
- Plant chemistry.
- Radiation protection and environmental support.
- Fueling and refueling operations support.
- Training.
- Maintenance support.

- Operations support.
- Fire protection.
- Emergency planning organization.
- Outside contractual assistance.

In the event that station personnel are not qualified to deal with a specific problem, the services of qualified individuals from other functions within the company or an outside consultant are engaged. For example, major contractors, such as the reactor technology vendor or turbine generator manufacturer, provide technical support when equipment modifications or special maintenance problems are considered. Special studies, such as environmental monitoring, may be contracted to qualified consultants. Figure 13.1-201 illustrates the management and technical support organizations supporting operation of the plant. See Section 13.1.1.3.2 for description of responsibilities and authorities of management positions for organizations providing technical support. Table 13.1-201 shows the estimated number of positions required for each function.

Multiple layers of protection are provided to preserve unit integrity including organization. Organizationally, operators and other shift members are assigned to a specific unit. Physical separation of units helps to minimize wrong-unit activities. In addition, station procedures and programs provide operating staff with methods to minimize human error including tagging programs, procedure adherence requirements, and training.

13.1.1.2.1 Nuclear Engineering

The Nuclear Engineering organization consists of system engineering, design engineering, engineering programs, nuclear fuel management, and safety and engineering analysis. This organization is responsible for performing the classical design activities, as well as providing engineering expertise in other areas of new plant sites and license renewal at current plant sites.

Each of the engineering groups has a functional manager who reports to the Senior Vice President – Nuclear Engineering. See Figure 13.1-201.

The Nuclear Engineering organization is responsible for:

- Support of plant operations in the engineering areas of mechanical, structural, electrical, thermal-hydraulic, metallurgy and materials, electronic, instrument and control, and fire protection. Priorities for support activities are established based on input from site management with emphasis on issues affecting safe operation of the plant.
- Engineering programs.
- Major engineering projects for the nuclear fleet

- Support of procurement, chemical and environmental analysis and maintenance activities in the plant as requested by the site management.
- Performance of design engineering of plant modifications.
- Maintaining the design basis by updating the record copy of design documents as necessary to reflect the actual as-built configuration of the plant.
- Accident and transient analyses.
- Human Factors Engineering design process.

Reactor engineering, led by the functional manager in charge of Nuclear Fuel Management and Safety Analysis, provides technical assistance in the areas of core design, core operations, core thermal limits, and core thermal hydraulics.

Engineering work may be contracted to and performed by outside companies in accordance with the Quality Assurance Program Description (QAPD).

Engineering resources are shared between units. A single management organization oversees the engineering work associated with the station units.

13.1.1.2.2 Nuclear Safety Assurance

The Nuclear Oversight organization provides independent oversight of nuclear plant activities, maintains the Quality Assurance Program Manual and administers the nuclear employee concerns program. Review and audit activities are covered in Chapter 17 and the QAPD. The Vice President – Nuclear Oversight reports directly to the Executive Vice President & CNO – Nuclear Generation on all matters related to the independent monitoring and assessing of activities during new nuclear plant construction.

13.1.1.2.3 Quality Assurance

Safety-related activities associated with the operation of the plant are governed by QA direction established in Chapter 17 of the FSAR and the QAPD. The requirements and commitments contained in the QAPD apply to activities associated with structures, systems, and components, which are safety-related and are mandatory and must be implemented, enforced, and adhered to by individuals and organizations. QA requirements are implemented through the use of approved procedures, policies, directives, instructions, or other documents, which provide written guidance for the control of quality related activities and provide for the development of documentation to provide objective evidence of compliance. The QA function includes:

- Maintenance of the QAPD.
- Coordinating the development of audit schedules.

- Audit, surveillance, and evaluation of nuclear division suppliers.

- Support of general quality assurance indoctrination and training for the nuclear station personnel.

The site Nuclear Oversight organization contains the QA and QC organizations and is independent of the station organization. Quality Control (QC) inspection/testing activities to support plant operation, maintenance, and outages are independent of the station organization. QA and QC personnel report to the functional manager in charge of Nuclear Oversight at LNP. The functional manager in charge of Nuclear Oversight at LNP reports directly to the VP – Nuclear Oversight.

Personnel resources of the QA and QC organizations are shared between units. A single management organization oversees the QA and QC organizations for the station units.

13.1.1.2.4 Chemistry

The Corporate Governance & Operations Support organization provides for the standardization and support of the chemistry program at each site. A chemistry program is established to monitor and control the chemistry of various plant systems such that corrosion of components and piping is minimized and radiation from corrosion byproducts is kept to levels that allow operations and maintenance with radiation doses as low as reasonably achievable.

The functional superintendent in charge of Environmental & Chemistry is responsible to the Plant General Manager for maintaining chemistry programs and for monitoring and maintaining the water chemistry of plant systems. The staff of the chemistry department consists of laboratory technicians, support personnel, and supervisors who report to the functional superintendent in charge of Environmental & Chemistry.

Personnel resources of the chemistry organization are shared between units. A single management organization oversees the chemistry group for the station units.

13.1.1.2.5 Radiation Protection

The Corporate Governance & Operations Support organization provides for the standardization and support of the radiation protection programs at each site. A radiation protection (RP) program is established to protect the health and safety of the surrounding public and personnel working at the plant. The RP program is described in Chapter 12 of the FSAR. The program includes:

- Respiratory Protection

- Personnel Dosimetry

- Bioassay
- Survey Instrument Calibration and Maintenance
- Radioactive Source Control
- Effluents and Environmental Monitoring and Assessment
- Radioactive Waste Shipping
- Radiation Work Permits
- Job Coverage
- Radiation Monitoring and Surveys

The RP organization is staffed by Radiation Protection Technicians, support personnel, and supervisors who report to the Functional Superintendent in charge of Radiation Protection. To provide sufficient organizational freedom from operating pressures, the Functional Superintendent in charge of Radiation Protection reports directly to the Plant General Manager.

Personnel resources of the RP organization are shared between units. A single management organization oversees the RP group for the station units.

13.1.1.2.6 Fueling and Refueling Support

The Corporate Governance & Operations Support organization provides for the standardization and support of the refueling programs at each site. The function of fueling and refueling is performed by a combination of personnel from various organizations including operations, maintenance, radiation protection, engineering, and reactor technology vendor or other contractor staff. Initial fueling and refueling operations are a function of the outage organization. The functional manager in charge of Outage & Scheduling is responsible for planning and scheduling outages and for refueling support. The functional manager in charge of Outage & Scheduling reports to the Plant General Manager.

Personnel resources of the outage and scheduling organization are shared between units. A single management organization oversees the outage and scheduling group for the station units.

13.1.1.2.7 Training and Development

The Corporate Governance & Operations Support organization provides for the standardization and support of the training programs at each site. The site training organization is responsible for providing training programs that are established, maintained, and implemented in accordance with applicable plant administrative directives, regulatory requirements, and company operating policies so that station personnel can meet the performance requirements of their jobs in operations, maintenance, technical support, and emergency response.

The objective of training programs is to provide qualified personnel to operate and maintain the plant in a safe and efficient manner and to provide compliance with the license, technical specifications, and applicable regulations. The training organization's responsibilities encompass operator initial license training, requalification training, and plant staff training, as well as the plant access training (general employee training) and radworker training. The functional manager in charge of Training LNP is independent of the operating line organization to provide for independence from operating pressures. Nuclear plant training programs are described in Section 13.2 of the FSAR.

Personnel resources of the training organization are shared between units. A single management organization oversees the training group for the station units.

13.1.1.2.8 Maintenance Support

The Corporate Governance & Operations Support organization provides for the standardization and support of the maintenance programs at each site. In support of maintenance activities, planners, schedulers, and parts specialists prepare work packages, acquire proper parts, and develop procedures that provide for the successful completion of maintenance tasks. Maintenance tasks are integrated into the station schedule for evaluation of operating or safe shutdown risk elements and to provide for efficient and safe performance. The functional manager in charge of Maintenance reports to the Plant General Manager.

Personnel of the maintenance support organization are shared between units. A single management organization oversees the maintenance group for the station units.

13.1.1.2.9 Operations Support

The Corporate Governance & Operations organization provides for the standardization and support of the operations program at each site. The operations support function is provided under the direction of the functional manager in charge of Operations. Operations support includes the following programs:

- Operations procedures
- Operations surveillances
- Equipment tagging
- Fire protection testing and surveillance
- Radwaste system operation

13.1.1.2.10 Fire Protection

LNP COL 9.5-1 The station is committed to maintaining a Fire Protection Program as described in Section 9.5. The Site Executive in charge of LNP is responsible for the Fire Protection Program. Assigning the responsibilities at that level provides the authority to obtain the resources and assistance necessary to meet Fire Protection Program objectives, resolve conflicts, and delegate appropriate responsibility to fire protection staff. The relationship of the Site Executive in charge of LNP to other staff personnel with fire protection responsibilities is shown on Figure 13.1-201. Fire protection for the facility is organized and administered by the functional supervisor in charge of Fire Protection. The Site Executive in charge of LNP, through the functional supervisor in charge of Fire Protection is responsible for development and implementation of the Fire Protection Program including development of fire protection procedures, site personnel and fire brigade training, and inspections of fire protection systems and functions. The functional lead engineer in charge of the Fire Protection Program reports through the direct line of authority to the Site Executive in charge of LNP. Functional descriptions of position responsibilities are included in appropriate procedures. Station personnel are responsible for adhering to the fire protection/prevention requirements detailed in Section 9.5. The Site Executive in charge of LNP has the lead responsibility for overall site fire protection during construction of new units.

Personnel resources of the fire protection organization are shared between units. A single management organization oversees the fire protection group for the station units.

13.1.1.2.11 Emergency Response Organization

LNP COL 13.1-1 The Corporate Governance & Operations Support organization provides for the standardization and support of the emergency response programs at each site. The emergency response organization is a matrixed organization composed of personnel who have the experience, training, knowledge, and ability necessary to implement actions to protect the public in the case of emergencies. Managers and station personnel assigned positions in the emergency organization are responsible for supporting the emergency preparedness organization and emergency plan as required. The staff members of the emergency planning organization administrate and orchestrate drills and training to maintain qualification of station staff members and develop procedures to guide and direct the emergency organization during an emergency. The functional supervisor in charge of Emergency Preparedness reports to the functional manager in charge of site Support Services. The site emergency plan organization is described in the Emergency Plan.

Resources of the emergency planning group are shared between units. A single management organization oversees the emergency planning group for the station units.

13.1.1.2.12 Outside Contractual Assistance

Contract assistance with vendors and suppliers of services not available from organizations established as part of utility staff is provided by the materials, purchasing, and contracts organization. Personnel in the materials, purchasing, and contracts organization perform the necessary functions to contract vendors of special services to perform tasks for which utility staff does not have the experience or equipment required. The functional manager in charge of Nuclear Generation Supply Chain reports to the Vice President – Supply Chain.

Resources of the materials, purchasing, and contracts organization are shared between units. A single management organization oversees the materials, purchasing, and contracts group for the station units.

13.1.1.3 Organizational Arrangement

13.1.1.3.1 Executive Management Organization

Executive management is ultimately responsible for execution of activities and functions for the nuclear generating plants owned by the utility. Executive management establishes expectations such that a high level of quality, safety, and efficiency is achieved in aspects of plant operations and support activities through an effective management control system and an organization selected and trained to meet the above objectives. A high-level chart of the utility headquarters and engineering organization is illustrated in Figure 13.1-203. Executives and management with direct line of authority for activities associated with operation of the plant are shown in Figure 13.1-201. Responsibilities of those executives and managers are specified below.

13.1.1.3.1.1 President & Chief Executive Officer – Duke Energy

The Duke Energy President & Chief Executive Officer (CEO) has the ultimate responsibility for the safe and reliable operation of each nuclear station owned and/or operated by the utility. The CEO is responsible for the overall direction and management of the corporation, and the execution of the company policies, activities, and affairs. The CEO is responsible for directing Duke Energy's core operational business including the Nuclear Generation and Energy Supply organizations. The CEO is assisted in the direction of nuclear operations by the Executive Vice President – Nuclear Generation / Chief Nuclear Officer and other executive staff in the nuclear division of the corporation. The CEO is assisted in the direction of new nuclear plant development by the Executive Vice President – Nuclear Generation / Chief Nuclear Officer and the Vice President – Nuclear Development in the Nuclear Generation organization.

13.1.1.3.1.2 Executive Vice President – Nuclear Generation / Chief Nuclear Officer

The Executive Vice President – Nuclear Generation / Chief Nuclear Officer (CNO) reports to the CEO – Duke Energy. The CNO is responsible for overall

plant nuclear safety and takes the measures needed to provide acceptable performance of the staff in operating, maintaining, and providing technical support to the nuclear plants. The CNO is responsible for oversight of operations at each of the operating nuclear units in the system. The CNO delegates authority and responsibility for the operation and support of the sites to the Senior Vice Presidents – Nuclear Operations for each site group. The CNO has no ancillary responsibilities that might detract attention from nuclear safety matters.

13.1.1.3.1.3 Executive Vice President – Energy Supply

The Executive Vice President – Energy Supply reports to the Duke Energy CEO. The Executive Vice President – Energy Supply has overall responsibility for the construction of new nuclear generation and maintains oversight of the activities at each new nuclear plant under construction. The Executive Vice President – Energy Supply delegates authority and responsibility for EPC management and the construction of new nuclear units to the Vice President – Project Management & Construction. The licensing, preparation and integration of new nuclear plants into the operating fleet is the responsibility of the Vice President – Nuclear Development. This organizational alignment allows the CNO to focus on the performance of the nuclear operating fleet.

13.1.1.3.1.4 Vice President – Project Management & Construction

The Vice President – Project Management & Construction reports to the Executive Vice President – Energy Supply. The Vice President – Project Management & Construction is directly responsible for the EPC management and construction of a new nuclear plant. This position is supported in this role by the functional managers in charge of EPC contract management and project management. This position serves as the Owner's Project Director interfacing with the EPC contractor Project Director.

13.1.1.3.1.5 Vice President – Nuclear Development

The Vice President – Nuclear Development reports to the Executive Vice President – Nuclear Generation and is directly responsible for the licensing, preparation and integration of the new nuclear plants into the operating fleet. This position responsibility includes the hiring and training of the plant staff, development and implementation of all operational and technical programs, development and implementation of policies, procedures or other infrastructure as necessary to startup and operate the new nuclear plants. This position is supported in this role by the functional managers in charge of Engineering, Licensing, and Operational Readiness.

13.1.1.3.1.6 Vice President – Nuclear Oversight

The Vice President – Nuclear Oversight (VP – NO) reports to the CNO for matters relating to the operating fleet and to the Executive Vice President – Energy Supply via an interface agreement with Nuclear Generation for matters

relating to new nuclear plant construction. The VP – NO is responsible for providing oversight of Nuclear Generation and new nuclear plant construction; administration of the Employee Concerns Program and maintenance of the Quality Assurance Program Manual. Assisting the VP – NO is the functional manager in charge of Corporate Nuclear Oversight and the functional manager in charge of Nuclear Oversight for each nuclear plant site.

13.1.1.3.1.7 Senior Vice President - Nuclear Operations

Each Senior Vice President - Nuclear Operations is responsible for oversight of the management and operation of activities associated with the efficient, safe, and reliable operation of his designated nuclear stations. The Senior Vice President - Nuclear Operations is assisted in these duties by the Site Executive in charge of LNP and the LNP management staff.

13.1.1.3.1.8 Site Executive in charge of LNP

The Site Executive in charge of LNP reports to the Senior Vice President – Nuclear Operations. The Site Executive in charge of LNP is directly responsible for management and direction of activities associated with the efficient, safe, and reliable operation of the nuclear station. The Site Executive in charge of LNP is assisted in management and technical support activities by the functional managers in charge of training, plant operations and support services as shown in Figure 13.1-201.

The Site Executive in charge of LNP is responsible for the site Fire Protection Program through the functional supervisor in charge of Fire Protection. See Subsection 13.1.1.2.10.

13.1.1.3.1.9 Senior Vice President – Nuclear Engineering

The Senior Vice President – Nuclear Engineering reports to the Chief Nuclear Officer (CNO) and is responsible for providing guidance to the site engineering organizations, directing the management of nuclear fuels, and license renewal of current plants. Direction on matters relating to operational analysis, design, systems, engineering programs, and nuclear fuels is accomplished through the functional corporate managers and the functional superintendents of engineering as detailed in Subsections 13.1.1.2.1 and 13.1.1.3.2.1.

13.1.1.3.1.10 Vice President - Nuclear Major Projects

The Vice President - Nuclear Major Projects provides project management, engineering, and vendor oversight for selected large projects at the nuclear sites. Providing oversight for these significant projects provides more focus and continuity for upgrades and eliminates distractions for site management. The Vice President - Nuclear Major Projects reports to the CNO.

13.1.1.3.1.11 Vice President – Corporate Governance & Operations Support

The Vice President – Corporate Governance & Operations Support reports to the CNO. The Vice President – Corporate Governance & Operations Support is responsible for establishing Nuclear Generation fleet operating standards, implementing nuclear security, access authorization and Fitness-For-Duty programs and serving as the company's key nuclear industry interface. The Vice President – Corporate Governance & Operations Support is assisted by the functional managers in charge of Nuclear Protective Services, Regulatory Affairs, Nuclear Fleet Training, Nuclear Fleet Support Services, Organizational Effectiveness and Nuclear Fleet Operations.

13.1.1.3.1.12 Functional Manager in charge of Nuclear Oversight

The functional manager in charge of Nuclear Oversight is responsible for providing independent oversight of the nuclear plant and corporate activities, maintenance of the Quality Assurance Program Manual, and administration of the nuclear employee concerns program. The functional manager in charge of Nuclear Oversight reports to the VP – NO and is assisted in his duties by the functional manager in charge of Corporate Nuclear Oversight and the functional manager in charge of Nuclear Oversight at each plant site.

13.1.1.3.1.13 Functional Manager in charge of Materials Services

The functional manager in charge of Material Services is responsible for providing direction and guidance for the preparation, review, approval, and issuance of procurement requisitions; qualification of suppliers, including supplier QA Program implementation; and receipt and storage of materials, parts, and components, including receipt inspections. The functional manager in charge of Material Services reports to the Vice President – Supply Chain.

13.1.1.3.1.14 Functional Manager in charge of Nuclear Protective Services

The functional manager in charge of Nuclear Protective Services is responsible for providing guidance and direction to the functional manager – Security at each site on the nuclear security, access authorization, and Fitness for Duty programs. The functional manager in charge of Nuclear Protective Services reports to the VP – Corporate Governance & Operations Support.

13.1.1.3.1.15 Functional Manager in charge of Nuclear Information Technology

The functional manager in charge of Nuclear Information Technology provides information technology services, safety-related software services and design, maintenance and configuration control for plant computing systems, structures, and components. This position supports Nuclear Development activities through an interface agreement.

13.1.1.3.2 Site Support Organization

13.1.1.3.2.1 Functional Superintendents in charge of Levy Engineering

The functional superintendents in charge of Levy Engineering functions are the site lead positions for engineering and report to the Sr. VP - Nuclear Engineering through the functional managers for Plant Engineering and Design Engineering. The functional superintendents in charge of Levy Engineering are responsible for engineering activities related to the operation or maintenance of the plant and design change implementation support activities and other functions described in Subsection 13.1.1.2.1. The functional superintendents in charge of Levy Engineering direct functional disciple engineers responsible for LNP plant engineering and design engineering.

A single management organization oversees the engineering support for the station units.

13.1.1.3.2.1.1 Functional Superintendent in charge of Plant Engineering

The functional superintendent in charge of Plant Engineering supervises a technical staff of engineers and other engineering specialists and coordinates their work with that of other groups. Plant engineering staff includes reactor engineering as discussed in Subsection 13.1.1.2.1.

The functional superintendent in charge of Plant Engineering is responsible for providing direction and guidance to system engineers as follows:

- Monitoring the efficiency and proper operation of balance of plant and reactor systems.
- Performance/ISI engineering
- Maintenance rule tracking and trending
- Piping erosion/corrosion
- Inservice testing
- Equipment reliability engineering
- Planning programs for improving equipment performance, reliability, or work practices.
- Conducting operational tests and analyzing the results.
- Providing safety-related software services, including the maintenance, testing, and configuration control of plant digital I&C systems.
- Identification of plant spare parts for cognizant systems.

13.1.1.3.2.1.2 Functional Superintendent in charge of Design Engineering

The functional superintendent in charge of Design Engineering is responsible for:

- Resolution of design issues.
- Materials engineering
- Valve engineering
- Development of design related change packages and plant modifications.
- Implementation of effective project management methods and procedures, including cost controls, for implementation of modifications and construction activities.
- Management of contractors who may perform modification or construction activities.
- Maintaining configuration control program.
- Implementation of the Fire Protection Program.

13.1.1.3.2.2 Functional Manager in charge of Nuclear Oversight LNP

The functional manager in charge of Nuclear Oversight LNP is responsible for overall management of the independent assessment, independent safety review, and quality control programs. In this capacity, the manager shall: manage performance-based assessments activities in a manner that facilitates achievement of world class performance by the line organizations in the area of nuclear safety; identify issues and weaknesses in the area of nuclear performance to plant and senior management; promote self-assessment within the line organization by on-the-job training and example; manage quality control functions to ensure plant activities are conducted in accordance with appropriate regulatory and design commitments; and manage the independent safety review program. The responsibilities of the functional manager in charge of Nuclear Oversight LNP are fulfilled through the functional superintendent in charge of Plant Support Assessment and the QA/QC personnel under the authority of the functional manager in charge of Nuclear Oversight LNP. The functional manager in charge of Nuclear Oversight LNP reports to the Vice President – Nuclear Oversight.

13.1.1.3.2.3 Functional Manager in charge of Support Services

The functional manager in charge of Support Services provides staff functions to the entire plant for licensing activities, document services, cost control and reporting, and management of the operating experience, corrective action, and Emergency Preparedness Programs. The section is responsible for the maintenance of the FSAR and Technical Specifications and serves as the primary contact for the NRC. The functional manager in charge of Support Services is assisted by supervisors and staff within the following units:

- Licensing/Regulatory programs
- Emergency Preparedness
- Self-evaluation/Document Services
- Financial Services

13.1.1.3.2.3.1 Functional Supervisor – Licensing and Regulatory Programs

The responsibility of the Functional Supervisor – Licensing and Regulatory Programs is to provide a coordinated focus for interface with the NRC and technical direction and administrative guidance for the licensing staff for the following activities:

- Developing licensee event reports (LERs) and responding to notices of violations.
- Writing/submitting operating licensee and technical specification amendments and updating the UFSAR.
- Tracking commitments and answering generic letters.
- Analyzing operating experience data and monitoring industry issues.
- Preparing station for special NRC inspections, interfacing with NRC inspectors, and interpreting NRC regulations.
- Maintaining the license basis.

The Functional Supervisor – Licensing and Regulatory Programs reports directly to the functional manager in charge of Support Services.

13.1.1.3.2.3.2 Functional Supervisor – Self Evaluation and Document Services

The Functional Supervisor – Self Evaluation and Document Services is responsible for:

- Establishing processes and procedures to facilitate identification.
- Correction of conditions adverse to quality.
- Implementation of corrective actions to preclude repetition.

The Functional Supervisor – Self Evaluation and Document Services reports to the functional manager in charge of Support Services.

13.1.1.3.2.3.3 Functional Supervisor – Emergency Preparedness

The Functional Supervisor – Emergency Preparedness is responsible for:

- Coordinating and implementing the plant emergency response plan with state and local emergency plans.
- Developing, planning, and executing emergency drills and exercises.
- Emergency action level development.
- NRC reporting associated with 10 CFR 50.54(q).

The Functional Supervisor – Emergency Preparedness reports to the functional manager in charge of Support Services.

13.1.1.3.2.3.4 Functional Supervisor – Financial Services

The Functional Supervisor – Financial Services is responsible for assisting plant management with:

- Budget development, cost control, and budgeting status.
- Business Plan development and status reporting.
- Project analysis and cost control support.
- Financial Performance Analysis and reporting.

The Functional Supervisor – Financial Services reports to the functional manager in charge of Support Services.

13.1.1.3.2.4 Functional Manager in charge of Training LNP

LNP COL 18.10-1 The functional manager in charge of Training LNP is responsible for training programs required for the safe and proper operation and maintenance of the plant including:

- Operations training programs
- Plant staff training programs
- Plant access training
- Emergency plan training
- Radiation worker training

The functional manager in charge of Training LNP may seek assistance from other departments within the company or outside specialists such as educators and manufacturers. The functional manager in charge of Training LNP

supervises a staff of training supervisors who coordinate the development, preparation, and presentation of training programs for nuclear plant personnel. The functional manager in charge of Training LNP reports to the Site Executive in charge of LNP.

13.1.1.3.2.4.1 Functional Superintendent – Operations Training

The responsibilities of the Functional Superintendent – Operations Training for LNP include:

- Coordinating and supervising the development and administration of the licensed operator training program.
- Verifying proper content and conduct of the licensed operator training program.
- Maintaining the licensed operator training program in compliance with the latest revision of applicable regulations or codes.
- Implementing necessary training that reflects changes to plant design and procedures.

The Functional Superintendent – Operations Training reports to the functional manager in charge of Training LNP.

A single management organization oversees the LNP operations training programs for the station units.

13.1.1.3.2.4.2 Functional Supervisor – Technical Training

The responsibilities of the Functional Supervisor – Technical Training for LNP include:

- Coordinating and supervising the development and administration of the maintenance, chemistry, radiation protection, engineering support, and general employee training programs.
- Verifying proper content and conduct of the technical training programs.
- Maintaining the technical training program in compliance with the latest revision of applicable regulations or codes.
- Implementing necessary training that reflects changes to plant design and procedures.

The Functional Supervisor – Technical Training reports to the functional manager in charge of Training LNP.

A single management organization oversees the LNP technical training programs.

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13.1.1.3.2.5 Functional Superintendent in charge of Materials and Contract Services

The functional superintendent in charge of Materials and Contract Services is responsible for providing sufficient and proper materials to support the material needs of the plant and performing related activities including:

- Procedure development
- Materials storage
- Supply system database maintenance
- Meeting QA and internal audit requirements.
- Site purchasing

The functional superintendent in charge of Materials and Contract Services reports directly to the corporate functional manager in charge of Nuclear Generation Supply Chain and indirectly to the Plant General Manager.

13.1.1.3.2.6 Functional Manager in charge of Security

The functional manager in charge of Security is responsible for:

- Implementation and enforcement of security directives, procedures, and instructions received from appropriate authorities.
- Day-to-day supervision of the security guard force.
- Administration of the security program.

The functional manager in charge of Security reports directly to the functional corporate manager in charge of Protective Services and indirectly to the Site Executive in charge of LNP.

13.1.1.3.2.7 Functional Superintendent in charge of Nuclear Information Technology

The functional superintendent in charge of Nuclear Information Technology provides site support for safety-related software services including the design, maintenance, and configuration control of plant computing structures, systems, or components.

The functional superintendent in charge of Nuclear Information Technology reports directly to the functional manager in charge of Nuclear Information Technology and indirectly to the functional manager in charge of Support Services.

13.1.1.4 Qualifications of Technical Support Personnel

LNP COL 18.6-1 The qualifications of managers and supervisors of the technical support organization meet the qualification requirements in education and experience for those described in ANSI/ANS-3.1-1993 (Reference 201) as endorsed and amended by Regulatory Guide 1.8. The qualification and experience requirements of headquarters staff is established in accordance with current corporate nuclear policy and procedure manuals.

13.1.2 OPERATING ORGANIZATION

LNP COL 13.1-1

13.1.2.1 Plant Organization

The plant management, technical support, and plant operating organizations are shown in Figure 13.1-201. The on-shift operating organization is presented in Figure 13.1-202, which shows those positions requiring NRC licenses. Additional personnel are required to augment normal staff during outages.

Nuclear plant employees are responsible for reporting problems with plant equipment and facilities. They are required to identify and document equipment problems in accordance with the QA Program. QA Program requirements as they apply to the operating organization are described in Chapter 17 and the QAPD. Administrative procedures or standing orders include:

- Establishment of a QA Program for the operational phase.
- Preparation of procedures necessary to carry out an effective QA Program. See Section 13.5 for description of the station procedure program.
- A program for review and audit of activities affecting plant safety. See Section 17.5 and the QAPD for description of station review and audit programs.
- Programs and procedures for rules of practice as described in Section 5.2 of N18.7-1976/ANS-3.2 (Reference 203).

Managers and supervisors within the plant operating organization are responsible for establishing goals and expectations for their organization and to reinforce behaviors that promote radiation protection. Specifically, managers and supervisors are responsible for the following, as applicable to their position within the plant organization:

- Interface directly with radiation protection staff to integrate radiation protection measures into plant procedures and design documents and into the planning, scheduling, conduct, and assessment of operations and

work.

- Notify radiation protection personnel promptly when radiation protection problems occur or are identified, take corrective actions, and resolve deficiencies associated with operations, procedures, systems, equipment, and work practices.
- Ensure department personnel receive training on radiation protection and periodic retraining, in accordance with 10 CFR Part 19 so that they are properly instructed and briefed for entry into restricted areas.
- Periodically observe and correct, as necessary, radiation worker practices.
- Support radiation protection management in implementing the Radiation Protection Program.
- Maintain exposures to site personnel ALARA.

13.1.2.1.1 Site Executive in charge of LNP

The Site Executive in charge of LNP is the senior management representative on-site. The Site Executive in charge of LNP role and responsibilities are described in Subsection 13.1.1.3.1.8.

13.1.2.1.2 Plant General Manager

The Plant General Manager (PGM) is responsible for overall safe operation of the plant and has control over those on-site activities necessary for safe operation and maintenance of the plant including the following:

- Operations
- Maintenance and modification
- Chemistry and radiochemistry
- Outage management

Additionally, the Plant General Manager has overall responsibility for occupational and public radiation safety. Radiation protection responsibilities of the Plant General Manager are consistent with the guidance in Regulatory Guide 8.8 and Regulatory Guide 8.10 including the following:

- Provide management radiation protection policy throughout the plant organization.
- Provide an overall commitment to radiation protection by the plant organization.

- Interact with and support the Superintendent – Radiation Protection on implementation of the Radiation Protection Program.
- Support identification and implementation of cost-effective modifications to plant equipment, facilities, procedures and processes to improve radiation protection controls and reduce exposures.
- Establish plant goals and objectives for radiation protection.
- Maintain exposures to site personnel ALARA.
- Support timely identification, analysis and resolution of radiation protection problems (e.g., through the plant corrective action program).
- Provide training to site personnel on radiation protection in accordance with 10 CFR Part 19.
- Establish an ALARA Committee with delegated authority from the Plant General Manager that includes, at a minimum, the managers in charge of operations, maintenance, engineering, and radiation protection to help provide for effective implementation of line organization responsibilities for maintaining worker doses ALARA.

In the absence of the Plant General Manager – LNP, the on-site individual designated by the Plant General Manager shall be "in charge" for the duration of the absence. This will normally be the scheduled Duty Manager. The succession of authority includes the authority to issue standing or special orders as required.

As described in Subsection 13.1.2.1.3.4, the Nuclear Shift Manager is the Plant General Manager's direct representative for the conduct of operations. This delegation of authority includes the authority to issue standing or special orders as required.

13.1.2.1.2.1 Manager – Maintenance

Maintenance of the plant is performed by the maintenance department mechanical, electrical, and instrumentation and control disciplines. Planning, scheduling, and work package preparation are performed by maintenance support. The functions of this department are to perform preventive and corrective maintenance, equipment testing, and implement modifications as necessary.

The Manager – Maintenance is responsible for the performance of preventive and corrective maintenance and modification activities required to support operations, including compliance with applicable standards, codes, specifications, and procedures. The Manager – Maintenance reports to the Plant General Manager and provides direction and guidance to the maintenance discipline functional managers and maintenance support staff.

13.1.2.1.2.2 Maintenance Superintendents

The superintendent of each maintenance discipline (mechanical, electrical, instrumentation and control, and support) is responsible for maintenance activities within their discipline including plant modifications. They provide guidance in maintenance planning and craft supervision. They establish the necessary manpower levels and equipment requirements to perform both routine and emergency type maintenance activities, seeking the services of others in performing work beyond the capabilities of the plant maintenance group. Each discipline superintendent is responsible for liaison with other plant staff organizations to facilitate safe operation of the station. These superintendents report to the Manager – Maintenance.

13.1.2.1.2.3 Maintenance Supervisors

The maintenance supervisors (mechanical, electrical, and instrumentation and control) supervise maintenance activities, assist in the planning of future maintenance efforts, and guide the efforts of the craft within their discipline. The maintenance discipline supervisors report to the appropriate maintenance discipline superintendent.

13.1.2.1.2.4 Maintenance Mechanics, Electricians, and Instrumentation and Control Technicians

The discipline craft perform electrical and mechanical maintenance, I&C and support tasks as assigned by the discipline supervisors. They trouble shoot, inspect, repair, maintain, and modify plant equipment and perform technical specification surveillances on equipment for which they have cognizance. They perform these tasks in accordance with approved procedures and work packages.

13.1.2.1.2.5 Manager – Outage and Scheduling

The Manager – Outage and Scheduling is responsible for:

- Planning and scheduling refueling, maintenance, and forced outages.
- Providing direction and guidance to staff members in establishing outage activities.
- Minimizing shutdown risk during outages with proper planning and preparation.
- Directing activities during outages to provide safe, efficient, and effective outages.
- Planning and scheduling online work activities, monitoring the online work process and risk management.

The Manager – Outage and Scheduling is assisted by the Supervisor – Outage Management and the Supervisor – Online Scheduling. The Manager – Outage and Scheduling reports to the Plant General Manager. See Subsection 13.1.1.2.6.

13.1.2.1.2.6 Superintendent – Radiation Protection

The Superintendent – Radiation Protection has the direct responsibility for providing adequate protection of the health and safety of personnel working at the plant and members of the public during activities covered within the scope and extent of the license. Radiation protection responsibilities of the Superintendent – Radiation Protection are consistent with the guidance in Regulatory Guide 8.8 and Regulatory Guide 8.10. They include:

- Manage the radiation protection organization.
- Establish, implement, and enforce the Radiation Protection Program.
- Provide radiation protection input to facility design and work planning.
- Track and analyze trends in radiation work performance and take necessary actions to correct adverse trends.
- Support the plant Emergency Preparedness Program and assign emergency duties and responsibilities within the radiation protection organization.
- Delegate authority to appropriate radiation protection staff to stop work or order an area evacuated (in accordance with approved procedures) when, in his or her judgment, the radiation conditions warrant such an action and such actions are consistent with plant safety.

The Superintendent – Radiation Protection reports to the Plant General Manager and is assisted by the Supervisors – Radiation Protection.

13.1.2.1.2.7 Supervisors – Radiation Protection

The Supervisors – Radiation Protection are responsible for carrying out the day-to-day operations and programs of the radiation protection department as listed in Subsection 13.1.1.2.5.

Supervisors – Radiation Protection report to the Superintendent – Radiation Protection.

13.1.2.1.2.8 Radiation Protection Technicians

Radiation protection technicians (RPTs) directly carry out responsibilities defined in the Radiation Protection Program and procedures. In accordance with Technical Specifications an RPT is on-site whenever there is fuel in the vessel. See Table 13.1-202.

The following are some of the duties and responsibilities of the RPTs:

- As delegated authority by the Superintendent – Radiation Protection, stop work or order an area evacuated (in accordance with approved procedures) when, in his or her judgment, the radiation conditions warrant such an action and such actions are consistent with plant safety.
- Provide coverage and monitor radiation conditions for jobs potentially involving significant radiation exposure.
- Conduct surveys, assess radiation conditions, and establish radiation protection requirements for access to and work within restricted, radiation, high radiation, very high radiation, airborne radioactivity areas, and areas containing radioactive materials.
- Provide control over the receipt, storage, movement, use, and shipment of licensed radioactive materials.
- Review work packages, proposed design modifications, and operations and maintenance procedures to facilitate integration of adequate radiation protection controls and dose-reduction measures.
- Review and oversee implementation of plans for the use of process or other engineering controls to limit the concentrations of radioactive materials in the air.
- Provide personnel monitoring and bioassay services.
- Maintain, prescribe, and oversee the use of respiratory protection equipment.
- Perform assigned emergency response duties.

13.1.2.1.2.9 Superintendent – Environmental & Chemistry

The Superintendent – Environmental & Chemistry is responsible for development, implementation, and direction and coordination of the chemistry, radiochemistry, and nonradiological environmental monitoring programs. This area includes overall operation of the hot lab, cold lab, emergency off-site facility lab, and nonradiological environmental monitoring. The Superintendent – Environmental & Chemistry is responsible for the development, administration, and implementation of procedures and programs, which provide for effective compliance with environmental regulations. The Superintendent – Environmental & Chemistry reports to the Plant General Manager and directly supervises the chemistry supervisors and chemistry technicians as assigned.

13.1.2.1.3 Operations Department

Operations activities are conducted with safety of the public, personnel, and equipment as the overriding priority. The operations department is responsible for:

- Operation of station equipment.
- Monitoring and surveillance of safety and non-safety related equipment.
- Fuel loading.
- Providing the nucleus of emergency and fire-fighting teams.

The operations department maintains sufficient licensed Senior Reactor Operators (SROs) and Reactor Operators (ROs) to staff the control room continuously using a crew rotation system. The operations department is under the authority of the Manager – Operations, who through the Manager – Shift Operations directs the day-to-day operation of the plant.

Specific duties, functions, and responsibilities of key shift members are discussed in Subsections 13.1.2.1.3.4 through 13.1.2.1.3.8 and in plant administrative procedures and the technical specifications. The minimum shift manning requirements are shown in Table 13.1-202.

Some resources of the operations organization are shared between units. Administrative and support personnel perform their duties on either unit. To operate, or supervise the operation of more than one unit, an operator must hold an appropriate, current license (Senior Reactor Operator [SRO] or Reactor Operator [RO]) for each unit. A single management organization oversees the operations group for LNP 1 and 2. See Table 13.1-201 for estimated number of staff in the operations department for single or multiple unit sites.

The operations support section is staffed with sufficient personnel to provide support activities for the operating shifts and overall operations department. The following is an overview of the operations organization.

13.1.2.1.3.1 Manager – Operations

The Manager – Operations has overall responsibility for the day-to-day operation of the plant. The Manager – Operations reports to the Plant General Manager and is assisted by the Manager – Shift Operations for each unit and the Superintendent – Operations Support. The Manager – Operations or the Manager – Shift Operations for each unit is SRO licensed.

13.1.2.1.3.2 Manager – Shift Operations

The Manager – Shift Operations, under the direction of the Manager – Operations is responsible for:

- Shift plant operations in accordance with the operating license, technical

specifications, and written procedures.

- Providing supervision of operating shift personnel for operational shift activities including those of emergency and firefighting teams.

- Coordinating with the Nuclear Shift Manager(s) and other plant staff sections.

- Verifying that nuclear plant operating records and logs are properly prepared, reviewed, evaluated, and turned over to the Superintendent – Operations Support.

The Manager – Shift Operations is assisted in these areas by the Nuclear Shift Managers who direct the operating shift personnel. The Manager – Shift Operations reports to the Manager – Operations.

13.1.2.1.3.3 Superintendent – Operations Support

The Superintendent – Operations Support, under the direction of the Manager – Operations, is responsible for:

- Directing and guiding plant operations support activities in accordance with the operating license, technical specifications, and written procedures.

- Providing supervision of operating support personnel, for operations support activities, and coordination of support activities.

- Providing for nuclear plant operating records and logs to be turned over to the nuclear records group for maintenance as quality assurance records.

- Coordinating operations related to Fire Protection Program activities with the Supervisor – Fire Protection.

The Superintendent – Operations Support is assisted by the work management, operations procedures and other support personnel.

13.1.2.1.3.4 Nuclear Shift Manager

The Nuclear Shift Manager (NSM) is a licensed SRO responsible for the control room command function, and is the Plant General Manager's direct management representative for the conduct of operations. As such, the NSM has the responsibility and authority to direct the activities and personnel on-site as required to:

- Protect the health and safety of the public, the environment, and personnel on the plant site.

- Protect the physical security of the plant.

- Prevent damage to site equipment and structures.

- Comply with the operating license.

The NSM retains this responsibility and authority until formally relieved of operating responsibilities by a licensed SRO. Additional responsibilities of the NSM include:

- Directing nuclear plant employees to report to the plant for response to potential and real emergencies.

- Seeking the advice and guidance of the shift technical advisor and others in executing the duties of the NSM whenever in doubt as to the proper course of action.

- Promptly informing responsible supervisors of significant actions affecting their responsibilities.

- Participating in operator training, retraining, and requalification activities from the standpoint of providing guidance, direction, and instruction to shift personnel.

The NSM is assisted in carrying out the above duties by the Unit Senior Control Operators in charge on shift and the operating shift personnel. The NSM reports to the Manager – Shift Operations.

13.1.2.1.3.5 Unit Senior Control Operator

The Unit Senior Control Operator (USCO) is a licensed SRO. The primary function of the USCO is to administratively support the NSM such that the "command function" is not overburdened with administrative duties and to supervise the licensed and non-licensed operators in carrying out the activities directed by NSM. Other duties include:

- Being aware of maintenance and testing performed during the shift.

- Shutting down the reactor if conditions warrant this action.

- Informing the NSM and other station management in a timely manner of conditions which may affect public safety, plant personnel safety, plant capacity or reliability, or cause a hazard to equipment.

- Initiating immediate corrective action as directed by the NSM in any upset situation until assistance, if required, arrives.

- Participating in operator training, retraining, and requalification activities from the standpoint of providing guidance, direction, and instruction to shift personnel.

The Unit Senior Control Operator reports directly to the NSM.

13.1.2.1.3.6 Unit Control Operator

The Unit Control Operators (UCO) are licensed Reactor Operators and report to the Unit Senior Control Operator. They are responsible for routine plant operations and performance of major evolutions at the direction of the Unit Senior Control Operator. The UCO duties include:

- Monitoring control room instrumentation.
- Responding to plant or equipment abnormalities in accordance with approved plant procedures.
- Directing the activities of non-licensed operators.
- Documenting operational activities, plant events, and plant data in shift logs.
- Initiating plant shutdowns or scrams or other compensatory actions when observation of plant conditions indicates a nuclear safety hazard exists or when approved procedures so direct.

Whenever there is fuel in the reactor vessel, at least one UCO is in the control room monitoring the status of the unit at the main control panel. The UCO assigned to the main control panel is designated the "operator at the controls" and conducts monitoring and operating activities in accordance with the guidance set forth in Regulatory Guide 1.114, which is further described in Subsection 13.1.2.1.4, Conduct of Operations.

13.1.2.1.3.7 Non-Licensed Operator

The non-licensed operators perform routine duties outside the control room as necessary for continuous, safe plant operation including:

- Assisting in plant startup, shutdown, surveillance, and emergency response by manually or remotely changing equipment operating conditions, placing equipment in service, or securing equipment from service at the direction of the reactor operator.
- Performing assigned tasks in procedures and checklists such as valve manipulations for plant startup or data sheets on routine equipment checks, and making accurate entries according to the applicable procedure, data sheet, or checklist.
- Assisting in training of new employees and for improvement and upgrading of their own performance by participating in the applicable sections of the training program.

Non-licensed operators include building operators and auxiliary operators as shown in Figure 13.1-202.

13.1.2.1.3.8 Shift Technical Advisor

The station is committed to meeting NUREG-0737 TMI Action Plan item I.A.1.1 for Shift Technical Advisors. The Shift Technical Advisor (STA) reports directly to the NSM and provides advanced technical assistance to the operating shift complement during normal and abnormal operating conditions. The STA's responsibilities are detailed in plant administrative procedures as required by TMI Action Plan I.A.1.1 and NUREG 0737 Appendix C. These responsibilities include:

- Activities to monitor core power distribution and critical parameters.
- Activities to assist the operating shift with technical expertise during normal and emergency conditions.
- Evaluation of technical specifications, special reports, and procedural issues.

The STA is to primarily contribute to maximizing safety of operations by independently observing plant status and advising shift supervision of conditions that could compromise plant safety. During transients or accident situations, the STA independently assesses plant conditions and provides technical assistance and advice to mitigate the incident and minimize the effect on personnel, the environment, and plant equipment.

A licensed Senior Reactor Operator (SRO) on shift who meets the qualifications for the combined SRO/STA position specified for Option 1 of Generic Letter 86-04 (Reference 202) may also serve as the STA. If this option is used for a shift, then the separate STA position may be eliminated for that shift.

13.1.2.1.3.9 Supervisor – Fire Protection

LNP COL 9.5-1

Within the LNP Engineering and Support Unit, the Supervisor – Fire Protection is in charge of fire protection and the fire protection staff. Fire Protection Program implementation and maintenance are the responsibilities of the Lead Engineer – Fire Protection Program. The Supervisor – Fire Protection is responsible for:

- Fire Protection Program requirements, including consideration of potential hazards associated with postulated fires, knowledge of building layout, and system design.
- Post-fire shutdown capability.
- Design, maintenance, surveillance, and quality assurance of fire protection features (e.g., detection systems, suppression systems, barriers, dampers, doors, penetration seals, and fire brigade equipment).

- Fire prevention activities (administrative controls and training).
- Fire brigade organization and training.
- Pre-fire planning including review and updating of pre-fire plans at least every two years.

The Supervisor – Fire Protection reports to the Site Executive – LNP, who has ultimate responsibility for fire protection of the plant. The Supervisor – Fire Protection also reports to the functional superintendent in charge of Design Engineering. Additionally, the Supervisor – Fire Protection works with the Superintendent – Operations Support to coordinate activities and program requirements with the operations department. The Lead Engineer – Fire Protection Program meets the educational and experience/knowledge requirements of Regulatory Guide 1.189, Revision 1, Section C.1.6.1.a. The engineer in charge of fire protection is trained and experienced in nuclear plant safety or has available personnel who are trained and experienced in nuclear plant safety.

LNP COL 13.1-1

13.1.2.1.3.10 Radwaste Operations Lead

The Radwaste Operations Lead is responsible for development, implementation, direction, and coordination of the radwaste activities. The Radwaste Operations Lead reports to the Manager – Shift Operations.

The Radwaste Operations Lead supervises radwaste operators assigned to the radwaste area.

13.1.2.1.4 Conduct of Operations

Station operations are controlled and/or coordinated through the control room. Maintenance activities, surveillances, and removal from/return to service of structures, systems, and components affecting the operation of the plant may not commence without the approval of senior control room personnel. The rules of practice for control room activities, as described by administrative procedures, which are based on Regulatory Guide 1.114, address the following:

- Position/placement of operator at the controls workstation and the expected area of the control room where the majority of the time of the USCO and UCO should be spent.
- Definition and outline of “surveillance area” and requirement for continuous surveillance by the operator at the controls.
- Relief requirements for UCO at the controls and the USCO.

In accordance with 10 CFR 50.54:

- Reactivity controls may be manipulated only by licensed Reactor Operators and licensed Senior Reactor Operators except as allowed for training under 10 CFR Part 55.

- Apparatus and mechanisms other than controls which may affect reactivity or power level of the reactor shall be operated only with the consent of the operator at the controls or the USCO.

- During operation of the facility in modes other than cold shutdown or refueling, a license Senior Reactor Operator shall be in the control room and a licensed Reactor Operator or Senior Reactor Operator shall be present at the controls.

13.1.2.1.5 Operating Shift Crews

Plant administrative procedures implement the required shift staffing. These procedures establish crews with sufficient qualified plant personnel to staff the operational shifts and be readily available in the event of an abnormal or emergency situation. The objective is to operate the plant with the required staff and to develop work schedules that minimize overtime for plant staff members who perform safety-related functions. Work hour limitations and shift staffing requirements defined by TMI Action Plan I.A.1.3 are retained in station procedures. When overtime is necessary the provisions in the technical specifications and the plant administrative procedures apply. Shift crew staffing plans may be modified during refueling outages to accommodate safe and efficient completion of outage work in accordance with the proceduralized work hour limitations.

The minimum composition of the operating shift crew is contingent upon the unit operating status. Position titles, license requirements and minimum shift manning for various modes of operation are contained in Technical Specifications, administrative procedures, and Table 13.1-202. Routine shift operations staffing is illustrated in Figure 13.1-202.

13.1.2.1.6 Fire Brigade

The station is designed and the fire brigade organized to be self-sufficient with respect to fire fighting activities. The fire brigade is organized to deal with fires and related emergencies that could occur. It consists of a fire brigade leader and a sufficient number of team members to be consistent with the equipment that must be put in service during a fire emergency. A sufficient number of trained and physically qualified fire brigade members are available on-site during each shift. The fire brigade consists of at least five members on each shift. Members of the fire brigade are knowledgeable of building layout and system design. The assigned fire brigade members for any shift does not include the NSM nor any other members of the minimum shift operating crew necessary for safe shutdown of the unit. It does not include any other personnel required for other essential functions during a fire emergency. Fire brigade members for a shift are

designated in accordance with established procedures at the beginning of the shift.

13.1.3 QUALIFICATION REQUIREMENTS OF NUCLEAR PLANT PERSONNEL

13.1.3.1 Minimum Qualification Requirements

LNP COL 18.6-1
LNP COL 13.1-1

Qualifications of managers, supervisors, operators, and technicians of the operating organization meet the qualification requirements in education and experience for those described in ANSI/ANS-3.1-1993 (Reference 201), as endorsed and amended by Regulatory Guide 1.8, except for cold license operators as discussed in NEI 06-13A.

13.1.3.2 Qualification Documentation

Resumes and/or other documentation of qualification and experience of initial appointees to appropriate management and supervisory positions are available for NRC review after position vacancies are filled.

STD DEP 1.1-1

13.1.4 COMBINED LICENSE INFORMATION ITEM

LNP COL 13.1-1

This COL item is addressed in Subsections 13.1.1 through 13.1.3.

Add the following information after renumbered DCD Subsection 13.1.4:

13.1.5 REFERENCES

201. American Nuclear Society, “American National Standard for Selection, Qualification, and Training of Personnel for Nuclear Power Plant,” ANSI/ ANS -3.1-1993.

202. U.S. Nuclear Regulatory Commission, “Generic Letter 86-04, Policy Letter, Engineering Expertise on Shift.”

203. American Nuclear Society, “American National Standard for Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants,” N18.7-1976/ANS-3.2.

Table 13.1-201 (Sheet 1 of 7)
Generic Position/Site-Specific Position Cross Reference

Nuclear Function	Function Position – ANSI/ANS-3.1-1993 Section Reference	Nuclear Plant Position (Site-Specific)	Expected Positions Single Unit	Expected Additional Positions 2nd Unit
Executive Management	Chief Executive Officer	Chief Executive Officer (CEO)	-	-
	Chief Nuclear Officer	Chief Nuclear Officer	-	-
	Executive, Nuclear Operations	Senior Vice President – Nuclear Operations	-	-
	Executive, Nuclear Generation and Development	Vice President - Nuclear Plant Development	1	-
Nuclear Support	Executive, Operations Support	VP-Corporate Governance & Operations Support	-	-
Plant Management	Executive	Site Executive – LNP	1	-
	Plant Manager 4.2.1	Plant General Manager	1	-
Engineering	Executive	Senior Vice President – Nuclear Engineering	-	-
	Manager 4.2.4	Functional Manager in charge of Levy Engineering	2	-
System Engineering	Functional Manager 4.3.9	Functional Superintendent in charge of Plant Engineering	1	-
	System Engineer	System Engineer	24	12

LNP COL 18.6-1
LNP COL 13.1-1

Table 13.1-201 (Sheet 2 of 7)
Generic Position/Site-Specific Position Cross Reference

Nuclear Function	Function Position – ANSI/ANS-3.1-1993 Section Reference		Nuclear Plant Position (Site-Specific)	Expected Positions Single Unit	Expected Additional Positions 2nd Unit
Design Engineering	Functional Manager	4.3.9	Functional Superintendent in charge of Design Engineering	1	-
	Design Engineer		Design Engineer	12	0
Engineering Programs	Functional Manager	4.3.9	Functional Superintendent in charge of Levy Engineering	0	-
	Programs Engineer		Programs Engineer	12	6
Reactor Engineering	Functional Manager	4.3.9	Functional Supervisor in charge of Reactor Engineering	1	-
	Reactor Engineer		Reactor Engineering	3	1
Maintenance	Manager	4.2.3	Manager – Maintenance	1	-
Instrumentation and Control	Functional Manager	4.3.4	Superintendent – Instrumentation and Control / Electrical	1	-
	Supervisor	4.4.7	Supervisor – Instrumentation and Control Maintenance	3	1
	Technician	4.5.3.3	Instrumentation and Control Technician	22	12
Mechanical	Functional Manager	4.3.6	Superintendent – Mechanical Maintenance	2	-

LNP COL 18.6-1
LNP COL 13.1-1

Table 13.1-201 (Sheet 3 of 7)
Generic Position/Site-Specific Position Cross Reference

Nuclear Function	Function Position – ANSI/ANS-3.1-1993 Section Reference		Nuclear Plant Position (Site-Specific)	Expected Positions Single Unit	Expected Additional Positions 2nd Unit
	Supervisor	4.4.9	Supervisor – Mechanical	2	1
	Technician	4.5.7.2	Mechanic	22	8
Electrical	Functional Manager	4.3.5	Superintendent – Instrumentation and Control / Electrical	1	-
	Supervisor	4.4.8	Supervisor – Electrical Maintenance	2	1
	Technician	4.5.7.1	Electrician	14	6
Support	Functional Manager	4.3	Superintendent – Programs, Projects & Facility Services	1	-
Operations	Manager	4.2.2	Manager – Operations	1	-
Operations, Plant	Functional Manager	4.3.8	Manager – Shift Operations	1	1
Operations, Admin	Functional Manager	4.3.8	Superintendent – Operations Support	1	-
Operations, (On-shift)	Functional Manager	4.4.1	Nuclear Shift Manager	5	5
	Supervisor	4.4.2	Unit Senior Control Operator	5	5
	Licensed Operator	4.5.1	Unit Control Operator	10	10
	Non-Licensed Operator	4.5.2	Non-Licensed Operator	30	15

Table 13.1-201 (Sheet 4 of 7)
Generic Position/Site-Specific Position Cross Reference

Nuclear Function	Function Position – ANSI/ANS-3.1-1993 Section Reference		Nuclear Plant Position (Site-Specific)	Expected Positions Single Unit	Expected Additional Positions 2nd Unit
	Shift Technical Supervisor	4.6.2	Shift Technical Advisor	5	5
Operations – Radwaste	Supervisor	4.4	Lead – Radwaste Operations	1	-
Fire Protection	Supervisor	4.4	Lead Engineer – Fire Protection Program	1	-
Radiation Protection	Functional Manager	4.5.3.2	Superintendent – Radiation Protection	1	-
	Supervisor		Supervisor – Radiation Protection	3	2
	Technician		Radiation Protection Technician	18	9
	ALARA specialist		ALARA Specialist	3	1
	Decon Technician		Decon Technician	6	2
Chemistry	Functional Manager	4.3.2	Superintendent – Environmental & Chemistry	1	-
	Supervisor	4.4.5	Supervisor–Environmental & Chemistry	2	1
	Technician	4.5.3.1	Chemistry Technician	18	9
Nuclear Safety Assurance	Manager	4.2	Functional Manager in charge of Nuclear Oversight LNP	1	-

Table 13.1-201 (Sheet 5 of 7)
Generic Position/Site-Specific Position Cross Reference

Nuclear Function	Function Position – ANSI/ANS-3.1-1993 Section Reference		Nuclear Plant Position (Site-Specific)	Expected Positions Single Unit	Expected Additional Positions 2nd Unit
Licensing	Functional Manager	4.3	Functional Manager in charge of Licensing	-	-
	Supervisor		Supervisor – Licensing & Regulatory Programs	1	-
	Licensing Engineer		Licensing Engineer	4	-
Corrective Action	Functional Manager	4.3	Supervisor – Self Evaluation	1	-
	Corrective Action Specialist		Corrective Action Specialist	2	2
Emergency Preparedness	Functional Manager	4.3	Supervisor–Emergency Preparedness	1	-
	EP Planner		EP Specialist	3	1
Training	Functional Manager	4.3.1	Functional Manager in charge of Training LNP	1	-
			Superintendent – Operations Training	1	-
	Supervisor Ops Trng	4.4.4	Supervisor – Operations Training	2	-
	Ops Training Instructor		Ops. Training Instructor	9	9
	Supervisor Tech. Staff/ Maint Trng		Supervisor – Technical Training	1	1

Table 13.1-201 (Sheet 6 of 7)
Generic Position/Site-Specific Position Cross Reference

Nuclear Function	Function Position – ANSI/ANS-3.1-1993 Section Reference		Nuclear Plant Position (Site-Specific)	Expected Positions Single Unit	Expected Additional Positions 2nd Unit
	Tech Staff/Maint. Instructors		Technical Training Instructor	8	4
Purchasing and Contracts	Functional Manager	4.3	Superintendent – Materials & Contracts Services	1	-
Security	Functional Manager	4.3	Functional Manager in charge of Security	1	-
Planning and Scheduling	Functional Manager	4.3	Supervisor – Planning and Procedures	1	-
	Functional Manager	4.3	Manager – Outage & Scheduling	1	-
	Supervisor	4.4	Supervisor – Online Scheduling	1	-
			Supervisor – Outage Management	1	-
Quality Assurance	Functional Manager	4.3.7	Functional Manager in charge of Nuclear Oversight	1	-
	Supervisor	4.4.13	Superintendent – Plant Assessment	1	-
	QA Auditor		QA Auditors	6	2

Table 13.1-201 (Sheet 7 of 7)
Generic Position/Site-Specific Position Cross Reference

Nuclear Function	Function Position – ANSI/ANS-3.1-1993 Section Reference		Nuclear Plant Position (Site-Specific)	Expected Positions Single Unit	Expected Additional Positions 2nd Unit
	Supervisor	4.4.13	Supervisor – QC	1	-
	QC Inspector	4.4.11	QC Technicians	2	1
Startup testing	Supervisor	4.4.12	Manager –Plant Test & Operations	1	-
			Startup Manager	1	-
	Startup Test Engineer		Startup Test Engineer	6	-
	Supervisor		Manager – Plant Test & Operations Support	1	-
	Preop. Test Engineer		Preop Test Engineer	20	-

STD DEP 1.1-1

DCD Section 13.7 is redistributed to include DCD Section 13.7 references 7, 8, and 10 with COLA FSAR Subsection 13.5.4 and DCD Section 13.7 references 2, 3, and 4 with COLA FSAR Subsection 13.6.2.

Add the following new section after DCD Section 13.6.

13.7 FITNESS FOR DUTY

STD SUP 13.7-1

The Fitness for Duty Program (FFD) is implemented and maintained in multiple and progressive phases dependent on the activities, duties, or access afforded to certain individuals at the construction site. In general, two different FFD programs will be implemented: a construction FFD program and an operations FFD program. The construction and operations phase programs are illustrated in Table 13.4-201.

The construction FFD program is consistent with NEI 06-06 (Reference 201). NEI 06-06 applies to persons constructing or directing the construction of safety- and security-related structures, systems, or components performed onsite where the new reactor will be installed and operated. Management and oversight personnel, as further described in NEI 06-06, and security personnel prior to the receipt of special nuclear material in the form of fuel assemblies (with certain exceptions) will be subject to the operations FFD program that meets the requirements of 10 CFR Part 26, Subparts A through H, N, and O. At the establishment of a protected area, all persons who are granted unescorted access will meet the requirements of an operations FFD program. Prior to issuance of a Combined License, the construction FFD program at a new reactor construction site for those subject to Subpart K will be reviewed and revised as necessary should substantial revisions occur to either NEI 06-06 following NRC endorsement or the requirements of 10 CFR Part 26.

LNP SUP 13.7-1

The following site-specific information is provided:

- The construction site area is defined in the Physical Security Plan and will be under the control of Shaw Stone & Webster (Shaw). The 10 CFR Part 26 requirements will be implemented for the construction site area based on the descriptions provided in Table 13.4-201.

- Construction Workers & First Line Supervisors (Shaw employees and subcontractors) are covered by the Duke-approved Shaw FFD Program (elements Subpart K).

- Duke employees and Duke subcontractor's construction management and oversight personnel are covered by a Duke Operations FFD Program and Shaw's employees and Shaw's subcontractors, construction management, and oversight personnel will be covered by the Duke-approved Shaw FFD Program (elements Subpart A - H, N and 0).

- Duke security personnel are covered by a Duke Operations FFD Program and Shaw's security personnel are covered by the Duke-approved Shaw

FFD Program (elements Subpart A - H, N and 0). This coverage is applicable from the start of construction activities to the earlier of (1) the receipt of SNM in the form of fuel assemblies, or (2) the establishment of a Protected Area, or (3) the 10 CFR 52.103(g) finding.

- Duke FFD Program personnel are covered by a Duke Operations FFD Program and Shaw's FFD Program personnel will be covered by the Duke-approved Shaw FFD Program (elements Subpart A - H, N and 0, and C per licensee's discretion).
- Duke security personnel protecting fuel assemblies are covered by a Duke Operations FFD Program (elements Subpart A - I, N and 0).
- Personnel required to physically report to the Technical Support Center (TSC) or Emergency Operations Facility (EOF) when that requirement is in effect are covered by a Duke Operations FFD Program.

STD SUP 13.7-1 The operations phase FFD program is consistent with the applicable subparts of 10 CFR Part 26 (elements Subpart A – I, N, and O, except for individuals listed in §26.4(b), who are not subject to §§ 26.205 – 209).

13.7.1 REFERENCES

201. Nuclear Energy Institute "Fitness for Duty Program Guidance for New Nuclear Power Plant Construction Sites," NEI 06-06, Revision 5, August 2009 (ML092430016).

Add the following new appendix at the end of DCD Chapter 13.

LNP COL 13.1-1

APPENDIX 13AA CONSTRUCTION-RELATED ORGANIZATION

The information in this appendix is included for future designation as historical information. Paragraphs are numbered to be subsequent to Subsection 13.1.1.1.

13AA.1.1.1.1 Design and Construction Activities

The Westinghouse Electric Company (WEC) was selected to design, fabricate, deliver, and install the AP1000 advanced light water pressurized water reactors (PWR) and to provide technical direction for installation and startup of this equipment. DCD Subsection 1.4.1 provides detailed information regarding WEC past experience in design, development, and manufacturing of nuclear power facilities. Operating experience from design, construction, and operation of earlier WEC PWRs is applied in the design, construction, and operation of the AP1000 as described in numerous locations throughout the DCD (e.g., DCD Subsections 3.6.4.4, 3.9.4.2.1, 4.2.3.1.3).

A construction architect engineer (AE) provides the construction of the plant and additional design engineering for selected site specific portions of the plant. The AE is selected based on experience and proven technical capability in nuclear construction projects or projects of similar scope and complexity.

Other design and construction activities are generally contracted to qualified suppliers of such services. Implementation or delegation of design and construction responsibilities is described in the subsections below. Quality assurance aspects of these activities are described in Chapter 17.

13AA.1.1.1.1.1 Principal Site-Related Engineering Work

The principal site engineering activities accomplished towards the construction and operation of the plant are:

a. Meteorology

Information concerning local (site) meteorological parameters is developed and applied by station and contract personnel to assess the impact of the station on local meteorological conditions. An on-site meteorological measurements program is employed by station personnel to produce data for the purpose of making atmospheric dispersion estimates for postulated accidental and expected routine airborne releases of effluents. A maintenance program is established for surveillance, calibration, and repair of instruments. More information regarding the study and meteorological program is found in Section 2.3.

b. Geology

Information relating to site and regional geotechnical conditions is developed and evaluated by utility and contract personnel to determine if geologic conditions could present a challenge to safety of the plant. Items of interest include geologic structure, seismicity, geological history, and ground water conditions. During construction, foundations within the power block area are mapped or visually inspected and photographed. Section 2.5 provides details of these investigations.

c. Seismology

Information relating to seismological conditions is developed and evaluated by utility and contract personnel to determine if the site location and area surrounding the site is appropriate from a safety standpoint for the construction and operation of a nuclear power plant. Information regarding tectonics, seismicity, correlation of seismicity with tectonic structure, characterization of seismic sources, and ground motion are assessed to estimate the potential for strong earthquake ground motions or surface deformation at the site. Section 2.5 provides details of these investigations.

d. Hydrology

Information relating to hydrological conditions at the plant site and the surrounding area is developed and evaluated by utility and contract personnel. The study includes hydrologic characteristics of streams, lakes, shore regions, the regional and local groundwater environments, and existing or proposed water control structures that could influence flood control and plant safety. Section 2.4 includes more detailed information regarding this subject.

e. Demography

Information relating to local and surrounding area population distribution is developed and evaluated by utility and contract personnel. The data is used to determine if requirements are met for establishment of exclusion area, low population zone, and population center distance. Section 2.1 includes more detailed information regarding population around the plant site.

f. Environmental Effects

Monitoring programs are developed to enable the collection of data necessary to determine possible impact on the environment due to construction, startup, and operational activities and to establish a baseline from which to evaluate future environmental monitoring.

13AA.1.1.1.1.2 Design of Plant and Ancillary Systems

Responsibility for design and construction of systems outside the power block such as circulating water, service water, switchyard, and secondary fire protection systems are delegated to qualified contractors.

13AA.1.1.1.1.3 Review and Approval of Plant Design Features

Design engineering review and approval is performed in accordance with the reactor technology vendor QA Program and Section 17.1. The reactor technology vendor is responsible for design control of the power block. Verification is performed by competent individuals or groups other than those who performed the original design. Design issues arising during construction are addressed and implemented with notification and communication of changes to the functional manager in charge of Nuclear Engineering for review. As systems are tested and approved for turnover and operation, control of design is turned over to plant staff. The functional manager in charge of Nuclear Engineering, along with functional managers and staff, assumes responsibility for review and approval of modifications, additions, or deletions in plant design features, as well as control of design documentation, in accordance with the Operational QA Program. Design control becomes the responsibility of the functional manager in charge of Nuclear Engineering prior to loading fuel. During construction, startup, and operation, changes to human-system interfaces of control room design are approved using a human factors engineering evaluation addressed within Chapter 18. See Organization Charts, Figures 13.1-201 and 13AA-201 for reporting relationships.

13AA.1.1.1.1.4 Site Layout With Respect to Environmental Effects and Security Provisions

Site layout was considered when determining the expected environmental effects from construction.

The Physical Security Plan is designed with provisions that meet the applicable NRC regulations. Site layout was considered when developing the Security Plan.

13AA.1.1.1.1.5 Development of Safety Analysis Reports

Information regarding the development of the Final Safety Analysis Report is found in Chapter 1.

13AA.1.1.1.1.6 Review and Approval of Material and Component Specifications

Safety-related material and component specifications of structures, systems, and components designed by the reactor technology vendor are reviewed and approved in accordance with the reactor technology vendor quality assurance program and Section 17.1. Review and approval of items not designed by the reactor vendor are controlled for review and approval by Section 17.5 and the Quality Assurance Program Description.

13AA.1.1.1.1.7 Procurement of Materials and Equipment

Procurement of materials during construction phase is the responsibility of the reactor technology vendor and constructor. The process is controlled by the construction QA Programs of these organizations. Oversight of the inspection and receipt of materials process is the responsibility of the manager in charge of quality assurance.

13AA.1.1.1.1.8 Management and Review of Construction Activities

Overall management and responsibility for construction activities is assigned to the VP – Project Management & Construction. The Project Director of the engineering, procurement, and construction (EPC) contractor is accountable to the VP – Project Management & Construction for construction activities. See Organization Chart Figure 13AA-201. Monitoring and review of construction activities by utility personnel is a continuous process at the plant site. Contractor performance is monitored to provide objective data to utility management in order to identify problems early and develop solutions. Monitoring of construction activities verifies that the contractors are in compliance with contractual obligations for quality, schedule, and cost. Monitoring and review of construction activities is divided functionally across the various disciplines of the utility construction staff (e.g., electrical, mechanical, instrument and control) and tracked by schedule based on system and major plant components/areas.

After each system is turned over to plant staff, the construction organization relinquishes responsibility for that system. At that time they will be responsible for completion of construction activities as directed by plant staff and available to provide support for preoperational and start-up testing as necessary.
To ensure equipment operability and reliability, plant maintenance programs such as preventive and corrective maintenance are developed and made effective during pre-operation/startup phase with approved administrative procedures under the direction of the managers in charge of maintenance, engineering and work control.

Periodic assessment involving both the construction and operations organizations continues to identify SSCs that could reasonably be expected to be impacted by scheduled construction activities. Appropriate administrative and managerial controls are then established as necessary. Specific hazards,

impacted SSCs, and managerial and administrative controls are reviewed on a recurring basis and, if necessary, controls are revised/developed and implemented and maintained current as work progresses on site. For example, prior to construction activities that involve the use of large construction equipment such as cranes, managerial and administrative controls are in place to prevent adverse impacts on any operating unit(s) overhead power lines, switchyard, security boundary, etc., by providing the necessary restrictions on the use of large construction equipment.

13AA.1.1.1.2 Preoperational Activities

The VP – Nuclear Development reports to the Executive Vice President – Nuclear Generation / CNO. The VP – Nuclear Development, with the aid of the functional manager in charge of Operational Readiness, (see Figure 13AA-201) are responsible for the activities required to transition the unit from the construction phase to the operational phase. These activities include turnover of systems from construction, preoperational testing, schedule management, procedure development for tests, fuel load, integrated startup testing, and turnover of systems to plant staff.

13AA.1.1.1.2.1 Development of Human Factors Engineering Design Objectives and Design Phase Review of Proposed Control Room Layouts

Human factors engineering (HFE) design objectives are initially developed by the reactor technology vendor in accordance with Chapter 18 of the FSAR and the Design Control Document (DCD). As a collaborative team, personnel from the reactor technology vendor design staff and personnel, including, licensed operators, engineers, and instrumentation and control technicians from owner and other organizations in the nuclear industry assess the design of the control room and man-machine interfaces to attain safe and efficient operation of the plant. See Section 18.2 for additional details of HFE program management.

Modifications to the certified design of the control room or man-machine interface described in the Design Control Document are reviewed per engineering and site support procedures, as required by Section 18.2, to evaluate the impact to plant safety. The Functional Superintendent – Design Engineering is responsible for the human factors engineering (HFE) design process and for the design commitment to HFE during construction and throughout the life of the plant as noted in Subsection 13.1.1.2.1. The HFE Program is established in accordance with the description and commitments in Chapter 18.

13AA.1.1.1.2.2 Preoperational and Startup Testing

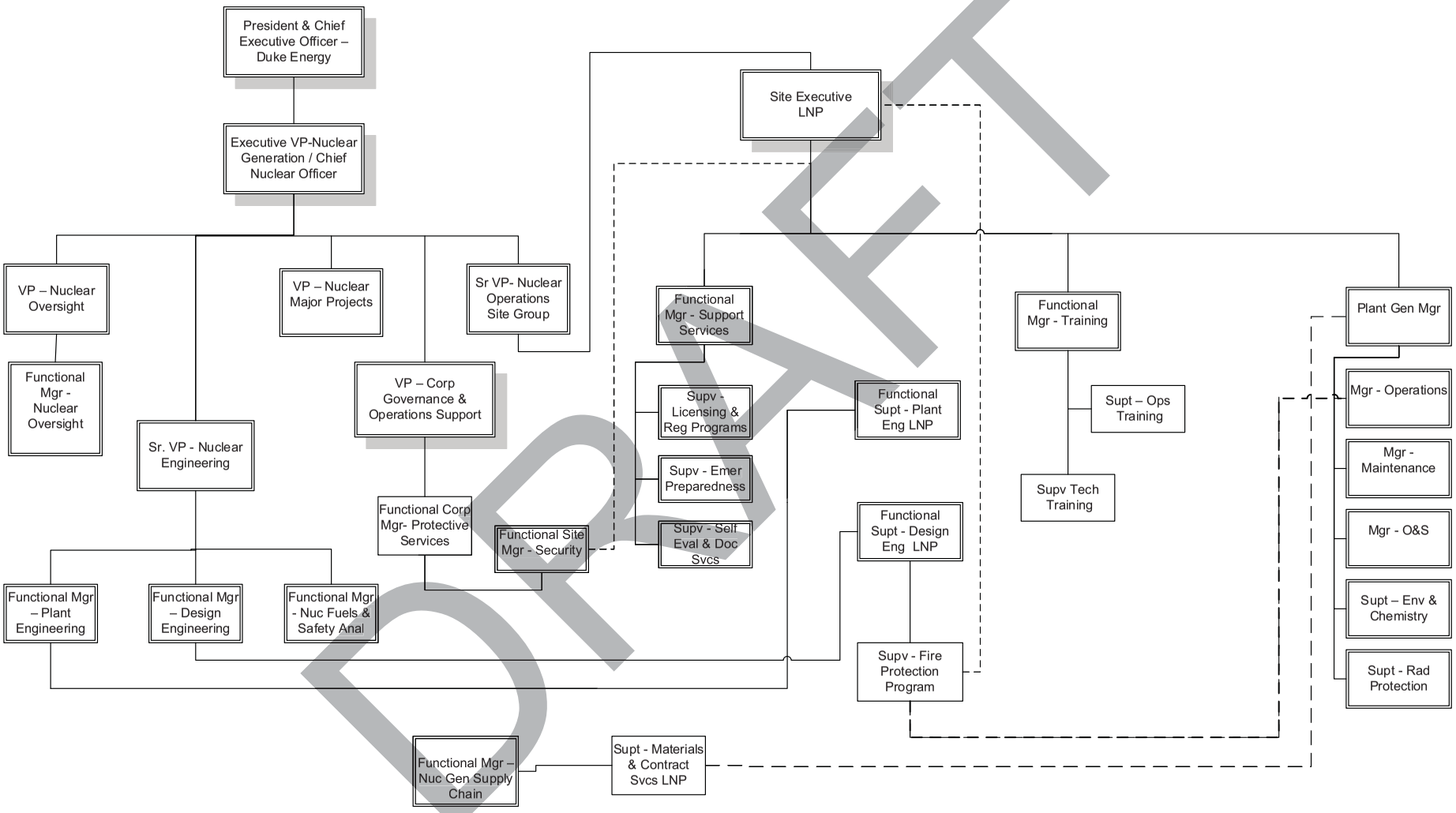
Preoperational and startup testing is conducted by the plant test and operations (PT&O) organization. The PT&O organization, functions, and responsibilities are addressed in Section 14.2. Sufficient numbers of personnel are assigned to perform preoperational and startup testing to facilitate safe and efficient implementation of the testing program. Plant-specific training provides instruction on the administrative controls of the test program. To improve operational experience, operations and technical staff are used as support in conducting the test program and in reviewing test results.

See Figure 13AA-201 for organization chart for preoperational and startup testing.

13AA.1.1.1.2.3 Development and Implementation of Staff Recruiting and Training Programs

Staffing plans are developed based on operating plant experience with input from the reactor technology vendor for safe operation of the plant as determined by HFE. See Section 18.6. These plans are developed under the direction and guidance of the VP – Nuclear Development and the Site Executive in charge of LNP. Staffing plans are completed and manager level positions are filled prior to start of preoperational testing. Personnel selected to be licensed Reactor Operators and Senior Reactor Operators along with other staff necessary to support the safe operation of the plant are hired with sufficient time available to complete appropriate training programs, and to become qualified, and licensed, if required, prior to fuel being loaded in the reactor vessel. See Figure 13AA-202 for an estimated timeline of hiring requirements for operator and technical staff relative to fuel load.

Because of the dynamic nature of the staffing plans and changes that occur over time, it is expected that specific numbers of personnel on-site will change; however, Table 13.1-201 includes the initial estimated number of staff for selected positions and the estimated number of additional positions required for a second unit. Recruiting of personnel to fill positions is the shared responsibility of the manager in charge of human resources and the various heads of departments. The training program is described in Section 13.2.

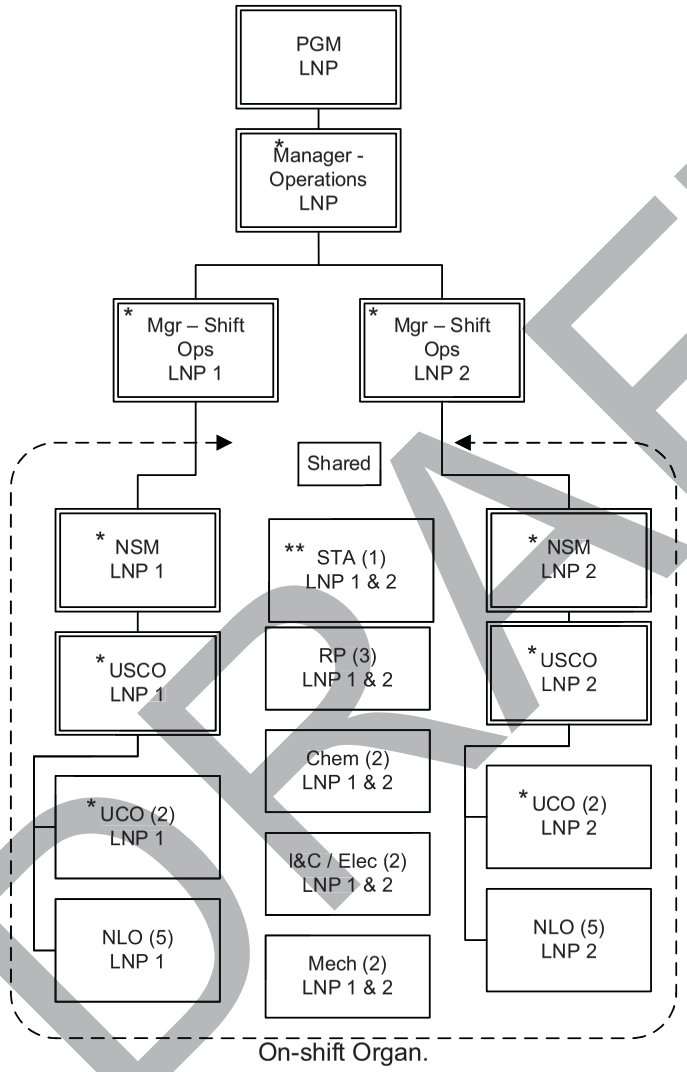


Progress Energy Florida
Levy Nuclear Plant
Units 1 and 2
Part 2, Final Safety Analysis Report

Plant Management Organization

FIGURE 13.1-201

Rev 5



On-shift Organ.

* licensed staff
NSM & USCO - licensed Senior Reactor Operator
UCO - licensed Reactor Operator
** may be met by onshift combined SRO/STA
NLO - non-licensed operator

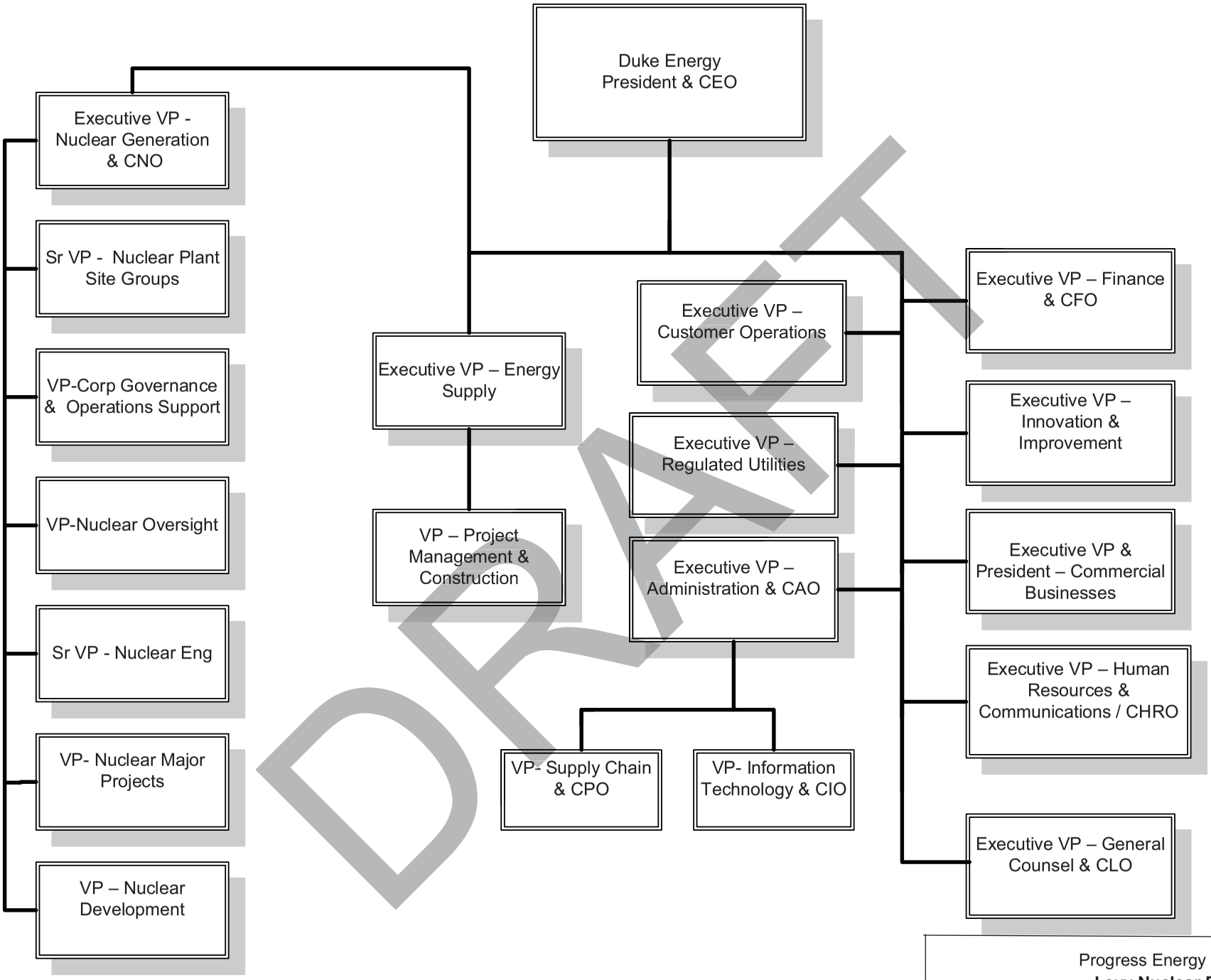
Shift Manning - 5 shifts (minimum)
(No.) - indicates number of positions per shift

Levy Nuclear Plant Units 1 and 2
COL Application
Part 2, Final Safety Analysis Report

Shift Operations Organization

FIGURE 13.1-202

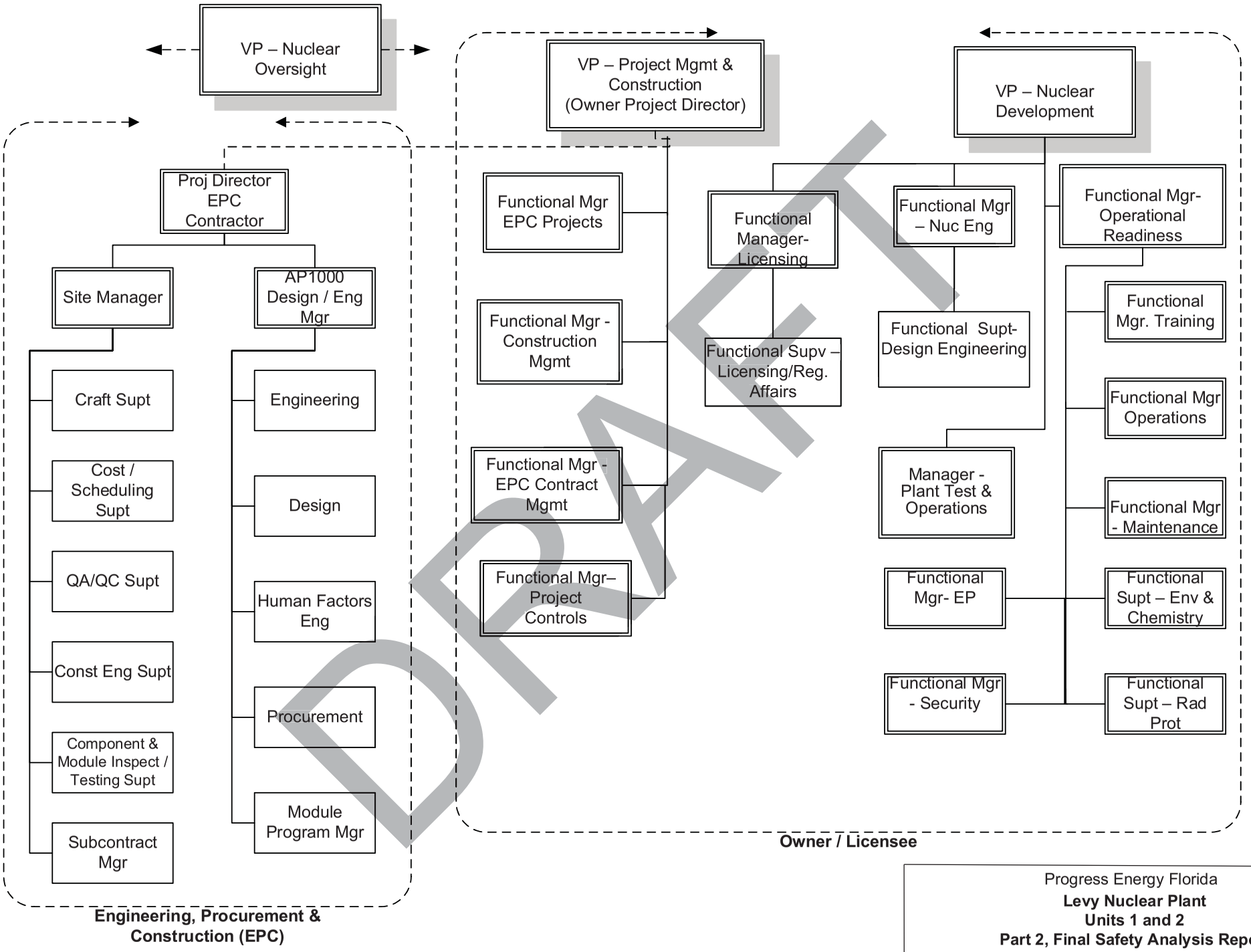
Rev 5



Progress Energy Florida
Levy Nuclear Plant
Units 1 and 2
Part 2, Final Safety Analysis Report

Corporate and Engineering Organization

FIGURE 13.1-203



Progress Energy Florida
Levy Nuclear Plant
Units 1 and 2
Part 2, Final Safety Analysis Report

Construction Management Organization
FIGURE 13AA-201

Rev 5

DRAFT

Progress Energy

NGG PROGRAM MANUAL

NGGM-PM-0033

Revision 5

Title: New Nuclear Plant Development Quality Assurance Program Description Topical Report

Lead Department: Nuclear Oversight

Revision Summary:

Revision 5 incorporate the following changes in support of DRR: 397489

The changes made in this revision were editorial in nature and made to reflect changes in organizational position titles, organizational structure, and reporting relationships for organizations responsible for the development and deployment of new nuclear generating plants. These changes were made to reflect the organizational structure of the new Duke Energy Company as a result of the merger between Progress Energy and Duke Energy.

These changes included:

- Revision number changed throughout document.
- Changed approval authority on cover page to include Executive Vice President Nuclear Generation and Chief Nuclear Officer and Executive Vice President Energy Supply reflected in Part II Section 2.5.
- Added company ownership information to Policy Statement
- Changed Policy statement to Duke Energy Corporation
- Change signature on Policy Statement to Chairman, President and Chief Executive Officer Duke Energy
- Changed PGN to Progress Energy throughout document (PGN was the stock market id that is no longer valid).
- Table of Contents Revised to reflect new organizational titles and page renumbering.
- New organizational titles in Section 1, reflected throughout document.
- Part I, Section 1, Added company ownership information to clarify Progress Energy and Duke Energy.
- Part I, Section 1, corrected Robinson Unit number from 1 to 2

- Part II, Section 1, paragraph 4 added Nuclear Development and Energy Supply to organizations responsible for new nuclear generating plants, and removed Corporate Development and Improvement Group and New Generation Programs and Projects. Replaced Material Services with Supply Chain
- Part II, Section 1, paragraph 5 changed description of figure to match titles.
- Part II, Section 1, paragraph 6 changed title of CNO to Executive Vice President Nuclear Generation added Executive Vice President Energy Supply as responsible for construction of new nuclear generation plants by Vice President Project Management and Construction.
- Part II, Section 1 paragraph12, changed titles and relationships to reflect new organizational titles.
- Part II, Section1.1 – Changed to reflect Duke Energy Chairman, President, and Chief Executive Officer correct title and titles of positions reporting to the Chairman, President and CEO.
- Part II, Section 1.2 – Changed to reflect Executive Vice President Nuclear Generation and Chief Nuclear Officer to describe position responsibilities and reporting relationships for new organization.
- Part II, Section 1.2.1 – added new position for Senior Vice Presidents Nuclear Plant Site Groups to reflect new position, responsibilities and reporting relationships for new organization.
- Part II, Section 1.2.1.1 – added to reflect revised title for site executive and reflect revised reporting relationships or new organization.
- Part II, Section 1.2.2 – Revised title of Vice President Nuclear Engineering to Senior Vice President.
- Part II, Section 1.2.3 – Added new position of Vice President Major Projects to reflect new organizational position, title, responsibilities and reporting relationships.
- Part II, Section 1.2.4 – Added new position of Vice President Corporate Governance and Operations Support to reflect new organizational position, title, responsibilities and reporting relationships.
- Part II, Section 1.2.5 – Added new position of Vice President Nuclear Development to reflect new organizational position, title, responsibilities and reporting relationships.
- Part II, Section 1.2.6 – Changed titles of reporting relationships of and for the Vice President Nuclear Oversight to reflect new organization.
- Part II, Section 1.2.6.1 – Added new position title and responsibilities for Corporate manager responsible for Employee Concerns reporting to the VP Nuclear Oversight.
- Part II, Section 1.2.6.2 – Added new position title and responsibilities for Corporate manager responsible for Audits and Programs reporting to the VP Nuclear Oversight.
- Part II, Section 1.2.6.3 – Added new position title and responsibilities for Corporate manager responsible for Assessments and Quality Control reporting to the VP Nuclear Oversight.
- Part II, Section 1.2.6.4 – Changed title and reporting relationship within Nuclear Oversight for the Manager Site Nuclear Oversight.
- Part II, Section 1.3 – Changed reporting relationships for Executive Vice President Energy Supply to reflect new company organizations.
- Part II, Section 1.3.1- Changed title of Vice President New Generation Programs and

Projects to Vice President Project Management and Construction. Also change responsibilities relative to new nuclear plant construction activities, and reporting relationships.

- Part II, Section 1.4 - Added new position of Executive Vice President Administration and Chief Administration Officer to reflect new organization and responsibilities.
- Part II, Section 1.4.1 – Added new position of Vice President Information Technology and Chief Information Officer to reflect new organization and responsibilities.
- Part II, Section 1.4.2 – Added new position of Vice President Supply Chain and Chief Procurement Officer to reflect new organization and responsibilities.
- Part II, Section 1.5 – 1.10 – Changed section numbering to reflect changes in section. No changes in section descriptions.
- Part II, Figures II.1-1, II.1-2, and II.1-3 – Revised figure to reflect new organizational structure and titles.
- Part II, Section 2.5 - Revised listing of minimum personnel involved in review and approval of QAPD changes to reflect new organizational structure.
- Part II, Section 2.6 - Revised position titles that manager minimum qualifications apply to within the new Nuclear Oversight organizational structure.

Progress Energy

Quality Assurance Program Description

Title: New Nuclear Plant Quality Assurance Program Description Topical Report

Process/Program Owner: Vice President Nuclear Oversight Department

Harris Nuclear Power Plants Units 2 and 3 Docket Nos. 52-022 and 50-023 **Levy Nuclear Power Plants Units 1 and 2** Docket Nos. 52-029 and 52-030	**Version Number** Revision 5	**Effective Date:**

Revision Summary:
The changes made in this revision were editorial in nature and made to reflect changes in organizational position titles, organizational structure, and reporting relationships for organizations responsible for the development and deployment of new nuclear generating plants. These changes were made to reflect the organizational structure of the new Duke Energy Company as a result of the merger between Progress Energy and Duke Energy.

Prepared By/Date:

Nuclear Oversight QA Program Leader – New Plant Development

Reviewed By/Date:	Approved By/Date:
Corporate manager responsible for Audits and Programs	Vice President -Nuclear Oversight Vice President Nuclear Development Vice President Project Management and Construction

Duke Energy Corporation

POLICY STATEMENT

Progress Energy Carolinas, Inc. (PEC) and Progress Energy Florida, Inc. (PEF), wholly-owned subsidiaries of Progress Energy, Inc. (Progress Energy) a wholly-owned subsidiary of Duke Energy Corporation (Duke Energy) shall design, procure, construct and operate the nuclear plants in a manner that will ensure the health and safety of the public and workers. These activities shall be performed in compliance with the requirements of the Code of Federal Regulations (CFR), the applicable Nuclear Regulatory Commission (NRC) Facility Operating Licenses, and applicable laws and regulations of the state and local governments.

The Progress Energy New Nuclear Plant Quality Assurance Program (QAP) is the Quality Assurance Program Description (QAPD) provided in this document and the associated implementing documents. Together they provide for control of Progress Energy's activities that affect the quality of safety-related nuclear plant structures, systems, and components (SSCs) and include all planned and systematic activities necessary to provide adequate confidence that such SSCs will perform satisfactorily in service. The QAPD may also be applied to certain equipment and activities that are not safety-related, but support safe plant operations, or where other NRC guidance establishes program requirements.

The QAPD is the top-level policy document that establishes the manner in which quality is to be achieved and presents Progress Energy's overall philosophy regarding achievement and assurance of quality. Implementing documents assign more detailed responsibilities and requirements and define the organizational interfaces involved in conducting activities within the scope of the QAP. Compliance with the QAPD and implementing documents is mandatory for personnel directly or indirectly associated with implementation of the Progress Energy QAP.

Signed _____ Date _____

Jim Rogers
Chairman, President, and Chief Executive Officer
Duke Energy Corporation

TABLE OF CONTENTS

PART I INTRODUCTION

SECTION 1 GENERAL

Progress Energy Carolinas, Inc. (PEC) and Progress Energy Florida, Inc. (PEF), wholly-owned subsidiaries of Progress Energy, Inc. (Progress Energy) a wholly-owned subsidiary of Duke Energy Corporation (Duke Energy) New Nuclear Plant Quality Assurance Program Description (QAPD) Topical Report is the top-level policy document that establishes the quality assurance policy and assigns major functional responsibilities for procurement, construction, pre-operations and operations activities conducted by or for Progress Energy. The QAPD describes the methods and establishes quality assurance (QA) and administrative control requirements that meet 10 CFR 50, Appendix B and 10 CFR 52. The QAPD is based on the requirements and recommendations of ASME NQA-1-1994, "Quality Assurance Requirements for Nuclear Facility Applications," Parts I, II, and III, as specified in this document.

The QA Program (QAP) is defined by the NRC approved regulatory document that describes the QA elements (i.e. the QAPD), along with the associated implementing documents. Procedures and instructions that control new nuclear plant activities will be developed prior to commencement of those activities. Policies establish high level responsibilities and authority for carrying out important administrative functions which are outside the scope of the QAPD. Procedures establish practices for certain activities which are common to all Progress Energy organizations performing those activities so that the activity is controlled and carried out in a manner that meets QAPD requirements. Procedures specific to a site, organization, or group establish detailed implementation requirements and methods, and may be used to implement policies or be unique to particular functions or work activities.

1.1 Scope/Applicability

The QAPD applies to procurement, construction, pre-operations and operations activities affecting the quality and performance of safety-related structures, systems, and components, including, but not limited to:

Designing	Handling	Startup	Storing	Decommissioning
Constructing	Testing	Siting	Erecting	Modifying
Procuring	Pre-operational activities	Operating	Installing	Inspecting
Fabricating	(including ITAAC)	Maintaining	Repairing	Refueling
Cleaning	Licensing	Receiving	Training	Shipping

ITAAC are those Inspections, Tests, Analyses and Acceptance Criteria the applicant must satisfy as determined by the commission in accordance with 10 CFR Part 52.

This QAPD was developed to address COL activities associated with Harris Nuclear Power Plant Units 2 and 3, Levy Nuclear Power Plant Units 1 and 2, and any future nuclear power units pursued by Progress Energy in accordance with 10 CFR Part 52. This QAPD does not apply to

the existing Progress Energy nuclear power plants – Brunswick Units 1 and 2, Crystal River Unit 3, Harris Unit 1, and Robinson Unit 2.

Safety-related SSCs under the control of the QAPD, are identified by design documents. The technical aspects of these items are considered when determining program applicability, including, as appropriate, the item's design safety function. The QAPD may be applied to certain activities where regulations other than 10 CFR 50 and 10 CFR 52 establish QAPD requirements for activities within their scope.

The policy of Progress Energy is to assure a high degree of availability and reliability of the nuclear plants while ensuring the health and safety of its workers and the public. To this end, selected elements of the QAPD are also applied to certain equipment and activities that are not safety-related, but support safe, economic, and reliable plant operations, or where other NRC guidance establishes quality assurance requirements. Implementing documents establish program element applicability.

The definitions provided in ASME NQA-1-1994, Part 1, Section 1.4, apply to select terms as used in this document.

PART II QAPD DETAILS

SECTION 1 ORGANIZATION

This section describes the proposed Progress Energy organizational structure, functional responsibilities, levels of authority and interfaces for establishing, executing, and verifying QAPD implementation.

The organizational structure includes corporate/support/off-site and on-site functions for the development and construction of new nuclear plants including interface responsibilities for multiple organizations that perform quality-related functions. Implementing documents assign more specific responsibilities and duties, and define the organizational interfaces involved in conducting activities and duties within the scope of the QAPD. Management gives careful consideration to the timing, extent and effects of organizational structure changes.

Progress Energy senior management is responsible to size the Quality Assurance organization commensurate with the duties and responsibilities assigned.

The Progress Energy Nuclear Development and Energy Supply organizations are responsible for new nuclear generating plant licensing, engineering, procurement, construction, startup and operations development activities. Several organizations within Progress Energy implement and support the QAPD. These organizations include, but are not limited to Nuclear Engineering, Nuclear Operations, Nuclear Oversight, Information Technology, and Supply Chain.

Engineering, Procurement and Construction (EPC) services are provided to Progress Energy in support of the development of new nuclear plants by the primary contractors in accordance with their respective Quality Assurance Programs. The primary contractors for these functions are Westinghouse and Shaw Stone and Webster for the development of the Westinghouse AP-1000 new nuclear generating plants. This contract will extend the applicable quality assurance requirements described in this document to the applicable contractors and subcontractors.

The following sections describe the reporting relationships, functional responsibilities and authorities for organizations implementing and supporting the New Nuclear Plant QA Program. Figures II.1-1 and II.1-2, and II.1-3 show the organizational structures for corporate, the construction phase, and the operations phase respectively. Figure II.1-3 shows a typical operating plant structure within Progress Energy. The detailed roles, responsibilities and organizational structure and reporting relationships for the operations phase organization is detailed in Chapter 13 of the respective plant's FSAR.

Responsibilities, Structure, Functions, and Interfaces

The Executive Vice President, Nuclear Generation and Chief Nuclear Officer (CNO) has overall responsibility for establishing the quality policy and implementation of the quality program for the Nuclear Generation activities. The Vice President Nuclear Development is responsible for establishing and implementing the quality policy and program for the activities associated with

the licensing and development of new nuclear generation plants. The Executive Vice President Energy Supply is responsible for the construction of new nuclear generation plants by the Vice President Project Management and Construction. The authority to accomplish quality assurance functions is delegated to the staff as necessary to fulfill the identified responsibilities.

Progress Energy has established a quality policy and commitment to facilitate an organization to implement it as detailed in this QAPD. Additionally, management shall ensure that the role of QA in design and analysis activities is defined and the size of the QA organization is commensurate with its duties and responsibilities.

Individual managers are to ensure that personnel working under their management are qualified in accordance with written procedures and that personnel only perform those activities for which they are qualified. Personnel performing work activities such as, but not limited to, design, engineering, procurement, manufacturing, construction, installation, startup, maintenance, and modification shall also be responsible for achieving acceptable quality. Independence between the organization performing checking functions and the organization performing the functions shall be maintained.

When Progress Energy delegates responsibility for planning, establishing or implementing any part of its overall QA program, sufficient authority to accomplish the assigned responsibility shall also be delegated. Additionally, when Progress Energy delegates a major portion of its work to participant(s) outside the Progress Energy organization, the delegation shall be identified and described such that:

- The organizational elements responsible for the work are identified.
- Management controls and lines of communication are established.
- Responsibility for an appropriate QAP and extent of Progress Energy management oversight is established.
- Performance of delegated work is formally evaluated by Progress Energy.

Progress Energy assigns responsibility and authority to stop unsatisfactory work and control further processing, delivery, installation, or use of nonconforming items (such as Systems, Structures Components (SSCs), parts, materials, equipment, consumable materials, and software) such that cost and schedule considerations do not override safety considerations.

The organizational structure defines onsite functions and details off-site reporting relationships at the construction site. Implementing documents assign more specific responsibilities and duties, and define the organizational interfaces involved in conducting activities and duties within the scope of this QAPD.

The organizations responsible for the implementation of the requirements of this Quality Assurance Program Description Topical Report for new nuclear generating plants are described below. There are two primary organizations responsible for implementation within the corporate structure based on the activity being performed. The responsibility for the licensing, development

and construction of new nuclear generating plants for Progress Energy in the Carolinas or Florida is assigned to the Vice President Nuclear Development and Vice President Project Management and Construction reporting to the Executive Vice President Nuclear Generation and the Executive Vice President Energy Supply respectively. The responsibility for the operation of the new nuclear generating plants is assigned to the Senior Vice Presidents Nuclear Plant Site Groups reporting to the Executive Vice President Nuclear Generation and Chief Nuclear Officer. Each of these individual executive vice presidents reports directly to the Chairman, President, and Chief Executive Officer Duke Energy. Figure II.1-1 displays the relationships of the Duke Energy, organizations described in and responsible for implementing the requirements of this QAPD. This division of responsibilities was made to allow the Chief Nuclear Officer to remain focused on improving the performance of the operating fleet and minimize the distractions associated with the construction of new nuclear generating plants. The Executive Vice President-Energy Supply, via an interface agreement with Nuclear Generation, directs the Vice President Project Management and Construction in the design and construction of new nuclear generating plants. Organizational control and responsibility for the newly constructed nuclear generating plants transfers from Energy Supply to Nuclear Generation following the completion of construction activities and prior to loading of fuel. This transition point allows for the continued support by the Energy Supply organization, while the organization transitions to the final structure typical of the operating fleet.

1.1 Chairman, President, and Chief Executive Officer

The Duke Energy, Chairman, President, and Chief Executive Officer (CEO) has the ultimate responsibility for the safe and reliable operation of each nuclear station owned and/or operated by the utility. The Chairman President and CEO is responsible for the overall direction and management of the corporation, and the execution of the company policies, activities, and affairs. The Chairman, President, and CEO is responsible for directing Duke Energy's core operational businesses including the Nuclear Generation, Energy Supply and Administrative departments. The Chairman, President and CEO is assisted in these activities by the Executive Vice President Nuclear Generation and Chief Nuclear Officer (CNO), Executive Vice President – Energy Supply, and the Executive Vice President Administration and Chief Administration Officer. The Chairman, President, and CEO is assisted in the direction of the nuclear operations by the Executive Vice President Nuclear Generation Group (NGG) / Chief Nuclear Officer (CNO) and other executive staff in the nuclear division of the corporation. The Chairman, President, and CEO is assisted in the direction of new nuclear plant development activities by the Executive Vice President Nuclear Generation / CNO and other executive staff in the Nuclear Generation Department. The Duke Energy Chairman, President, and CEO is assisted in the direction of new nuclear plant construction activities by the Executive Vice President Energy Supply and other executive staff in the Energy Supply Department.

1.2 Executive Vice President – Nuclear Generation and Chief Nuclear Officer

The Executive Vice President – Nuclear Generation / Chief Nuclear Officer (CNO) reports to the Chairman, President and CEO Duke Energy. The CNO is responsible for overall plant nuclear safety and takes the measures needed to provide acceptable performance of the staff in operating, maintaining, and providing technical support to operating the nuclear plants. The CNO is responsible for oversight of operations at each of the operating nuclear units in the Nuclear Generation Department, and newly constructed nuclear units turned over to the Nuclear

Generation Department prior to fuel load. The CNO delegates authority and responsibility for the operation and support of the Nuclear Generation Fleet through: the Senior Vice Presidents Nuclear Plant Site Groups; the Senior Vice President Nuclear Engineering; the Vice President Corporate Governance and Operations Support; the Vice President Nuclear Development and the Vice President – Nuclear Oversight. The CNO has no ancillary responsibilities that might detract attention from nuclear safety matters.

1.2.1 Senior Vice Presidents Nuclear Plant Site Groups

The Senior Vice Presidents Nuclear Plant Site Groups report directly to the Executive Vice President Nuclear Generation / CNO. Each Senior Vice President – Nuclear Plant Site Group is responsible for the oversight of the management and operation of activities associated with the efficient, safe, and reliable operation of his designated nuclear stations. The Senior Vice President Nuclear Plant Site Groups is assisted in these duties by the respective Site Executive (Site Vice President) in charge of site and the site management staff.

1.2.1.1 Site Executive

The Site Executive in charge of each site reports directly to the respective Senior Vice President Nuclear Plant Site Group for their site. The Site Executive is directly responsible for management and direction of activities associated with the efficient, safe, and reliable operation of the nuclear station. The Site Executive is assisted in management and technical support activities by the functional managers in charge of training, plant operations and support services as shown in Figure II.1-3. The Site Executive in charge is responsible for the site Fire Protection Program through the functional Supervisor in charge of Fire Protection as described in the FSAR.

1.2.2 Senior Vice President Nuclear Engineering

The Senior Vice President – Nuclear Engineering reports directly to the Executive Vice President Nuclear Generation and Chief Nuclear Officer. The Senior Vice President Nuclear Engineering is responsible for engineering, procurement, outsourcing engineering services, fabrication of nuclear fuel, and probabilistic safety assessment (PSA) activities. This position is responsible for providing guidance to the site engineering departments, directing the management of nuclear fuels, and license renewal of current plants. Direction on matters relating to operational analysis, design, systems, engineering programs, and nuclear fuels is accomplished through the functional corporate managers.

1.2.3 Vice President Nuclear Major Projects

The Vice President - Nuclear Major Projects reports directly to the Executive Vice President Nuclear Generation and Chief Nuclear Officer. The Vice President Nuclear Major Projects is responsible for providing project management, engineering, and vendor oversight for selected large projects at the nuclear sites. Providing oversight for these significant projects provides more focus and continuity for upgrades and eliminates distractions for site management.

1.2.4 Vice President Corporate Governance and Operations Support

The Vice President – Corporate Governance & Operations Support reports directly to the Executive Vice President and Chief Nuclear Officer. The Vice President – Corporate Governance & Operations Support is responsible for establishing Nuclear Generation fleet operating standards, implementing nuclear security, access authorization and Fitness-For-Duty programs and serving as the company's key nuclear industry interface. The Vice President – Corporate Governance & Operations Support is assisted by the functional managers in charge of Nuclear Protective Services, Regulatory Affairs, Nuclear Fleet Training, Nuclear Fleet Support Services, Organizational Effectiveness and Nuclear Fleet Operations.

1.2.5 Vice President Nuclear Development

The Vice President – Nuclear Development Support reports directly to the Executive Vice President and Chief Nuclear Officer. The Vice President – Nuclear Development is directly responsible for the licensing, preparation and integration of the new nuclear plants into the operating fleet. This position responsibility includes license application preparation, the hiring and training of the plant staff, development and implementation of all operational and technical programs, development and implementation of policies, procedures or other infrastructure as necessary to startup and operate the new nuclear plants. This position is supported in this role by the functional managers in charge of Engineering, Licensing, and Operational Readiness.

1.2.6 Vice President Nuclear Oversight

The Vice President – Nuclear Oversight reports directly to the Executive Vice President and Chief Nuclear Officer. The Vice President Nuclear Oversight reports to the Executive Vice President and Chief Nuclear Officer for all matters relating to the independent monitoring and assessing of activities that are performed by the line organizations for or in support of the operating nuclear fleet. The Vice President Nuclear Oversight reports to the Executive Vice President - Energy Supply via an interface agreement with Nuclear Generation for all matters relating to the independent monitoring and assessing of activities that are performed by or in support of new nuclear plant construction. The Vice President – Nuclear Oversight shall have access to corporate management to resolve any quality or nuclear safety related concerns that cannot be resolved satisfactorily at a lower management level. Nuclear Oversight reports the results of their activities directly to the Executive Vice President – Nuclear Generation and Chief Nuclear Officer for Nuclear Generation Department activities and to the Executive Vice President – Energy Supply for nuclear construction related activities. The Vice President Nuclear Oversight is responsible to ensure that quality assurance and oversight has the independence to conduct quality-related activities without undue pressure for cost and schedule. This position will establish the goals and objectives of the quality assurance policies, including oversight and maintenance of this Quality Assurance Program Description in accordance with applicable commitments and regulations The Vice President – Nuclear Oversight is responsible for the administration of the Employee Concerns Program. The Vice President Nuclear Oversight is supported in performing these activities by corporate functional managers responsible for Employee Concerns; Audits

and Programs; and Assessments and Quality Control. These corporate managers are assisted in implementing these activities at the nuclear sites by a Manager Site Nuclear Oversight.

1.2.6.1 Corporate manager responsible for Employee Concerns

The corporate manager responsible for Employee Concerns reports directly to the Vice President – Nuclear Oversight. This position is responsible for implementation and administration of the Employee Concerns Program, and responding to NRC allegations. This position is supported in these functions by site Employee Concerns representatives.

1.2.6.2 Corporate manager responsible for Audits and Programs

The corporate manager responsible for Audits and Programs reports directly to the Vice President – Nuclear Oversight. This position is responsible for the management of the independent audits of the nuclear generation fleet, including audits of major projects, nuclear plant development and nuclear construction. This position is also responsible for the management and implementation of the Vendor Qualification, surveillance, audit and survey processes, including maintenance of the Approved Supplier List. These vendor oversight activities include vendors and suppliers being used to support the development and construction of new nuclear plants. This position is responsible for maintaining this Quality Assurance Program Description and overall program support.

1.2.6.3 Corporate manager responsible for Assessments and Quality Control

The corporate manager responsible for Assessments and Quality Control reports directly to the Vice President – Nuclear Oversight. This position is responsible for the management and implementation of the corporate and site independent assessment and Quality Control programs. This position is supported in these functions by the Manager Site Nuclear Oversight at each site.

1.2.6.4 Manager Site Nuclear Oversight

The Manager Site Nuclear Oversight at each site reports through the corporate Manager responsible for Assessments and Quality to the Vice President- Nuclear Oversight. This position is responsible for the overall management of the independent assessments and Quality Control programs at each nuclear site. This position is responsible for managing and implementing the Independent Review activities described in Section 2.7.

1.3 Executive Vice President – Energy Supply

The Executive Vice President – Energy Supply reports directly to the Chairman, President, and CEO Duke Energy. The Executive Vice President - Energy Supply has overall responsibility for the construction of new nuclear generation plants and maintains oversight of the activities at each new nuclear plant under construction. The Executive Vice President - Energy Supply

delegates authority and responsibility for the management of the Engineering Procurement and Construction (EPC) contract and the construction of new nuclear units to the Vice President – Project Management and Construction. The licensing, preparation and integration of new nuclear plants into the Nuclear Generation operating fleet is the responsibility of the Vice President – Nuclear Development reporting to the Executive Vice President Nuclear Generation and Chief Nuclear Officer. This organizational alignment allows the Chief Nuclear Officer to focus on the performance of the Nuclear Generation operating fleet during the construction of new nuclear generation plants.

1.3.1 Vice President Project Management and Construction

The Vice President Project Management and Construction reports directly to the Executive Vice President Energy Supply. The Vice President Project Management and Construction has overall responsibility for the construction of new nuclear generation plants. The Vice President Project Management and Construction is responsible for the management and implementation of the EPC contract for new nuclear generation plants. This position will be responsible for: the construction of the new nuclear generation facilities; construction scheduling and cost control; all on-site manufacturing control of construction and testing activities; and performance of maintenance. This position is supported in these roles by the functional managers in charge of the EPC contract management and project management. This position serves as the Owner's Project Director interfacing with the EPC contractor Project Director.

1.4 Executive Vice President - Administration and Chief Administration Officer

The Executive Vice President – Administration and Chief Administration Officer (CAO) reports directly to the Chairman, President and CEO Duke Energy. The Executive Vice President has overall responsibility for the administrative, information technology and supply chain services for the company. The Executive Vice President Administration and CAO is supported in these activities by the Vice President Information Technology and Chief Information Officer (CIO) and the Vice President Supply Chain and Chief Procurement Officer (CPO).

1.4.1 Vice President Information Technology and Chief Information Officer

The Vice President Information Technology and Chief Information Officer reports to the Executive Vice President Administration and Chief Administration Officer. The Vice President Information Technology and Chief Information Officer is responsible for Information Technology services, safety related software services, and design, maintenance, and configuration control for the Nuclear Generation plant computing systems, structures and components. The Vice President Information Technology is supported in performing these activities by the Information Technology organization.

1.4.2 Vice President Supply Chain and Chief Procurement Officer

The Vice President Supply Chain and Chief Procurement Officer (CPO) reports to the Executive Vice President Administration and Chief Administration Officer. The Vice President Supply Chain

and Chief Procurement Officer provides procurement and contract support for the company including the Nuclear Generation and Energy Supply in accordance with applicable quality assurance requirements for those activities affecting quality.

1.5 Plant Operations

Following completion of construction activities, the new nuclear generating plants will transition to the operations phase. The typical operations phase site organizational structure is shown in Figure II.1-3, with the Site Executive / Site Vice President reporting to the respective Senior Vice President Nuclear Plant Site Groups. Nuclear Oversight for the plant operations phase is performed by the Manager Site Nuclear Oversight who reports to the corporate manager responsible for Assessment and Quality Control. The detailed roles, responsibilities and organizational structure and reporting relationships for the operations phase organization is detailed in Chapter 13 of the respective plant's FSAR. This description is incorporated by reference and establishes the organization responsible for implementing the operational requirements of this Quality Assurance Program Description. Changes to the information contained within the respective plant's FSAR Chapter 13 is controlled and changes are reviewed under the provisions of 10 CFR 50.54(a) to ensure that any reduction in commitments in this Quality Assurance Program Description (as accepted by the NRC) are submitted to and approved by the NRC, prior to implementation.

1.6 Agents and Contractors

Progress Energy contracts the Engineering, Procurement and Construction activities for the construction of new nuclear plants. These contracts include the flow down of applicable quality program requirements described in the document to applicable contractors and subcontractors. Nuclear Generation and Energy Supply personnel are responsible for the implementation of the QAPD requirements in this document assigned to the Engineering, Construction and Procurement contractors and subcontractors.

1.6.1 Design Certification Holder

Westinghouse has been selected as the Design Certification Holder/NSSS vendor and provides engineering services for plant design and licensing. In accordance with the requirements of the Engineering, Procurement, and Construction contract, Westinghouse will provide the engineering services for plant design, including site specific engineering and design necessary to support initial procurement, construction, pre-operations and operational activities for the new nuclear generating plants. This work will be performed in accordance with Westinghouse's Quality Assurance Program.

1.6.2 A/E

Shaw Stone and Webster has been selected as the A/E firm, and in accordance with the requirements of the Engineering, Procurement, and Construction contract will provide engineering services including planning and support for initial procurement, construction, pre-

operations, and operational activities for the new nuclear plants. This work will be performed in accordance with Shaw Stone and Webster's Quality Assurance Program.

Westinghouse and Shaw Stone and Webster have formed a consortium to support the requirements of the Engineering, Procurement, and Construction contract for the delivery of new AP-1000 nuclear plants.

1.7 Authority

The program and procedures require that the authority and duties of persons and organizations performing activities affecting quality functions be clearly established and delineated in writing and these individuals and organizations have sufficient authority and organizational freedom to:

1. Identify quality, nuclear safety, and performance problems.

2. Order unsatisfactory work to be stopped and control further processing, delivery, or installation of nonconforming material.

3. Initiate, recommend, or provide solutions for conditions adverse to quality.

4. Verify implementation of solutions.

1.8 Authority to Stop Work

Quality Assurance and inspection personnel have the authority, and the responsibility, to stop work in progress which is not being done in accordance with approved procedures or where safety or SSC integrity may be jeopardized. This extends to off-site work performed by suppliers that furnish safety-related materials and services to Progress Energy.

1.9 Quality Assurance Organizational Independence

For the COL and construction, independence shall be maintained between the organization or organizations performing the checking (quality assurance and control) functions and the organizations performing the functions. This provision is not applicable to design review/verification.

1.10 NQA-1-1994 Commitment

In establishing its organizational structure, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 1 and Supplement 1S-1.

Figure II.1-1

Corporate Organization

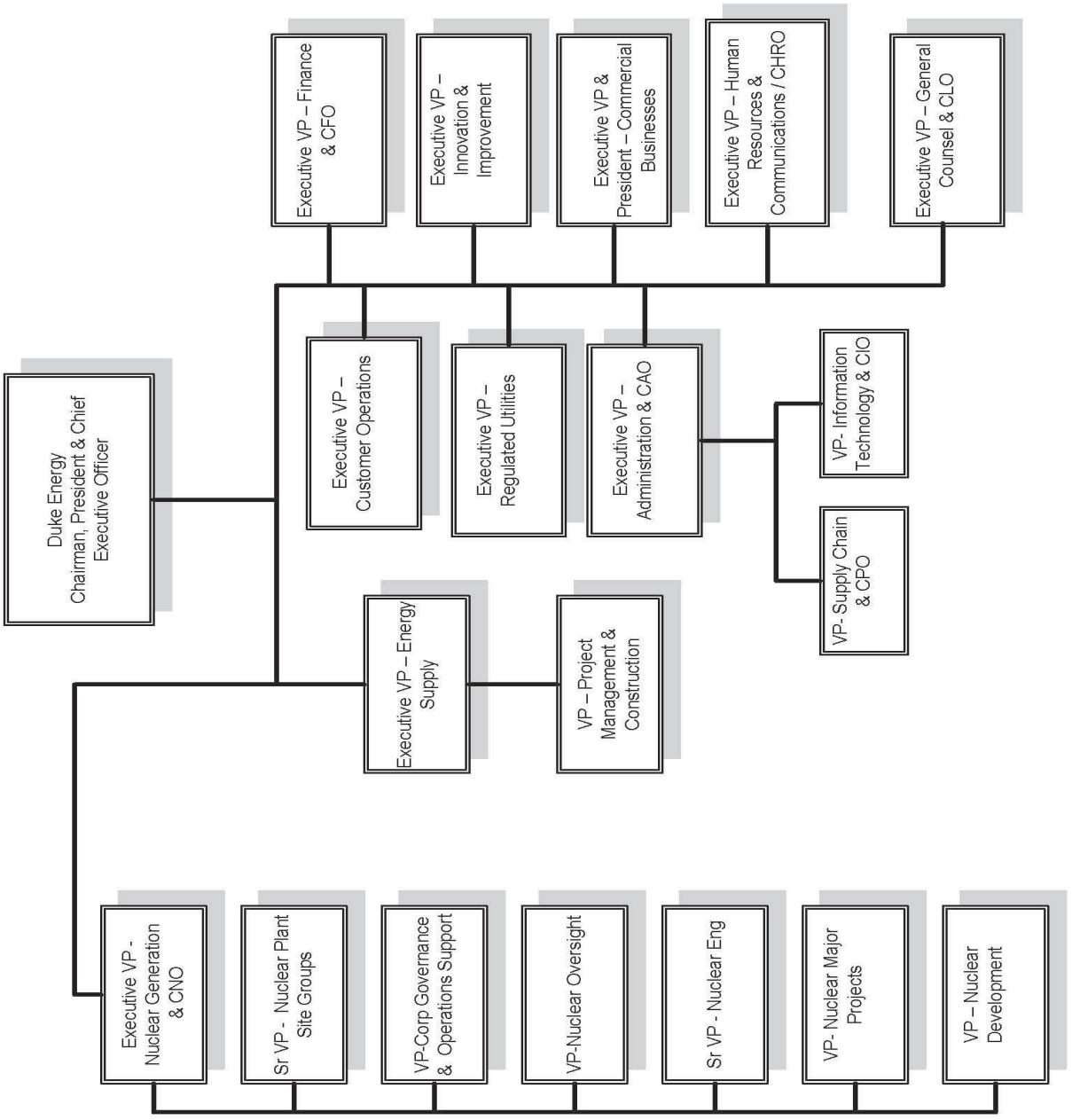


Figure II.1-2

Construction Phase Organization Structure

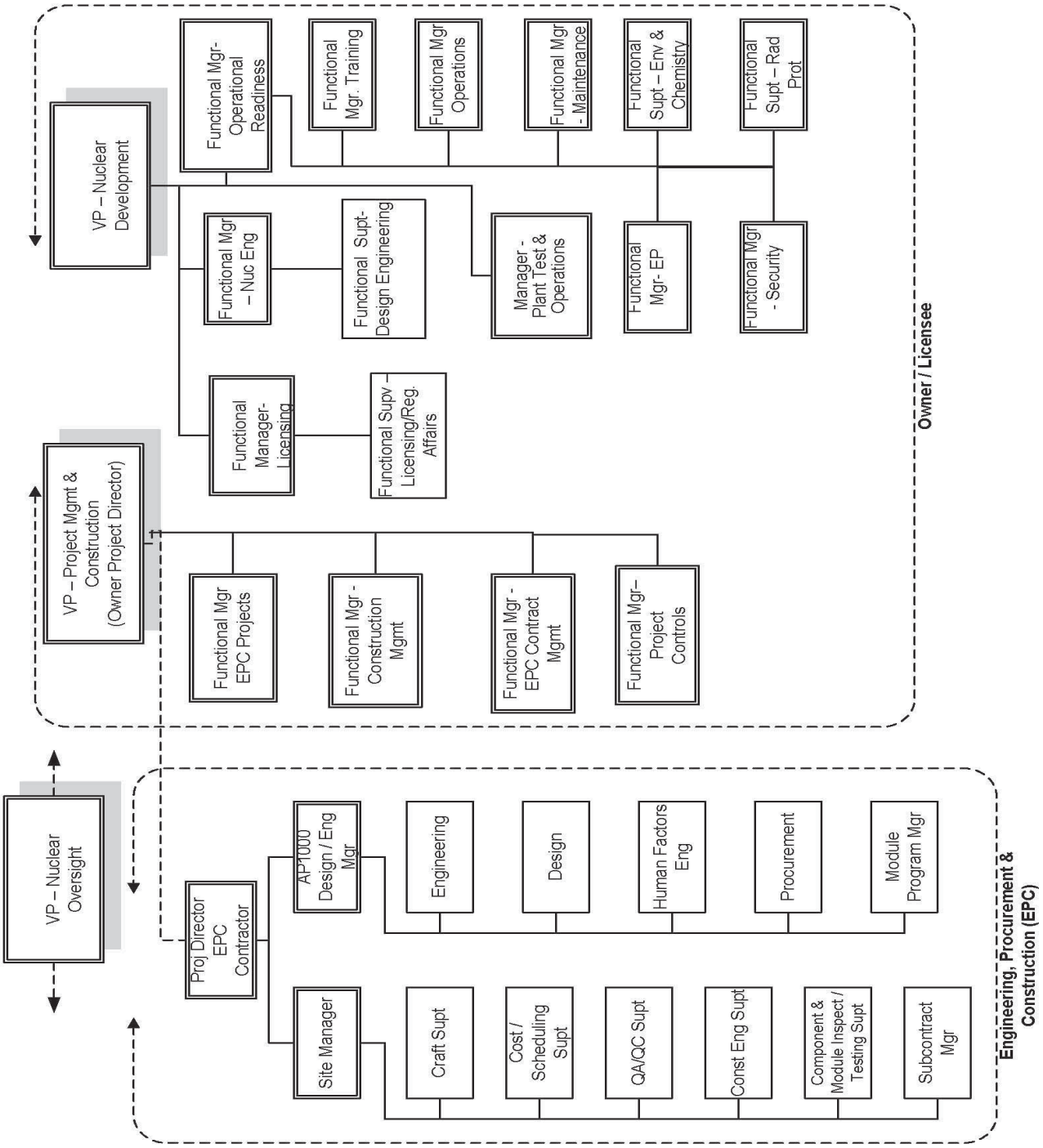
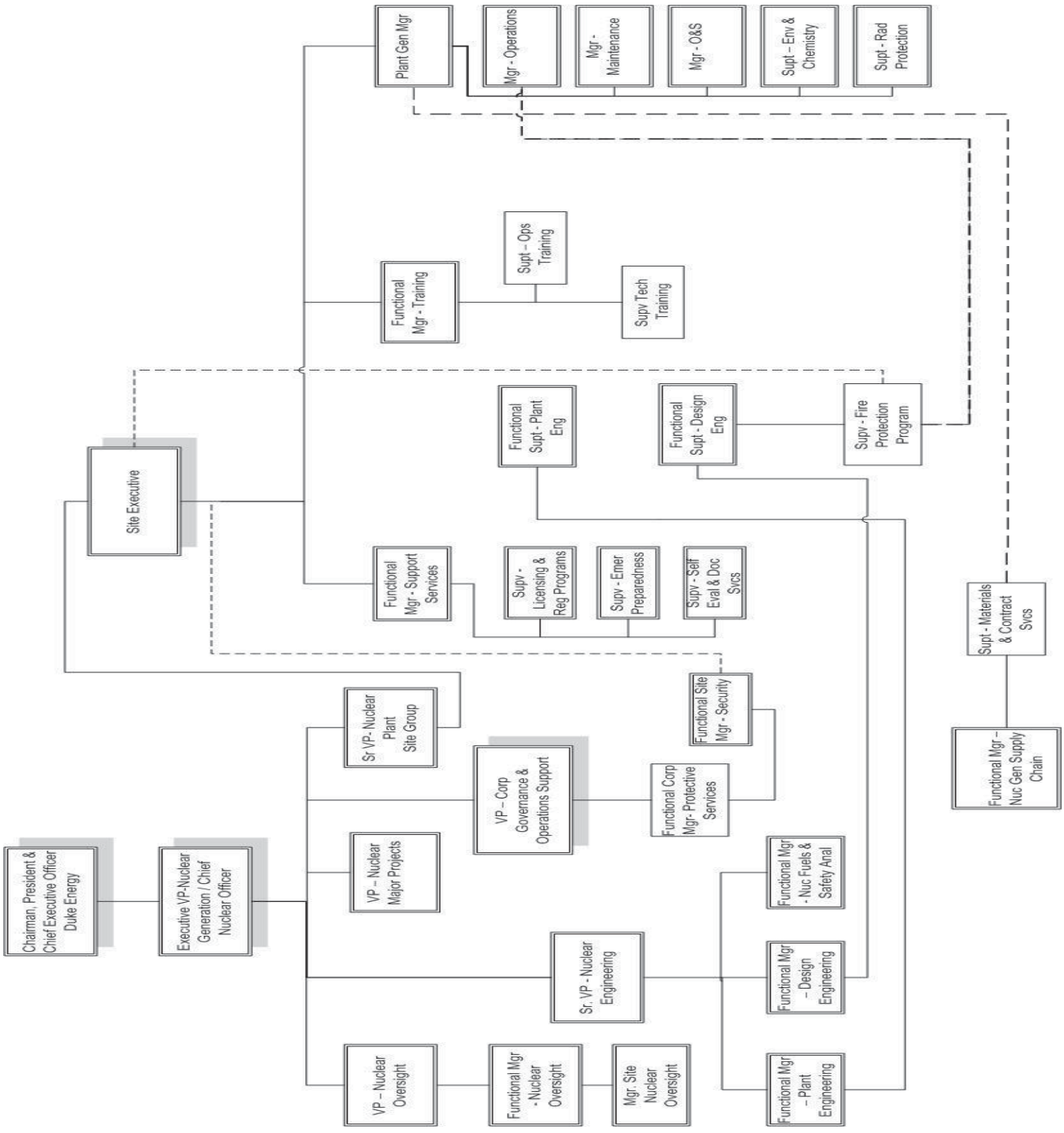


Figure II.1-3

Operations Phase Organizational Structure - Typical



SECTION 2 QUALITY ASSURANCE PROGRAM

Progress Energy has established the necessary measures and governing procedures to implement the QAPD as described in the QAPD. Progress Energy is committed to implementing the QAP in all aspects of work that are important to the safety of the nuclear plants as described and to the extent delineated in this QAPD. Further, Progress Energy ensures through the systematic process described herein that its suppliers of safety-related equipment or services meet the applicable requirements of 10 CFR 50, Appendix B. Senior management is regularly apprised of audit results evaluating the adequacy of implementation of the QAPD through the audit functions described in Part II, Section 18.

The objective of the QAPD is to assure that Progress Energy's nuclear generating plants are designed constructed and operated in accordance with governing regulations and license requirements. The program is based on the requirements of ASME NQA-1-1994, "Quality Assurance Requirements for Nuclear Facility Applications," as further described in this document. The QAPD applies to those quality-related activities that involve the functions of safety-related structures, systems, and components (SSCs) associated with the design (excluding Design Certification activities), fabrication, construction and testing of the SSCs of the facility and to the managerial and administrative controls to be used to assure safe operations. Examples of COL program safety-related activities include, but are not limited to, site specific engineering related to safety-related SSCs, site geotechnical investigations, site engineering analysis, seismic analysis, and meteorological analysis. A list or system that identifies SSCs and activities to which this program applies is maintained at the appropriate facility. The Design Certification Document is used as the basis for this list. Cost and scheduling functions do not prevent proper implementation of the QAPD.

As described in Part III of the QAPD, specific program controls are applied to non-safety-related SSCs, for which 10 CFR 50, Appendix B, is not applicable, that are significant contributors to plant safety. The specific program controls consistent with applicable sections of the QAPD are applied to those items in a selected manner, targeted at those characteristics or critical attributes that render the SSC a significant contributor to plant safety.

Delegated responsibilities may be performed under a supplier's or principal contractor's QAPD, provided that the supplier or principle contractor has been approved as a supplier in accordance with the QAPD. Periodic audits and assessments of supplier QA programs are performed to assure compliance with the supplier's or principle contractor's QAPD and implementing procedures. In addition, routine interfaces with the supplier's personnel provide added assurance that quality expectations are met.

For the COL applications, the QAPD applies to those and Progress Energy activities that can affect either directly or indirectly the safety related site characteristics or analysis of those characteristics. In addition, the QAPD applies to engineering activities that are used to characterize the site or analyze that characterization.

New nuclear plant construction will be the responsibility of Progress Energy's Project Management and Construction organization reporting to the Executive Vice President – Energy Supply. Detailed engineering specifications and construction procedures will be developed to

implement the QAPD and the Westinghouse and Shaw Stone and Webster QA programs prior to commencement of construction (COL) activities. Examples of Limited Work Authorization (LWA) activities that could impact safety-related SSCs include impacts of construction to existing facilities and, for construction of new plants, the design interface between non-safety-related and safety-related SSCs and the placement of seismically designed backfill.

In general, the program requirements specified herein are detailed in implementing procedures that are either Progress Energy implementing procedures, or supplier implementing procedures governed by a supplier quality assurance program.

A grace period of 90 days may be applied to provisions that are required to be performed on a periodic basis unless otherwise noted. Annual evaluations and audits that must be performed on a triennial basis are examples where the 90 day general period could be applied. The grace period does not allow the "clock" for a particular activity to be reset forward. The "clock" for an activity is reset backwards by performing the activity early. Audits schedules are based on the month in which the audit starts.

2.1 Responsibilities

Personnel who work directly or indirectly for Progress Energy are responsible for achieving acceptable quality in the work covered by the QAPD. This includes the activities delineated in Part I, Section 1.1. Progress Energy personnel performing verification activities are responsible for verifying the achievement of acceptable quality. Activities governed by the QAPD are performed as directed by documented instructions, procedures and drawings that are of a detail appropriate for the activity's complexity and effect on safety. Instructions, procedures and drawings specify quantitative or qualitative acceptance criteria as applicable or appropriate for the activity, and verification is against these criteria. Provisions are established to designate or identify the proper documents to be used in an activity, and to ascertain that such documents are being used. The Vice President Nuclear Oversight is responsible to verify that processes and procedures comply with QAPD and other applicable requirements, that such processes or procedures are implemented, and that management appropriately ensures compliance.

2.2 Delegation of Work

Progress Energy retains and exercises the responsibility for the scope and implementation of an effective QAPD. Positions identified in Part II, Section 1, may delegate all or part of the activities of planning, establishing, and implementing the program for which they are responsible to others, but retain the responsibility for the program's effectiveness. Decisions affecting safety are made at the level appropriate for its nature and effect, and with any necessary technical advice or review.

2.3 Site-specific Safety-Related Design Basis Activities

Site-specific safety-related design basis activities are defined as those activities, including sampling, testing, data collection and supporting engineering calculations and reports that will be used to determine the bounding physical parameters of the site. Appropriate quality assurance measures are applied.

2.4 Periodic Review of the Quality Assurance Program

Management of those organizations implementing the QA program, or portions thereof, assesses the adequacy of that part of the program for which they are responsible to assure its effective implementation at least once each year or at least once during the life of the activity, whichever is shorter.

2.5 Issuance and Revision to Quality Assurance Program

Administrative control of the QAPD will be in accordance with 10 CFR 50.55(f) and 10 CFR 50.54(a), as appropriate. Changes to the QAPD are evaluated by the Vice President Nuclear Oversight to ensure that such changes do not degrade previously approved quality assurance controls specified in the QAPD. This document shall be revised as appropriate to incorporate additional QA commitments that may be established during the COL application development process. New revisions to the document will be reviewed, at a minimum, by the Nuclear Oversight corporate manager responsible for Audits and Programs and approved by the Vice President Nuclear Oversight, Vice President Nuclear Development and the Vice President Project Management and Construction.

Regulations require that the Final Safety Analysis Report (FSAR) include, among other things, the managerial and administrative controls to be used to assure safe operation, including a discussion of how the applicable requirements of Appendix B will be satisfied. In order to comply with this requirement, the FSAR references this QAPD and as a result, the requirements of 10 CFR 50.54(a), are satisfied by and apply to the QAPD.

2.6 Personnel Qualifications

Personnel assigned to implement elements of the QAPD shall be capable of performing their assigned tasks. To this end Progress Energy establishes and maintains formal indoctrination and training programs for personnel performing, verifying, or managing activities within the scope of the QAPD to assure that suitable proficiency is achieved and maintained. Plant and support staff minimum qualification requirements are as delineated in the unit Technical Specifications. Other qualification requirements may be established but will not reduce those required by Technical Specifications. Sufficient managerial depth is provided to cover absences of incumbents. When required by code, regulation, or standard, specific qualification and selection of personnel is conducted in accordance with those requirements as established in the applicable Progress Energy procedures. Indoctrination includes the administrative and technical objectives, requirements of the applicable codes and standards, and the QAPD elements to be employed. Training for positions identified in 10 CFR 50.120 is accomplished according to programs accredited by the National Nuclear Accrediting Board of the National Academy of Nuclear Training that implement a systematic approach to training. Records of personnel training and qualification are maintained.

The minimum qualifications of the corporate manager Audits and Programs and Manager Site Nuclear Oversight at the new nuclear generating plants are that each holds an engineering or related science degree and has a minimum of four years of related experience including two years of nuclear power plant experience, one year of supervisory or management experience,

and one year of the experience is in performing quality verification activities. Special requirements shall include management and supervisory skills and experience or training in leadership, interpersonal communication, management responsibilities, motivation of personnel, problem analysis and decision making, and administrative policies and procedures. Individuals who do not possess these formal education and minimum experience requirements should not be eliminated automatically when other factors provide sufficient demonstration of their abilities. These other factors are evaluated on a case-by-case basis and approved and documented by senior management.

The minimum qualifications of the individuals responsible for planning, implementing and maintaining the programs for the QAPD are that each has a high school diploma or equivalent and has a minimum of one year of related experience. Individuals who do not possess these formal education and minimum experience requirements should not be eliminated automatically when other factors provide sufficient demonstration of their abilities. These other factors are evaluated on a case-by-case basis and approved and documented by senior management.

2.7 Independent Review

Activities occurring during the operational phase shall be independently reviewed on a periodic basis. The independent review program shall be functional prior to initial core loading. The independent review function performs the following:

a. Reviews proposed changes to the facility as described in the safety analysis report (SAR). The Independent Review Body (IRB) also verifies that changes do not adversely affect safety and if a technical specification change or NRC review is required.

b. Reviews proposed tests and experiments not described in the SAR. Changes to proposed tests and experiments not described in the SAR that do require a technical specification change must be reviewed by the IRB prior to NRC submittal and implementation.

c. Reviews proposed technical specification changes and license amendments relating to nuclear safety prior to NRC submittal and implementation, except in those cases where the change is identical to a previously approved change.

d. Reviews violations, deviations, and events that are required to be reported to the NRC. This review includes the results of investigations and recommendations resulting from such investigations to prevent or reduce the probability of recurrence of the event.

e. Reviews any matter related to nuclear safety that is requested by the Site Vice President, Plant General Manager, or any IRB member,

f. Reviews corrective actions for significant conditions adverse to quality.

g. Reviews the adequacy of the audit program every 24 months.

Independent Review Body

A group may function as an independent review body (IRB). In discharging its review responsibilities, the IRB keeps safety considerations paramount when opposed to cost or schedule considerations. One or more organizational units may collectively perform this function.

1. IRB reviews are supplemented as follows:

   a. A qualified person, independent of the preparer, reviews proposed changes in the procedures as described in the SAR prior to implementation of the change to determine if a technical specification change or NRC approval is required.

   b. Audits of selected changes in the procedures described in the SAR are performed to verify that procedure reviews and revision controls are effectively implemented.

   c. Competent individual(s) or group(s) other than those who performed the original design but who may be from the same organization verify that changes to the facility do not result in a loss of adequate design or safety margins.

2. The results of IRB reviews of matters involving the safe operation of the facility are periodically independently reviewed. This review is intended to support management in identifying and resolving issues potentially affecting safe plant operation. This review supplements the existing corrective action programs and audits.

   a. The review is performed by a team consisting of personnel with experience and competence in the activities being reviewed, but independent from cost and schedule considerations and from the organizations responsible for those activities. The IRB supervisor or chairman has a minimum six (6) years combined managerial and technical support experience. The members of the IRB should have a minimum of five years of experience in their own area of responsibility as applicable to the activities being reviewed (i.e., a minimum of five years of experience in one of the twelve areas listed below:
      (1) Nuclear power plant operations
      (2) Nuclear engineering
      (3) Chemistry and radiochemistry
      (4) Metallurgy
      (5) Nondestructive testing
      (6) Instrumentation and control
      (7) Radiological safety
      (8) Mechanical engineering
      (9) Electrical engineering
      (10) Administrative control and quality assurance practices
      (11) Training
      (12) Emergency plans and related procedures and equipment).

   b. The review is supplemented by outside consultants or organizations as necessary to

ensure the team has the requisite expertise and competence.

c. Results of the review are documented and reported to responsible management.

d. Management periodically considers issues that they determine warrant special attention, such as deficient plant programs, declining performance trends, employee concerns, or other issues related to safe plant operations and determine what issues warrant the review.

e. Management determines the scheduling and scope of review and the composition of the team performing the review.

2.8 NQA-1-1994 Commitment / Exceptions

- In establishing qualification and training programs, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 2 and Supplements 2S-1, 2S-2, 2S-3 and 2S-4, with the following clarifications and exceptions:

  - NQA-1-1994, Supplement 2S-1

    - Supplement 2S-1 will include use of the guidance provided in Appendix 2A-1 the same as if it were part of the Supplement. The following two alternatives may be applied to the implementation of this Supplement and Appendix:

      - (1) In lieu of being certified as Level I, II, or III in accordance with NQA-1-1994, personnel that perform independent quality verification inspections, examinations, measurements, or tests of material, products, or activities will be required to possess qualifications equal to or better than those required for performing the task being verified; and the verification is within the skills of these personnel and/or is addressed by procedures. These individuals will not be responsible for the planning of quality verification inspections and tests (i.e., establishing hold points and acceptance criteria in procedures, and determining who will be responsible for performing the inspections), evaluating inspection training programs, nor certifying inspection personnel.

      - (2) A qualified engineer may be used to plan inspections, evaluate the capabilities of an inspector, or evaluate the training program for inspectors. For the purpose of these functions, a qualified engineer is one who has a baccalaureate in engineering in a discipline related to the inspection activity (such as electrical, mechanical, civil) and has a minimum of five years engineering work experience with at least two years of this experience related to nuclear facilities.

  - NQA-1-1994, Supplement 2S-2

    - In lieu of Supplement 2S-2, for qualification of nondestructive

examination personnel, Progress Energy will follow the applicable standard cited in
the version(s) of Section III and Section XI of the ASME Boiler and Pressure Vessel Code approved by the NRC for use at Progress Energy sites.

- NQA-1-1994, Supplement 2S-3

  - The requirement that prospective Lead Auditors have participated in a minimum of five (5) audits in the previous three (3) years is replaced by the following, "The prospective lead auditor shall demonstrate his/her ability to properly implement the audit process, as implemented by Progress Energy, to effectively lead an audit team, and to effectively organize and report results, including participation in at least one nuclear audit within the year preceding the date of qualification."

SECTION 3 DESIGN CONTROL

Progress Energy has established and implements a process to control the design, design changes and temporary modifications (e.g. temporary bypass lines, electrical jumpers and lifted wires, and temporary setpoints) of items that are subject to the provisions of the QAPD. The design process includes provisions to control design inputs, outputs, changes, interfaces, records and organizational interfaces within Progress Energy and with suppliers. These provisions assure that design inputs (such as design bases and the performance, regulatory, quality, and quality verification requirements) are correctly translated into design outputs (such as analyses, specifications, drawings, procedures, and instructions) so that the final design output can be related to the design input in sufficient detail to permit verification. Design change processes and the division of responsibilities for design-related activities are detailed in Progress Energy and supplier procedures. The design control program includes interface controls necessary to control the development, verification, approval, release, status, distribution, and revision of design inputs and outputs. Design changes and disposition of nonconforming items as "use as is" or "repair" are reviewed and approved by the Progress Energy design organization or by other organizations so authorized by Progress Energy.

Design documents are reviewed by individuals knowledgeable in QA to ensure the documents contain the necessary QA requirements.

3.1 Design Verification

Progress Energy design processes provide for design verification to ensure that items and activities subject to the provisions of the QAPD are suitable for their intended application, consistent with their effect on safety. Design changes are subjected to these controls, which include verification measures commensurate with those applied to original plant design.

Design verifications are performed by competent individuals or groups other than those who performed the original design but who may be from the same organization. The verifier shall not have taken part in the selection of design inputs, the selection of design considerations, or the selection of a singular design approach, as applicable. This verification may be performed by the originator's supervisor provided the supervisor did not specify a singular design approach, rule out certain design considerations, and did not establish the design inputs used in the design, or if the supervisor is the only individual in the organization competent to perform the verification. If the verification is performed by the originator's supervisor, the justification of the need is documented and approved in advance by management.

The extent of the design verification required is a function of the importance to safety of the item under consideration, the complexity of the design, the degree of standardization, the state-of-the-art, and the similarity with previously proven designs. This includes design inputs, design outputs, and design changes. Design verification procedures are established and implemented to assure that an appropriate verification method is used, the appropriate design parameters to be verified are chosen, the acceptance criteria are identified, and the verification is satisfactorily accomplished and documented. Verification methods may include, but are not limited to, design reviews, alternative calculations and qualification testing. Testing used to verify the acceptability of a specific design feature demonstrates acceptable performance under conditions that simulate

the most adverse design conditions expected for item's intended use.

Progress Energy normally completes design verification activities before the design outputs are used by other organizations for design work, and before they are used to support other activities such as procurement, manufacture, or construction. When such timing cannot be achieved, the design verification is completed before relying on the item to perform its intended design or safety function.

3.2 Design Records

Progress Energy maintains records sufficient to provide evidence that the design was properly accomplished. These records include the final design output and any revisions thereto, as well as record of the important design steps (e.g., calculations, analyses and computer programs) and the sources of input that support the final output.

Plant design drawings reflect the properly reviewed and approved configuration of the plant.

3.3 Computer Application and Digital Equipment Software

The QAPD governs the development, procurement, testing, maintenance, and use of computer application and digital equipment software when used in safety-related applications and designated non-safety-related applications. Progress Energy and suppliers are responsible for developing, approving, and issuing procedures, as necessary, to control the use of such computer application and digital equipment software. The procedures require that the application software be assigned a proper quality classification and that the associated quality requirements be consistent with this classification. Each application software and revision thereto is documented and approved by authorized personnel. The QAPD is also applicable to the administrative functions associated with the maintenance and security of computer hardware where such functions are considered essential in order to comply with other QAPD requirements such as QA records.

3.4 Setpoint Control

Instrument and equipment setpoints that could affect nuclear safety shall be controlled in accordance with written instructions. As a minimum, these written instructions shall:

(1) Identify responsibilities and processes for reviewing, approving, and revising setpoints and setpoint changes originally supplied by the Design Certification Holder, the A/E, and the plant's technical staff.
(2) Ensure that setpoints and setpoint changes are consistent with design and accident analysis requirements and assumptions.
(3) Provide for documentation of setpoints, including those determined operationally.
(4) Provide for access to necessary setpoint information for personnel who write or revise plant procedures, operate or maintain plant equipment, develop or revise design documents, or develop or revise accident analyses.

3.5 NQA-1-1994 Commitment

In establishing its program for design control and verification, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 3, and Supplement 3S-1, the subsurface

investigations requirements in Subpart 2.20, and the standards for computer software contained in Subpart 2.7.

SECTION 4 PROCUREMENT DOCUMENT CONTROL

Progress Energy has established the necessary measures and governing procedures to assure that purchased items and services are subject to appropriate quality and technical requirements. Procurement document changes shall be subject to the same degree of control as utilized in the preparation of the original documents. These controls include provisions such that:

- Where original technical or quality assurance requirements cannot be determined, an engineering evaluation is conducted and documented by qualified staff to establish appropriate requirements and controls to assure that interfaces, interchangeability, safety, fit and function, as applicable, are not adversely affected or contrary to applicable regulatory requirements.

- Applicable technical, regulatory, administrative, quality and reporting requirements (such as specifications, codes, standards, tests, inspections, special processes, and 10 CFR 21) are invoked for procurement of items and services. 10 CFR 21 requirements for posting, evaluating, and reporting will be followed and imposed on suppliers when applicable. Applicable design bases and other requirements necessary to assure adequate quality shall be included or referenced in documents for procurement of items and services. To the extent necessary, procurement documents shall require suppliers to have a documented QA program that is determined to meet the applicable requirements of 10 CFR 50, Appendix B, as appropriate to the circumstances of procurements (or the supplier may work under Progress Energy's approved QA program).

Reviews of procurement documents shall be performed by personnel who have access to pertinent information and who have an adequate understanding of the requirements and intent of the procurement documents.

4.1 NQA-1-1994 Commitment / Exceptions

In establishing controls for procurement, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 4 and Supplement 4S-1, with the following clarifications and exceptions:

- NQA-1-1994, Supplement 4S-1

  - Section 2.3 of this Supplement 4S-1 includes a requirement that procurement documents require suppliers to have a documented QAP that implements NQA-1-1994, Part 1. In lieu of this requirement, Progress Energy may require suppliers to have a documented supplier QAP that is determined to meet the applicable requirements of 10 CFR 50, Appendix B, as appropriate to the circumstances of the procurement.

  - With regard to service performed by a supplier, Progress Energy procurement documents may allow the supplier to work under the Progress Energy QAP, including implementing procedures, in lieu of the supplier having its own QAP.

Section 3 of this supplement 4S-1 requires procurement documents to be reviewed prior to bid or award of contract. The quality assurance review of

procurement documents is satisfied through review of the applicable procurement specification, including the technical and quality procurement requirements, prior to bid or award of contract. Procurement document changes (e.g., scope, technical or quality requirements) will also receive the quality assurance review.

- Procurement documents for Commercial Grade Items that will be procured by Progress Energy for use as safety-related items shall contain technical and quality requirements such that the procured item can be appropriately dedicated.

SECTION 5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

Progress Energy has established the necessary measures and governing procedures to ensure that activities affecting quality are prescribed by and performed in accordance with instructions, procedures or drawings of a type appropriate to the circumstances and which, where applicable, include quantitative or qualitative acceptance criteria to implement the QAPD as described in the QAPD. Such documents are prepared and controlled according to Part II, Section 6. In addition, means are provided to disseminate to the staff instructions of both general and continuing applicability, as well as those of short-term applicability. Provisions are included for reviewing, updating, and canceling such procedures.

5.1 Procedure Adherence

Progress Energy's policy is that procedures are followed, and the requirements for use of procedures have been established in administrative procedures. Where procedures cannot be followed as written, provisions are established for making changes in accordance with Part II, Section 6. Requirements are established to identify the manner in which procedures are to be implemented, including identification of those tasks that require: (1) the written procedure to be present and followed step-by-step while the task is being performed, (2) the user to have committed the procedure steps to memory, (3) verification of completion of significant steps, by initials or signatures or use of check-off lists. Procedures that are required to be present and referred to directly are those developed for extensive or complex jobs where reliance on memory cannot be trusted, tasks that are infrequently performed, and tasks where steps must be performed in a specified sequence.

In cases of emergency, personnel are authorized to depart from approved procedures when necessary to prevent injury to personnel or damage to the plant. Such departures are recorded describing the prevailing conditions and reasons for the action taken.

5.2 Procedure Content

The established measures address the applicable content of procedures as described in the introduction to Part II of NQA-1-1994. In addition, procedures governing tests, inspections, operational activities and maintenance will include as applicable, initial conditions and prerequisites for the performance of the activity.

5.3 NQA-1-1994 Commitment

In establishing procedural controls, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 5.

SECTION 6 DOCUMENT CONTROL

Progress Energy has established the necessary measures and governing procedures to control the preparation of, issuance of, and changes to documents that specify quality requirements or prescribe how activities affecting quality, including organizational interfaces, are controlled to assure that correct documents are being employed. The control systems (including electronic systems used to make documents available) are documented and provide for the following:

(a) identification of documents to be controlled and their specified distribution;

(b) a method to identify the correct document (including revision) to be used and control of superseded documents;

(c) identification of assignment of responsibility for preparing, reviewing, approving, and issuing documents;

(d) review of documents for adequacy, completeness, and correctness prior to approval and issuance;

(e) a method for providing feedback from users to continually improve procedures and work instructions; and

(f) coordinating and controlling interface documents and procedures.

The types of documents to be controlled include:

(a) drawings such as design, construction, installation, and as-built drawings;

(b) engineering calculations;

(c) design specifications;

(d) purchase orders and related documents;

(e) vendor-supplied documents;

(f) audit, surveillance, and quality verification/inspection procedures;

(g) inspection and test reports;

(h) instructions and procedures for activities covered by the QAPD including design, construction, installation, operating (including normal and emergency operations), maintenance, calibration, and routine testing;

(i) technical specifications; and,

(j) nonconformance reports and corrective action reports

During the operational phase, where temporary procedures are used, they shall include a designation of the period of time during which it is acceptable to use them.

6.1 Review and Approval of Documents

Documents are reviewed for adequacy by qualified persons other than the preparer. During the construction phase, procedures for design, construction, and installation are also

reviewed by the manager responsible for quality assurance and oversight to ensure quality assurance measures have been appropriately applied. The documented review signifies concurrence.

During the operations phase, documents affecting the configuration or operation of the station as described in the SAR are screened to identify those that require review by the IRB prior to implementation as described in Part II, Section 2.

To ensure effective and accurate procedures during the operational phase, applicable procedures are reviewed, and updated as necessary, based on the following conditions:

(a) following any modification to a system;

(b) following an unusual incident, such as an accident, significant operator error, or equipment malfunction;

(c) when procedure discrepancies are found;

(d) prior to use if not used in the previous two years; or

(e) results of QA audits are conducted in accordance with Part II, Section 18.1.

Prior to issuance or use, documents including revisions thereto, are approved by the designated authority. A listing of all controlled documents identifying the current approved revision, or date, is maintained so personnel can readily determine the appropriate document for use.

6.2 Changes to Documents

Changes to documents, other than those defined in implementing procedures as minor changes, are reviewed and approved by the same organizations that performed the original review and approval unless other organizations are specifically designated. The reviewing organization has access to pertinent background data or information upon which to base their approval. Where temporary procedure changes are necessary during the operations phase, changes that clearly do not change the intent of the approved procedure may be implemented provided they are approved by two members of the staff knowledgeable in the areas affected by the procedures. Minor changes to documents, such as inconsequential editorial corrections, do not require that the revised documents receive the same review and approval as the original documents. To avoid a possible omission of a required review, the type of minor changes that do not require such a review and approval and the persons who can authorize such a classification shall be clearly delineated in implementing procedures.

6.3 NQA-1-1994 Commitment

In establishing provisions for document control, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 6 and Supplement 6S-1.

SECTION 7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

Progress Energy has established the necessary measures and governing procedures to control the procurement of items and services to assure conformance with specified requirements. Such control provides for the following as appropriate: source evaluation and selection, evaluation of objective evidence of quality furnished by the supplier, source inspection, audit, and examination of items or services.

7.1 Acceptance of Item or Service

Progress Energy establishes and implements measures to assess the quality of purchased items and services, whether purchased directly or through contractors, at intervals and to a depth consistent with the item's or service's importance to safety, complexity, quantity and the frequency of procurement. Verification actions include testing, as appropriate, during design, fabrication and construction activities. Verifications occur at the appropriate phases of the procurement process, including, as necessary, verification of activities of suppliers below the first tier.

Measures to assure the quality of purchased items and services include the following, as applicable:

- Items are inspected, identified, and stored to protect against damage, deterioration, or misuse.

- Prospective suppliers of safety-related items and services are evaluated to assure that only qualified suppliers are used. Qualified suppliers are audited on a triennial basis. In addition, if a subsequent contract or a contract modification significantly enlarges the scope of, or changes the methods or controls for, activities performed by the same supplier, an audit of the modified requirements is conducted, thus starting a new triennial period. Progress Energy may utilize audits conducted by outside organizations for supplier qualification provided that the scope and adequacy of the audits meet Progress Energy requirements. Documented annual evaluations are performed for qualified suppliers to assure they continue to provide acceptable products and services. Industry programs, such as those applied by ASME, Nuclear Procurement Issues Committee (NUPIC), or other established utility groups, are used as input or the basis for supplier qualification whenever appropriate. The results of the reviews are promptly considered for effect on a supplier's continued qualification and adjustments made as necessary (including corrective actions, adjustments of supplier audit plans, and input to third party auditing entities, as warranted). In addition, results are reviewed periodically to determine if, as a whole, they constitute a significant condition adverse to quality requiring additional action.

- Provisions are made for accepting purchased items and services, such as source verification, receipt inspection, pre- and post-installation tests, certificates of conformance, and document reviews (including Certified Material Test Report/Certificate). Acceptance actions/documents should be established by the Purchaser with appropriate input from the Supplier and be completed to ensure that procurement, inspection, and test requirements,

as applicable, have been satisfied before relying on the item to perform its intended safety function.

- Controls are imposed for the selection, determination of suitability for intended use (critical characteristics), evaluation, receipt and acceptance of commercial-grade services or items to assure they will perform satisfactorily in service in safety-related applications.

- If there is insufficient evidence of implementation of a QA program, the initial evaluation is of the existence of a QA program addressing the scope of services to be provided. The initial audit is performed after the supplier has completed sufficient work to demonstrate that its organization is implementing a QA program.

7.2 NQA-1-1994 Commitment / Exceptions

In establishing procurement verification controls, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 7 and Supplement 7S-1, with the following clarifications and exceptions:

- NQA-1-1994, Supplement 7S-1

  - Progress Energy considers that other 10 CFR 50 licensees, Authorized Nuclear Inspection Agencies, National Institute of Standards and Technology, or other State and Federal agencies which may provide items or services to Progress Energy plants are not required to be evaluated or audited.

  - When purchasing commercial grade calibration services from a calibration laboratory, procurement source evaluation and selection measures need not be performed provided each of the following conditions are met:

    (1) The purchase documents impose any additional technical and administrative requirements, as necessary, to comply with the Progress Energy QA program and technical provisions. At a minimum, the purchase document shall require that the calibration certificate/report include identification of the laboratory equipment/standard used.

    (2) The purchase documents require reporting as-found calibration data when calibrated items are found to be out-of-tolerance.

    (3) A documented review of the supplier's accreditation will be performed and will include a verification of each of the following:

      - The calibration laboratory holds a domestic (United States) accreditation by any one of the following accrediting bodies, which are recognized by the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA):

        - National Voluntary Laboratory Accreditation Program (NVLAP), administered by the National Institute of Standards & Technology;

- American Association for Laboratory Accreditation (A2LA);
- ACLASS Accreditation Services (ACLASS);
- International Accreditation Services (IAS);
- Laboratory Accreditation Bureau (L-A-B);
- Other NRC approved laboratory accrediting body.

▪ The accreditation encompasses ANS/ISO/IEC 17025, “General Requirements for the Competence of Testing and Calibration Laboratories.

▪ The published scope of accreditation for the calibration laboratory covers the necessary measurement parameters, ranges, and uncertainties.

- For Section 8.1, Progress Energy considers documents that may be stored in approved electronic media under Progress Energy or vendor control and not physically located on the plant site but which are accessible from the respective nuclear facility site as meeting the NQA-1 requirement for documents to be available at the site. Following completion of the construction period, sufficient as-built documentation will be turned over to Progress Energy to support operations. The Progress Energy records management system will provide for timely retrieval of necessary records.

- In lieu of the requirements of Section 10, Commercial Grade Items, controls for commercial grade items and services are established in Progress Energy documents using 10 CFR 21 and the guidance of EPRI NP-5652 as discussed in Generic Letter 89-02 and Generic Letter 91-05.

  - For commercial grade items, special quality verification requirements are established and described in Progress Energy documents to provide the necessary assurance an item will perform satisfactorily in service. The Progress Energy documents address determining the critical characteristics that ensure an item is suitable for its intended use, technical evaluation of the item, receipt requirements, and quality evaluation of the item.

  - Progress Energy will also use other appropriate approved regulatory means and controls to support Progress Energy commercial grade dedication activities Progress Energy will assume 10 CFR 21 reporting responsibility for all items that Progress Energy dedicates as safety-related.

SECTION 8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

Progress Energy has established the necessary measures and governing procedures to identify and control items to prevent the use of incorrect or defective items. This includes controls for consumable materials and items with limited shelf life. The identification of items is maintained throughout fabrication, erection, installation and use so that the item can be traced to its documentation, consistent with the item's effect on safety. Identification locations and methods are selected so as not to affect the function or quality of the item.

8.1 NQA-1-1994 Commitment

In establishing provisions for identification and control of items, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 8 and Supplement 8S-1.

SECTION 9 CONTROL OF SPECIAL PROCESSES

Progress Energy has established the necessary measures and governing procedures to assure that special processes that require interim process controls to assure quality, such as welding, heat treating, and nondestructive examination, are controlled. These provisions include assuring that special processes are accomplished by qualified personnel using qualified procedures and equipment. Personnel are qualified and special processes are performed in accordance with applicable codes, standards, specifications, criteria or other specially established requirements. Special processes are those where the results are highly dependent on the control of the process or the skill of the operator, or both, and for which the specified quality cannot be fully and readily determined by inspection or test of the final product.

9.1 NQA-1-1994 Commitment

In establishing measures for the control of special processes, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 9 and Supplement 9S-1.

SECTION 10 INSPECTION

Progress Energy has established the necessary measures and governing procedures to implement inspections that assure items, services, and activities affecting safety meet established requirements and conform to applicable documented specifications, instructions, procedures, and design documents. Inspection may also be applied to items, services and activities affecting plant reliability and integrity. Types of inspections may include those verifications related to procurement, such as source, in-process, final, and receipt inspection, as well as construction, installation, and operations activities. Inspections are carried out by properly qualified persons independent of those who performed or directly supervised the work. Inspection results are documented.

10.1 Inspection Program

The inspection program establishes inspections (including surveillance of processes), as necessary to verify quality: (1) at the source of supplied items or services, (2) in-process during fabrication at a supplier's facility or at a Company facility, (3) for final acceptance of fabricated and/or installed items during construction, (4) upon receipt of items for a facility, as well as (5) during maintenance, modification, in-service, and operating activities.

The inspection program establishes requirements for planning inspections, such as the group or discipline responsible for performing the inspection, where inspection hold points are to be applied, determining applicable acceptance criteria, the frequency of inspection to be applied, and identification of special tools needed to perform the inspection. Inspection planning is performed by personnel qualified in the discipline related to the inspection and includes qualified inspectors or engineers. Inspection plans are based on, as a minimum, the importance of the item to the safety of the facility, the complexity of the item, technical requirements to be met, and design specifications. Where significant changes in inspection activities for the facilities are to occur, management responsible for the inspection programs evaluate the resource and planning requirements to ensure effective implementation of the inspection program.

Inspection program documents establish requirements for performing the planned inspections, and documenting required inspection information such as: rejection, acceptance, and re-inspection results; and the person(s) performing the inspection.

Inspection results are documented by the inspector, reviewed by authorized personnel qualified to evaluate the technical adequacy of the inspection results, and controlled by instructions, procedures, and drawings.

10.2 Inspector Qualification

Progress Energy has established qualification programs for personnel performing quality inspections. The qualification program requirements are described in Part II, Section 2. These qualification programs are applied to individuals performing quality inspections regardless of the functional group where they are assigned.

10.3 NQA-1-1994 Commitments / Exceptions

In establishing inspection requirements, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 10, Supplement 10S-1 and Subpart 2.4, with the following clarification. In addition, Progress Energy commits to compliance with the requirements of Subparts 2.5 and 2.8 for establishing appropriate inspection requirements.

- Subpart 2.4 commits Progress Energy to IEEE 336-1985. IEEE 336-1985 refers to IEEE 498-1985. Both IEEE 336 -1985 and IEEE 498-1985 use the definition of "Safety Systems" from IEEE 603-1980. Progress Energy commits to the definition of Safety Systems in IEEE 603-1980, but does not commit to the balance of that standard. This definition is only applicable to equipment in the context of Subpart 2.4.

- An additional exception to Subpart 2.4 is addressed in Part II, Section 12.

- Where inspections at the operating facility are performed by persons within the same organization (e.g. Maintenance group), Progress Energy takes exception to the requirements of NQA-1-1994, Supplement 10S-1, Section 3.1, the inspectors report to Nuclear Oversight organization while performing those inspections.

SECTION 11 TEST CONTROL

Progress Energy has established the necessary measures and governing procedures to demonstrate that items subject to the provisions of the QAPD will perform satisfactorily in service, that the plant can be operated safely and as designed, and that the coordinated operation of the plant as a whole is satisfactory. These programs include criteria for determining when testing is required, such as proof tests before installation, pre-operational tests, post-maintenance tests, post-modification tests, in-service tests, and operational tests (such as surveillance tests required by Plant Technical Specifications), to demonstrate that performance of plant systems is in accordance with design. Programs also include provisions to establish and adjust test schedules and to maintain status for periodic or recurring tests. Tests are performed according to applicable procedures that include, consistent with the effect on safety: (1) instructions and prerequisites to perform the test, (2) use of proper test equipment, (3) acceptance criteria, and (4) mandatory verification points as necessary to confirm satisfactory test completion. Test results are documented and evaluated by the organization performing the test and reviewed by a responsible authority to assure that the test requirements have been satisfied. If acceptance criteria are not met, re-testing is performed as needed to confirm acceptability following correction of the system or equipment deficiencies that caused the failure.

The initial start-up test program is planned and scheduled to permit safe fuel loading and start-up; to increase power in safe increments; and to perform major testing at specified power levels. If tests require the variation of operating parameters outside of their normal range, the limits within which such variation is permitted will be prescribed. The scope of the testing demonstrates, insofar as practicable, that the plant is capable of withstanding the design transients and accidents. For new facility construction, the suitability of facility operating procedures is checked to the maximum extent possible during the pre-operational and initial start-up test programs.

Tests are performed and results documented in accordance with applicable technical and regulatory requirements including those described in the Technical Specifications and SAR. Test programs ensure appropriate retention of test data in accordance with the records requirements of the QAPD. Personnel that perform or evaluate tests are qualified in accordance with the requirements established in Part II, Section 2.

11.1 NQA-1-1994 Commitment

In establishing provisions for testing, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 11 and Supplement 11S-1.

11.2 NQA-1-1994 Commitment for Computer Program Testing

Progress Energy establishes and implements provisions to assure that computer software used in applications affecting safety is prepared, documented, verified and tested, and used such that the expected output is obtained and configuration control maintained. To this end Progress Energy commits to compliance with the requirements of NQA-1-1994, Supplement 11S-2, and Subpart 2.7 to establish the appropriate provisions.

SECTION 12 CONTROL OF MEASURING AND TEST EQUIPMENT

Progress Energy has established the necessary measures and governing procedures to control the calibration, maintenance, and use of measuring and test equipment (M&TE) that provides information important to safe plant operation. The provisions of such procedures cover equipment such as indicating and actuating instruments and gages, tools, reference and transfer standards, and nondestructive examination equipment. The suppliers of commercial-grade calibration services are controlled as described in Part II, Section 7.

12.1 Installed Instrument and Control Devices

For the operations phase of the facilities, Progress Energy has established and implements procedures for the calibration and adjustment of instrument and control devices installed in the facility. The calibration and adjustment of these devices is accomplished through the facility maintenance programs to ensure the facility is operated within design and technical requirements. Appropriate documentation will be maintained for these devices to indicate the control status, when the next calibration is due, and identify any limitations on use of the device.

12.2 NQA-1-1994 Commitment / Exceptions

In establishing provisions for control of measuring and test equipment, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 12 and Supplement 12S-1 with the following clarification and exception:

- The out of calibration conditions described in paragraph 3.2 of Supplement 12S-1 refers to when the M&TE is found out of the required accuracy limits (i.e. out of tolerance) during calibration.

- Measuring and test equipment are not required to be marked with the calibration status where it is impossible or impractical due to equipment size or configuration (such as the label will interfere with operation of the device) provided the required information is maintained in suitable documentation traceable to the device. This exception also applies to the calibration labeling requirement stated in NQA-1-1994, Subpart 2.4, Section 7.2.1 (ANSI/IEEE Std. 336-1985).

SECTION 13 HANDLING, STORAGE, AND SHIPPING

Progress Energy has established the necessary measures and governing procedures to control the handling, storage, packaging, shipping, cleaning, and preservation of items to prevent inadvertent damage or loss, and to minimize deterioration. These provisions include specific procedures, when required to maintain acceptable quality of the items important to the safe operations of the plant. Items are appropriately marked and labeled during packaging, shipping, handling and storage to identify, maintain, and preserve the item's integrity and indicate the need for special controls. Special controls (such as containers, shock absorbers, accelerometers, inert gas atmospheres, specific moisture content levels and temperature levels) are provided when required to maintain acceptable quality.

Special or additional handling, storage, shipping, cleaning and preservation requirements are identified and implemented as specified in procurement documents and applicable procedures. Where special requirements are specified, the items and containers (where used) are suitably marked.

Special handling tools and equipment are used and controlled as necessary to ensure safe and adequate handling. Special handling tools and equipment are inspected and tested at specified time intervals and in accordance with procedures to verify that the tools and equipment are adequately maintained.

Operators of special handling and lifting equipment are experienced or trained in the use of the equipment. During the operational phase, Progress Energy establishes and implements controls over hoisting, rigging and transport activities to the extent necessary to protect the integrity of the items involved, as well as potentially affected nearby structures and components. Where required, Progress Energy complies with applicable hoisting, rigging and transportation regulations and codes.

13.1 Housekeeping

Housekeeping practices are established to account for conditions or environments that could affect the quality of structures, systems and components within the plant. This includes control of cleanliness of facilities and materials, fire prevention and protection, disposal of combustible material and debris, control of access to work areas, protection of equipment, radioactive contamination control and storage of solid radioactive waste. Housekeeping practices help assure that only proper materials, equipment, processes and procedures are used and that the quality of items is not degraded. Necessary procedures or work instructions, such as for electrical bus and control center cleaning, cleaning of control consoles, and radioactive decontamination are developed and used.

13.2 NQA-1-1994 Commitment / Exceptions

In establishing provisions for handling, storage and shipping, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 13 and Supplement 13S-1. Progress Energy also commits, during the construction and pre-operational phase of the plant, to compliance with the requirements of NQA-1-1994, Subpart 2.1, Subpart 2.2, and Subpart 3.2, Appendix 2.1, with

the following clarifications and exceptions:

NQA-1-1994, Subpart 2.2

- Subpart 2.2, section 6.6, "Storage Records:" This section requires written records be prepared containing information on personnel access. As an alternative to this requirement, Progress Energy documents establish controls for storage areas that describe those authorized to access areas and the requirements for recording access of personnel. However, these records of access are not considered quality records and will be retained in accordance with the administrative controls of the applicable plant.

- Subpart 2.2, section 7.1 refers to Subpart 2.15 for requirements related to handling of items. The scope of Subpart 2.15 includes hoisting, rigging and transporting of items for the nuclear power plants during construction.

NQA-1-1994, Subpart 3.2

- Subpart 3.2, Appendix 2.1: Only Section 3 precautions are being committed to in accordance with RG 1.37. In addition, a suitable chloride stress-cracking inhibitor should be added to the fresh water used to flush systems containing austenitic stainless steels

SECTION 14 INSPECTION, TEST, AND OPERATING STATUS

Progress Energy has established the necessary measures and governing procedures to identify the inspection, test, and operating status of items and components subject to the provisions of the QAPD in order to maintain personnel and reactor safety and avoid inadvertent operation of equipment. Where necessary to preclude inadvertent bypassing of inspections or tests, or to preclude inadvertent operation, these measures require the inspection, test or operating status be verified before release, fabrication, receipt, installation, test or use. These measures also establish the necessary authorities and controls for the application and removal of status indicators or labels.

In addition, temporary design changes (temporary modifications), such as temporary bypass lines, electrical jumpers and lifted wires, and temporary trip-point settings, are controlled by procedures that include requirements for appropriate installation and removal, independent/concurrent verifications and status tracking.

Administrative procedures also describe the measures taken to control altering the sequence of required tests, inspections, and other operations. Review and approval for these actions is subject to the same control as taken during the original review and approval of tests, inspections, and other operations.

14.1 NQA-1-1994 Commitment

In establishing measures for control of inspection, test and operating status, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 14.

SECTION 15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

Progress Energy has established the necessary measures and governing procedures to control items, including services, that do not conform to specified requirements to prevent inadvertent installation or use. Controls provide for identification, documentation, evaluation, segregation when practical, and disposition of nonconforming items, and for notification to affected organizations. Controls are provided to address conditional release of nonconforming items for use on an at-risk basis prior to resolution and disposition of the nonconformance, including maintaining identification of the item and documenting the basis for such release. Conditional release of nonconforming items for installation requires the approval of the designated management. Nonconformances are corrected or resolved prior to depending on the item to perform its intended safety function. Nonconformances are evaluated for impact on operability of quality structures, systems, and components to assure that the final condition does not adversely affect safety, operation, or maintenance of the item or service. Nonconformances to design requirements dispositioned repair or use-as-is are subject to design control measures commensurate with those applied to the original design. Nonconformance dispositions are reviewed for adequacy, analysis of quality trends, and reports provided to the designated management. Significant trends are reported to management in accordance with Progress Energy procedures, regulatory requirements, and industry standards.

15.1 Interface with the Reporting Program

Progress Energy has appropriate interfaces between the QAP for identification and control of nonconforming materials, parts, or components and the non-QA Reporting Program to satisfy the requirements of 10 CFR 52, 10 CFR 50.55(e) and/or 10 CFR 21 during COL design and construction and 10 CFR 21 during operations.

15.2 NQA-1-1994 Commitment

In establishing measures for nonconforming materials, parts, or components, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 15, and Supplement 15S-1.

SECTION 16 CORRECTIVE ACTION

Progress Energy has established the necessary measures and governing procedures to promptly identify, control, document, classify and correct conditions adverse to quality. Progress Energy procedures assure that corrective actions are documented and initiated following the determination of conditions adverse to quality in accordance with regulatory requirements and applicable quality standards. Progress Energy procedures require personnel to identify known conditions adverse to quality. When complex issues arise where it cannot be readily determined if a condition adverse to quality exists, Progress Energy documents establish the requirements for documentation and timely evaluation of the issue. Reports of conditions adverse to quality are analyzed to identify trends. Significant conditions adverse to quality and significant adverse trends are documented and reported to responsible management. In the case of a significant condition adverse to quality, the cause is determined and actions to preclude recurrence are taken.

In the case of suppliers working on safety-related activities, or other similar situations, Progress Energy may delegate specific responsibilities for corrective actions but Progress Energy maintains responsibility for the effectiveness of corrective action measures.

16.1 Interface with the Reporting Program

Progress Energy has appropriate interfaces between the QAP for corrective actions and the non-QA Reporting Program to satisfy the requirements of 10 CFR 52, 10 CFR 50.55(e) and or 10 CFR 21 during the COL design and construction, and 10 CFR 21 during operations.

16.2 NQA-1-1994 Commitment

In establishing provisions for corrective action, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 16.

SECTION 17 QUALITY ASSURANCE RECORDS

Progress Energy has the necessary measures and governing procedures to ensure that sufficient records of items and activities affecting quality are developed, reviewed, approved, issued, used, and revised to reflect completed work. The provisions of such procedures establish the scope of the records retention program for Progress Energy and include requirements for records administration, including receipt, preservation, retention, storage, safekeeping, retrieval, access controls, user privileges, and final disposition.

17.1 Record Retention

Measures are established that ensure that sufficient records of completed items and activities affecting quality are appropriately stored. Records of activities for design, engineering, procurement, manufacturing, construction, inspection and test, installation, pre-operation, startup, operations, maintenance, modification, decommissioning, and audits and their retention times are defined in appropriate procedures. The records and retention times are based on Regulatory Position C.2 and Table 1, of Regulatory Guide 1.28, Revision 3 for design, construction, and initial startup. Retention times for operations phase records are based on construction records that are similar in nature. In all cases where state, local, or other agencies have more restrictive requirements for record retention, those requirements will be met.

17.2 Electronic Records

When using electronic records storage and retrieval systems, Progress Energy complies with NRC guidance Generic Letter 88-18, "Plant Record Storage on Optical Disks." Progress Energy will manage the storage of QA Records in electronic media consistent with the intent of RIS 2000-18 and associated NIRMA Guidelines TG 11-1998, TG15-1998, TG16-1998, and TG21-1998.

17.3 NQA-1-1994 Commitment / Exceptions

In establishing provisions for records, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 17 and Supplement 17S-1, with the following clarifications and exceptions:

- NQA-1-1994, Supplement 17S-1
  - Supplement 17S-1, Section 4.2(b) requires records to be firmly attached in binders or placed in folders or envelopes for storage in steel file cabinets or on shelving in containers. For hard-copy records maintained by Progress Energy, the records are suitably stored in steel file cabinets or on shelving in containers, except that methods other than binders, folders or envelopes may be used to organize the records for storage.

SECTION 18 AUDITS

Progress Energy has established the necessary measures and governing procedures to implement audits to verify that activities covered by the QAPD are performed in conformance with the requirements established. The audit programs are themselves reviewed for effectiveness as a part of the overall audit process.

18.1 Performance of Audits

Internal audits of selected aspects of licensing, design, construction phase and operating activities are performed with a frequency commensurate with safety significance and in a manner which assures that audits of safety-related activities are completed. During the early portions of the new nuclear plant development activities, audits will focus on areas including, but not limited to, site investigation, procurement, and corrective action. Functional areas of an organization's QA program for auditing include, at a minimum verification of compliance and effectiveness of implementation of internal rules, procedures (e.g., operating, design, procurement, maintenance, modification, refueling, surveillance, test, security, radiation control procedures, and the emergency plan), Technical Specifications, regulations and license conditions, programs for training, retraining, qualification and performance of operating staff, corrective actions, and observation of performance of operating, refueling, maintenance and modification activities, including associated record keeping.

The audits are scheduled on a formal preplanned audit schedule. The audit system is reviewed periodically and revised as necessary to assure coverage commensurate with current and planned activities. Additional audits may be performed as deemed necessary by management. The scope of the audit is determined by the quality status and safety importance of the activities being performed. These audits are conducted by trained personnel not having direct responsibilities in the area being audited and in accordance with preplanned and approved audit plans or checklists, under the direction of a qualified lead auditor and the cognizance of the Nuclear Oversight corporate manager responsible for Audits and Programs and the Manager Site Nuclear Oversight

Progress Energy is responsible for conducting periodic internal and external audits. Internal audits are conducted to determine the adequacy of programs and procedures (by representative sampling), and to determine if they are meaningful and comply with the overall QAPD. External audits determine the adequacy of supplier and contractor quality assurance program.

The results of each audit are reported in writing to the Executive Vice President Nuclear Generation and Chief Nuclear Officer and the Executive Vice President Energy Supply, or designee, as appropriate. Additional internal distribution is made to other concerned management levels in accordance with approved procedures.

Management responds to all audit findings and initiates corrective action where indicated. Where corrective action measures are indicated, documented follow-up of applicable areas through inspections, review, re-audits, or other appropriate means is conducted to verify implementation of assigned corrective action.

Audits of suppliers of safety-related components and/or services are conducted as described in Part II, Section 7.1.

18.2 Internal Audits

Internal audits of organization and facility activities, conducted prior to placing the facility in operation, should be performed in such a manner as to assure that an audit of all applicable QA program elements is completed for each functional area at least once each year or at least once during the life of the activity, whichever is shorter.

Audits may also be used to meet the periodic review requirements of the code for the Security, Emergency Preparedness, and Radiological Protection programs within the provisions of the applicable code.

Internal audits include verification of compliance and effectiveness of the administrative controls established for implementing the requirements of the QAPD; regulations and license provisions; provisions for training, retraining, qualification, and performance of personnel performing activities covered by the QAPD; corrective actions taken following abnormal occurrences; and, observation of the performance of construction, fabrication, operating, refueling, maintenance and modification activities including associated record keeping.

18.3 NQA-1-1994 Commitment

In establishing the independent audit program, Progress Energy commits to compliance with NQA-1-1994, Basic Requirement 18 and Supplement 18S-1.

PART III NON-SAFETY-RELATED SSC QUALITY CONTROL

SECTION 1 Nonsafety-Related SSCs - Significant Contributors to Plant Safety

Specific program controls are applied to non-safety related SSCs, for which 10 CFR 50, Appendix B is not applicable, that are significant contributors to plant safety. The specific program controls consistent with applicable sections of the QAPD are applied to those items in a selected manner, targeted at those characteristics or critical attributes that render the SSC a significant contributor to plant safety.

The following clarify the applicability of the QA Program to the non-safety-related SSCs and related activities, including the identification of exceptions to the QA Program described in Part II, Sections 1 through 18 taken for non-safety-related SSCs.

1.1 Organization

The verification activities described in this part may be performed by the Progress Energy line organization, the QA organization described in Part II is not required to perform these functions.

1.2 QA Program

Progress Energy QA requirements for non-safety-related SSCs are established in the QAPD and appropriate procedures. Suppliers of these SSCs or related services describe the quality controls applied in appropriate procedures. A new or separate QA program is not required.

1.3 Design Control

Progress Energy has design control measures to ensure that the contractually established design requirements are included in the design. These measures ensure that applicable design inputs are included or correctly translated into the design documents, and deviations from those requirements are controlled. Design verification is provided through the normal supervisory review of the designer's work.

1.4 Procurement Document Control

Procurement documents for items and services obtained by or for Progress Energy include or reference documents describing applicable design bases, design requirements, and other requirements necessary to ensure component performance. The procurement documents are controlled to address deviations from the specified requirements.

1.5 Instructions, Procedures, and Drawings

Progress Energy provides documents such as, but not limited to, written instructions,

plant procedures, drawings, vendor technical manuals, and special instructions in work orders, to direct the performance of activities affecting quality. The method of instruction employed provides an appropriate degree of guidance to the personnel

performing the activity to achieve acceptable functional performance of the SSC.

1.6 Document Control

Progress Energy controls the issuance and change of documents that specify quality requirements or prescribe activities affecting quality to ensure that correct documents are used. These controls include review and approval of documents, identification of the appropriate revision for use, and measures to preclude the use of superseded or obsolete documents.

1.7 Control of Purchased Items and Services

Progress Energy employs measures, such as inspection of items or documents upon receipt or acceptance testing, to ensure that all purchased items and services conform to appropriate procurement documents.

1.8 Identification and Control of Purchased Items

Progress Energy employs measures where necessary, to identify purchased items and preserve their functional performance capability. Storage controls take into account appropriate environmental, maintenance, or shelf life restrictions for the items.

1.9 Control of Special Processes

Progress Energy employs process and procedure controls for special processes, including welding, heat treating, and nondestructive testing. These controls are based on applicable codes, standards, specifications, criteria, or other special requirements for the special process.

1.10 Inspection

Progress Energy uses documented instructions to ensure necessary inspections are performed to verify conformance of an item or activity to specified requirements or to verify that activities are satisfactorily accomplished. These inspections may be performed by knowledgeable personnel in the line organization. Knowledgeable personnel are from the same discipline and have experience related to the work being inspected.

1.11 Test Control

Progress Energy employs measures to identify required testing that demonstrates

that equipment conforms to design requirements. These tests are performed in accordance with test instructions or procedures. The test results are recorded, and authorized individuals evaluate the results to ensure that test requirements are met.

1.12 Control of Measuring and Test Equipment (M&TE)

Progress Energy employs measures to control M&TE use, and calibration and adjustment at specific intervals or prior to use.

1.13 Handling, Storage, and Shipping

Progress Energy employs measures to control the handling, storage, cleaning, packaging, shipping, and preservation of items to prevent damage or loss and to minimize deterioration. These measures include appropriate marking or labels, and identification of any special storage or handling requirements.

1.14 Inspection, Test, and Operating Status

Progress Energy employs measures to identify items that have satisfactorily passed required tests and inspections and to indicate the status of inspection, test, and operability as appropriate.

1.15 Control of Nonconforming Items

Progress Energy employs measures to identify and control items that do not conform to specified requirements to prevent their inadvertent installation or use.

1.16 Corrective Action

Progress Energy employs measures to ensure that failures, malfunctions, deficiencies, deviations, defective components, and nonconformances are properly identified, reported, and corrected.

1.17 Records

Progress Energy employs measures to ensure records are prepared and maintained to furnish evidence that the above requirements for design, procurement, document control, inspection, and test activities have been met.

1.18 Audits

Progress Energy employs measures for line management to periodically review and document the adequacy of the process, including taking any necessary

corrective action. Audits independent of line management are not required. Line management is responsible for determining whether reviews conducted by line management or audits conducted by any organization independent of line management are appropriate. If performed, audits are conducted and documented to verify compliance with design and procurement documents, instructions, procedures, drawings, and inspection and test activities. Where the measures of this part (Part III) are implemented by the same programs, processes, or procedures as the comparable activities of Part II, the audits performed under the provisions of Part II may be used to satisfy the review requirements of this Section (Part III, Section 1.18).

SECTION 2 Non-safety-Related SSCs Credited for Regulatory Events

The following criteria apply to fire protection (10 CFR 50.48), anticipated transients without scram (ATWS) (10 CFR 50.62), the station blackout (SBO) (10 CFR 50.63) SSCs that are not safety related.

- Progress Energy implements quality requirements for the fire protection system in accordance with Regulatory Position 1.7, "Quality Assurance," in Regulatory Guide 1.189, "Fire Protection for Operating Nuclear Power Plants" as identified in FSAR Chapter 1.

- Progress Energy implements the quality requirements for ATWS equipment in accordance with Part III, Section 1.

- Progress Energy implements quality requirements for SBO equipment in accordance with Part III, Section 1. Regulatory Guide 1.155, is not applicable for the AP1000 design in accordance with the certified design as shown in DCD Appendix 1A. Regulatory Guide 1.155 relates to the availability of safety related functions supported by AC power. Since AC power is not required to support the availability of safety-related functions, the guidance is not applicable.

PART IV REGULATORY COMMITMENTS

NRC Regulatory Guides and Quality Assurance Standards

This section identifies the NRC Regulatory Guides (RG) and the other quality assurance standards which have been selected to supplement and support the Progress Energy QAPD. Progress Energy complies with these standards to the extent described or referenced. Commitment to a particular RG or standard does not constitute a commitment to the RGs or standards that may be referenced therein.

Regulatory Guides:

Regulatory Guide 1.8, Rev. 3, May 2000 - Qualification and Training of Personnel for Nuclear Power Plants

Regulatory Guide 1.8 provides guidance that is acceptable to the NRC staff regarding qualifications and training for nuclear power plant personnel.

Progress Energy identifies conformance and exceptions for the applicable regulatory position guidance provided in this regulatory guide in FSAR Chapter 1, Appendix 1AA.

Regulatory Guide 1.26, Revision 4, March 2007 - Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants

Regulatory Guide 1.26 defines classification of systems and components.

Progress Energy identifies conformance and exceptions for the applicable regulatory position guidance provided in this regulatory guide in FSAR Chapter 1, Appendix 1AA.

Regulatory Guide 1.28, Rev. 3, August 1985 - Quality Assurance Program Requirements (Design and Construction)

Regulatory Guide 1.28 describes a method acceptable to the NRC staff for complying with the provisions of Appendix B with regard to establishing and implementing the requisite quality assurance program for the design and construction of nuclear power plants.

Progress Energy identifies conformance and exceptions for the applicable regulatory position guidance provided in this regulatory guide in FSAR Chapter 1, Appendix 1AA.

Regulatory Guide 1.29, Revision 4, March 2007 - Seismic Design Classification

Regulatory Guide 1.29 defines systems required to withstand a safe shutdown earthquake (SSE).

Progress Energy identifies conformance and exceptions for the applicable regulatory position guidance provided in this regulatory guide in FSAR Chapter 1, Appendix 1AA.

Regulatory Guide 1.33, Rev. 2, February 1978 - Quality Assurance Program Requirements (Operations)

Regulatory Guide 1.33 describes a method acceptable to the NRC staff for complying with the Commission's regulations with regard to overall quality assurance program requirements for the operation phase of nuclear power plants.

Progress Energy identifies conformance and exceptions for the applicable regulatory position guidance provided in this regulatory guide in FSAR Chapter 1, Appendix 1AA.

Regulatory Guide 1.37, Revision 1, March 2007 – Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants.

Regulatory Guide 1.37 provides guidance on specifying water quality and precautions related to the use of alkaline cleaning solutions and chelating agents.

Progress Energy identifies conformance and exceptions for the applicable regulatory position guidance provided in this regulatory guide in FSAR Chapter 1, Appendix 1AA.

Standards:

ASME NQA-1-1994 Edition - Quality Assurance Requirements for Nuclear Facility Applications

Progress Energy commits to NQA-1-1994, Parts I, II, and III as described in the foregoing sections of this document.

Nuclear Information and Records Management Association, Inc. (NIRMA) Technical Guides (TGs)

Progress Energy commits to NIRMA TGs as described in Part II, Section 17.