CHAPTER 13
CONDUCT OF OPERATIONS

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CHAPTER 13
CONDUCT OF OPERATIONS

13.1 ORGANIZATIONAL STRUCTURE OF APPLICANT

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

STD DEP 1.1-1 DCD Subsection 13.1.1, Combined License Information, is renumbered in this FSAR section to 13.1.4.

VCS COL 13.1-1 This section describes organizational positions for VCSNS Units 2 and 3 SCE&G and associated functions and responsibilities. The position titles used in the text may be generic and describe the function of the position. Table 13.1-201, Generic Position/Site Specific Position Cross Reference, provides a cross-reference to identify the corresponding site-specific position titles.

13.1.1 MANAGEMENT AND TECHNICAL SUPPORT ORGANIZATION

SCE&G has over 35 years of experience in the design, construction, and operation of nuclear generating stations. SCE&G has designed, constructed, and operates V.C. Summer Nuclear Station (VCSNS) Unit 1.

13.1.1.1 Design, Construction, and Operating Responsibilities

The President and Chief Operating Officer has overall responsibility for functions involving design, construction, and operation. Line responsibilities for those functions are assigned to the Executive Vice President-Generation (EVPG) through the Senior Vice President Nuclear Operations (SVPNO) via the Vice President, New Nuclear Deployment (VPNND) (Figure 13AA-201) for the design and construction of new nuclear plants. At the appropriate time after construction, direct control of nuclear plant operation is assigned to the site executive in charge of VCSNS, the Vice President Nuclear Operations, (VPNO), and his direct reports. The first priority and responsibility of each member of the nuclear staff throughout the life of the plant is nuclear safety. Decision-making for station activities is performed in a conservative manner with expectations of this core value regularly communicated to appropriate personnel by management interface, training, and station directives.

Lines of authority, decision-making, and communication are clearly and unambiguously established to enable the understanding of the various project members, including contractors, that utility management is in charge and directs the project. Key executive and corporate management positions, functions, and responsibilities are discussed in Subsection 13.1.1.3.1. The corporate organization is shown in Figure 13.1-203. The management and technical support

organization for design, construction, and preoperational activities is addressed in Appendix 13AA.

13.1.1.2 Provisions for Technical Support Functions

Before beginning preoperational testing, the VPNND and the VPNO will establish the organization of managers, functional managers, supervisors, and staff sufficient to perform required functions for support of safe plant operation. These functions include the following:

- Nuclear, mechanical, structural, electrical, thermal-hydraulic, metallurgical and material, and instrumentation and controls engineering
- Safety review
- Quality assurance, audit and surveillance
- Plant chemistry
- Radiation protection
- Fueling and refueling operations support
- Training
- Maintenance support
- Operations support
- Fire protection
- Emergency response organization
- Outside contractual assistance

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

Physical separation of units helps to minimize wrong-unit activities. In addition station procedures and programs include such features as tagging programs, procedure adherence requirements, and training to provide operating staff with methods to minimize human error.

13.1.1.2.1 Engineering

The engineering department consists of plant support (system) engineering, design engineering, and materials and procurement engineering. These groups are responsible for performing the classical design activities as well as providing engineering expertise in other areas.

Each of the engineering groups has a functional manager who reports to the General Manager, Engineering Services (GMES).

The engineering department is responsible for:

- Supporting plant operations in the engineering areas of mechanical, structural, electrical, thermal-hydraulic, metallurgy and materials, electronic, instrument and control, and fire protection. Priorities for support activities are established based on input from the plant manager with emphasis on issues affecting safe operation of the plant.
- Engineering programs.
- Supporting procurement, chemical and environmental analysis and maintenance activities in the plant as requested by the plant manager.
- Performing design engineering of plant modifications.
- Maintaining the design basis by updating the record copy of design documents as necessary to reflect the actual as-built configuration of the plant.
- Accident and transient analyses.
- Human Factors Engineering design process.
- Audit, surveillance, and evaluation of nuclear division suppliers.
- Procurement and materials storage.

Reactor engineering, part of design engineering, provides technical assistance in the areas of core design, core operations, core thermal limits, and core thermal hydraulics.

Engineering work may be contracted to and performed by outside companies in accordance with the quality assurance (QA) program.

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

13.1.1.2.2 Safety Review

Review and audit activities are addressed in Chapter 17. Oversight of safety review of station programs, procedures, and activities is performed by a plant safety review committee and a nuclear safety review committee.

Personnel who perform safety reviews are shared between units.

13.1.1.2.3 Quality Assurance

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

- Maintaining the QAPD.
- Coordinating the development of audit schedules.
- Supporting general QA indoctrination and training for the nuclear station personnel.

The QA organization is independent of the station management line organization. Quality control (QC) inspection/testing activities to support plant operation, maintenance, and outages are independent of the station management line organization.

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

13.1.1.2.4 Chemistry

A chemistry program is established to monitor and control the chemistry of various plant systems such that corrosion of components and piping is minimized and radiation from corrosion byproducts is kept to levels that allow operations and maintenance with radiation doses as low as reasonably achievable.

The functional manager in charge of chemistry is responsible to the General Manager, Nuclear Support Services (GMNSS) for maintaining chemistry programs and for monitoring and maintaining the water chemistry of plant

systems. The staff of the chemistry department consists of laboratory technicians, support personnel, and supervisors who report to the functional manager in charge of chemistry.

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

13.1.1.2.5 Radiation Protection

A radiation protection (RP) program is established to protect the health and safety of the surrounding public and personnel working at the plant. The RP program is described in Chapter 12 of the FSAR. The program includes:

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

The Health Physics/Safety (RP) department is staffed by radiation protection technicians, support personnel, and supervisors who report to the functional manager in charge of radiation protection. To provide sufficient organizational freedom from operating pressures, the manager in charge of radiation protection reports directly to the GMNSS.

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

13.1.1.2.6 Fueling and Refueling Support

The function of fueling and refueling is performed by a combination of personnel from various departments including operations, maintenance, radiation protection, engineering, and reactor technology vendor or other contractor staff. Initial fueling and refueling operations are a function of the Planning/Outage support

organization. The manager in charge of Planning/Outage support is responsible for planning and scheduling outages and for refueling support and reports to the General Manager Nuclear Plant Operations (GMNPO).

Personnel resources of the outage support organization are shared between units. A single management organization oversees outage support work associated with Units 2 and 3.

13.1.1.2.7 Training

The training department is responsible for providing training programs that are established, maintained, and implemented in accordance with applicable plant administrative directives, regulatory requirements, and company operating policies so that station personnel can meet the performance requirements of their jobs in operations, maintenance, technical support, and emergency response. The objective of training programs is to provide qualified personnel to operate and maintain the plant in a safe and efficient manner and to provide compliance with the license, technical specifications, and applicable regulations. The training department's responsibilities encompass operator initial license training, requalification training, and plant staff training as well as the plant access training (general employee training) course and radworker training. The functional manager of nuclear training is independent of the operating line organization to provide for independence from operating pressures. Nuclear plant training programs are described in Section 13.2 of the FSAR.

Personnel resources of the training department are shared between units. A single management organization provides oversight of station training activities.

13.1.1.2.8 Maintenance Support

In support of maintenance activities, planners, schedulers, and parts specialists prepare work packages, acquire proper parts, and develop procedures that provide for the successful completion of maintenance tasks. Maintenance tasks are integrated into the station schedule for evaluation of operating or safe shutdown risk elements and to provide for efficient and safe performance. The manager in charge of maintenance reports to the GMNPO.

Personnel resources of the maintenance support organization are shared between units. A single management organization oversees the function of maintenance support for Units 2 and 3.

13.1.1.2.9 Operations Support

The operations support function is provided under the direction of the manager in charge of operations. Operations support includes the following programs:

- Operations procedures
- Operations surveillances

- Equipment tagging
- Fire protection testing and surveillance

13.1.1.2.10 Fire Protection

VCS COL 13.1-1
VCS COL 9.5-1

The station is committed to maintaining a fire protection program as described in Subsection 9.5.1.8.

The VPNO has overall responsibility for fire protection. Assigning the responsibilities at that level provides the authority to obtain the resources and assistance necessary to meet fire protection program objectives, resolve conflicts, and delegate appropriate responsibility to fire protection staff. The relationship of the VPNO to other plant staff personnel with fire protection responsibilities is shown on Figure 13.1-201. Fire protection for the facility is organized and administered through the fire protection program staff by the engineer in charge of fire protection. The fire protection program staff is made up of members from operations, design engineering, plant support engineering, licensing, and nuclear training. The engineer in charge of fire protection reports to the GMES. The GMES reports directly to the VPNO.

Inspections of fire protection systems and functions, the operations-related fire protection program activities and development and implementation of the fire protection program including development of fire protection procedures are the responsibility of the manager in charge of operations who reports to the GMNPO.

Site personnel and the fire brigade training is the responsibility of the Manager, Nuclear Training. The Manager, Nuclear Training reports to the GMNSS. The GMNSS reports directly to the VPNO.

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

13.1.1.2.11 Emergency Response Organization

VCS COL 13.1-1

The emergency response organization is a matrixed organization composed of personnel who have the experience, training, knowledge, and ability necessary to implement actions to protect the public in the case of emergencies. Managers and station personnel assigned positions in the emergency organization are responsible for supporting the emergency preparedness organization and emergency plan as required. The staff members of the emergency planning organization administrate and orchestrate drills and training to maintain qualification of station staff members and develop procedures to guide and direct the emergency organization during an emergency. The functional manager in

charge of emergency preparedness reports to the GMNSS. The VCSNS emergency response organization is described in the Emergency Plan.

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

13.1.1.2.12 Outside Contractual Assistance

Contract assistance with vendors and suppliers of services not available from organizations established as part of utility staff is provided by the Business and Financial Services (BFS) organization. Personnel in the BFS organization perform the necessary functions to contract vendors of special services to perform tasks for which utility staff does not have the experience or equipment required. The functional manager in BFS reports to the VPNO.

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

13.1.1.3 Organizational Arrangement

13.1.1.3.1 Executive Management Organization

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

13.1.1.3.1.1 Chief Executive Officer

The Chief Executive Officer (CEO) has the ultimate responsibility for the safe and reliable operation of each nuclear unit owned and/or operated by SCE&G. The CEO is responsible for the overall direction and management of the corporation, and the execution of the company policies, activities, and affairs. The CEO is assisted by the EVPG (also the chief nuclear officer), and other executive staff in the nuclear division of the corporation.

13.1.1.3.1.2 President and Chief Operating Officer

The President and Chief Operating Officer (COO) is responsible for directing SCE&G's core operational business including the fossil, hydroelectric, and nuclear generation. The COO reports to the CEO.

13.1.1.3.1.3 Executive Vice President - Generation (EVPG)/Chief Nuclear Officer

The EVPG reports to the CEO through the COO. The EVPG/Chief Nuclear Officer (CNO) is responsible for electric generation and overall plant nuclear safety and takes the measures needed to provide acceptable performance of the staff in operating, maintaining, and providing technical support to the nuclear site. The EVPG/CNO delegates authority and responsibility for the operation and support of the site through the SVPNO. It is the responsibility of the EVPG/CNO to provide guidance and direction such that safety-related activities, including engineering, construction, operations, operations support, maintenance, and planning, are performed following the guidelines of the quality assurance program.

The EVPG/CNO is responsible for new nuclear plant licensing, design, and construction through the SVPNO.

13.1.1.3.1.4 Senior Vice President Nuclear Operations (SVPNO)

The SVPNO reports to the EVPG. The SVPNO is responsible for the safe operation of all current nuclear plant operations along with the design, licensing, and construction of new nuclear plants. The SVPNO delegates authority and responsibility for the operation and support of the operating nuclear plants through the VPNO. The SVPNO is responsible for new nuclear plant licensing, design, and construction via the VPNND who maintains control of nuclear plant construction through construction completion.

13.1.1.3.1.5 Vice President Nuclear Operations (VPNO)

The VPNO reports to the SVPNO. The VPNO is directly responsible for management and direction of activities associated with the efficient, safe, and reliable operation of the nuclear station. The VPNO is assisted in management and technical support activities by the GMNPO, GMES, GMNSS, and the General Manager Organizational Effectiveness (GMOE). The VPNO is responsible for the site fire protection program through the engineer in charge of fire protection. See Subsection 13.1.1.2.10.

13.1.1.3.2 Site Support Organization

13.1.1.3.2.1 General Manager Engineering Services (GMES)

The GMES is the onsite lead position for engineering and reports to the VPNO. The GMES is responsible for engineering activities related to the operation or maintenance of the plant and design change implementation support activities and other functions described in Subsection 13.1.1.2.1.

The GMES directs functional managers responsible for plant support (system) engineering, design engineering, and materials and procurement engineering.

13.1.1.3.2.1.1 Functional Manager In Charge of Plant Support (System) Engineering

The functional manager in charge of plant support engineering reports to the GMES and supervises a technical staff of engineers and other engineering specialists and coordinates their work with that of other groups. The functional manager in charge of plant support engineering is responsible for providing direction and guidance to system engineers as follows:

- Monitoring the efficiency and proper operation of balance of plant and reactor systems.
- Planning programs for improving equipment performance, reliability, or work practices.
- Overseeing operational tests and analyzing the results.
- Maintaining engineering programs such as ISI/IST, valve testing, maintenance rule, piping erosion/corrosion, and equipment reliability.

13.1.1.3.2.1.2 Functional Manager In Charge of Design Engineering

The functional manager in charge of design engineering reports to the GMES and is responsible for:

- Resolving design issues.
- Onsite development of design-related change packages and plant modifications.
- Implementing effective project management methods and procedures, including cost controls, for implementation of modifications and construction activities.
- Managing contractors who may perform modification or construction activities.
- Maintaining configuration control program.
- Reactor engineering and core design as discussed in Subsection 13.1.1.2.1.
- Developing and maintaining accident analysis activities and programs.

13.1.1.3.2.1.3 Functional Manager In Charge of Materials and Procurement Engineering (M&PE)

The functional manager in charge of M&PE is responsible for providing sufficient and proper materials to support the material needs of the plant and performing related activities including:

- Procedure development
- Procurement and Materials storage
- Supply system database maintenance
- Meeting quality assurance and external audit requirements

The functional manager in charge of M&PE is also responsible for site purchasing. The functional manager in charge of M&PE reports to the GMES.

13.1.1.3.2.1.4 Engineer in Charge of Fire Protection

VCS COL 13.1-1
VCS COL 9.5-1

The engineer in charge of fire protection is responsible for the following:

- Fire protection program requirements, including consideration of potential hazards associated with postulated fires, knowledge of building layout, and system design.
- Post-fire shutdown capability.
- Design, maintenance, surveillance, and QA of fire protection features (e.g., detection systems, suppression systems, barriers, dampers, doors, penetration seals and fire brigade equipment.
- Oversight of fire prevention activities (administrative controls and training).
- Oversight of fire brigade organization and training.
- Pre-fire planning including review and updating of pre-fire plans at least every two years.

The engineer in charge of fire protection reports to the GMES who has ultimate responsibility for the fire protection program of the plant. Additionally, the engineer in charge of fire protection works with the operations support supervisors to coordinate activities and program requirements with the operations department. In accordance with Regulatory Guide 1.189, the engineer in charge of fire protection is a graduate of an engineering curriculum of accepted standing and has completed not less than six years of engineering experience, three of which were in a responsible position in charge of fire protection engineering work. The

engineer in charge of fire protection has training and experience in nuclear plant safety or has personnel available to assist him who have training and experience in nuclear plant safety.

VCS COL 13.1-1 13.1.1.3.2.2 General Manager Nuclear Support Services (GMNSS)

The GMNSS is responsible for support functions including training, chemistry, radiation protection, emergency preparedness, and licensing. The GMNSS delegates authority and responsibility through managers in charge of each of these support functions. The GMNSS reports to the VPNO.

13.1.1.3.2.2.1 Functional Manager In Charge of Training (Nuclear Training)

VCS COL 13.1-1
VCS COL 18.10-1 The functional manager in charge of nuclear training is responsible for training programs at the site required for the safe and proper operation and maintenance of the plant including:

- Operations training programs
- Plant staff training programs
- Plant access training
- Radiation worker training
- Fire brigade training

The functional manager in charge of nuclear training may seek assistance from other departments within the company or outside specialists such as educators and manufacturers. The functional manager in charge of training ensures individuals providing fire brigade training are qualified by knowledge, suitable training, and experience for such work, and that coordination with the engineer in charge of fire protection is maintained. The functional manager in charge of nuclear training supervises a staff of training supervisors who coordinate the development, preparation, and presentation of training programs for nuclear plant personnel and reports directly to the GMNSS.

VCS COL 13.1-1 13.1.1.3.2.2.2 Functional Manager In Charge of Plant Licensing (Nuclear Licensing)

The functional manager in charge of nuclear licensing is responsible for providing a coordinated focus for interface with the NRC, and for technical direction and

administrative guidance to the licensing staff for licensing activities including the following:

- Developing licensee event reports and responding to notices of violations.
- Writing/submitting operating license and technical specification amendments and updating the FSAR.
- Tracking commitments and answering generic letters.
- Monitoring industry issues.
- Preparing station for special NRC inspections, interfacing with NRC inspectors, and interpreting NRC regulations.
- Maintaining the licensing basis.
- Probabilistic risk assessment studies.

The functional manager in charge of nuclear licensing reports to the GMNSS.

13.1.1.3.2.2.3 Functional Manager In Charge of RP (Health Physics/ Safety - HPS)

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

- Managing the RP organization.
- Establishing, implementing, and enforcing the RP program.
- Providing RP input to facility design and work planning.
- Tracking and analyzing trends in radiation work performance and taking necessary actions to correct adverse trends.
- Supporting the plant emergency preparedness program and assigning emergency duties and responsibilities within the RP organization.
- Delegating authority to appropriate RP staff to stop work or order an area evacuated (in accordance with approved procedures) when, in his or her judgment, the radiation conditions warrant such an action and such actions are consistent with plant safety.

The functional manager in charge of HPS reports to the GMNSS and is assisted by the supervisors in charge of RP.

13.1.1.3.2.2.3.1 Supervisor of Radwaste Operations

The supervisor of radwaste operations is responsible for developing, implementing, directing, and coordinating the radwaste program. The supervisor of radwaste operations reports to the manager in charge of HPS. The supervisor of radwaste operations supervises radwaste operators assigned to the radwaste area.

13.1.1.3.2.2.3.2 Supervisor In Charge of RP

The supervisors in charge of RP are responsible for carrying out the day-to-day operations and programs of the RP department as listed in Subsection 13.1.1.2.5.

Supervisors in charge of RP report to the functional manager in charge of HPS.

13.1.1.3.2.2.3.3 RP Technicians

RP technicians directly carry out responsibilities defined in the RP program and procedures. In accordance with technical specifications, an RP technician is on site whenever there is fuel in the vessel. See Table 13.1-202.

The following are some of the duties and responsibilities of the RP technicians:

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

- Provide personnel monitoring and bioassay services.
- Maintain, prescribe, and oversee the use of respiratory protection equipment.
- Perform assigned emergency response duties.

13.1.1.3.2.2.4 Functional Manager In Charge of Chemistry

The functional manager in charge of chemistry is responsible for developing, implementing, directing, and coordinating the chemistry, radiochemistry and nonradiological environmental monitoring programs. This area includes overall operation of the hot lab, cold lab, and nonradiological environmental monitoring. The functional manager in charge of chemistry is responsible for developing, administering, and implementing procedures and programs that provide for effective compliance with environmental regulations. The functional manager in charge of chemistry reports to the GMNSS and directly supervises the chemistry supervisors and chemistry technicians as assigned.

13.1.1.3.2.2.5 Functional Manager In Charge of Emergency Services

The functional manager in charge of emergency services is responsible for:

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

The functional manager in charge of emergency services reports to the GMNSS.

13.1.1.3.2.3 General Manager, Organizational Effectiveness (GMOE)

The GMOE reports to the VPNO and is responsible for support functions including quality services, nuclear protection services (security), and organizational development and performance.

13.1.1.3.2.3.1 Functional Manager In Charge of Security (Nuclear Protection Services)

The functional manager in charge of nuclear protection services is responsible for:

- Implementing and enforcing security directives, procedures, and instructions received from appropriate authorities.

- Day-to-day supervision of the security guard force.
- Administration of the security program.

The functional manager in charge of nuclear protection services reports directly to the GMOE.

13.1.1.3.2.3.2 Functional Manager In Charge of Organizational Development and Performance (OD&P)

The responsibilities of the functional manager in charge of OD&P includes establishing processes and procedures to facilitate identification and correction of conditions adverse to quality and implement corrective actions. The functional manager in charge of OD&P also manages the Operating Experience and Human Performance programs. The functional manager in charge of OD&P reports to the GMOE.

13.1.1.3.2.3.3 Functional Manager In Charge of Quality Assurance (Quality Systems)

The functional manager in charge of quality systems is responsible for those functions described in Subsection 13.1.1.2.3 and reports to the GMOE. Responsibilities of the functional manager in charge of quality systems are fulfilled through the supervisors and staff of the quality systems organization.

13.1.1.3.2.4 Manager In Charge of Site Business (BFS)

The manager in charge of site business is responsible for business and financial services and project management activities and reports to the VPNO.

13.1.1.4 Qualifications of Technical Support Personnel

VCS COL 13.1-1
VCS COL 18.6-1

The qualifications of managers and supervisors of the technical support organization meet the qualification requirements in education and experience for those described in ANSI/ANS-3.1-1993 (Reference 201) as endorsed and amended by Regulatory Guide 1.8.

13.1.2 OPERATING ORGANIZATION

VCS COL 13.1-1

13.1.2.1 Plant Organization

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

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

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

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

- Interface directly with RP staff to integrate RP measures into plant procedures and design documents and into the planning, scheduling, conduct, and assessment of operations and work.
- Notify RP personnel promptly when RP problems occur or are identified, take corrective actions, and resolve deficiencies associated with operations, procedures, systems, equipment, and work practices.
- Ensure department personnel receive training on RP and periodic retraining, in accordance with 10 CFR Part 19 so that they are properly instructed and briefed for entry into restricted areas.
- Periodically observe and correct, as necessary, radiation worker practices.
- Support RP management in implementing the RP program.
- Maintain exposures to site personnel ALARA.

13.1.2.1.1 General Manager, Nuclear Plant Operations (GMNPO/Plant Manager)

The GMNPO reports to the VPNO, is responsible for overall safe operation of the plant, and has control over those onsite activities necessary for safe operation and maintenance of the plant including the following:

- Operations

- Maintenance and modification
- Planning/outage management

Additionally, the GMNPO has overall responsibility for occupational and public radiation safety. RP responsibilities of the GMNPO are consistent with the guidance in Regulatory Guide 8.8 and Regulatory Guide 8.10 including the following:

- Provide management RP policy throughout the VCSNS Units 2 and 3 organization.
- Provide an overall commitment to RP by the VCSNS Units 2 and 3 organization.
- Interact with and support the manager in charge of RP on implementation of the RP program.
- Support identification and implementation of cost-effective modifications to plant equipment, facilities, procedures, and processes to improve RP controls and reduce exposures.
- Establish plant goals and objectives for RP.
- Maintain exposures to site personnel ALARA.
- Support timely identification, analysis, and resolution of RP problems (e.g., through the plant corrective action program).
- Provide for training to site personnel on RP in accordance with 10 CFR Part 19.
- Establish an ALARA Committee with delegated authority from the plant manager that includes, at a minimum, the managers in charge of operations, maintenance, RP, and representatives from engineering to help provide for effective implementation of line organization responsibilities for maintaining worker doses ALARA.

The line of succession of authority and responsibility for overall operations in the event of unexpected events of a temporary nature is:

a. Manager in charge of operations

b. Manager in charge of plant maintenance

c. Supervisor in charge of operations

As described in Subsection 13.1.2.1.1.3.2.1, the manager in charge on-shift (the shift supervisor) is the GMNPO's direct representative for the conduct of

operations. The succession of authority includes the authority to issue standing or special orders as required.

13.1.2.1.1.1 Manager In Charge of Maintenance

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

The manager in charge of plant maintenance is responsible for the performance of preventive and corrective maintenance and modification activities required to support operations, including compliance with applicable standards, codes, specifications, and procedures. The manager in charge of plant maintenance reports to the GMNPO and provides direction and guidance to the maintenance discipline supervisors and maintenance support staff.

13.1.2.1.1.1.1 Maintenance Discipline Supervisors

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

13.1.2.1.1.1.1.1 Maintenance Discipline Foremen

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

13.1.2.1.1.2 Manager in Charge of Planning/Outage

The manager in charge of planning/outage support is responsible for:

- Planning and scheduling refueling, maintenance, and forced outages.
- Providing direction and guidance to staff members in establishing outage activities.

- Minimizing shutdown risk during outages with proper planning and preparation.
- Directing activities during outages to provide safe, efficient, and effective outages.
- Preparing work packages.

The manager in charge of planning/outage reports to the GMNPO. See Subsection 13.1.1.2.6.

13.1.2.1.1.3 Operations Department

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

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

The operations department maintains sufficient licensed and senior licensed operators to staff the control room continuously using a crew rotation system. The operations department is under the authority of the manager in charge of operations, who through the operations supervisor, directs the day-to-day operation of the plant.

Specific duties, functions, and responsibilities of key shift members are discussed in Subsections 13.1.2.1.1.3.2.1 through 13.1.2.1.1.3.2.1.4 and in plant administrative procedures and the technical specifications. The minimum shift manning requirements are shown in Table 13.1-202.

Some resources of the operations organization are shared between units. Administrative and support personnel perform their duties on either unit. Additional operations staff is required to fill the on-shift staffing requirements of the additional units. To operate or supervise the operation of more than one unit, an operator (senior reactor operator [SRO] or reactor operator [RO]) must hold an appropriate, current license for each unit. A single management organization oversees the operations group for Units 2 and 3. See Table 13.1-201 for estimated number of staff in the operations department for single or multiple units.

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

Manager In Charge of Operations

The manager in charge of operations has overall responsibility for the day-to-day operation of the plant. The manager in charge of operations reports to the GMNPO and is assisted by the operations supervisor and operations support supervisor. The manager in charge of operations or the operations supervisor is SRO licensed.

13.1.2.1.1.3.1 Operations Support Supervisor

The operations support supervisor, under the direction of the manager in charge of operations, is responsible for:

- Directing and guiding plant operations support activities in accordance with the operating license, technical specifications, and written procedures.
- Providing supervision of operating support personnel, for operations support activities, and coordination of support activities.
- Coordinating operations-related fire protection program activities with the engineer in charge of fire protection.

The operations support supervisor is assisted by the operations procedures group, operations scheduling, and other support personnel. In the absence of the manager in charge of operations or operations supervisor, the operations support supervisor may assume the duties and responsibilities of either of these positions.

13.1.2.1.1.3.2 Operations Supervisor

The operations supervisor, under the direction of the manager in charge of operations, is responsible for:

- Shift plant operations in accordance with the operating license, technical specifications, and written procedures.
- Providing supervision of operating shift personnel for operational shift activities including those of emergency and firefighting teams.
- Coordinating with the operations support supervisor and other plant staff sections.
- Verifying that nuclear plant operating records and logs are properly prepared, reviewed, and evaluated.

The operations supervisor is assisted in these areas by the shift supervisors who direct the operating shift personnel. The operations supervisor reports to the manager in charge of operations and in the absence of the manager in charge of

operations or operations support supervisor, may assume the duties and responsibilities of either of these positions.

13.1.2.1.1.3.2.1 Shift Supervisor

The shift supervisor is a licensed SRO responsible for the control room command function, and is the GMNPO's direct management representative for the conduct of operations. As such, the shift supervisor has the responsibility and authority to direct the activities and personnel onsite as required to:

- Protect the health and safety of the public, the environment, and personnel on the plant site.
- Protect the physical security of the plant.
- Prevent damage to site equipment and structures.
- Comply with the operating license.

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

- Directing nuclear plant employees to report to the plant for response to potential and real emergencies.
- Seeking the advice and guidance of the shift technical advisor and others in executing the duties of the shift supervisor whenever in doubt as to the proper course of action.
- Promptly informing responsible supervisors of significant actions affecting their responsibilities.
- Participating in operator training, retraining, and requalification activities from the standpoint of providing guidance, direction, and instruction to shift personnel.

The shift supervisor is assisted in carrying out the above duties by the control room supervisors and the operating shift personnel. The shift supervisor reports to the operations supervisor.

13.1.2.1.1.3.2.1.1 Control Room Supervisor

The control room supervisor is a licensed SRO. The primary function of the control room supervisor is to administratively support the shift supervisor such that the "command function" is not overburdened with administrative duties and to supervise the licensed and non-licensed operators in carrying out the activities directed by the shift supervisor. Other duties include:

- Being aware of maintenance and testing performed during the shift.
- Shutting down the reactor if conditions warrant this action.
- Informing the shift supervisor and other station management in a timely manner of conditions that may affect public safety, plant personnel safety, plant capacity or reliability, or cause a hazard to equipment.
- Initiating immediate corrective action as directed by the shift supervisor in any upset situation until assistance, if required, arrives.
- Participating in operator training, retraining, and requalification activities from the standpoint of providing guidance, direction, and instruction to shift personnel.

The control room supervisor reports directly to the shift supervisor.

13.1.2.1.1.3.2.1.2 Reactor Operator

The ROs are licensed reactor operators and normally report to the control room supervisor or shift supervisor. They are responsible for routine plant operations and performance of major evolutions at the direction of the supervisor in charge on-shift. The RO duties include:

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

Whenever there is fuel in the reactor vessel, at least one RO is in the control room monitoring the status of the unit at the main control panel. The RO assigned to the main control panel is designated the “operator at the controls” and conducts monitoring and operating activities in accordance with the guidance set forth in Regulatory Guide 1.114, which is further described in Subsection 13.1.2.2, Conduct of Operations.

13.1.2.1.1.3.2.1.3 Non-Licensed Operator (Auxiliary Operator)

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

- Assisting in plant startup, shutdown, surveillance, and emergency response by manually or remotely changing equipment operating conditions, placing equipment in service, or securing equipment from service at the direction of the reactor operator.

- Performing assigned tasks in procedures and checklists such as valve manipulations for plant startup or data sheets on routine equipment checks, and making accurate entries according to the applicable procedure, data sheet, or checklist.

- Assisting in training of new employees and for improvement and upgrading of their own performance by participating in the applicable sections of the training program.

13.1.2.1.1.3.2.1.4 Shift Technical Advisor

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

- Activities to monitor core power distribution and critical parameters.

- Activities to assist the operating shift with technical expertise during normal and emergency conditions.

- Evaluation of technical specifications, special reports, and procedural issues.

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

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

13.1.2.2 Conduct of Operations

Station operations are controlled and/or coordinated through the control room. Maintenance activities, surveillances, and removal from/return to service of structures, systems, and components affecting the operation of the plant may not commence without the approval of senior control room personnel. The rules of

practice for control room activities, as described by administrative procedures, which are based on Regulatory Guide 1.114, address the following:

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

In accordance with 10 CFR 50.54:

- Reactivity controls may be manipulated only by licensed operators and senior operators except as allowed for training under 10 CFR Part 55.
- Apparatus and mechanisms other than controls which may affect reactivity or power level of the reactor shall be operated only with the consent of the operator at the controls or the control room supervisor/shift supervisor.
- During operation of the facility in modes other than cold shutdown or refueling, a senior operator shall be in the control room and a licensed operator or senior operator shall be present at the controls.

13.1.2.3 Operating Shift Crews

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

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

13.1.2.4 Fire Brigade

The station is designed and the fire brigade organized to be dedicated when necessary with respect to firefighting activities. The fire brigade is organized to deal with fires and related emergencies that could occur. It consists of a fire brigade leader and a sufficient number of team members to be consistent with the equipment that must be put in service during a fire emergency. A sufficient number of trained and physically qualified fire brigade members are available on site during each shift. The fire brigade consists of at least five members on each shift. Members of the fire brigade are knowledgeable of building layout and system design. The assigned fire brigade members for any shift do not include the shift supervisor or any other members of the minimum shift operating crew necessary for safe shutdown of the unit. It does not include any other personnel required for other essential functions during a fire emergency. Fire brigade members for a shift are designated in accordance with established procedures at the beginning of the shift.

13.1.3 QUALIFICATIONS OF NUCLEAR PLANT PERSONNEL

VCS COL 18.6-1

13.1.3.1 Qualification Requirements

VCS COL 13.1-1

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

13.1.3.2 Qualifications of Plant Personnel

Résumés and/or other documentation of qualification and experience of initial appointees to appropriate management and supervisory positions are available for review by regulators upon request after position vacancies are filled.

STD DEP 1.1-1

13.1.4 COMBINED LICENSE INFORMATION ITEM

VCS COL 13.1-1

This COL item is addressed in Subsections 13.1.1 through 13.1.3 and Appendix 13AA.

13.1.5 REFERENCES

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

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

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

VCS COL 18.6-1
VCS COL 13.1-1

Table 13.1-201 (Sheet 1 of 4)
Generic Position/Site-Specific Position Cross-Reference

Nuclear Function	Function Position - ANSI/ANS-3.1-1993 section reference		Nuclear Plant Position (Site-Specific)	Expected Positions single unit	Expected additional positions 2nd unit
Executive management	chief executive officer		Chief Executive Officer	1*	-
	chief operating officer		President and Chief Operating Officer	1*	-
	chief nuclear officer		Executive Vice President, Generation/ CNO	1*	-
	executive, nuclear generation		Senior Vice President, Nuclear Operations	1*	-
			Vice President, Nuclear Plant Operations	1*	-
Nuclear support	executive, operations support		General Manager Nuclear Support Services	1*	-
			General Manager Organizational Effectiveness	1	-
Plant management	plant manager	4.2.1	General Manager Nuclear Plant Operations	1	-
Engineering	executive/manager	4.2.4	General Manager Engineering Services	1*	-
system engineering	functional manager	4.3.9	Manager, Plant Support Engineering	1*	-
	system engineer		System Engineer	16	12
engineering programs	functional manager/	4.3.9			-
	programs engineer		Programs Engineer	3	2
safety and engineering analysis	functional manager/ analysis engineer	4.3.9	Analysis Engineer	1	-
reactor engineering	functional manager	4.3.9	Supervisor, Design Engineering	1	-

VCS COL 18.6-1
VCS COL 13.1-1

Table 13.1-201 (Sheet 2 of 4)
Generic Position/Site-Specific Position Cross-Reference

Nuclear Function	Function Position - ANSI/ANS-3.1-1993 section reference		Nuclear Plant Position (Site-Specific)	Expected Positions single unit	Expected additional positions 2nd unit
	reactor engineer		Reactor Engineer	1	1
design engineering	functional manager	4.3.9	Manager, Design Engineering	1*	-
	design engineer		Design Engineer	11	6
Fire protection	supervisor	4.4	Fire Protection Engineer	1*	-
Maintenance	manager	4.2.3	Manager, Maintenance Services	1	-
instrumentation and control	functional manager	4.3.4	I&C/Plant Support Supervisor	1	-
	supervisor	4.4.7	Supervisor, Maintenance	5	-
	technician	4.5.3.3	Instrumentation and Control Technician	20	15
mechanical	functional manager	4.3.6	Supervisor Maintenance, Mechanical	1	-
	supervisor	4.4.9	Supervisor, Maintenance	5	-
	technician	4.5.7.2	Mechanic	30	15
electrical	functional manager	4.3.5	Supervisor Maintenance, Electrical	1	-
	supervisor	4.4.8	Supervisor, Maintenance	5	-
	technician	4.5.7.1	Electrician	20	10
support	functional manager	4.3	Supervisor, Maintenance	1	-
Operations	manager	4.2.2	Manager, Operations	1	-
operations, plant	functional manager	4.3.8	Operations Supervisor	1	1
operations, admin	functional manager	4.3.8	Operations Support Supervisor	1	-
operations, (on-shift)	functional manager	4.4.1	Shift Supervisor	5	5
	supervisor	4.4.2	Control Room Supervisor	5	5
	licensed operator	4.5.1	Reactor Operator	15	15

VCS COL 18.6-1
VCS COL 13.1-1

Table 13.1-201 (Sheet 3 of 4)
Generic Position/Site-Specific Position Cross-Reference

Nuclear Function	Function Position - ANSI/ANS-3.1-1993 section reference		Nuclear Plant Position (Site-Specific)	Expected Positions single unit	Expected additional positions 2nd unit
	non-licensed operator	4.5.2	Auxiliary Operator	25	25
	shift technical advisor	4.6.2	Shift Technical Advisor	5	5
Radiation protection	functional manager	4.3.3	Manager, HP and Safety Services	1*	-
	supervisor	4.4.6	Health Physics Supervisor	6	-
	technician	4.5.3.2	Health Physics Specialist	20	13
	ALARA specialist		Health Physics Specialist	3	2
Operations - rad waste	supervisor	4.4	Rad Waste Supervisor	1	-
Chemistry	functional manager	4.3.2	Manager Chemistry	1*	-
	supervisor	4.4.5	Chemistry Supervisor	2	-
	technician	4.5.3.1	Chemistry Specialist	12	8
Nuclear licensing	manager/functional manager	4.3	Manager, Nuclear Licensing	1*	-
	supervisor		Supervisor, Nuclear Licensing	2*	-
	licensing engineer		Licensing Engineer	1	1
Corrective action	functional manager	4.3	Supervisor, Corrective Action	1	-
	corrective action specialist		Corrective Action Specialist	4	1
Emergency preparedness	functional manager	4.3	Manager, Emergency Services	1*	-
	EP planner		Emergency Planning Specialist	2	-
Training	functional manager	4.3.1	Manager, Nuclear Training	1*	-
	supervisor ops trng	4.4.4	Operations Training Supervisor	1	1
	ops training instructor		Nuclear Training Instructor	6	2

VCS COL 18.6-1
VCS COL 13.1-1

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

Nuclear Function	Function Position - ANSI/ANS-3.1-1993 section reference		Nuclear Plant Position (Site-Specific)	Expected Positions single unit	Expected additional positions 2nd unit
	supervisor tech staff/ maint trng		Nuclear Craft/Technical Supervisor	1	-
	tech staff/maint instructors		Nuclear Technical Instructor	6	3
Purchasing, and contracts	functional manager	4.3	Manager, Business and Financial Services	1*	-
Security	functional manager	4.3	Manager, Nuclear Protection Services	1*	-
Planning and scheduling	functional manager	4.3	Manager, Planning/Outage	1	-
	supervisor	4.4	Supervisor Planning and Scheduling	1	-
Quality assurance	functional manager	4.3.7	Manager, Quality Systems	1*	-
	supervisor	4.4.13	Quality Assurance Supervisor	1	-
	QA auditor		Surveillance Specialist	3	3
	supervisor	4.4.13	Supervisor, Quality Control	1	-
	QC inspector		Inspector	4	2
Startup testing	supervisor	4.4.11	Startup Testing Supervisor	1	-
	startup test engineer		Startup Test Engineer	20	-
	supervisor	4.4.12	PT&O Support Supervisor	1	-
	preop test engineer		PT&O Engineer	6	-

*The number indicated is the total for the nuclear organization.

VCS COL 18.6-1
VCS COL 13.1-1

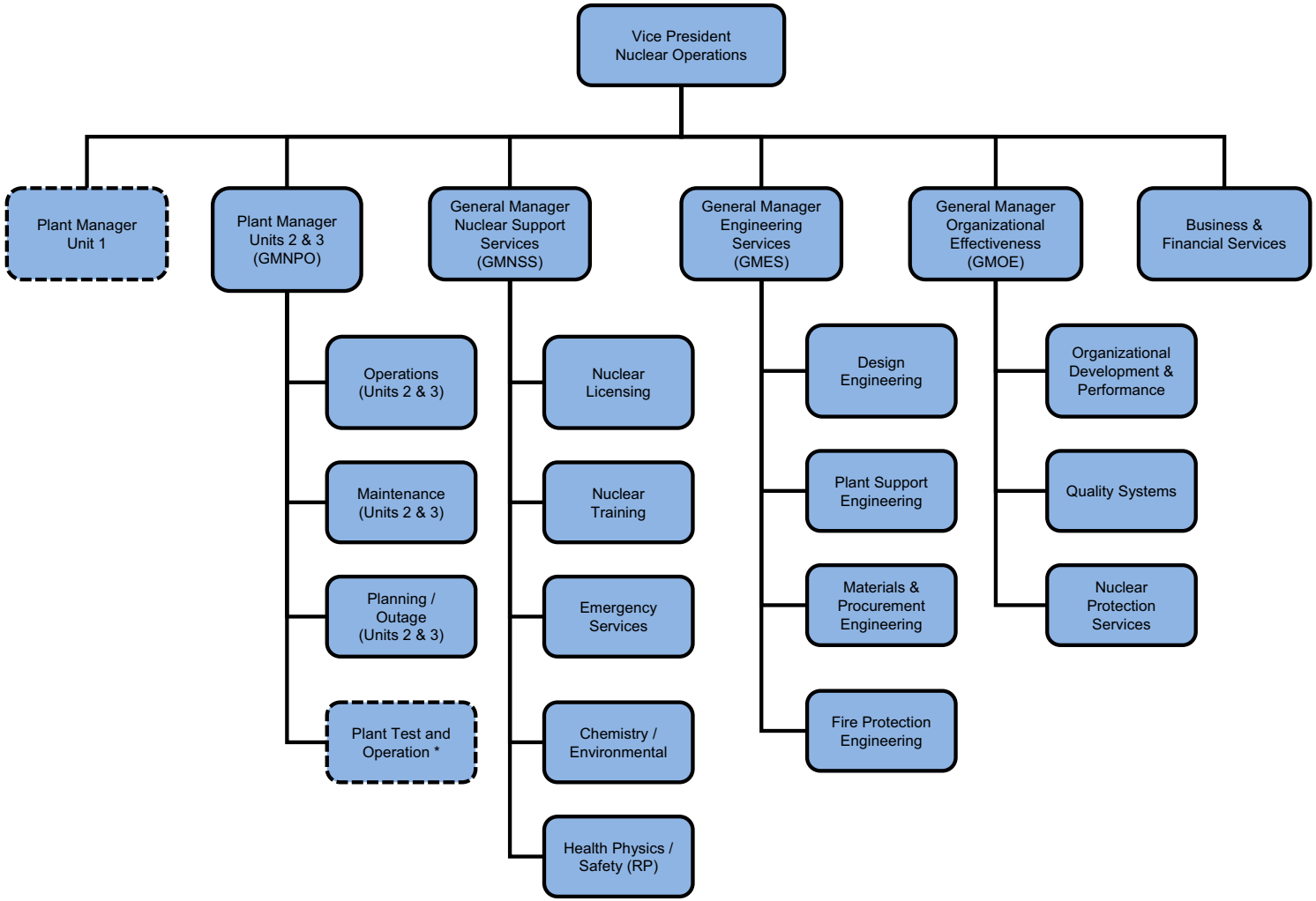
Table 13.1-202
Minimum On-Duty Operations Shift Organization for Two-Unit Plant

Units Operating	Two Units Two Control Rooms
All Units Shutdown	1 shift supervisor (SRO) 2 RO 3 nonlicensed operator
One Unit Operating[(a)]	1 shift supervisor (SRO) 1 SRO 3 RO 3 nonlicensed operator
Two Units Operating[(a)]	1 shift supervisor (SRO) 2 SRO 4 RO 4 nonlicensed operator
SRO – Licensed Senior Reactor Operator	RO – Licensed Reactor Operator

(a) Operating modes other than cold shutdown or refueling.

Notes:

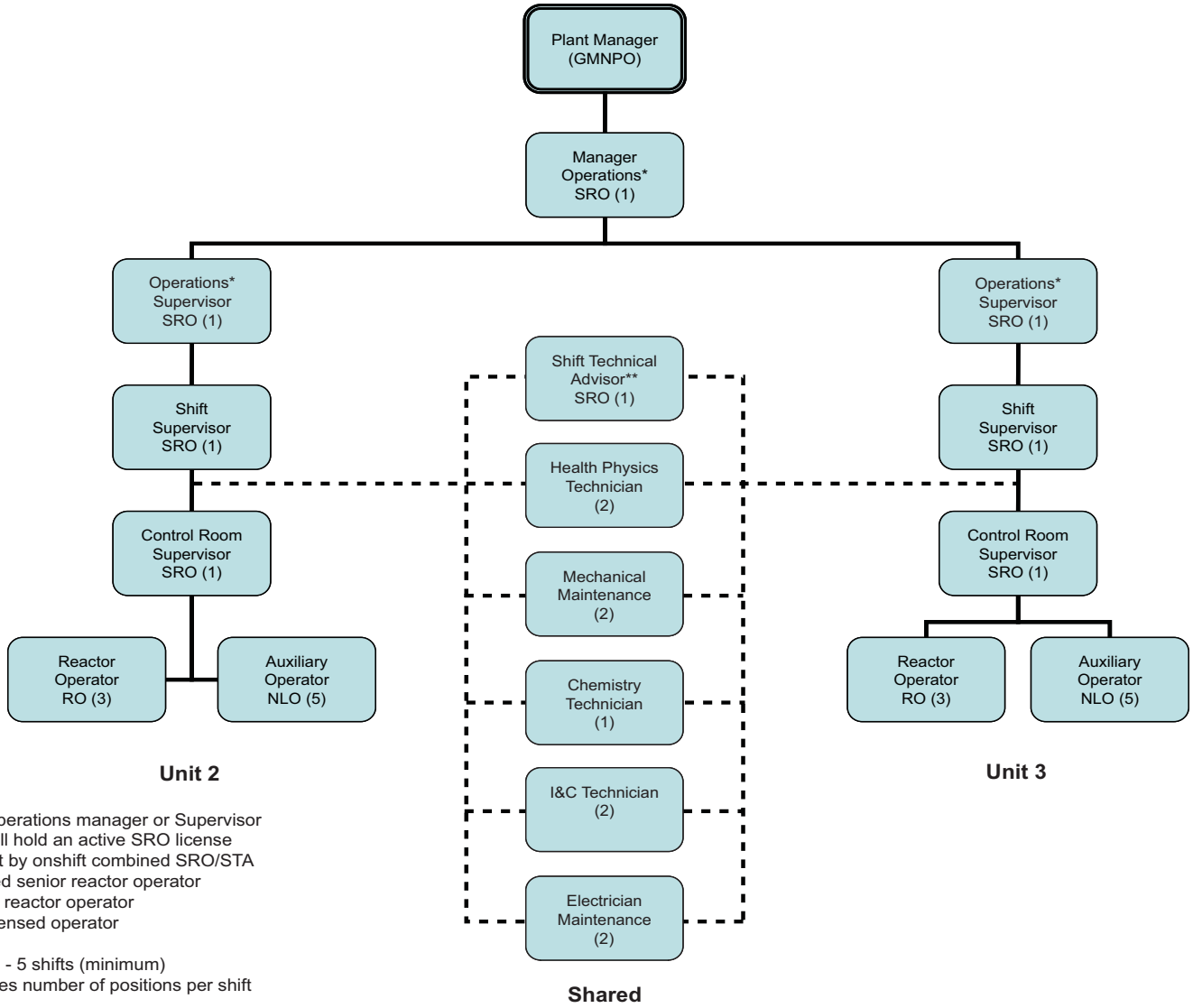
1. In addition, one STA is assigned per shift during plant operation. A shift supervisor or another SRO on shift, who meets the qualifications for the combined Senior Reactor Operator/Shift Technical Advisor position, as specified for option 1 of Generic Letter 86-04, (Reference 202) the commission's policy statement on engineering expertise on shift, may also serve as the STA. If this option is used for a shift, then the separate STA position may be eliminated for that shift.
2. In addition to the minimum shift organization above, during refueling, a licensed SRO or SRO limited (fuel handling only) is required to directly supervise any core alteration activity.
3. A shift supervisor (SRO licensed for each unit that is fueled), shall be on site at all times when at least one unit is loaded with fuel.
4. An RP technician shall be on site at all times when there is fuel in a reactor.
5. A chemistry technician shall be on site during plant operation in modes other than cold shutdown or refueling.
6. To operate, or supervise the operation of more than one unit, an operator (SRO or RO) must hold an appropriate, current license for each unit.



*During construction the functional manager, PT&O, reports to the VPNND. As the organization transitions into the operational phase the functional manager, PT&O reports to the Plant Manager

VCS COL 13.1-1

Figure 13.1-201
Plant Management Organization

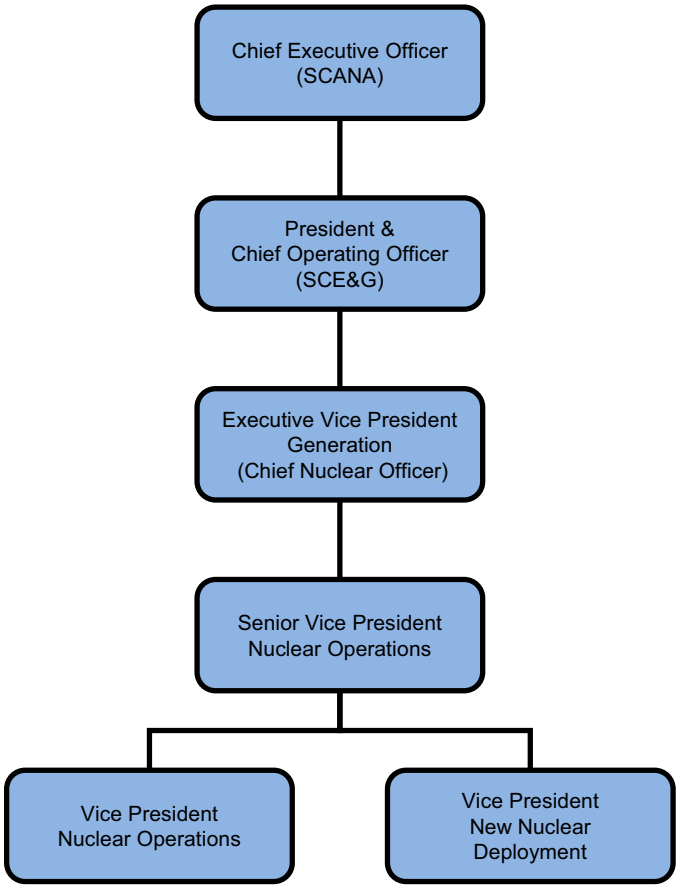


* either the Operations manager or Supervisor Operations will hold an active SRO license
** may be met by onshift combined SRO/STA
SRO - licensed senior reactor operator
RO - licensed reactor operator
NLO - non-licensed operator

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

VCS COL 13.1-1

Figure 13.1-202
Shift Operations



VCS COL 13.1-1

Figure 13.1-203
Corporate Organization

13.2 TRAINING

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

STD COL 13.2-1 This section incorporates by reference NEI 06-13A, Template for an Industry Training Program Description. See Table 1.6-201.

Table 13.4-201 provides milestones for training implementation.

STD COL 18.10-1 Operators involved in the Human Factors Engineering Verification and Validation (V&V) Program receive additional training specific to the task of performing V&V. A systematic approach to training is incorporated in developing this training program along with input from WCAP-14655, Designer's Input to the Training of the Human Factors Engineering Verification and Validation Personnel (Reference 201).

13.2.1 COMBINED LICENSE INFORMATION ITEM

STD COL 13.2-1 This COL Item is addressed in Section 13.2.

13.2.2 REFERENCES

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201. Westinghouse, "Designer's Input to the Training of the Human Factors Engineering Verification and Validation Personnel," WCAP-14655, Revision 1, August 1996.

13.3 EMERGENCY PLANNING

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

STD COL 13.3-1 The emergency planning information is submitted to the Nuclear Regulatory Commission as a separate licensing document and is incorporated by reference (see Table 1.6-201).

Post-72 hour support actions, as discussed in DCD Subsections 1.9.5.4 and 6.3.4, are addressed in DCD Subsections 6.2.2, 8.3, and 9.1.3. Provisions for establishing post-72 hour ventilation for the main control room, instrumentation and control rooms, and dc equipment rooms are established in operating procedures.

STD COL 13.3-2 The emergency plan describes the plans for coping with emergency situations, including communications interfaces and staffing of the emergency operations facility.

STD SUP 13.3-1 Table 13.4-201 provides milestones for emergency planning implementation.

13.3.1 COMBINED LICENSE INFORMATION ITEM

STD COL 13.3-1 This COL Item is addressed in Section 13.3.

STD COL 13.3-2 This COL Item is addressed in Section 13.3 and in the Emergency Plan.

13.4 OPERATIONAL PROGRAMS

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

STD COL 13.4-1 Operational programs are specific programs that are required by regulations. Table 13.4-201 lists each operational program, the regulatory source for the program, the section of the FSAR in which the operational program is described, and the associated implementation milestone(s).

13.4.1 COMBINED LICENSE INFORMATION ITEM

STD COL 13.4-1 This COL Item is addressed in Section 13.4.

13.4.2 REFERENCES

201. ASME Boiler and Pressure Vessel Code (B&PVC), “Section XI - Rules for Inservice Inspection of Nuclear Power Plant Components.”

202. ASME “OM Code for the Operation and Maintenance of Nuclear Power Plants.”

STD COL 13.4-1

Table 13.4-201 (Sheet 1 of 7)
Operational Programs Required by NRC Regulations

Item	Program Title	Program Source (Required by)	FSAR Section	Implementation Milestone	Implementation Requirement
1.	Inservice Inspection Program	10 CFR 50.55a(g)	5.2.4, 5.4.2.5, 6.6	Prior to Commercial service	10 CFR 50.55a(g): ASME XI IWA 2430(b) (Reference 201)
2.	Inservice Testing Program	10 CFR 50.55a(f); 10 CFR Part 50, Appendix A	3.9.6, 5.2.4	After generator online on nuclear heat[(a)]	10 CFR 50.55a(f), ASME OM Code (Reference 202)
3.	Environmental Qualification Program	10 CFR 50.49(a)	3.11	Prior to initial fuel load	License Condition
4.	Preservice Inspection Program	10 CFR 50.55a(g)	5.2.4, 5.4.2.5, 6.6	Completion prior to initial plant start-up	10 CFR 50.55a(g); ASME XI IWB-2200(a) (Reference 201)
5.	Reactor Vessel Material Surveillance Program	10 CFR 50.60; 10 CFR 50.61; 10 CFR Part 50, Appendix H	5.3.2.6	Prior to initial criticality	License Condition
6.	Preservice Testing Program	10 CFR 50.55a(f)	3.9.6	Prior to initial fuel load	License Condition
7.	Containment Leakage Rate Testing Program	10 CFR 50.54(o); 10 CFR 50, Appendix A (GDC 52); 10 CFR 50, Appendix J	6.2.5.1	Prior to initial fuel load	License Condition
8.	Fire Protection Program	10 CFR 50.48	9.5.1.8	Prior to receipt of fuel onsite Prior to initial fuel load	License Condition
	(portions applicable to radioactive material)	10 CFR 30.32 10 CFR 40.31 10 CFR 70.22		Prior to initial receipt of byproduct, source, or special nuclear materials (excluding Exempt Quantities as described in 10 CFR 30.18)	10 CFR 30.32(a) 10 CFR 40.31(a) 10 CFR 70.22(a)

STD COL 13.4-1

Table 13.4-201 (Sheet 2 of 7)
Operational Programs Required by NRC Regulations

Item	Program Title	Program Source (Required by)	FSAR Section	Implementation Milestone	Implementation Requirement
9.	Process and Effluent Monitoring and Sampling Program:				
	Radiological Effluent Technical Specifications/Standard Radiological Effluent Controls	10 CFR 20.1301 and 20.1302; 10 CFR 50.34a; 10 CFR 50.36a; 10 CFR 50, Appendix I, Section II and IV	11.5	Prior to initial fuel load	License Condition
	Offsite Dose Calculation Manual	Same as above	11.5	Prior to initial fuel load	License Condition
	Radiological Environmental Monitoring Program	Same as above	11.5	Prior to initial fuel load	License Condition
	Process Control Program	Same as above	11.4	Prior to initial fuel load	License Condition
10.	Radiation Protection Program (including ALARA principle)	10 CFR 20.1101 10 CFR 20.1406	12.1 12.5		License Condition
	• Radioactive Source Control (assignment of RP Supervisor) • Assignment of RP Supervisor • Minimization of Contamination			1. Prior to initial receipt of by-product, source, or special nuclear materials (excluding Exempt Quantities as described in 10 CFR 30.18)	
	• Personal Dosimetry • Radiation Monitoring and Surveys • Radiation Work Permits			2. Prior to receipt of fuel onsite	

STD COL 13.4-1

Table 13.4-201 (Sheet 3 of 7)
Operational Programs Required by NRC Regulations

Item	Program Title	Program Source (Required by)	FSAR Section	Implementation Milestone	Implementation Requirement
	• Assignment of RP Manager • Respiratory Protection • Bioassay • Effluents and Environmental Monitoring and Assessment • Job Coverage			3. Prior to initial fuel load	
	• Radioactive Waste Shipping			4. Prior to first shipment of radioactive waste	
11.	Non Licensed Plant Staff Training Program (portions applicable to radioactive material)	10 CFR 50.120 10 CFR 30.32 10 CFR 40.31 10 CFR 70.22	13.2	18 months prior to scheduled date of initial fuel load Prior to initial receipt of byproduct, source, or special nuclear materials (excluding Exempt Quantities as described in 10 CFR 30.18)	10 CFR 50.120(b) 10 CFR 30.32(a) 10 CFR 40.31(a) 10 CFR 70.22(a)
12.	Reactor Operator Training Program	10 CFR 55.13; 10 CFR 55.31; 10 CFR 55.41; 10 CFR 55.43; 10 CFR 55.45	13.2	18 months prior to scheduled date of initial fuel load	License Condition
13.	Reactor Operator Requalification Program	10 CFR 50.34(b); 10 CFR 50.54(i); 10 CFR 55.59	13.2	Within 3 months after the date the Commission makes the finding under 10 CFR 52.103(g)	10 CFR 50.54 (i-1)

STD COL 13.4-1

Table 13.4-201 (Sheet 4 of 7)
Operational Programs Required by NRC Regulations

Item	Program Title	Program Source (Required by)	FSAR Section	Implementation Milestone	Implementation Requirement
14.	Emergency Planning	10 CFR 50.47; 10 CFR 50, Appendix E	13.3	Full participation exercise conducted within 2 years of scheduled date for initial loading of fuel.	10 CFR Part 50, Appendix E, Section IV.F.2.a(ii)
				Onsite exercise conducted within 1 year before the schedule date for initial loading of fuel	10 CFR Part 50, Appendix E, Section IV.F.2.a(ii)
				Applicant's detailed implementing procedures for its emergency plan submitted at least 180 days prior to scheduled date for initial loading of fuel	10 CFR Part 50, Appendix E, Section V
VCS SUP 13.4-1	Emergency Response Data System (ERDS) Implementation Program	10 CFR 50, Appendix E		Applicant's ERDS Implementation program submitted at least 180 days prior to scheduled date for initial loading of fuel	10 CFR Part 50, Appendix E, Section VI.4.a
15.	Security Program:				
	Physical Security Program	10 CFR 73.55(b); 10 CFR 73.55(c)(3); 10 CFR 73.56; 10 CFR 73.57;	13.6	Prior to receipt of fuel onsite (protected area)	10 CFR 73.55(a)(4)
	(portions applicable to radioactive material)	10 CFR 30.34 10 CFR 40.41 10 CFR 73.1		Prior to initial receipt of byproduct, source, or special nuclear materials (excluding Exempt Quantities as described in 10 CFR 30.18)	10 CFR 30.32(a) 10 CFR 40.31(a) 10 CFR 73.1(a)

STD COL 13.4-1

Table 13.4-201 (Sheet 5 of 7)
Operational Programs Required by NRC Regulations

Item	Program Title	Program Source (Required by)	FSAR Section	Implementation Milestone	Implementation Requirement
	Safeguards Contingency Program	10 CFR 73.55(c)(5); 10 CFR 73.55(k); 10 CFR Part 73, Appendix C	13.6	Prior to receipt of fuel onsite (protected area)	10 CFR 73.55(a)(4)
	Training and Qualification Program	10 CFR 73.55(c)(4); 10 CFR 73.55(d)(3); 10 CFR Part 73, Appendix B	13.6	Prior to receipt of fuel onsite (protected area)	10 CFR 73.55(a)(4)
16.	Quality Assurance Program – Operation	10 CFR 50.54(a); 10 CFR Part 50, Appendix A (GDC 1); 10 CFR Part 50, Appendix B	17.5	COL issuance	10 CFR 50.54(a)(1)
17.	Maintenance Rule	10 CFR 50.65	17.6	Prior to fuel load authorization per 10 CFR 52.103(g)	10 CFR 50.65(a)(1)
18.	Motor-Operated Valve Testing	10 CFR 50.55a(b)(3)(ii)	3.9.6.2.2	Prior to initial fuel load	License Condition
19.	Initial Test Program	10 CFR 50.34; 10 CFR 52.79(a)(28)	14.2	Prior to the first construction test being conducted for the Construction Test Program Prior to the first preoperational test for the Preoperational Test Program Prior to initial fuel load for the Startup Test Program	License Condition

STD COL 13.4-1

Table 13.4-201 (Sheet 6 of 7)
Operational Programs Required by NRC Regulations

Item	Program Title	Program Source (Required by)	FSAR Section	Implementation Milestone	Implementation Requirement
20.	Fitness for Duty (FFD) Program for Construction (workers and first-line supervisors)	10 CFR 26.4(f)	13.7	Prior to initiating 10 CFR Part 26 construction activities	10 CFR Part 26, Subpart K
	FFD Program for Construction (management and oversight personnel)	10 CFR 26.4(e)	13.7	Prior to initiating 10 CFR Part 26 construction activities	10 CFR Part 26, Subparts A - H, N, and O
	FFD Program for Security Personnel	10 CFR 26.4(e)(1)	13.7	Prior to initiating 10 CFR Part 26 construction activities	10 CFR Part 26, Subparts A - H, N, and O
		10 CFR 26.4(a)(5) or 26.4(e)(1)		Prior to the earlier of: A. Licensee's receipt of SNM in the form of fuel assemblies, or B. Establishment of a protected area, or C. The 10 CFR 52.103(g) finding	10 CFR Part 26, Subparts A - I, N, and O
	FFD Program for FFD Program personnel	10 CFR 26.4(g)	13.7	Prior to initiating 10 CFR Part 26 construction activities	10 CFR Part 26, Subparts A, B, D - H, N, O, and C per licensee's discretion
	FFD Program for persons required to physically report to the Technical Support Center (TSC) or Emergency Operations Facility (EOF)	10 CFR 26.4(c)	13.7	Prior to the conduct of the first full-participation emergency preparedness exercise under 10 CFR Part 50, App. E, Section F.2.a	10 CFR Part 26, Subparts A - I, N, and O, except for §§ 26.205 – 209

STD COL 13.4-1

Table 13.4-201 (Sheet 7 of 7)
Operational Programs Required by NRC Regulations

Item	Program Title	Program Source (Required by)	FSAR Section	Implementation Milestone	Implementation Requirement
	FFD Program for Operation	10 CFR 26.4(a) and (b)	13.7	Prior to the earlier of: A. Establishment of a protected area, or B. The 10 CFR 52.103(g) finding	10 CFR Part 26, Subparts A - I,N, and O, except for individuals listed in § 26.4(b), who are not subject to §§ 26.205 – 209
21.	Cyber Security Program	10 CFR 73.54(b); 10 CFR 73.55(b)(8); 10 CFR 73.55(c)(6)	13.6	Prior to receipt of fuel onsite (protected area)	10 CFR 73.55(a)(4)
22.	SNM Material Control and Accounting Program	110 CFR 74, Subpart B (§§ 74.11 – 74.19, excl. § 74.17)	13.5.2.2.9	Prior to receipt of special nuclear material	License Condition

(a) Inservice Testing Program will be fully implemented by generator on line on nuclear heat. Appropriate portions of the program are implemented as necessary to support the system operability requirements of the technical specifications.

13.5 PLANT PROCEDURES

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

STD DEP 1.1-1 DCD Subsection 13.5.1, Combined License Information, is renumbered in this FSAR section to 13.5.3.

STD COL 13.5-1 This section of the FSAR describes the administrative and other procedures which are not described in the DCD that the operating organization (plant staff) uses to conduct the routine operating, abnormal, and emergency activities in a safe manner.

The Quality Assurance Program Description (QAPD), as discussed in Section 17.5, describes procedural document control, record retention, adherence, assignment of responsibilities, and changes.

Procedures are identified in this section by topic, type, or classification in lieu of the specific title and represent general areas of procedural coverage.

Procedures are issued prior to fuel load to allow sufficient time for plant staff familiarization and to develop operator licensing examinations.

The format and content of procedures are controlled by the applicable AP1000 Writer's Guideline.

Each procedure is sufficiently detailed for an individual to perform the required function without direct supervision, but does not provide a complete description of the system or plant process. The level of detail contained in the procedure is commensurate with the qualifications of the individual normally performing the function.

Procedures are developed consistent with guidance described in DCD Section 18.9, "Procedure Development" and with input from the human factors engineering process and evaluations.

13.5.1 ADMINISTRATIVE PROCEDURES

This section describes administrative procedures that provide administrative control over activities that are important to safety for the operation of the facility.

Procedures outline the essential elements of the administrative programs and controls as described in ANSI/ANS 3.2-1988 (Reference 201) and in Section 17.5. These procedures are organized such that the program elements are prescribed in documents normally referred to as administrative procedures. Regulatory and

industry guidance for the appropriate format, content and typical activities delineated in written procedures is implemented as appropriate.

Administrative procedures contain adequate programmatic controls to provide effective interface between organizational elements. This includes contractor and owner organizations providing support to the station operating organization.

A Writer's Guideline promotes the standardization and application of human factors engineering principles to procedures. The Writer's Guideline establishes the process for developing procedures that are complete, accurate, consistent, and easy to understand and follow. The Writer's Guideline provides objective criteria so that procedures are consistent in organization, style, and content. The Writer's Guideline includes criteria for procedure content and format including the writing of action steps and the specification of acceptable acronym lists and acceptable terms to be used.

Procedure maintenance and control of procedure updates are performed in accordance with the QAPD, as discussed in Section 17.5.

The administrative programs and associated procedures developed in the pre-COL phase are described in Table 13.5-201 (for future designation as historical information).

The plant administrative procedures provide procedural instructions for the following:

- Procedures review and approval.
- Equipment control procedures - These procedures provide for control of equipment, as necessary, to maintain personnel and reactor safety, and to avoid unauthorized operation of equipment.
- Control of maintenance and modifications.
- Crane Operation Procedures - Crane operators who operate cranes over fuel pools are qualified and conduct themselves in accordance with ANSI B30.2 (Chapter 2-3), "Overhead and Gantry Cranes" (Reference 202).
- Temporary changes to procedures.
- Temporary procedure issuance and control.
- Special orders of a temporary or self-canceling nature.

VCS SUP 13.5-1
- Standing orders to shift personnel including the authority and responsibility of the shift supervisor, licensed senior reactor operator in the control room, control room operator and shift technical advisor.

STD COL 13.5-1

- Manipulation of controls and assignment of shift personnel to duty stations per the requirements of 10 CFR 50.54 (i), (j), (k), (l), and (m) including delineation of the space designated for the "At the Controls" area of the control room.
- Shift relief and turnover procedures.
- Fitness for Duty.
- Control Room access.
- Working hour limitations.
- Feedback of design, construction, and applicable important industry and operating experience.

VCS SUP 13.5-2

- Shift Supervisor administrative duties.

STD COL 13.5-1

- Verification of correct performance of operational activities.
- A vendor interface program that provides vendor information for safety related components is incorporated into plant documentation.
- Fire protection program implementation.
- A process for implementing the safety/security interface requirements of 10 CFR 73.58.

13.5.2 OPERATING AND MAINTENANCE PROCEDURES

13.5.2.1 Operating and Emergency Operating Procedures

This information is addressed in the DCD.

13.5.2.2 Maintenance and Other Operating Procedures

The QAPD, as described in Section 17.5, provides guidance for procedural adherence. Regulatory and industry guidance for the appropriate format, content, and typical activities delineated in written procedures is implemented as appropriate.

13.5.2.2.1 Plant Radiation Protection Procedures

The plant radiation protection program is contained in procedures. Procedures are developed and implemented for such things as: maintaining personnel exposures, plant contamination levels, and plant effluents ALARA; monitoring both external and internal exposures of workers, considering industry-accepted techniques; routine radiation surveys; environmental monitoring in the vicinity of the plant; radiation monitoring of maintenance and special work activities; evaluation of radiation protection implications of proposed modifications; establishing quality assurance requirements applicable to the radiation protection program; and maintaining radiation exposure records of workers and others.

13.5.2.2.2 Emergency Preparedness Procedures

A discussion of emergency preparedness procedures can be found in the Emergency Plan.

13.5.2.2.3 Instrument Calibration and Test Procedures

The QAPD, as discussed in Section 17.5, provides a description of procedural requirements for instrumentation calibration and testing.

13.5.2.2.4 Chemistry Procedures

Procedures provided for chemical and radiochemical control activities include the nature and frequency of sampling and analyses; instructions for maintaining fluid quality within prescribed limits; the use of control and diagnostic parameters; and limitations on concentrations of agents that could cause corrosive attack, foul heat transfer surfaces or become sources of radiation hazards due to activation.

Procedures are also provided for the control, treatment, and management of radioactive wastes and control of radioactive calibration sources.

13.5.2.2.5 Radioactive Waste Management Procedures

Procedures for the operation of the radwaste processing systems provide for the control, treatment, and management of on-site radioactive wastes. Procedural controls are in place for radiological releases.

13.5.2.2.6 Maintenance, Inspection, Surveillance, and Modification Procedures

13.5.2.2.6.1 Maintenance Procedures

Maintenance procedures describe maintenance planning and preparation activities. Maintenance procedures are developed considering the potential impact on the safety of the plant, license limits, availability of equipment required to be operable, and possible safety consequences of concurrent or sequential maintenance, testing or operating activities.

Maintenance procedures contain sufficient detail to permit the maintenance work to be performed correctly and safely. Procedures include provisions for conducting and recording results of required tests and inspections, if not performed and documented under separate test and inspection procedures. References are made to vendor manuals, plant procedures, drawings, and other sources as applicable.

Instructions are included, or referenced, for returning the equipment to its normal operating status. Testing is commensurate with the maintenance that has been performed. Testing may be included in the maintenance procedure or be covered in a separate procedure.

The preventive maintenance program, including preventive and predictive procedures, as appropriate for structures, systems and components, prescribes the frequency and type of maintenance to be performed. An initial program based on service conditions, experience with comparable equipment and vendor recommendations is developed prior to fuel loading. The program is revised and updated as experience is gained with the equipment. To facilitate this, equipment history files are created and kept current. The files are organized to provide complete and easily retrievable equipment history.

13.5.2.2.6.2 Inspection Procedures

The QAPD, as discussed in Section 17.5, provides a description of procedural requirements for inspections.

13.5.2.2.6.3 Modification Procedures

Plant modifications and changes to setpoints are developed in accordance with approved procedures. These procedures control necessary activities associated with the modifications such that they are carried out in a planned, controlled, and orderly manner. For each modification, design documents such as drawings, equipment and material specifications, and appropriate design analyses are developed or the as-built design documents are utilized. Separate reviews are conducted by individuals knowledgeable in both technical and QA requirements to verify the adequacy of the design effort.

Proposed modification(s) which involve a license amendment or a change to Technical Specifications are processed as proposed license amendment request(s).

Plant procedures impacted by modifications are changed prior to declaring the system operable to reflect revised plant conditions; and cognizant personnel who are responsible for operating and maintaining the modified equipment are adequately trained.

13.5.2.2.7 Material Control Procedures

The QAPD, as discussed in Section 17.5, provides a description of procedural requirements for material control.

13.5.2.2.8 Security Procedures

A discussion of security procedures is provided in the Security Plan.

13.5.2.2.9 Special Nuclear Material (SNM) Material Control and Accounting Procedures

A material control and accounting system consisting of special nuclear material accounting procedures is utilized to delineate the requirements, responsibilities, and methods of special nuclear material control from the time special nuclear material is received until it is shipped from the plant. These procedures provide detailed steps for SNM shipping and receiving, inventory, accounting, and preparing records and reports. The Special Nuclear Material (SNM) Material Control and Accounting (MC&A) Program description is submitted to the Nuclear Regulatory Commission as a separate licensing basis document.

STD DEP 1.1-1

13.5.3 COMBINED LICENSE INFORMATION ITEM

STD COL 13.5-1 Information for this COL item is addressed in 13.5.

13.5.4 REFERENCES

201. ANSI/ANS 3.2-1988, “Administrative Control and Quality Assurance for the Operational Phase of Nuclear Power Plants.”

202. ANSI B30.2 (Chapter 2-3), “Overhead and Gantry Cranes.”

Table 13.5-201
Pre-COL Phase Administrative Programs and Procedures

STD COL 13.5-1 (This table is included for future designation as historical information.)

- Design/Construction Quality Assurance Program
- Reporting of Defects and Noncompliance, 10 CFR Part 21 Program
- Design Reliability Assurance Program

13.6 SECURITY

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

STD COL 13.6-1 The Security Plan consists of the Physical Security Plan, the Training and Qualification Plan, and the Safeguards Contingency Plan. The Security Plan is submitted to the Nuclear Regulatory Commission as a separate licensing document in order to fulfill the requirements of 10 CFR 52.79(a)(35) and 52.79(a)(36) and is incorporated by reference (see Table 1.6-201). The Security Plan meets the requirements contained in 10 CFR Part 26 and 10 CFR Part 73 and will be maintained in accordance with the requirements of 10 CFR 52.98. The Plan is categorized as Security Safeguards Information and is withheld from public disclosure pursuant to 10 CFR 73.21.

The Cyber Security Plan is submitted to the Nuclear Regulatory Commission as a separate licensing document to fulfill the requirements contained in 10 CFR 52.79(a)(36) and 10 CFR 73.54 and is incorporated by reference (see Table 1.6-201). The Cyber Security Plan will be maintained in accordance with the requirements of 10 CFR 52.98. The Plan is withheld from public disclosure pursuant to 10 CFR 2.390.

Table 13.4-201 provides milestones for security program and cyber security program implementation.

13.6.1 COMBINED LICENSE INFORMATION ITEMS

STD COL 13.6-1 Information for the Security Plan portion of this COL Item is addressed in Section 13.6.

Information for the Physical Security ITAAC portion of this COL item is addressed in Section 14.3.2.3.2.

STD COL 13.6-5 Information for the cyber security program portion of this COL item is addressed in Section 13.6.

13.6.2 REFERENCES

201. Not used.

202. Not used.

STD DEP 1.1-1 DCD Section 13.7 is redistributed to include DCD Section 13.7 references 7, 8, and 10 with COLA FSAR Subsection 13.5.4 and DCD Section 13.7 references 2, 3, and 4 with COLA FSAR Subsection 13.6.2.

Add the following new section after DCD Section 13.6.

13.7 FITNESS FOR DUTY

STD SUP 13.7-1 The Fitness for Duty Program (FFD) is implemented and maintained in multiple and progressive phases dependent on the activities, duties, or access afforded to certain individuals at the construction site. In general, two different FFD programs will be implemented: a construction FFD program and an operations FFD program. The construction and operations phase programs are illustrated in Table 13.4-201.

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

VCS SUP 13.7-1 The following site-specific information is provided:

- The FFD program for the construction site, as defined in NEI 06-06, will be administered under a VCSNS-approved Shaw Stone & Webster (Shaw) program. The 10 CFR Part 26 requirements will be implemented for the construction site area based on the descriptions provided in Table 13.4-201.

- Construction Workers & First Line Supervisors (Shaw employees and subcontractors) will be covered by a VCSNS-approved Shaw FFD Program (elements Subpart K).

- SCE&G employees and SCE&G subcontractor's construction management and oversight personnel will be covered by the VCSNS Unit 1 Operations FFD Program (elements Subpart A - H, N and O) and Shaw's

employees and Shaw's subcontractors construction management and oversight personnel will be covered by a VCSNS-approved Shaw FFD Program (elements Subpart A - H, N and O).

- VCSNS security personnel will be covered by the VCSNS Unit 1 FFD Operations Program (elements Subpart A - H, N and O) and Shaw's security personnel will be covered by the VCSNS-approved Shaw FFD Program (elements Subpart A - H, N and O). This coverage is applicable from the start of construction activities to the earlier of (1) the receipt of SNM in the form of fuel assemblies, (2) the establishment of a protected area, or (3) the 10 CFR 52.103(g) finding.

- VCSNS FFD Program personnel will be covered by the VCSNS Unit 1 Operations FFD Program and Shaw's FFD Program personnel will be covered by the VCSNS-approved Shaw FFD Program (elements Subpart A, B, D-H, N, O, and C per Licensee discretion).

- VCSNS security personnel protecting fuel assemblies will be covered by the VCSNS Unit 1 Operations FFD Program (elements Subpart A - I, N and O).

- Personnel required to physically report to the Technical Support Center (TSC) or Emergency Operations Facility (EOF) by Emergency Plans and procedures when that requirement is in effect will be covered by the VCSNS Unit 1 Operations FFD Program, except for subsections 26.205-209.

STD SUP 13.7-1 The operations phase FFD program is consistent with the applicable subparts of 10 CFR Part 26.

13.7.1 REFERENCES

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

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

VCS COL 13.1-1 APPENDIX 13AA CONSTRUCTION-RELATED ORGANIZATION

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

13AA.1.1.1.1 Design and Construction Activities

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

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

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

13AA.1.1.1.1.1 Principal Site-Related Engineering Work

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

a. Meteorology

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

b. Geology

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

c. Seismology

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

d. Hydrology

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

e. Demography

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

f. Environmental Effects

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

13AA.1.1.1.1.2 Design of Plant and Ancillary Systems

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

13AA.1.1.1.1.3 Review and Approval of Plant Design Features

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

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

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

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

13AA.1.1.1.1.5 Development of Safety Analysis Reports

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

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

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

13AA.1.1.1.1.7 Procurement of Materials and Equipment

Procurement of materials during the construction phase is the responsibility of the reactor technology vendor and constructor. The process is controlled by the

construction QA programs of these organizations. Oversight of the inspection and receipt of materials process is the responsibility of the supervisor in charge of QA.

13AA.1.1.1.1.8 Management and Review of Construction Activities

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

After each system is turned over to plant staff, the construction organization relinquishes responsibility for that system. At that time they will be responsible for completion of construction activities as directed by plant staff and available to provide support for preoperational and startup testing as necessary.

Periodic assessment involving both the construction and operations organizations continues to identify SSCs that could reasonably be expected to be impacted by scheduled construction activities. Appropriate administrative and managerial controls are then established as necessary. Specific hazards, impacted SSCs, and managerial and administrative controls are reviewed on a recurring basis and, if necessary, controls are revised/developed and implemented and maintained current as work progresses on site. For example, prior to construction activities that involve the use of large construction equipment such as cranes, managerial and administrative controls are in place to prevent adverse impacts on any operating unit(s) overhead power lines, switchyard, security boundary, etc., by providing the necessary restrictions on the use of large construction equipment.

13AA.1.1.1.2 Preoperational Activities

The PT&O manager reports to the GMNPO. The plant manager, with the aid of those managers that report directly to the plant manager, (see Figure 13.1-201) is responsible for the activities required to transition the unit from the construction phase to the operational phase. These activities include turnover of systems from construction, preoperational testing, schedule management, procedure development for tests, fuel load, integrated startup testing, and turnover of systems to plant staff.

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

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

Modifications to the certified design of the control room or man-machine interface described in the DCD are reviewed in accordance with engineering and site support procedures, as required by Section 18.2, to evaluate the impact to plant safety. The manager in charge of design engineering is responsible for the HFE design process and for the design commitment to HFE during construction and throughout the life of the plant as noted in Subsection 13.1.1.2.1. The HFE program is established in accordance with the description and commitments in Chapter 18.

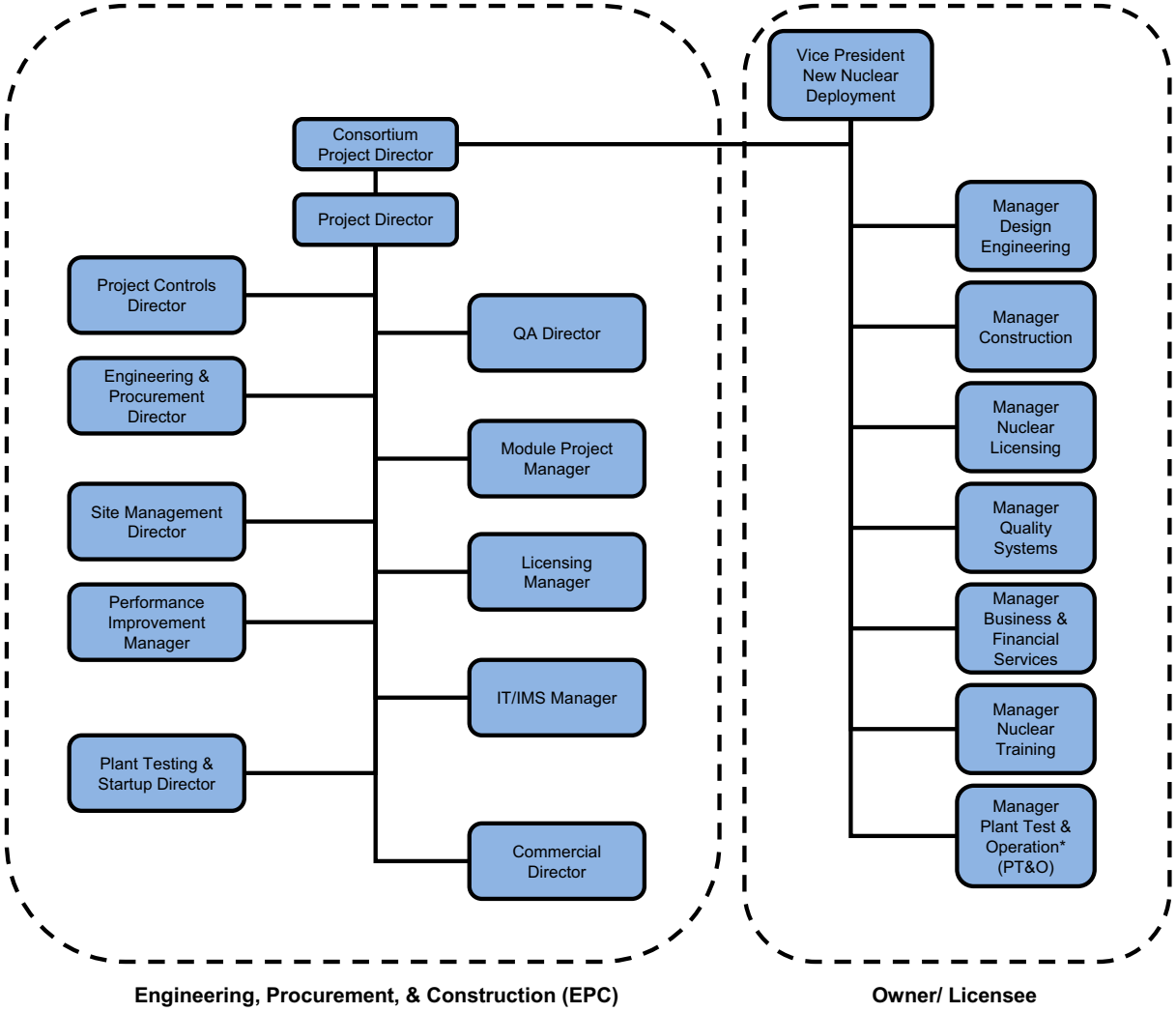
13AA.1.1.1.2.2 Preoperational and Startup Testing

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

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

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

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



*During construction the functional manager, PT&O, reports to the VPNND. As the organization transitions into the operational phase the functional manager, PT&O reports to the Plant Manager (Figure 13.1-201)

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Figure 13AA-201
Construction Management Organization

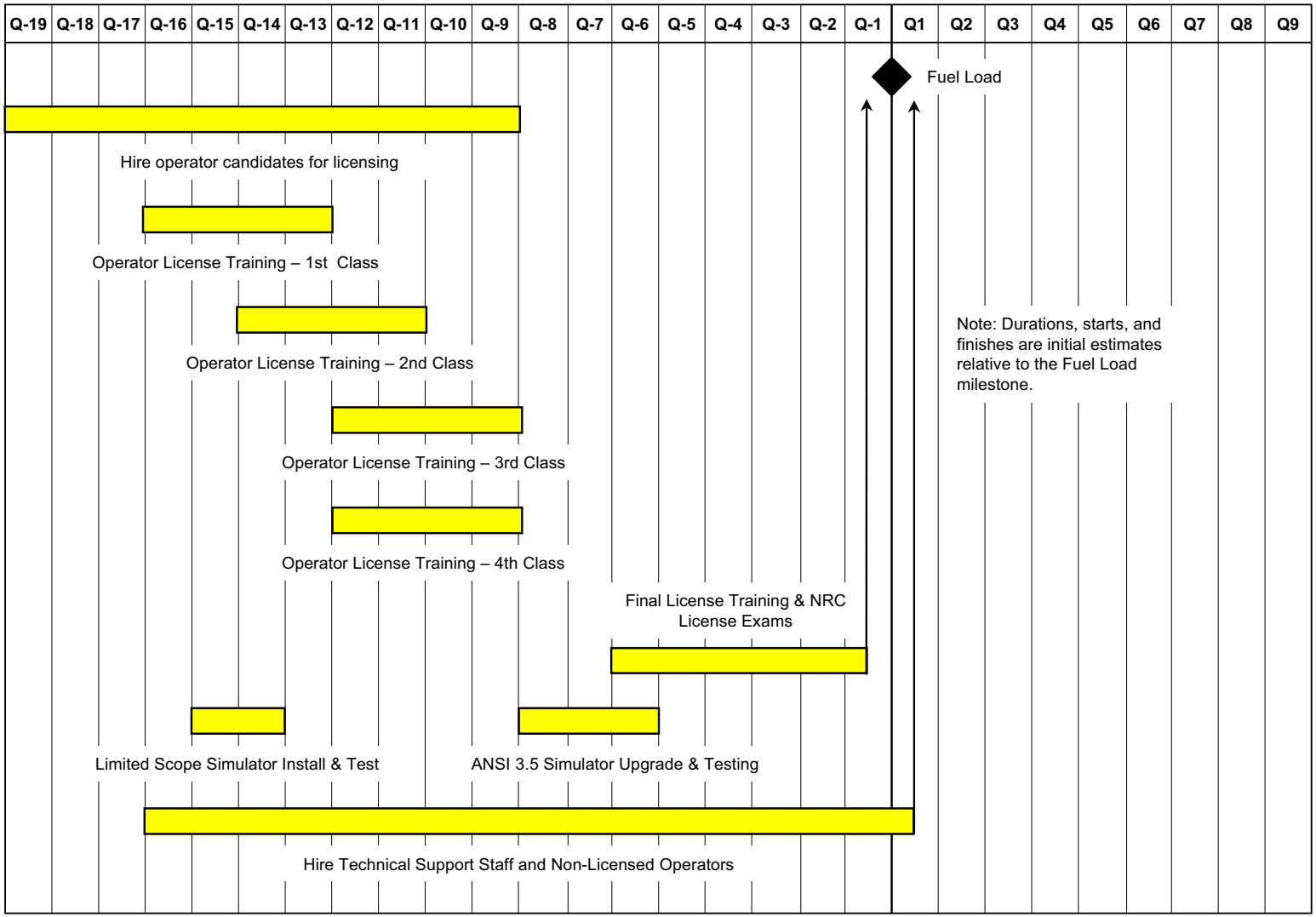

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Figure 13AA-202
Hiring Schedule for Plant Staff