# Part 11A — Nuclear Development Quality Assurance Manual

| SOUTHERN COMPANY | Quality Assurance Manual |
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Title: Nuclear Development Quality Assurance Manual

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## SOUTHERN NUCLEAR OPERATING COMPANY, INC

## POLICY STATEMENT

Southern Nuclear Operating Company, Inc. (SNC) 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 SNC Nuclear Development Quality Assurance Program (NDQAP) is the SNC Nuclear Development Quality Assurance Manual (NDQAM) and associated implementing documents. Together they provide for control of SNC activities that affect the quality of safety related nuclear plant structures, systems, and components and include all planned and systematic activities necessary to provide adequate confidence that such structures, systems, and components will perform satisfactorily in service. The NDQAP 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 NDQAM is the top-level policy document that establishes the manner in which quality is to be achieved and presents SNC'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 NDQAM. Compliance with the NDQAM and implementing documents is mandatory for personnel directly or indirectly associated with implementation of the SNC NDQAP.

Signed James H. Miller III
James H. Miller, III
Chairman, President and Chief Executive Officer
Southern Nuclear Operating Company, Inc.

December 2009

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# PART I INTRODUCTION

## SECTION 1 GENERAL

This Southern Nuclear Operating Company, Inc. (SNC) Nuclear Development Quality Assurance Manual (NDQAM) is the top-level policy document that establishes the quality assurance policy and assigns major functional responsibilities for Nuclear Development activities conducted by or for SNC. The NDQAM describes the methods and establishes quality assurance (QA) and administrative control requirements that meet 10 CFR 50, Appendix B and 10 CFR 52. The NDQAM 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 NDQAM is defined by the NRC approved regulatory document that describes the Nuclear Development Quality Assurance Program (NDQAP) elements, along with the associated implementing documents. Procedures and instructions that control Nuclear Development 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 NDQAM. Procedures establish practices for certain activities which are common to all SNC organizations performing those activities such that the activity is controlled and carried out in a manner that meets NDQAM requirements. Site or organization specific procedures 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

This NDQAM applies to ESP, COL, construction/pre-operation and operations activities affecting the quality and performance of safety-related structures, systems, and components, including, but not limited to:

| | | | | |
|---|---|---|---|---|
| Siting | Handling | Erecting | Inspecting | ESP Application Development |
| Designing | Licensing | Installing | Refueling | COL Application Development |
| Constructing | Operating | Repairing | Shipping | LWA Activities |
| Procuring | Maintaining | Training | Testing | Preoperational activities (including ITAAC) |
| Fabricating | Receiving | Modifying | Startup | |
| Cleaning | Storing | | | Decommissioning |

This manual is initiated for the development of ESP and COL applications as well as Limited Work Authorization (LWA) activities and will be revised as the Nuclear Development organization and related activities evolve. The NDQAM does not apply to SNC's operating units at Plants Farley, Hatch and Vogtle.

Safety-related systems, structures, and components, under the control of the NDQAM, 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 NDQAM may be applied to certain activities where regulations other than 10 CFR 50 and 10 CFR 52 establish NDQAM requirements for activities within their scope.

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

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

## 1.2 Responsibilities

SNC personnel engaged in activities described in this NDQAM shall comply with the requirements of the Nuclear Development Quality Assurance Program. Contractors, suppliers or other organizations supporting SNC, are required to comply with the NDQAP established by this NDQAM, or with their own programs determined by SNC to include sufficient controls to meet the applicable requirements of 10 CFR 50, Appendix B. All facilities shall be designed and constructed in compliance with the applicable Code of Federal Regulations and the applicable laws and regulations of the state and local governments in which the facility is located.

## 1.3 Interfaces with Owners

Agreements exist between Southern Nuclear Operating Company, Inc. and the nuclear power plant owner organizations (Owners) to establish responsibilities and authorities for the design and construction of said facilities.

# PART II NDQAM DETAILS

## SECTION 1 ORGANIZATION

This Section describes the SNC organizational structure, functional responsibilities, levels of authority and interfaces for establishing, executing, and verifying NDQAP implementation. The organizational structure includes corporate and onsite functions for Nuclear Development including interface responsibilities for multiple organizations performing 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 this NDQAM. Management gives careful consideration to the timing, extent and effects of organizational structure changes.

The SNC Executive Vice President - Nuclear Development is responsible to size the Quality Assurance organization commensurate with the duties and responsibilities assigned. ND is responsible for new nuclear plant licensing, engineering, procurement, construction, startup and operations development activities. There are several organizations within SNC which implement and support the NDQAM. These organizations include, but are not limited to Nuclear Development, Engineering, Fleet Operations Support, Environmental Affairs and Fleet Oversight.

Design, engineering and environmental services are provided to the SNC Nuclear Development Organization by three primary contractors during ESP and COL application development in accordance with their Quality Assurance Programs. These three contractors are Bechtel Power Corporation, Inc., Westinghouse Electric Company, LLC, and Tetra Tech NUS, Inc.

The following sections describe the reporting relationships, functional responsibilities and authorities for organizations implementing and supporting the Nuclear Development QA Program during the application development stage. Conceptual position descriptions necessary to support the construction phase, including activities performed under a Limited Work Authorization (LWA) are also provided; however, they are noted as construction phase. Likewise the Engineering Procurement Construction Contractor organizations are described. The Southern Nuclear Organization, the Nuclear Development Organization and the Nuclear Development Construction Organization are shown in Figures II.1-1, II.1-2 and II.1-3, respectively.

### 1.1 President and CEO

The SNC President and Chief Executive Officer (President/CEO) is responsible for all aspects of design and construction of Southern Company's nuclear plants. The President/CEO is also responsible for all technical and administrative support activities provided by SNC and contractors. The President/CEO directs the Chief Nuclear Officer/Executive Vice President, the Executive Vice President – Nuclear Development, the Vice President and General Counsel, and the Comptroller and Treasurer in fulfillment of their responsibilities. The President/CEO reports to the SNC Board of Directors with respect to all matters.

## 1.2 Nuclear Development

Southern Nuclear Operating Company, Nuclear Development (ND) organization is responsible for new nuclear plant licensing, engineering, procurement, construction, startup, operational development and quality assurance activities.

### 1.2.1 Executive Vice President – Nuclear Development

The Executive Vice President – Nuclear Development (EVPND) reports to the President/CEO and is responsible for the administration of the Nuclear Development QA Program described in this manual. The EVPND also directs the planning and development of the Nuclear Development staff and organization resources. The EVPND is also responsible for establishing and managing contracts for the development of new nuclear generation.

#### 1.2.1.1 Technical Support Director

The Technical Support Director (TSD) reports to the Executive Vice President – Nuclear Development and is responsible for the effective implementation of the NDQAP for new nuclear plant engineering, licensing and environmental activities. The TSD is responsible for the Nuclear Development corporate training program, the licensee Corrective Action Program and document control.

##### 1.2.1.1.1 AP1000 Licensing Manager

The AP1000 Licensing Manager (LM) reports to the Technical Support Director and is responsible for the effective implementation of the NDQAP for the Vogtle site new nuclear plant licensing activities. The LM has overall authority for all activities supporting development of the ESP and COL applications including licensing and license engineering activities. The LM and the staff are responsible for managing the principal contractors and all contractor-related activities, such as collecting and analyzing data, conducting testing for site suitability, and developing application content. The LM and the staff are responsible for coordinating actions of the principal licensing contractors and internal resources supporting development of license applications. The LM and the staff are also the primary interface with the NRC staff during the ESP and COL review process. During construction, the LM will oversee: FSAR maintenance, performance of design changes and environmental reviews, NRC interface, ITAAC readiness, the NRC Construction Inspection Program, NRC inspection activities, and environmental permits.

##### 1.2.1.1.2 AP1000 Engineering Manager

The AP1000 Engineering Manager reports to the Technical Support Director and is responsible for the effective implementation of the NDQAP for the new plant standardized design aspects for new nuclear plant engineering and technical activities. The AP1000 Engineering Manager is also responsible for the oversight of the site specific engineering activities. In this role, the AP1000 Engineering Manager is responsible for managing the PRA program and the ASME Code Owner's requirements.

#### 1.2.1.2 Vice President Nuclear Plant Site - Vogtle 3 & 4

The Vice President Nuclear Plant Site - Vogtle 3 & 4 reports to the Executive Vice President – Nuclear Development and is responsible for all site activities associated with construction of Vogtle Units 3 and 4 and for the implementation of quality assurance requirements in the areas specified by the NDQAM. This includes approval authority for administrative and working procedures related to construction, staffing and training, start up and plant operation for Vogtle 3 and 4. The Vice President Nuclear Plant Site – Vogtle 3 & 4 has overall authority for all activities supporting construction activities and will serve as the interface with the EPC contractor. During construction, the Vice President Nuclear Plant Site – Vogtle 3 & 4 will oversee onsite activities including the interfaces for: 1) administrative activities including document control, FFD, industrial safety, Information Technology and invoice management; 2) engineering activities including the design authority, configuration control and existing unit interfaces; and 3) project management activities including schedule and cost tracking, onsite fabrication and security. When deemed appropriate by Nuclear Development management, additional site positions will be filled in accordance with the organization described in Section 13 of the FSAR in preparation for the construction and operation of Vogtle 3 & 4.

##### 1.2.1.2.1 Vogtle Support Director

The Vogtle Support Director (VSD) reports to the Vice President Nuclear Plant Site – Vogtle 3 & 4 and is responsible for the effective implementation of the NDQAP for Vogtle site new nuclear plant schedule adherence, procurement, and contract administration.

###### 1.2.1.2.1.1 Project Controls and Reporting Manager

The Project Controls and Reporting Manager reports to the Vogtle Support Director and is responsible for the effective implementation of the NDQAP for all scheduling and reporting aspects associated with the Vogtle site new nuclear plant.

###### 1.2.1.2.1.2 Procurement/Technical Surveillance Project Manager

The Procurement/Technical Surveillance Project Manager reports to the Vogtle Support Director and is responsible for effectively tracking the procurement activities of the project as well as those of Westinghouse and SHAW. Technical Surveillances are managed through this position; however, the technical surveillance activities of this function are generally not credited as supporting the NDQAM for quality surveillances.

###### 1.2.1.2.1.3 Controlling Compliance Manager and Managing Attorney

The Controlling Compliance Manager and Managing Attorney reports to the Vogtle Support Director and is responsible for the effective implementation of the Engineering, Procurement and Construction contract and other legal aspects associated the Vogtle site new nuclear plant.

##### 1.2.1.2.2 Nuclear Technology and Start-up Director

The Nuclear Technology and Start-up Director (NTSD) reports to the Vice President Nuclear Plant Site - Vogtle 3 & 4 and is responsible for new plant standardized support for construction, start-up and operations development, including initial operations staffing and training.

#### 1.2.1.2.3 Vice President – Nuclear Construction

During construction, SNC has selected Southern Company's Engineering and Construction Services to act as a technical consultant in an oversight role of SHAW and Westinghouse. The Vice President – Nuclear Construction is functionally matrixed as a direct report to the Vice President Nuclear Plant Site - Vogtle 3 & 4. E&CS is experienced in power plant construction and will use this expertise to ensure that schedule and cost activities are maintained. E&CS does not have a nuclear quality assurance program; therefore, E&CS personnel will work under the NDQAP and procedures which are reviewed and approved under this program. E&CS personnel will be trained in the use of the licensee Corrective Action Program and will follow the normal protocols of a nuclear plant worker.

#### 1.2.1.2.4 Engineering, Procurement and Construction (EPC) Contractor

During construction, the Consortium of Westinghouse and SHAW Stone & Webster will serve as the Engineering, Procurement and Construction (EPC) Contractor to SNC. Each of the Consortium members has a Quality Assurance Program that meets the requirements of 10 CFR 50, Appendix B and NQA-1 (1994). The scope of each member of the Consortium is established through a Division of Responsibility (DOR). The on-site activities of these subcontractors are the responsibility of the Vice President Nuclear Plant Site – Vogtle 3 & 4. Subcontractors performing work within the scope of 10 CFR 50, Appendix B and which provide materials, services, or both that are nuclear safety related or important to nuclear safety, will maintain appropriate quality assurance programs at each site where work is been performed. As between SNC and the EPC Contractor, the EPC Contractor shall be responsible for the performance of work by subcontractors performing 10 CFR 50, Appendix B work under the applicable DOR scope. In addition to the day-to-day technical oversight of the EPC Contractor activities, SNC will provide quality oversight of EPC Contractor through audits of the Consortium members and surveillances of the subcontractors.

The EPC Contactor will also be responsible to perform the quality control and inspection functions and activities. The persons performing quality control functions for the EPC Contractor will have sufficient authority and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions; and to verify implementation of solutions. The persons performing these functions will have the requisite independence from cost and schedule when contrary to safety considerations.

#### 1.2.1.2.5 Standard Plant Organization (Operations)

At the appropriate time, Southern Nuclear will implement an onsite operating organization. Based on the existing fleet organizations, some of which is described in Part II, Section 1.4, SNC will implement the organization described below. Changes to this organization will be made following the proper codified process. The onsite operating organization will provide, as part of the normal duties of plant supervisory personnel, timely and continuing monitoring of operating activities to assist the Vice President Nuclear Plant Site – Vogtle 3 & 4 in keeping abreast of general plant conditions and to verify that the day-to-day operating activities are conducted safely and in accordance with applicable administrative controls. The onsite operating organization shall include one or more individuals knowledgeable in the following fields: nuclear power plant operation; nuclear power plant, mechanical, electrical and electronic systems; nuclear engineering; chemistry and radiochemistry; radiation protection; and quality assurance. During operations, the quality assurance organization and function will continue to report to the senior executive above the Vice President Nuclear Plant Site – Vogtle 3 & 4. The following are position

descriptions that will apply during the operations phase. An organizational chart depicting these positions is shown in Figure II.1-4.

#### 1.2.1.2.5.1 Plant Manager

The plant manager (PM) is responsible for direct management of the plant, including operations, maintenance, refueling, and technical and administrative activities. The PM is responsible for:

A. Compliance with the requirements of the operating license, Technical Specifications, and quality assurance program, and
B. Approval, prior to implementation, of each proposed test, experiment, or modification to systems or equipment that impact nuclear safety.

The PM directs the senior manager responsible for maintenance, senior manager responsible for operations, senior manager responsible for chemistry, senior manager responsible for health physics, and the senior manager responsible for work controls.

A plant review board (PRB) will be maintained to review overall plant operations, and advise plant site management on matters related to nuclear safety.

##### 1.2.1.2.5.1.1 Senior Manager Responsible for Maintenance

The senior manager responsible for maintenance directs the maintenance personnel in performance of preventive maintenance, repair of plant equipment, performance of assigned quality control measures, and maintenance support utilizing contractor craft personnel.

##### 1.2.1.2.5.1.2 Senior Manager Responsible for Operations

The senior manager responsible for operations is responsible for the safe and reliable operation of the plant. This includes unit operations; day-to-day planning; technical support; preparation for and conduct of outage related activities; and overseeing outage work activities, surveillances, and tests.

In addition, operating personnel responsibilities include:

- The reactor operator's authority and responsibility for shutting down the reactor when it is determined that the safety of the reactor is in jeopardy or when operating parameters exceed any of the reactor protection system set-points and automatic shutdown does not occur.
- The responsibility to determine the circumstances, analyze the cause, and determine that operations can proceed safely before the reactor is returned to power after a trip or an unexplained or unscheduled power reduction.
- The senior reactor operator's responsibility to be present at the plant and to provide direction for returning the reactor to power following a trip or an unscheduled or unexplained power reduction.
- The responsibility to believe and respond conservatively to instrument indications unless they are proved to be incorrect.
- The responsibility to adhere to the plant's Technical Specifications.
- The responsibility to review routine operating data to assure safe operation.

- The responsibility to take action to minimize personnel injury or damage to the facility and to protect the health and safety of the public in the event of an emergency not covered by approved procedures.

#### 1.2.1.2.5.1.3 Senior Manager Responsible for Chemistry

The senior manager responsible for chemistry is responsible for chemical and radiochemical activities at the plant; chemistry related engineering activities including filter / demineralizer control and hydrogen water chemistry; administrative control of effluent releases from the plant to ensure that the releases are maintained as low as reasonably achievable (ALARA) and within the required limits; and implementing primary, secondary, and component cooling water chemistry programs.

#### 1.2.1.2.5.1.4 Senior Manager Responsible for Health Physics

The senior manager responsible for health physics is responsible for the radiation protection and for the maintenance of all required radiation exposure records of plant support and visiting personnel; and provides radiation surveys and minimization of occupational radiation exposure (ALARA program); manages the shipping and receiving of all byproduct, source, and special nuclear material except fuel; manages the radwaste management program including radwaste cleaning / processing performed by operations; and manages the personnel dosimetry and respiratory protection programs.

#### 1.2.1.2.5.1.5 Senior Manager Responsible for Work Controls

The senior manager responsible for work controls is responsible for ensuring maximum advantage is taken of forced outages and load reductions to do needed repair, replacement, modification, and inspection work; working with Maintenance to ensure management control of work is accomplished through the use of an effective priority system; preparing Outage Safety Assessments in support of scheduled refueling outages; and conducting ongoing outage risk assessments.

### 1.2.1.2.5.2 Site Support Manager

The site support manager (SSM) is responsible for supporting the operations and maintenance of the plant. This includes providing training, emergency preparedness, nuclear security plan implementation, and performance improvement.

#### 1.2.1.2.5.2.1 Senior Manager Responsible for Plant Security

The senior manager responsible for plant security is responsible to maintain the security department in accordance with the security plan, training and qualification plan, and contingency plan for the plant; control safeguards material; maintain interfaces with offsite agencies; and coordinate the security drill and exercise program.

#### 1.2.1.2.5.2.2 Senior Manager Responsible for Training

The senior manager responsible for training is responsible for developing and maintaining a training / retraining program for plant personnel that meets requirements for INPO accreditation and that meets the security plan and emergency response plans; and maintaining the training simulator.

#### 1.2.1.2.5.2.3 Senior Manager Responsible for Performance Improvement

The senior manager responsible for performance improvement is responsible to administer the plant corrective action program; lead analyses; develop and implement plans that work to identify and to close key performance gaps; coordinate problem solving teams to focus plant performance improvements; and develop and maintain plant performance monitoring, action tracking and communications to monitor and communicate progress in performance changes. In addition, this position is responsible for managing the document control function for the plant.

#### 1.2.1.2.5.2.4 Senior Manager Responsible for Emergency Preparedness

The senior manager responsible for emergency preparedness is responsible for managing the onsite emergency preparedness effort.

#### 1.2.1.2.5.3 Engineering Director

The engineering director serves as the engineering lead for the respective site and is responsible for equipment reliability, engineering programs, systems engineering, design engineering, plant modifications and the rapid response team. The engineering director is responsible for standardization, long-term resource planning, and promoting best practices.

#### 1.2.1.2.5.3.1 Senior Manager Responsible for Design

The senior manager responsible for design serves as the primary design and project lead and is responsible for site preparation of design changes. In this capacity, the design manager interfaces with the chief engineer and design support organizations to assure modifications are consistent with the design basis. The design manager is responsible for standardization, long-term resource planning, and promoting best practices.

#### 1.2.1.2.5.3.2 Senior Manager Responsible for Engineering Support

The senior manager responsible for engineering support is responsible to oversee technical and engineering projects in support of maintenance and operations, including but not limited to quality control inspections; evaluate nuclear, thermal, and hydraulic performance of reactor and turbine systems; provide systems engineering; plan for contractor activities involving steam generators, reactor vessel inspections, and fuel issues; and provide reviews for potential 10 CFR 21 reportability.

#### 1.2.1.2.5.3.3 Senior Manager Responsible for Technical Services

The senior manager responsible for technical services is responsible for providing technical direction and support for plant technical activities in the area of program management and emergent plant engineering issues.

### 1.2.1.3 Nuclear Development Quality Assurance Project Manager

The Nuclear Development Quality Assurance Project Manager (NDQAPM) reports to the Executive Vice President – Nuclear Development, and is responsible for independently planning and performing activities to verify effective implementation of this Nuclear Development Quality Assurance Manual for new nuclear plant activities.

The NDQAPM is responsible for assuring compliance with regulatory requirements and procedures through audits and technical reviews; for monitoring organization processes to ensure conformance to commitments and licensing document requirements; for ensuring that vendors providing quality services, parts and materials to SNC are meeting the requirements of 10 CFR 50, Appendix B through NUPIC or SNC vendor audits. The NDQAPM has sufficient independence from other nuclear development priorities to bring forward issues affecting safety and quality and makes judgments regarding quality in all areas necessary regarding SNC's Nuclear Development activities. The NDQAPM may make recommendations to the Nuclear Development management regarding improving the quality of work processes. If the NDQAPM disagrees with any actions taken by the ND organization and is unable to obtain resolution, the NDQAPM shall bring the matter to the attention of the Executive Vice President – Nuclear Development who will determine the final disposition.

#### 1.2.1.3.1 Quality Assurance Supervisor and Site QA/QC Oversight

During construction, the Quality Assurance Supervisor (QAS) will report to the Nuclear Development Quality Assurance Project Manager and have a matrix reporting relationship to the Vice President Nuclear Plant Site – Vogtle 3 & 4. The QAS will be responsible for ensuring that appropriate vendor, construction and design audits and surveillances on site are performed to satisfy the regulatory requirements.

#### 1.2.1.4 Assistant Comptroller

The Assistant Comptroller has responsibility for budgeting and financial activities for SNC Nuclear Development. Although administratively reporting to the Financial Services organization, the Assistant Comptroller and staff are assigned to solely support Nuclear Development.

## 1.3 Financial Services Organization

The Financial Services Organization has responsibility for all SNC matters related to compliance with applicable budgeting and financial regulations. For the purposes of the NDQAM, the descriptions of the responsibilities of Financial Services are limited to those activities that support Nuclear Development.

### 1.3.1 Treasurer and Comptroller

The Treasurer and Comptroller reports to the SNC President and Chief Executive Officer and is responsible for managing the overall Financial Services organization. An Assistant Comptroller and staff are assigned to solely support Nuclear Development (Section 1.2.1.4).

## 1.4 Operating Fleet Organization

The SNC operating fleet is composed of the Joseph M. Farley Nuclear Plant Units 1 & 2, the Edwin I. Hatch Nuclear Plant Units 1 & 2 and the Vogtle Electric Generating Plant Units 1 & 2. For the purposes of the NDQAM, the descriptions of the responsibilities of the Operating Fleet Organization are limited to those activities that support Nuclear Development.

### 1.4.1 Executive Vice President

The Executive Vice President is the Chief Nuclear Officer (CNO) and is responsible for the safe, reliable, and efficient operation of the SNC nuclear plants. The CNO directs the Vice

Presidents Nuclear Plant Site (Vogtle, Hatch and Farley), the Vice President – Fleet Operations Support, the Vice President Engineering and the Fleet Oversight Manager. For the purposes of this program, the description of the responsibilities of the Executive Vice President will be limited to those activities that support Nuclear Development. The Executive Vice President will support Nuclear Development through the Vice President Nuclear Plant Site - Vogtle, the Fleet Training and Performance Improvement Manager, the Nuclear Fleet Security and Emergency Planning organization, the Nuclear Licensing Organization and the Fleet Oversight organization.

#### 1.4.1.1 Vice President Nuclear Plant Site – Vogtle 1 & 2

The Vice President Nuclear Plant Site – Vogtle 1 & 2 reports to the Executive Vice President/Chief Nuclear Officer and is responsible for the overall safe and efficient operation of Vogtle Units 1 and 2, and for the implementation of quality assurance requirements in the areas specified by the SNC Quality Assurance Topical Report.

For the purposes of this program, the description of the duties of the Vice President Nuclear Plant Site – Vogtle 1 & 2 and staff is limited to those site activities that support Nuclear Development. Along with the Vice President Nuclear Plant Site – Vogtle 3 & 4, the Vice President Nuclear Plant Site – Vogtle 1 & 2 is responsible for controlling interfaces between the operating units and any preconstruction or construction activities.

#### 1.4.1.2 Vice President – Fleet Operations Support

The Vice President – Fleet Operations Support reports to the Executive Vice President/Chief Nuclear Officer and is responsible for support of fleet operations, fleet maintenance and work controls, refueling outages and chemistry and health physics. The Vice President – Fleet Operations Support also is responsible for Fleet Training and Performance Improvement and Nuclear Fleet Security and Emergency Planning. For the purposes of this program, the description of responsibilities of the Vice President – Fleet Operations Support will be limited to those activities that support Nuclear Development.

##### 1.4.1.2.1 Fleet Training and Performance Improvement

The Fleet Training and Performance Improvement Manager reports to the Vice President – Fleet Operations Support and is responsible for the overall governance, oversight, and support of training and qualification related functions. The Technical Training section is responsible for developing, coordinating, tracking and administering technical training for corporate organizations. Technical Training will be responsible for maintaining records of staff training as well as the development of curriculum for initial and ongoing staff training. Technical Training will provide support for Nuclear Development. The fleet training and performance improvement manager is also responsible for administration of the corrective action program in the corporate headquarters.

##### 1.4.1.2.2 Fleet Security and Emergency Planning

The Fleet Security and Emergency Planning (FSEP) Manager reports to the Vice President – Fleet Operations Support and is responsible for management of the FSEP organization and the overall coordination of fleet security activities and programs, the corporate emergency planning programs (including the common Emergency Operations Facility) and the Access Authorization program. The FSEP Manager also has responsibility for site emergency response

communication. The FSEP organization is responsible for providing information and support concerning emergency plans and security to the Nuclear Development organization.

For the Access Authorization Program, the Fleet Security and Emergency Planning Manager shall assure compliance with 10 CFR 73.56 (Access Authorization), NRC Order EA-02-261, dated January 7, 2003 (Compensatory Measures Related to Access Authorization Program); and 10 CFR 73.57 (Criminal History Check and Pre-Access Suitable Inquiries.)

#### 1.4.1.2.3 Safety and Health

Safety and Health reports to the Vice President of Fleet Operations Support and is responsible for coordinating the overall Fitness-for-Duty (FFD) program among SNC management, the corporate staff, the staff at each of the SNC nuclear plants and the Nuclear Development organization. In this capacity, Safety and Health administers the FFD program's random selection process; performs drug and alcohol testing at the corporate office and at each SNC nuclear plant pursuant to 10 CFR 26, "Fitness for Duty Programs," ensures that testing procedures are in place; trains the FFD staff; and maintains associated training records.

In addition, Safety and Health develops policies and procedures to ensure a safe and healthy workplace and compliance with standards established by the Occupational Safety and Health Administration.

### 1.4.1.3 Vice President Engineering

The Vice President Engineering reports to the Executive Vice President/Chief Nuclear Officer and is responsible for nuclear fuel and nuclear licensing activities. The Vice President Engineering also directs the design support manager, the engineering services manager, and the major projects manager. For the purposes of this program, the description of the responsibilities of the Vice President Engineering will be limited to those activities that support Nuclear Development.

#### 1.4.1.3.1 Nuclear Licensing

The Manager – Nuclear Licensing reports to the Vice President Engineering and has responsibility for providing specialized engineering and technical services in the areas of licensing and regulatory support. The Probabilistic Risk Assessment (PRA) function in Nuclear Licensing will specifically support the Nuclear Development organization in the completion of the Westinghouse AP1000 PRA models for the new nuclear plants. Nuclear Licensing performs both plant specific and generic licensing activities for the SNC operating units. Nuclear Licensing will support Nuclear Development through licensing activities addressing impacts to the existing Vogtle units and through support of industry efforts related to new nuclear generation. Nuclear Licensing will also support Nuclear Development licensing activities after issuance of the COL.

#### 1.4.1.3.2 Design Support

The Design Support Manager reports to the Vice President Engineering and acts as the design authority for SNC plants. The design support manager directs the activities associated with configuration management and major plant modifications. The Design Support department includes the Document Services section.

The Document Services section is responsible for control and management of engineering documents. This includes record scanning, database indexing, and creating and distributing compact disks (CDs). Document Services will provide document control services for Nuclear Development.

#### 1.4.1.3.3 Nuclear Fuel

The Nuclear Fuel Manager reports to the Vice President Engineering. The Nuclear Fuel department is comprised of the Core Analysis, Nuclear Fuel Services and Fuel Performance sections. Activities include scheduling and procuring uranium concentrates, conversion, enrichment, and fabrication services. The department provides expertise and support for high-level waste disposal management. Nuclear Fuel will provide fuel design and procurement for Nuclear Development.

### 1.4.1.4 Fleet Oversight Manager

The Fleet Oversight Manager reports to the Executive Vice President/Chief Nuclear Officer for operations activities and is responsible for developing and maintaining the Quality Assurance Topical Report for the operating fleet, evaluating compliance to the programs and managing the Fleet Oversight organization resources. The SNC Fleet Oversight Organization is responsible for independently planning and performing activities to verify the development and effective implementation of the SNC Quality Assurance Topical Report. In support of Nuclear Development and as appropriate, the activities performed by SNC Fleet Oversight may also satisfy some requirements of the Nuclear Development Quality Assurance Manual.

#### 1.4.1.4.1 Fleet Oversight Supervisor (Corporate)

The Fleet Oversight Supervisor (Corporate) reports to the Fleet Oversight Manager and is responsible for supporting evaluations of the quality programs of suppliers and contractors performing Nuclear Development activities within the scope of the NDQAP. This is accomplished by scheduling and conducting triennial external audits, annual supplier quality assurance program evaluations, reviewing audits conducted by external organizations (e.g., other utilities and the Nuclear Procurement Issues Committee), and maintenance of the Qualified Suppliers List.

#### 1.4.1.4.2 Fleet Oversight Supervisor (Site)

The Fleet Oversight Supervisor (Site) reports to the Fleet Oversight Manager and is primarily responsible for operations quality assurance activities for the existing units. This organization may also support Nuclear Development activities by performing oversight of onsite work as directed by the NDQAPM.

## 1.5 Legal and Compliance

The legal and compliance organization oversees the fiduciary duties of the company as well as the compliance with regulatory activities including the Concerns Program and Environmental Affairs.

### 1.5.1 Vice President and General Counsel

The Vice President and General Counsel reports to the President/CEO and is responsible for managing the various functions associated with general counsel, compliance officer, and external affairs.

#### 1.5.1.1 Environmental Affairs Manager

The Environmental Affairs Manager reports to the Vice President and General Counsel and is responsible for managing environmental issues such as radiological environmental, non-radiological environmental, dose and shielding calculations, and low level radioactive waste functions supporting the Nuclear Development organization. Environmental Affairs is responsible for providing various licensing, engineering and environmental related services in support of the Nuclear Development organization.

## 1.6 Supply Chain Management

A Supply Chain General Manager who reports to the Vice President of Supply Chain Management Southern Company but functionally works for SNC is responsible for the effective management of the Supply Chain Management organization supporting Nuclear Development activities. The Supply Chain Management Department is responsible for the preparation of procurement documents for purchasing materials and services for SNC. In support of this effort, Supply Chain Management is responsible for preparing, with appropriate input from engineering, procurement documents for purchasing certain materials, components, equipment, and services which will include provisions for material identification and control. Supply Chain Management is also responsible for the review of these specifications for adequacy of identification, control, technical, and quality requirements. Similarly, Supply Chain Management reviews and approves information included in procurement documents to verify inclusion of adequate technical and quality requirements.

## 1.7 Southern Company Services (SCS) Information Technology (IT)

A SCS IT Group Manager is responsible for SNC IT activities and reports to the Southern Company Chief Information Officer – Senior Vice President. The SCS IT Group Manager provides support to the Nuclear Development organization including but not limited to applications, servers, tape backup, voice and data, network infrastructure hardware, and emergency communication hardware. The IT Group Manager will provide support to Engineering or Corporate Services under this NDQAP and associated SNC procedures for software control, electronic document storage disaster prevention/recovery, and emergency planning. The IT Group Manager is also responsible for maintaining controls for SNC software applications which are not required to be maintained under the SNC program described herein.

## 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 furnishing safety-related materials and services to SNC.

## 1.9 Quality Assurance Organizational Independence

For the ESP/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, SNC commits to compliance with NQA-1-1994, Basic Requirement 1 and Supplement 1S-1.

**Figure II.1-1**

## SNC Organization

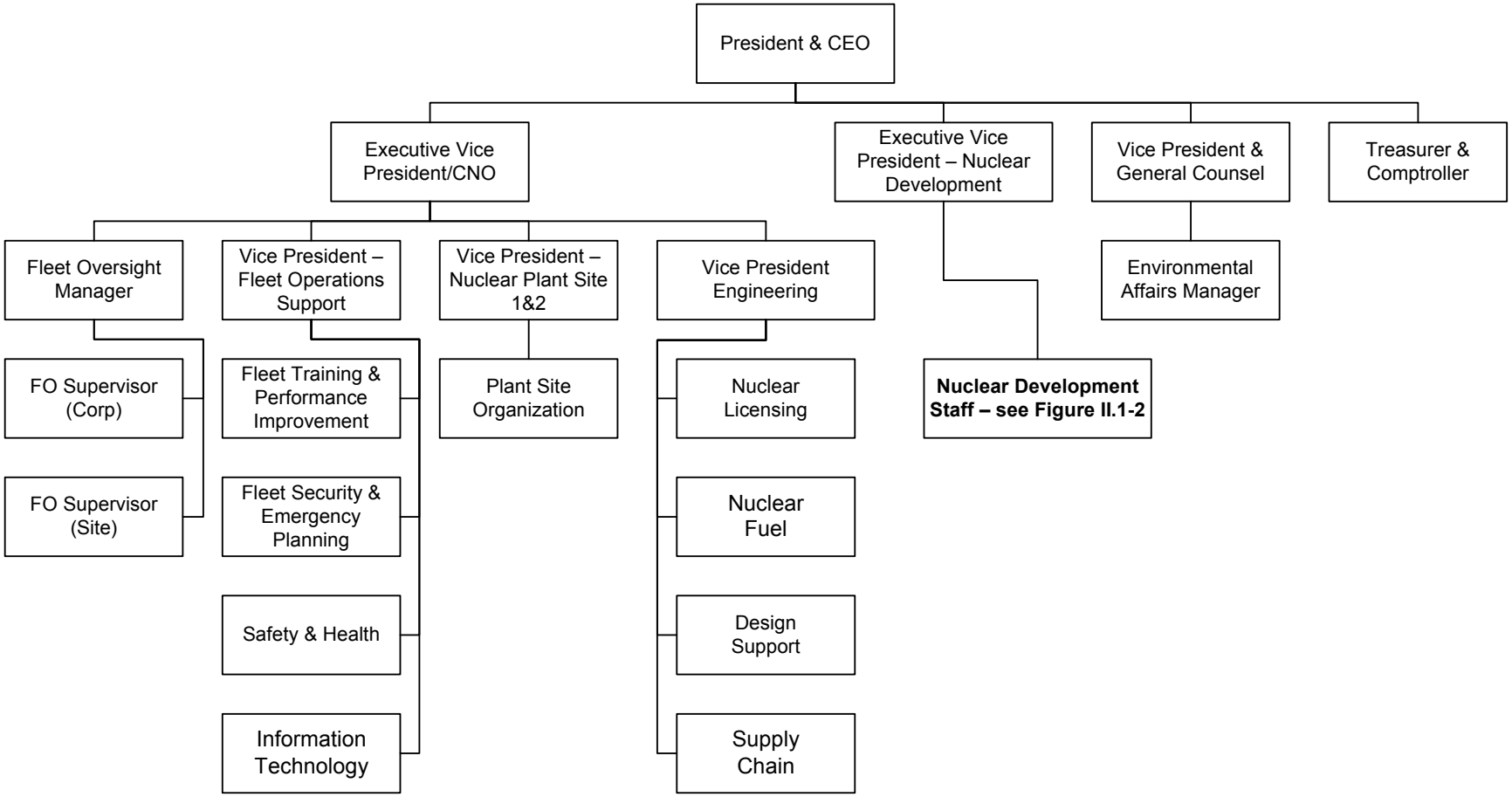


**Figure II.1-2**

## Nuclear Development Organization

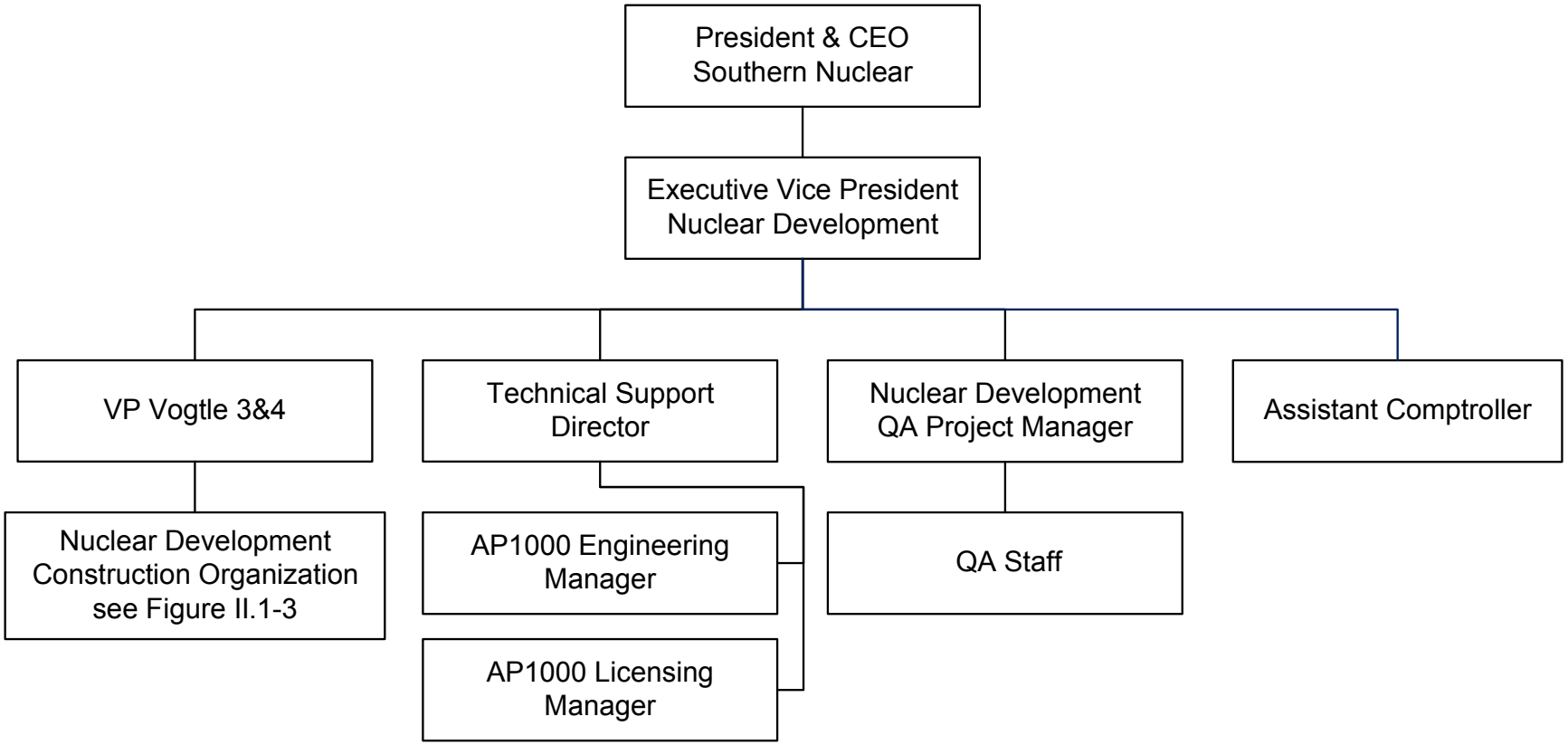


**Figure II.1-3**

# Nuclear Development Construction Organization

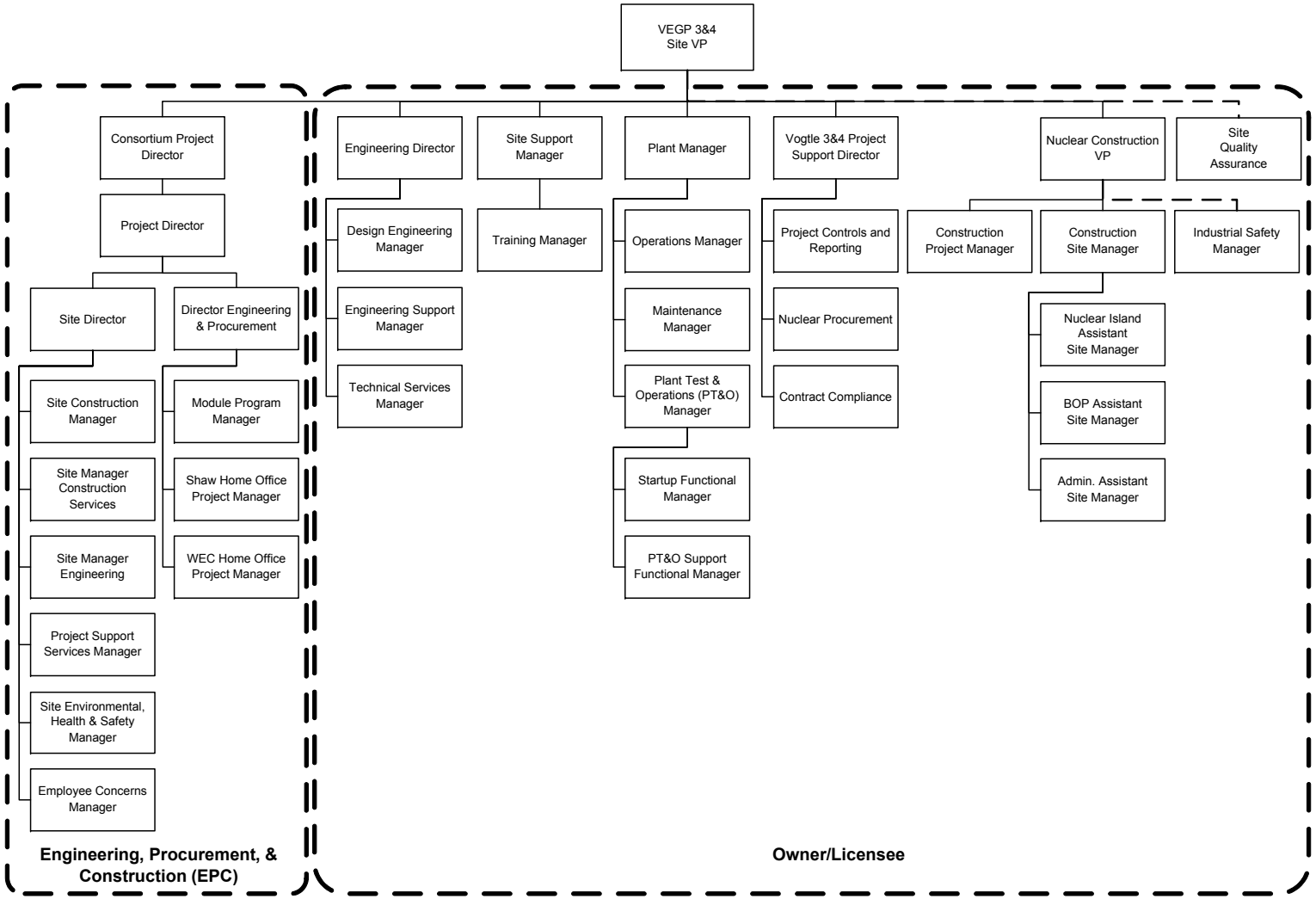
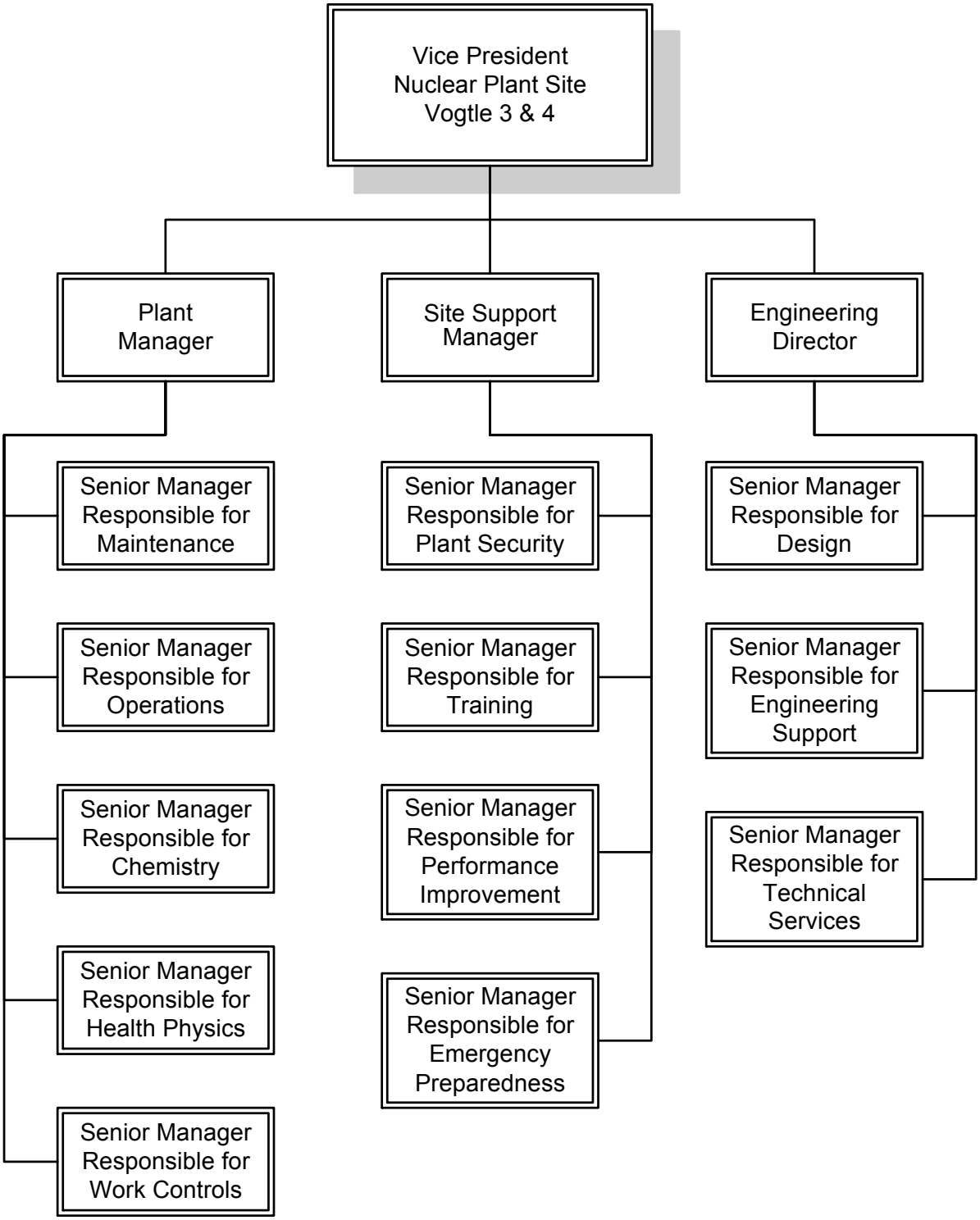


**Figure II.1-4**

## Standard Plant Organization (Operations)



## SECTION 2 QUALITY ASSURANCE PROGRAM

SNC has established the necessary measures and governing procedures to implement the NDQAP as described in the NDQAM. SNC is committed to implementing the Quality Assurance Program in all aspects of work that are important to the safety of the nuclear plants as described and to the extent delineated in this NDQAM. Further, SNC 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 the adequacy of implementation of the NDQAP through the audit functions described in Part II, Section 18.

The objective of the NDQAP is to assure that SNC'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 NDQAP 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, licensing, construction, testing and operation of new nuclear power plants and managerial and administrative controls as described in the ESP Site Safety Analysis Report and COL Final Safety Analysis Report. Examples of ESP/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 identifying 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 NDQAP.

As described in Part III, 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 NDQAM 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 NDQAP. 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 ESP and COL applications, this NDQAP applies to those Nuclear Development and SNC activities that can affect either directly or indirectly the safety-related site characteristics or analysis of those characteristics. In addition, this NDQAP applies to engineering activities that are used to characterize the site or analyze that characterization.

New nuclear plant construction will be the responsibility of SNC's Nuclear Development organization. Detailed engineering specifications and construction procedures will be developed to implement the NDQAP, SHAW and Westinghouse QA programs prior to commencement of preconstruction (ESP) and/or 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 nonsafety-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 SNC 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 SNC are responsible for achieving acceptable quality in the work covered by this NDQAM. This includes the activities delineated in Part I, Section 1.1. SNC personnel performing verification activities are responsible for verifying the achievement of acceptable quality. Activities governed by the NDQAP 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 Quality Assurance Project Manager is responsible to verify that processes and procedures comply with NDQAM and other applicable requirements, that such processes or procedures are implemented, and that management appropriately ensures compliance.

## 2.2 Delegation of Work

SNC retains and exercises the responsibility for the scope and implementation of an effective NDQAP. Positions identified in the Organization Section of this NDQAM 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, assess 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, which ever is shorter.

## 2.5 Issuance and Revision to Quality Assurance Program Description

Administrative control of the NDQAM will be in accordance with 10 CFR 50.55(f) and 10 CFR 50.54(a), as appropriate. Changes to the NDQAM are evaluated by the ND Quality Assurance Project Manager to ensure that such changes do not degrade previously approved quality assurance controls specified in the NDQAP. This document shall be revised as appropriate to incorporate additional QA commitments that may be established during the ESP and COL application development process. New revisions to the document will be reviewed, at a minimum, by the NDQAPM and approved by the Executive Vice President - Nuclear Development.

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 NDQAM and, as a result, the requirements of 10 CFR 50.54(a) are satisfied by and apply to the NDQAM.

## 2.6 Personnel Qualifications

Personnel assigned to implement elements of the NDQAP shall be capable of performing their assigned tasks. To this end SNC establishes and maintains formal indoctrination and training programs for personnel performing, verifying, or managing activities within the scope of the NDQAP to assure that suitable proficiency is achieved and maintained. Plant and support staff minimum qualification requirements are as delineated in each site's 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 SNC procedures. Indoctrination includes the administrative and technical objectives, requirements of the applicable codes and standards, and the NDQAP 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 Nuclear Development Quality Assurance Project Manager are an engineering or related science degree and a minimum of four years of related experience including 2 years of nuclear power plant experience, 1 year of supervisory or management experience and one year of experience 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 NDQAP 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 Plant Review Board (PRB) 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 PRB 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 reportable 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 Manager, or any PRB member.

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

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

In discharging its review responsibilities, the PRB keeps safety considerations paramount when opposed to cost or schedule considerations.

Additionally, a separate Safety Review Board provides for the following:

1. An independent review committee is assigned independent review responsibilities.

2. The independent review committee reports to the SNC Vice President Nuclear Plant Site – Vogtle 3 &4.

3. The independent review committee is composed of no less than 5 persons and no more than a minority of members are from the on-site operating organization.

   For example, at least 3 of the 5 members must be from off-site if there are 5 members on the committee. A minimum of the chairman or alternative chairman and 2 members must be present for all meetings.

4. During the period of initial operation, meetings are conducted no less frequently than once per calendar quarter. Afterwards meetings are conduced no less than twice a year.

5. Results of the meeting are documented and recorded.

6. Consultants and contractors are used for the review of complex problems beyond the expertise of the off-site/on-site independent review committee.

7. Persons on the independent review committee are qualified as follows:

   a. Supervisor or Chairman of the Independent Review Committee
      - Education: baccalaureate in engineering or related science
      - Minimum experience: 6 years combined managerial and technical support

   b. Independent Review Committee members
      - Education:
        Baccalaureate in engineering or related science for those Independent review personnel who are required to review problems in
        - nuclear power plant operations,
        - nuclear engineering,
        - chemistry and radiochemistry,
        - metallurgy,
        - nondestructive testing,
        - instrumentation and control,
        - radiological safety,
        - mechanical engineering and electrical engineering.

        High school diploma for those independent review personnel who are required to review problems in administrative control and quality assurance practices, training, and emergency plans and related procedures and equipment.

        Minimum experience: 5 years experience in their own area of responsibility (nuclear power plant operations, nuclear engineering, chemistry and radiochemistry, metallurgy, nondestructive testing, instrumentation and control, radiological safety, mechanical engineering, and electrical engineering, administrative control and quality assurance practices, training, and emergency plans and related procedures and equipment).

## 2.8 NQA-1-1994 Commitment / Exceptions

In establishing qualification and training programs, SNC 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 performing 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, SNC 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 SNC 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 SNC, 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

SNC 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 this NDQAM. The design process includes provisions to control design inputs, outputs, changes, interfaces, records and organizational interfaces within SNC 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 SNC 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 SNC design organization or by other organizations so authorized by SNC.

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

## 3.1 Design Verification

SNC design processes provide for design verification to ensure that items and activities subject to the provisions of this NDQAM 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.

SNC 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

SNC 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 NDQAP 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. SNC 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 designated SNC and supplier management and listed in a software register for identifying active quality related applications. This NDQAP 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 NDQAP 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, SNC commits to compliance with NQA-1-1994, Basic Requirement 3, and Supplement 3S-1, the subsurface investigations requirements contained in Subpart 2.20 and the standards for computer software contained in Subpart 2.7.

# SECTION 4 PROCUREMENT DOCUMENT CONTROL

SNC 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 SNC'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, SNC 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, SNC 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, SNC procurement documents may allow the supplier to work under the SNC 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 SNC 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

SNC 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 NDQAM as described in the NDQAM. Such documents are prepared and controlled according to Part II, Section 6. In addition, means are provided for dissemination to the staff of 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

The SNC 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, SNC commits to compliance with NQA-1-1994, Basic Requirement 5.

# SECTION 6 DOCUMENT CONTROL

SNC 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 this NDQAM 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 shall be reviewed for adequacy by qualified persons other than the preparer. During the ESP or construction phase, procedures for design, construction, and installation are also reviewed by the quality assurance organization or a contractor quality assurance organization, as assigned by contract, 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 PRB 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, SNC commits to compliance with NQA-1-1994, Basic Requirement 6 and Supplement 6S-1.

# SECTION 7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

SNC 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

SNC 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. SNC may utilize audits conducted by outside organizations for supplier qualification provided that the scope and adequacy of the audits meet SNC 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, SNC 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

  – SNC 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 SNC 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 SNC 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 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 Service (IAS);
- Laboratory Accreditation Service (L-A-B); or
- 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, SNC considers documents that may be stored in approved electronic media under SNC 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 SNC to support operations. The SNC 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 SNC 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 SNC documents to provide the necessary assurance an item will perform satisfactorily in service. The SNC 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.

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

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

SNC 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, SNC commits to compliance with NQA-1-1994, Basic Requirement 8 and Supplement 8S-1.

# SECTION 9 CONTROL OF SPECIAL PROCESSES

SNC 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, SNC commits to compliance with NQA-1-1994, Basic Requirement 9 and Supplement 9S-1.

# SECTION 10 INSPECTION

SNC 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 shall be 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, inservice, 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: reject, acceptance, and reinspection 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

SNC 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 Commitment / Exceptions

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

    - Subpart 2.4 commits SNC 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. SNC 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 contained in Part II, Section 12.

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

# SECTION 11 TEST CONTROL

SNC has established the necessary measures and governing procedures to demonstrate that items subject to the provisions of this NDQAM 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, retesting 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 preoperational 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 this NDQAM. 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, SNC commits to compliance with NQA-1-1994, Basic Requirement 11 and Supplement 11S-1.

## 11.2 NQA-1-1994 Commitment for Computer Program Testing

SNC 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 SNC 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

SNC 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 shall be controlled as described in Part II, Section 7.

## 12.1 Installed Instrument and Control Devices

For the operations phase of the facilities, SNC 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, SNC 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

SNC 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 shall be used and controlled as necessary to ensure safe and adequate handling. Special handling tools and equipment shall be 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 shall be experienced or trained in the use of the equipment. During the operational phase, SNC 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, SNC 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 cleanness 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, SNC commits to compliance with NQA-1-1994, Basic Requirement 13 and Supplement 13S-1. SNC 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, SNC 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 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 Regulatory Guide 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

SNC 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 this NDQAM 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, SNC commits to compliance with NQA-1-1994, Basic Requirement 14.

# SECTION 15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

SNC 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 SNC procedures, regulatory requirements, and industry standards.

## 15.1 Reporting Program

SNC has appropriate interfaces between the NDQAP 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 ESP/COL and construction and 10 CFR 21 during operations.

## 15.2 NQA-1-1994 Commitment

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

# SECTION 16 CORRECTIVE ACTION

SNC has established the necessary measures and governing procedures to promptly identify, control, document, classify and correct conditions adverse to quality. SNC 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. SNC 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, SNC 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, SNC may delegate specific responsibilities for corrective actions but SNC maintains responsibility for the effectiveness of corrective action measures.

## 16.1 Interface with the Reporting Program

SNC has appropriate interfaces between the NDQAP 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 Part 21 during ESP/COL design and construction, and 10 CFR 21 during operations.

## 16.2 NQA-1-1994 Commitment

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

# SECTION 17 QUALITY ASSURANCE RECORDS

SNC shall establish 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 SNC 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 start-up. 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, SNC complies with NRC guidance Generic Letter 88-18, “Plant Record Storage on Optical Disks.” SNC 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. Periodic inspections of systems, software applications and media are performed to ensure the retrievability, integrity and retention period of electronic records.

## 17.3 NQA-1-1994 Commitment / Exceptions

In establishing provisions for records, SNC 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 SNC, 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

SNC has established the necessary measures and governing procedures to implement audits to verify that activities covered by this NDQAM 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 Nuclear 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 Development Quality Assurance Project Manager.

SNC 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 NDQAM. 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 Development, 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 this NDQAM; regulations and license provisions; provisions for training, retraining, qualification, and performance of personnel performing activities covered by this NDQAM; 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, SNC commits to compliance with NQA-1-1994, Basic Requirement 18 and Supplement 18S-1.

# PART III NONSAFETY-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 NDQAM 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 nonsafety-related SSCs and related activities, including the identification of exceptions to the QA Program described in Part II, Sections 1 through 18 taken for nonsafety-related SSCs.

### 1.1 Organization

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

### 1.2 QA Program

SNC QA requirements for nonsafety-related SSCs are established in the NDQAM 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

SNC 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 SNC 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

SNC 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 shall provide an appropriate degree of guidance to the personnel performing the activity to achieve acceptable functional performance of the SSC.

## 1.6 Document Control

SNC 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

SNC 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

SNC 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

SNC 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

SNC 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 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

SNC 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)

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

## 1.13 Handling, Storage, and Shipping

SNC 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

SNC 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

SNC 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

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

## 1.17 Records

SNC 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

SNC employs measures for line management to periodically review and document the adequacy of the process, including 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 Nonsafety-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.

- SNC 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.

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

- SNC implements the 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 and the other quality assurance standards which have been selected to supplement and support the SNC NDQAM. SNC complies with these standards to the extent described or referenced. Commitment to a particular Regulatory Guide or standard does not constitute a commitment to Regulatory Guides 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.

SNC 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.

SNC 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.

SNC 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).

SNC 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.

SNC commits to this guidance and identifies conformance with it in FSAR Chapter 1, Appendix 1AA.

**Regulatory Guide 1.37**, Revision 1, March 2007 – Quality Assurance 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.

SNC 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

SNC 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)**

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