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AUTH.NAME AUTHOR AFFILIATION
KARNER,D.B. Arizona Nuclear Power Project (formerly Arizona Public Serv
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References:
1. E. E. Van Brunt, Jr., letter 161-00432 to NRC, 8/10/87.
2. J. G. Haynes, letter 161-00524 to NRC, 9/22/87.
3. E. E. Van Brunt, Jr., letter 161-00585 to NRC, 10/15/87.
4. E. A. Licitra letter to ANPP, 10/30/87.

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2 and 3
Updated FSAR to Support Technical Specification Amendment
File: 88-F-005-419.05, 88-056-026

Enclosed, please find revisions to the Updated FSAR which were used to support Technical Specification change request dated August 25, 1988, letter number (161-01254). The change request would delete the organization charts, Figures 6.2-1 and 6.2-2 from the Technical Specifications as per guidance provided by the NRC in Generic Letter 88-06 dated March 22, 1988. The material presented here represents the organization which was previously submitted to and approved by the NRC (References 1-4).

Should you have any questions, please call.

Very truly yours,

D. B. Karner
Executive Vice President

DBK/JRP/pvk
Enclosures

cc: G. W. Knighton (all w/a)
M. J. Davis
J. B. Martin
T. J. Polich

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13.1.1.1.3 Technical Support for Operations

The Executive Vice President of Arizona Nuclear Power Project (ANPP), through the President and Chief Executive Officer of Arizona Public Service Company (APS), has been designated by the Chairman, Board of Directors of APS as the Corporate Officer responsible for providing management and technical support services for PVNGS (Refer to Figure 13.1-1). The Executive Vice President, ANPP has established under him groups and departments as discussed in section 13.1.1.2.2 and as shown on Figure 13.1-2.

13.1.1.2 APS Organizational Arrangement

Figure 13.1-1 reflects the current APS Master Organization. The organizational arrangement for providing onsite and offsite technical support for nuclear operations is described in the following sections.

13.1.1.2.1 APS Nuclear Organization

The Executive Vice President, Arizona Nuclear Power Project (ANPP) has the overall responsibility and authority for the operation and technical support of PVNGS. This position has the overall responsibility and authority to ensure that all activities associated with APS' Nuclear facilities are carried out with the highest standards of safety. Figure 13.1-2 reflects the organization of the Executive Vice President, ANPP. Reporting directly to the Executive Vice President, ANPP are the following: Vice President-Nuclear Production, Director Site Services, Director Engineering and Construction, Director Nuclear Safety and Licensing and Director Corporate QA/QC. This organization is discussed in the following sections.

13.1.1.2.1.1 Vice President, Nuclear Production Organization

The Vice President, Nuclear Production reports to the Executive Vice President, ANPP. This position is responsible to operate and maintain the three PVNGS units and the Water Reclamation Facility (WRF). The major functions of this position are: Operate and maintain the three Units and the WRF to ensure compliance with regulatory requirements and approved procedures; Plan and schedule the Units activities; Provide functional support required for the operation and maintenance, such as plant wide chemical and radiological services and waste disposal, and maintenance planning; Assure standardization of procedures and practices among the Units; Performance of direct technical and engineering support for plant operations and maintenance, including approval of design improvements and changes to operational requirements, as well as the design and installation of minor plant modifications and validation testing of all modifications. This position is charged with the authority to ensure that these activities related to nuclear safety are completed with the highest standards of safety and it has the authority to allocate resources under this area of responsibility.

Figure 13.1-3 reflects the organization of the Vice President-Nuclear Production.

To carry out his responsibilities, the Vice President-Nuclear Production has established the groups discussed later in Section 13.1.2.2.1. In the absence of the Vice President-Nuclear Production, the Assistant Vice President-Nuclear Production Support shall be delegated those nuclear safety responsibilities and authorities and shall have direct access to the Executive Vice President, ANPP for support and decisions as required.

13.1.1.2.1.2 Director, Site Services

The Director, Site Services reports to the Executive Vice President, ANPP. This onsite position is responsible to provide administrative and special site services that support the operation of PVNGS by satisfying commitments to regulatory agencies and oversight groups. These services include Plant Security, Training, Emergency Planning and Fire Protection, Material Control and Administrative Services. The major functions of this position are: Implement an On-Site Security Program to prevent sabotage and unwarranted intrusion by unauthorized persons for whatever reason, in accordance with the NRC-approved plan; Provide training programs for PVNGS personnel in concert with the requirements of the NRC, other agencies, and the Company; Implement programs in the area of fire protection, and emergency preparedness; Provide administrative services support for the nuclear facilities including site transportation needs, clerical, work processing, duplicating, and mail distribution services; Manage the Material Control Department to provide coordinated services for procurement, purchasing, inventory control, and warehousing of materials.

Figure 13.1-4 reflects the organization of the Director, Site Services. The department managers which report directly to the Director of the Site Services Group are discussed in the following sections which include functions of the Manager, Administrative Services; Manager, Training; Manager, Emergency Planning and Fire Protection; and Manager, Security.

13.1.1.2.1.2.1 Manager, Security

The Security Manager is responsible to the Director, Site Services to plan, develop, implement and manage the PVNGS Security Program. These responsibilities include Operations Security, Security Training Support, Security Access and Badging, and Industrial Security. Figure 13.1-5 reflects the organization of the Security Manager.

13.1.1.2.1.2.2 Manager, Emergency Planning and Fire Protection

The Manager, Emergency Planning and Fire Protection is responsible to the Director, Site Services to implement programs in the areas of fire protection and emergency preparedness. Reporting to the position are the Fire Protection Supervisor and the Emergency Planning Supervisor. Figure 13.1-6 reflects the organization of the Emergency Planning and Fire Protection Manager.

13.1.1.2.1.2.2.1 Fire Protection

The Fire Protection Supervisor reports onsite to the Manager, Emergency Planning and Fire Protection and is responsible for establishing and supervising the Fire Protection program at the Plant. The Fire Protection program is discussed in FSAR Section 9.5.1.5.1.

13.1.1.2.1.2.2.2 Emergency Planning

The Emergency Planning Supervisor is responsible for the development and implementation of the PVNGS Emergency Plan. Figure 13.1-6 reflects the organization of the Emergency Planning and Fire Protection Manager.

13.1.1.2.1.2.2.3 Manager, Training

The Manager, Nuclear Training is responsible to the Director, Site Services for the preparation, coordination and conduct of PVNGS training. The Licensed Operator Training, General Training, and Training Support Supervisors report to the Training Manager. Figure 13.1-7 reflects the organization of the Training Manager.

13.1.1.2.1.2.2.4 Manager, Material Control

The Manager, Material Control is responsible onsite to the Director, Site Services (Figure 13.1-4) for Inventory Control, Material Control and Purchasing and Contracts.

13.1.1.2.1.2.2.5 Manager, Administrative Services

The Manager, Administrative Services is responsible onsite to the Director, Site Services (Figure 13.1-4) for office services and site transportation services for PVNGS.

13.1.1.2.1.3 Director, Engineering and Construction

The Director, Engineering and Construction is responsible offsite to the Executive Vice President, ANPP to provide Engineering, Construction, Records Management, Cost and Scheduling and Participant Owner Services. The Director, Engineering and Construction is assisted in the performance of his duties by several departments reporting directly to him. Figure 13.1-10 reflects the organization of the Director, Engineering and Construction.

13.1.1.2.1.3.1 Manager, Engineering

The Manager, Engineering is responsible to the Director, Engineering and Construction to provide qualified discipline engineering capability to perform

design functions, prepare specifications, coordinate vendor/contractor service activities, and prepare test specifications and engineering validation criteria for major improvements, modifications and additions to Plant facilities.

The sections within the Engineering Department that provide technical support for PVNGS are Electrical Engineering, Instrumentation and Controls Engineering, Mechanical/Chemical Engineering, Civil/Structural Engineering, Reliability Analysis, and Methods/Training. The Discipline Supervisors report to the Engineering Manager, Figure 13.1-11 reflects the organization of the Nuclear Engineering Manager.

13.1.1.2.1.3.2 Manager, Participant Services

The Manager, Participant Services is responsible to the Director, Engineering and Construction to provide information services and coordination for plant interfaces with the PVNGS owner companies and their committees on matters of contracts, budgetary plans, cash forecasts and rate case information coordination.

13.1.1.2.1.3.3 Manager, Records Management

The Nuclear Records Management Department provides onsite and offsite support for PVNGS, construction, engineering, and outside consultants and contractors in the areas of documentation, drawing control and associated reference informational material by the means of hardcopy, micromedia and/or computer assisted retrieval.

The Nuclear Records Management Manager directs the technical and administrative activities within the Nuclear Records Management Department. The Nuclear Records Management Department is comprised of five sections:

- Drawing and Document Control offsite
- Drawing and Document Control onsite
- Nuclear Indexing
- Micrographics (on and offsite)
- As-Build Records Management

In addition, the Nuclear Records Management supports the sections within and coordinates the turnover activities of documentation to the department from outside departments, organizations and contractors. The section supervisors report to the Nuclear Records Management Manager. Figure 1-12 reflects the organization of the Nuclear Records Department.

13.1.1.2.1.3.4 Manager, Cost and Schedule

The Manager, Cost and Schedule is responsible to the Director, Engineering and Construction to provide cost estimating, scheduling and monitoring services for engineering and modification projects.

13.1.1.2.1.3.5 Manager, Construction

The Manager, Construction is responsible to the Director, Engineering and Construction to provide for site related construction activities to manage the construction, modification and/or installation of major structures, systems and equipment that represent physical changes or additions to PVNGS facilities.

13.1.1.2.1.3.6 Manager, Nuclear Fuels

The Manager, Nuclear Fuels reports to the Vice-President, Nuclear Production.

Nuclear Fuels Department is responsible for fuels management and core analysis for PVNGS.

The Manager, Nuclear Fuels provides nuclear fuel design, contracting and utilization expertise, nuclear fuel core and plant transient and accident analysis and alternative core operating strategies. Figure 13.1-13 reflects the organization of the Nuclear Fuels Department.

13.1.1.2.1.4 Director, Nuclear Safety and Licensing

The Director, Nuclear Safety and Licensing is responsible to the Executive Vice President, ANPP to coordinate license document changes, responses to NRC requests and to serve as the plant interface with NRC. This position directs management activities of the offsite Nuclear Safety Group, the onsite Independent Safety Engineering Group, the onsite Compliance Department (to provide for compliance monitoring of PVNGS regulatory commitments), offsite Technical Data section (to disseminate technical and performance data from ANPP to others) and the offsite Licensing Department.

Figure 13.1-14 reflects the organization of the Nuclear Safety and Licensing Group. Also, the onsite Compliance Department is matrixed to the Director, Standards and Technical Support.

13.1.1.2.1.5 Director, Corporate QA/QC

The Director, Corporate QA/QC reports to the Executive Vice President, ANPP to provide implementation of the QA and QC activities. Refer to the current FSAR Chapter 17, Section 17.2 "Quality Assurance during the Operations Phase" for the responsibilities and interface of the Quality Assurance Group. FSAR Figure 17.2-1 reflects the organization of the QA/QC group.

13.1.1.2.1.6 Other APS Departments

The organization of other APS departments utilized by the nuclear organization is described in the following paragraphs.

13.1.1.2.1.7 Engineering Organization

The Vice President of Engineering for fossil-fired plants reports to the Executive Vice President of Engineering, Operations and Construction who reports to the President and Chief Executive Officer. The Vice President of Engineering has established under him an Engineering support organization which is made up of Mechanical, Structural, Electrical, and Instrumentation and Controls Engineering.

13.1.1.2.1.8 Fuel Supply Department

The manager of fuel supply reports to the Vice President of resources planning. The fuel supply manager has established under him a department with expertise in the area of uranium procurement.

13.1.1.2.1.9 Risk Management Services Department

The manager of risk management services reports to the treasurer of finance and tax services who reports to the Executive Vice President and Chief Financial Officer. The manager of risk management services has established under him an organization with expertise in fire protection, including at least one full-time fire protection engineer.

13.1.1.2.1.10 Electric Operations Department

The Vice President of Electric Operations reports to the Executive Vice President of Engineering, Operations and Construction.

The Electric Operations Department provides support in the areas of plant chemistry, metallurgy, and environmental matters and manages APS central service laboratory which provides laboratory services to all areas of APS including PVNGS.

The electric operations department is also responsible for the construction and maintenance of APS transmission systems. The department also has overhaul crews which may provide manpower to PVNGS during refueling, repair, and maintenance outages.

13.1.1.3 Qualifications of Headquarters Staff

Members of the staff available for the offsite technical support of PVNGS possess a combination of education, experience, and skills commensurate with their level of responsibility. This provides assurance that decisions and actions during the design, procurement, construction, testing, and operation of the Palo Verde units will not constitute a hazard to the health and safety of the public.

The qualification requirements for headquarters staff technical personnel are presented in Table 13.1-1. The requirements apply to personnel in engineering disciplines below the supervisor level.

The quality systems and engineering manager, the quality audits and monitoring manager, and quality control manager shall meet the minimum qualification requirements of Section 4.4.5 of ANSI/ANS 3.1-1978.

Table 13.1-1

QUALIFICATION REQUIREMENTS
HEADQUARTERS STAFF

TITLE	EDUCATION	EXPERIENCE
Engineer I	Bachelor Degree (Engineering)	No experience
Engineer II	Bachelor Degree (Engineering)	1-1/2 to 2 years experience
Engineer III	Bachelor Degree (Engineering)	3 to 4 years experience
Senior Engineer	Bachelor Degree (Engineering)	6 years experience

Resumes available for key PVNGS personnel and for other key APS nuclear organization personnel providing technical support have been provided to the NRC.

The qualifications of the plant staff are discussed in subsection 13.1.3.

The vice president, nuclear production, normally determines when to call on consultants and contractors for dealing with complex problems beyond the scope of the APS capabilities. This position corresponds most closely to that identified as "engineer in charge" by ANSI/ANS 3.1-1978, and the minimum requirements for this position are those of Paragraph 4.6.1 of ANSI/ANS 3.1-1978.

13.1.2 OPERATING ORGANIZATION

PVNGS Nuclear Production, under the direction of the Vice President-Nuclear Production, has direct line responsibility for the operation of PVNGS. The PVNGS plant manager has responsibility for the safe, reliable, and efficient operation of the plant.

13.1.2.1 Onsite Station Organization

The PVNGS onsite station organization is divided into three groups which report to the Vice President-Nuclear Production. Each group is divided into subordinate departments. Each PVNGS unit is divided into the same departments. One other onsite support group (Director, Site Services) was discussed previously. (Figure 13.1-3)

- Plant Group
  PVNGS Units 1, 2 and 3
  -- Operations
  -- Maintenance
  -- Work Control
  -- Radiation Protection
  -- Chemistry

- Nuclear Production and Support Group
  -- WRF
  -- Outage Management
  -- Central Maintenance
  -- Radwaste Support
  -- Central Radiation Protection

- Standards and Technical Support Group
  - -- Radiation Protection and Chemistry
  - -- Engineering Evaluations
  - -- Operations Computer Systems
  - -- Plant Standards and Control
  - -- Compliance (Matrix)

The Vice President-Nuclear Production is responsible for the overall station operations. The Plant Managers are responsible for operations of their assigned unit.

The Unit organization is shown on Figure 13.1-15. Sufficient manpower is normally available to provide six operating shift crews. Overall staffing consists of current APS plant and support staff.

13.1.2.2 Station Personnel Responsibilities and Authorities

13.1.2.2.1 Vice President, Nuclear Production

The Vice President-Nuclear Production reports to the Executive Vice President, ANPP and has direct responsibility for the safe, reliable, and efficient operation of PVNGS.

The Vice President-Nuclear Production is totally and solely committed to the management of APS' nuclear facilities. This position is charged with the responsibility to ensure that APS nuclear facilities are operated and maintained in accordance with regulatory requirements and with the highest level of safety in accordance with APS policy. Accordingly, this position is charged with the authority necessary to ensure that the appropriate resources are available to support the nuclear unit operational activities. The fact that ancillary support is available to the Vice President-Nuclear Production shall not diminish the authority and responsibility of this position nor shall it prevent this position from obtaining any and all resources, both within and outside APS, necessary to achieve these goals. In the absence of the Vice President-Nuclear Production, the responsibilities for the day-to-day operation, maintenance, and performance of the station are assigned to the Assistant Vice President-Nuclear Production Support. In the event of unexpected contingencies of a temporary nature, when neither the Vice President-Nuclear Production nor the Assistant Vice President-Nuclear Production Support is available at the station, one of the Plant Managers will be assigned this responsibility.

13.1.2.2.1.1 Plant Manager

The Plant Managers are responsible to the Vice President-Nuclear Production for the safe, reliable, and efficient operation of their assigned Unit. This position directs the Operations Manager, Maintenance Manager, Work Control Manager, Radiation Protection Manager, and the Chemistry Manager of the assigned unit. (Refer to Figure 13.1-15 for the Unit Specific Organization.)

13.1.2.2.1.1.1 Operations Manager

The Operations Manager is responsible to the Plant Manager for the conduct of the unit operations in a safe and efficient manner in accordance with technical specifications and station procedures. This position supervises the activities of the unit's operating personnel. At the time of initial core loading or appointment to the position, the Operations Managers shall hold a Senior Reactor Operator license in accordance with ANSI/ANS 3.1-1978 Section 4.2.2. This position will serve as the Plant Manager's principle alternate per ANSI/ANS 3.1-1978 Section (4.2.1).

13.1.2.2.1.1.1.1 Shift Supervisors

The Shift Supervisors are responsible to the Operations Manager for the safe, reliable, and efficient operation of the unit during the assigned shift. The shift supervisor directs the activities of the operators on each shift. The Shift Supervisor will possess a Senior Reactor Operator License.

13.1.2.2.1.1.1.2 Assistant Shift Supervisors

The Assistant Shift Supervisor provides a backup to the Shift Supervisor and supervises shift personnel in conduct of operations as assigned. The Assistant Shift Supervisor will possess a Senior Reactor Operator License.

13.1.2.2.1.1.1.3 Nuclear Operator III

The Nuclear Operator III manipulates the reactor plant controls. The Nuclear Operator III will possess a Reactor Operator License.

13.1.2.2.1.1.1.4 Nuclear Operator I and II

The Nuclear Operator Iand II are responsible, under the direction of the Shift Supervisor and Assistant Shift Supervisor, for operating auxiliary systems and assisting in the refueling of the plant as directed.

13.1.2.2.1.1.2 Operations Support Supervisor

The Operations Support Supervisor acts as assistant to the Operations Manager and is responsible for the overall preparation, coordination, and conduct of the radioactive waste management programs and demineralizer operations including approval of radioactive waste disposal activities. This position will provide a backup to the Operations Manager and hold an SRO license on PVNGS.

13.1.2.2.1.1.3 Maintenance Manager

The Maintenance Manager is responsible to the Plant Manager for the performance of surveillance testing, preventative maintenance, and minor repairs on plant systems and equipment housekeeping and decontamination.

Reporting to the Maintenance Manager are the Mechanical, Electrical, and Instrumentation and Control Supervisors and personnel.

13.1.2.2.1.1.4 Work Control Manager

The Work Control Manager is responsible for providing a planning and scheduling function which efficiently utilizes the resources and the capabilities of the operation, maintenance, radiation protection, chemistry and other work groups assigned to this unit. This position is responsible for the technical content of work control packages used in the performance of maintenance tasks.

13.1.2.2.1.1.5 Radiation Protection Manager

The Radiation Protection Manager is responsible to the Plant Manager for coordination, and conduct of the radiological protection programs in the unit.

13.1.2.2.1.1.6 Chemistry Manager

The Chemistry Manager is responsible to the Plant Manager for the coordination, and conduct of chemistry, and radiochemistry programs. This is a new unit position developed from the existing unit Chemistry Supervisor positions. These unit Chemistry Supervisor positions were previously matrixed to each unit under direction of the Manager, Chemical Service reporting to the Manager, Radiation Protection and Chemistry reporting to the Manager, Technical support.

13.1.2.2.2 Assistant Vice President-Nuclear Production Support

The Assistant Vice President-Nuclear Production Support is responsible for the onsite management of the Water Reclamation Facility, Central Outage Management, Central Maintenance, Radwaste Support, and Central Radiation Protection. (Refer to Figure 13.1-16). This position is assigned the responsibilities of the Vice President-Nuclear Production in the Vice President-Nuclear Production's absence.

13.1.2.2.2.1 Water Reclamation Facility (WRF) Manager

The WRF Manager is responsible for the maintenance and operation of the WRF, as well as the incoming pipeline. This position coordinates these activities with the Unit Operations Manager.

13.1.2.2.2.2 Outage Management Manager

The Outage Management Manager is responsible to provide an integrated outage schedule for both planned and unplanned outages and an integrated schedule for modifications to ensure proper work controls for the units.

13.1.2.2.2.3 Central Maintenance Manager

The Central Maintenance Manager is responsible to provide maintenance support and assistance to the Units.

Reporting to the Central Maintenance Manager are the Mechanical Support, Electrical Support, Instrumentation and Control Support and the Station Services sections. The Station Services organization is responsible for providing support services such as site building and grounds maintenance.

13.1.2.2.2.4 Radwaste Support Manager

The Radwaste Support Manager is responsible to provide support of the power block radwaste activities. This position provides radwaste activities that lend themselves to centralization (e.g., data review and interpretation, laundering, contaminated clothing, and radioactive materials shipping and receiving).

13.1.2.2.2.5 Central Radiation Protection Manager

The Central Radiation Protection Manager is responsible to provide support of the radiation protection activities. This position is to provide support to plant radiation protection activities and conduct common radiation protection functions that lend themselves to centralization (e.g., dosimetry, ALARA reviews, and radiation protection instrumentation calibration and repair).

13.1.2.2.3 Director, Standards and Technical Support

The Director, Standards and Technical Support is responsible to the Vice President-Nuclear Production for the onsite technical support required to ensure proper functioning of the nuclear plant. This position directs the Plant Standards and Control Manager, Engineering Evaluations Manager, Radiation Protection and Chemistry Manager, and the Operations Computer Systems Manager in the performance of their duties. The Compliance Department which provides compliance monitoring under the Director, Nuclear Safety and Licensing, is matrixed to the Director, Standards and Technical Support. (Refer to Figure 13.1-17.)

13.1.2.2.3.1 Engineering Evaluation Manager

The Engineering Evaluations Manager is responsible to the Director, Standards and Technical Support for onsite engineering and technical work required for proper operation of the Units. He directs the supervisors of the onsite engineering sections in the performance of their duties.

13.1.2.2.3.1.1 Reactor Engineering Supervisor

The Reactor Engineering Supervisor is responsible for core monitoring and in-core fuel management programs.

This position coordinates with onsite operating personnel and with offsite support organizations as necessary in performing these functions.

13.1.2.2.3.1.2 Test Engineering Supervisor

The Test Engineering Supervisor is responsible to the Engineering Evaluations Manager for onsite engineering testing required by the Technical Specifications including ILRT, LLRT, and ASME Section XI and the inservice inspection program.

13.1.2.2.3.1.3 Shift Technical Advisor (STA) Supervisor

The STA Supervisor is responsible to the Engineering Evaluations Manager for providing Shift Technical Advisors. However, the STA's will be matrixed to the Plant Managers and will receive their day-to-day direction from the Plant Manager.

13.1.2.2.3.1.4 System Engineering Supervisor

The System Engineering Supervisor is responsible to provide engineering expertise in the operation and maintenance of all major plant systems including monitoring and trending of system and component performance, and review of system performance during transients or trips. The System Engineering Supervisor is also responsible to develop and/or review proposed modifications and provide onsite, liaison with the Engineering and Construction group to ensure such proposed modifications are needed and proposed designs satisfy operating needs.

13.1.2.2.3.1.4.1 Supervisor of Station Statistics

The Supervisor of Station Statistics is responsible to maintain station generating and performance statistics to satisfy NRC, ACC and INPO statistical requirements including production of required reports.

13.1.2.2.3.2 Operations Computer Systems Manager

The Operations Computer Systems Manager is responsible to the Director, Standards and Technical Support for coordinating onsite computer activities, including hardware and software.

13.1.2.2.3.3 Radiation Protection and Chemistry Manager

The Radiation Protection and Chemistry Manager is responsible to the Director, Standards and Technical Support for the site-wide preparation and coordination of station radiological protection, chemistry, and radiochemistry programs. This includes developing an operating philosophy, procedures and procedural standardization for the site Radiation Protection and Chemistry programs including maintaining occupational radiation exposures as low as is reasonably achievable. This position corresponds to "Radiation Protection Manager" as discussed in Regulatory Guides 1.8 and 8.8, however, exception is taken to Regulatory Guide 8.8 positions C.1.b.3.(g), (h), (i) and (j) since these activities are performed by other positions.

13.1.2.2.3.4 Plant Standards and Control Manager

The Plant Standards and Control Manager is responsible for developing operations and maintenance standards and ensuring that the operating procedures and maintenance procedures used in the three Units are identical and to ensure that they are applied uniformly. This is a new management position developed to ensure consistency of operation and maintenance, by providing standard procedures and to provide sharing of lessons learned among the units and central groups.

13.1.3 Qualifications of Nuclear Plant Personnel

13.1.3.1 Qualification Requirements

The recommendations of Regulatory Guide 1.8, Personnel Selection and Training, are used as the basis for establishing minimum qualifications for nuclear power plant personnel.

The minimum requirements for station personnel are keyed to ANSI/ANS 3.1-1978 as follows:

ORGANIZATIONAL STRUCTURE OF APPLICANT

POSITION	ANSI/ANS 3.1--1978 POSITION (PARAGRAPH NO.)
Plant Manager	Plant Manager (4.2.1)
Operations Manager	Operations Mgr. (4.2.2)
	Plant Mgr. Principal Alternate (4.2.1)
Operations Support Supervisor	Supervisor Requiring NRC License (4.3.1)
	Plant Operations Mgr. Principle Alternate (4.2.2)
Shift Supervisors	Supervisor Requiring NRC License (4.3.1)
Assistant Shift Supervisors	Supervisor Requiring NRC License (4.3.1)
Nuclear Operator III	Operators (Licensed) (4.5.1)
Nuclear Operators I & II	Operator (Not Licensed)
Unit Maintenance Manager	Maintenance Manager (4.2.3)
Unit I & C Supervisor	I & C (4.4.2)
Unit I & C Technician	Technician (4.5.2)
Unit Electrical Supervisor	Supervisor Not Requiring NRC License (4.3.2)
Electricians	Maintenance Personnel (4.5.3)
Unit Mechanical Supervisor	Supervisor Not Requiring NRC License (4.3.2)
Mechanics	Maintenance Personnel (4.5.3)
Unit Work Control Manager	Mgr. Not Requiring NRC License (4.3.2)
Unit Radiation Protection Mgr.	Radiation Protection (Note a)
Unit Chemistry Manager	Chemistry & Radiochemistry (4.4.3)
Assist. V.P.-Nuclear Production Support	Technical Manager (4.2.4)
Outage Management Manager	Mgr. Not Requiring NRC License (4.3.2)
I&C Support Supervisor	I&C (4.4.2)
Electrical Support Supervisor	Supervisor Not Requiring NRC License (4.3.2)
Central Maintenance Manager	Maintenance Mgr. (4.2.3)
Mechanical Support Supervisor	Supervisor Not Requiring NRC License (4.3.2)
Station Services Supervisor	Supervisor Not Requiring NRC License (4.3.2)
Radwaste Support Manager	Mgr. Not Requiring NRC License (4.3.2)
Central Rad. Prot. Mgr.	Radiation Proctection (Note a)
Director, Standards & Tech. Support	Technical Manager (4.2.4)
Plant Standards & Control Mgr.	Mgr. Not Requiring NRC License (4.3.2)
Engineering Evaluations Mgr.	Technical Manager (4.2.4)
Operations Computer Systems Mgr.	Mgr. Not Requiring NRC License (4.3.2)
Radiation Protection & Chemistry Mgr.	Radiation Protection (4.4.4)
Reactor Engineering Supervisor	Reactor Engineer (4.4.1)

POSITION	ANSI/ANS 3.1--1978 POSITION (PARAGRAPH NO.)
Engineering & Construction Director	Engineer in Charge (4.2.4, 4.6.1)
Engineering Manager	Technical Manager (4.2.4)
Site Services Director	Mgr. Not Requiring NRC License (4.3.2)
Security Manager	Mgr. Not Requiring NRC License (4.3.2)
Training Manager	Mgr. Not Requiring NRC License (4.3.2)
Administrative Services Manager	Mgr. Not Requiring NRC License (4.3.2)
Nuclear Safety & Licensing Director	Mgr. Not Requiring NRC License (4.3.2)
ISEG Personnel	Note b
Quality Assurance Director	Quality Assurance (4.4.5)
Quality Assurance Managers	Quality Assurance (4.4.5) as defined in Section 1.1.3 of this description

NOTES:

a. The Central Radiation Protection Manager, and the Unit Radiation Protection Managers, shall have a minimum of five years experience in radiation protection at a nuclear facility. A minimum of two years of this five years experience should be related technical training but exception is taken to the degree requirement in ANSI/ANS 3.1 Section 4.4.4. A maximum of four years of this five years experience may be fulfilled by related technical or academic training. Two years of this five years experience shall be at a professional level.

b. The ISEG shall be composed of at least five, dedicated, full time engineers located onsite. Each shall have a Bachelor's Degree in Engineering or related science and at least two years professional level experience in his field.

13.1.3.2 Qualification of Plant Personnel

Resumes of the appointees to key plant managerial positions and shift supervisor level information has been previously provided to NRC and is not included here.

13.1.4 Review and Audit

Operating phase activities that affect nuclear safety are reviewed and audited. The review and audit program is implemented prior to initial fuel loading and ensures proper review and evaluation of proposed changes, tests, experiments, and unplanned events. The program complies with the requirements of Subpart 59 of 10CFR50 relating to proposed changes, tests, and experiments and is conducted following the recommendations of Regulatory Guide 1.33, Quality Assurance Program Requirements (Operation), as discussed in Section 1.8.

In addition, a formal review and audit program is carried out for changes to systems, procedures, tests, and experiments and for the after-the-fact review and evaluation of unplanned events that affect nuclear safety. This program is implemented through staff review, Plant Review Board, Independent Safety Engineering Group (ISEG), and an offsite Nuclear Safety Group (NSG).

13.1.4.1 Onsite Review

Onsite review is performed by the Plant Review Board (PRB) which has the responsibility to review plant activities and administrative controls as related to nuclear safety. A detailed description of the PRB is provided in the PVNGS Technical Specifications as part of the description of administrative controls.

The PRB is composed of those individuals specified in the PVNGS Technical Specifications. Collectively, they possess the type and degree of expertise required to properly review proposed changes to systems, procedures, tests, experiments, and unplanned events that effect nuclear safety. The PRB meets at least once per calendar month and maintains written minutes of each meeting, which are reviewed by the Nuclear Safety Group.

13.1.4.2 Independent Review

13.1.4.2.1 Nuclear Safety Group (NSG)

The Nuclear Safety Group is an independent, off-site organization which performs all-encompassing reviews to ensure the safe operation of PVNGS in accordance with License requirements. The NSG Manager reports to and advises the Director, Nuclear Safety and Licensing, who, in turn, reports to the Executive Vice President-ANPP.

The Nuclear Safety Group is a staff organization composed of at least four Nuclear Safety engineers and a Manager. Their primary function is to provide competent technical review of plant operations to ensure nuclear safety. The NSG also maintains cognizance of QA audits and may utilize technical specialists from other APS organizations and outside consultants with expertise in special areas, as determined necessary by the NSG Manager.

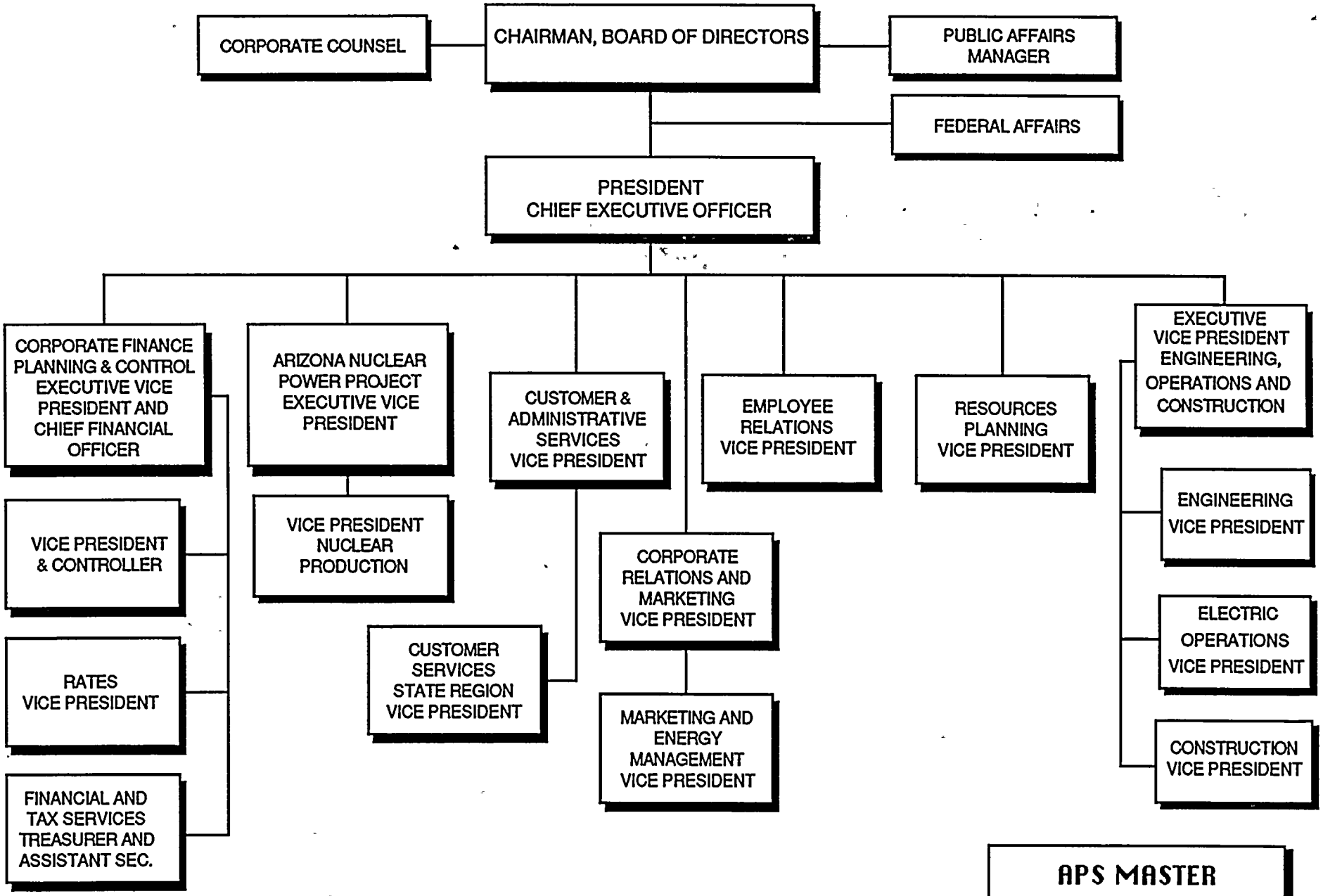
The details of the function, composition, review and audit requirements, authority, records and meeting frequency of NSG are described in the PVNGS Technical Specification, Section 6.5.3.

13.1.4.2.2 Independent Safety Engineering Group (ISEG)

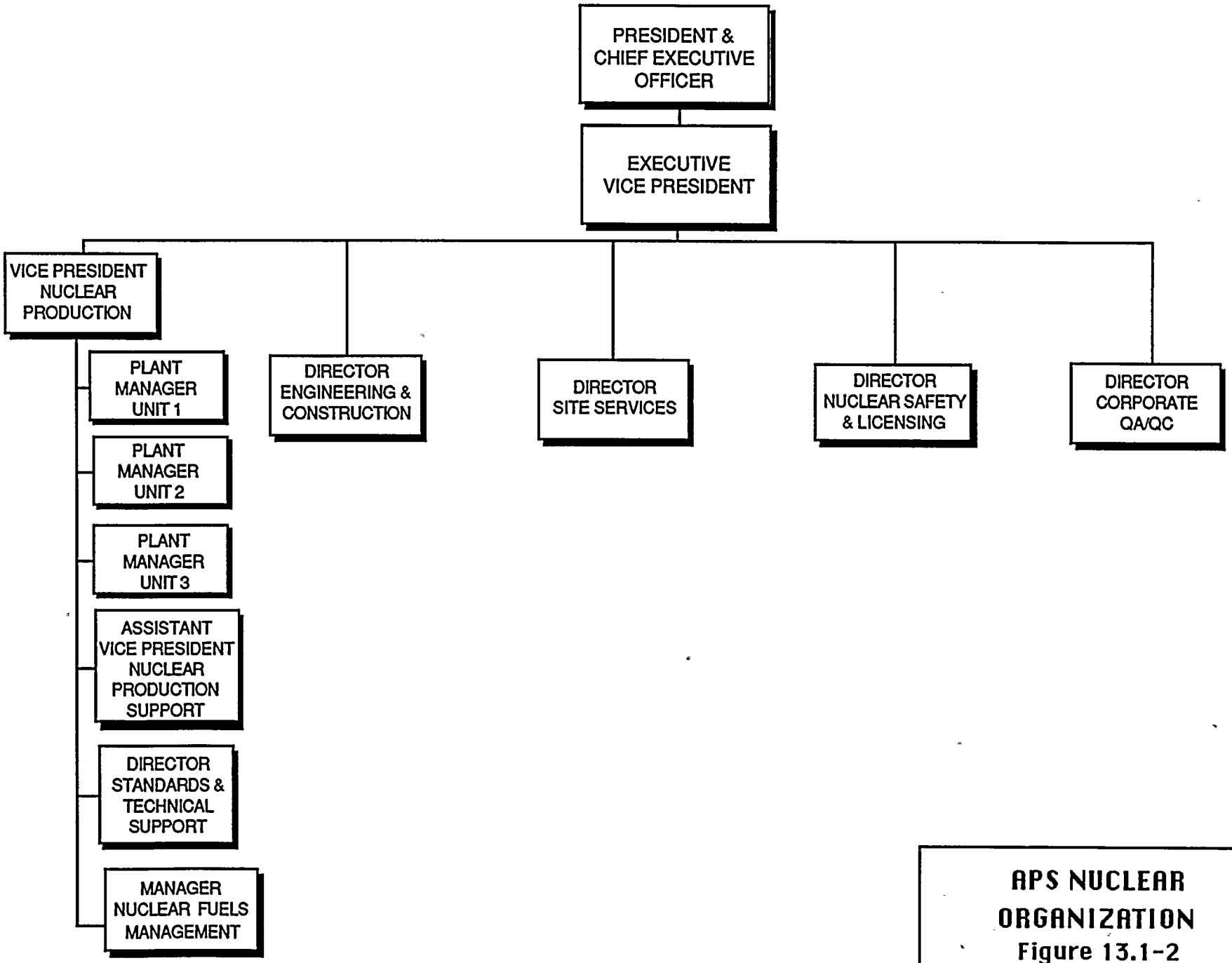
The review function of the ISEG is provided in the current FSAR Section 18.I.B.1.2 and in PVNGS Technical Specification Section 6.2.3.

13.1.4.2.3 Audit Program

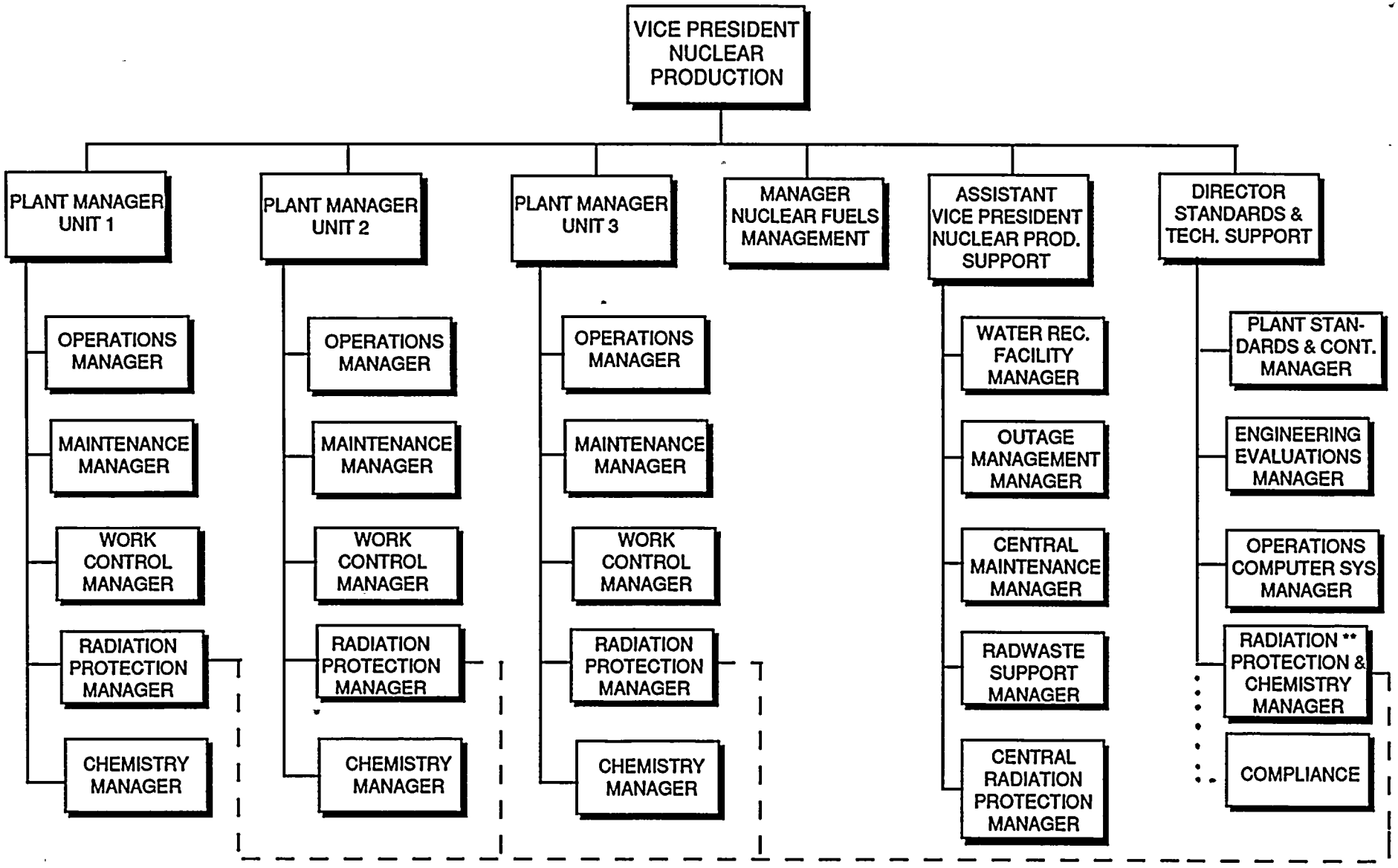
The audit program is as described in FSAR Section 13.4.3.



APS MASTER ORGANIZATION
Figure 13.1-1



APS NUCLEAR ORGANIZATION
Figure 13.1-2



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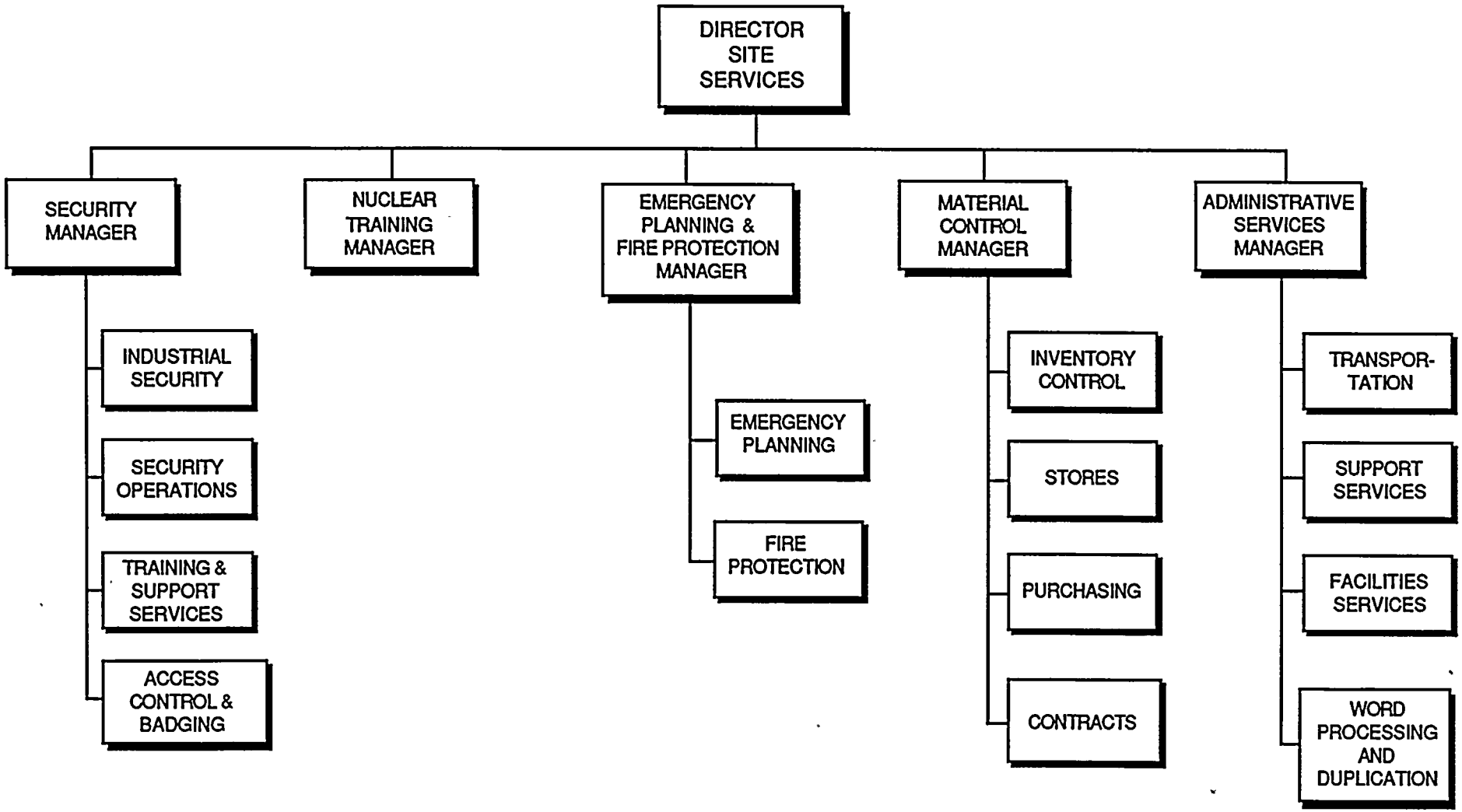
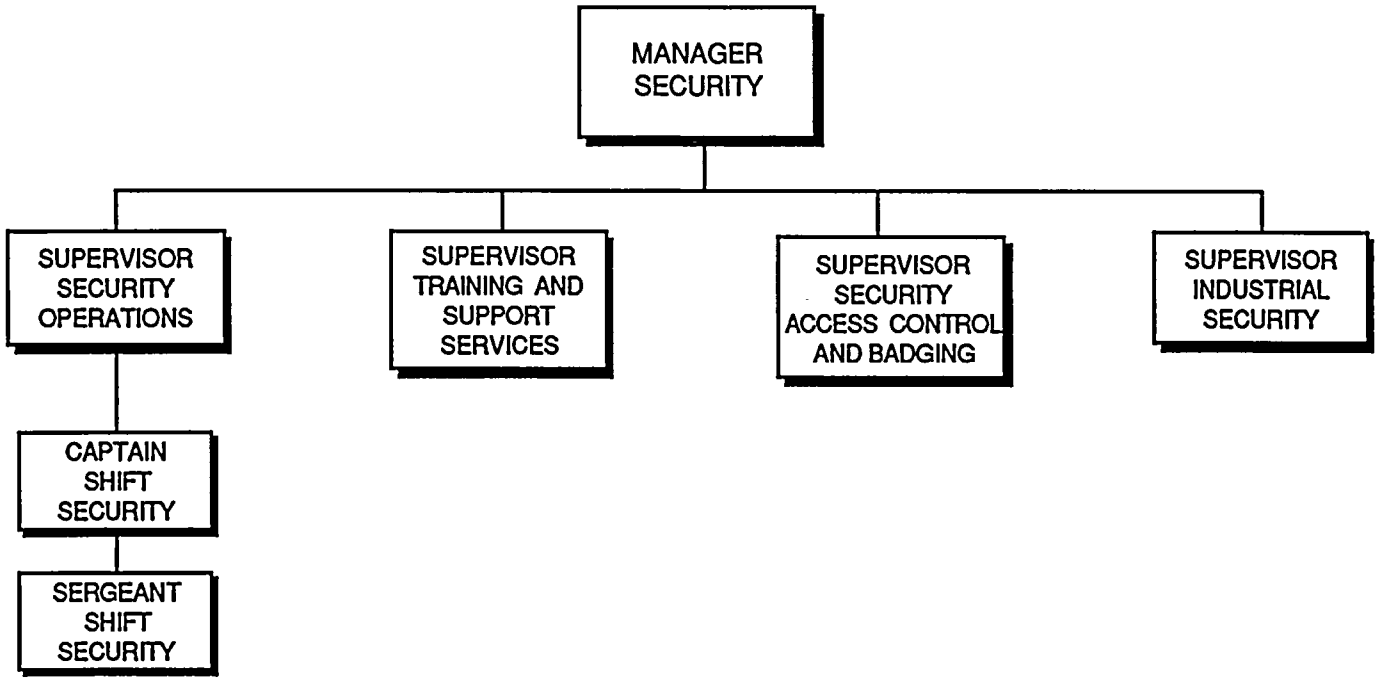
** DESIGNATED REG. GUIDE 1.8 RADIATION PROTECTION MANAGER

— — — DOTTED LINES INDICATE PROGRAMMATIC PROCEDURAL DIRECTION AND PROBLEM RESOLUTION

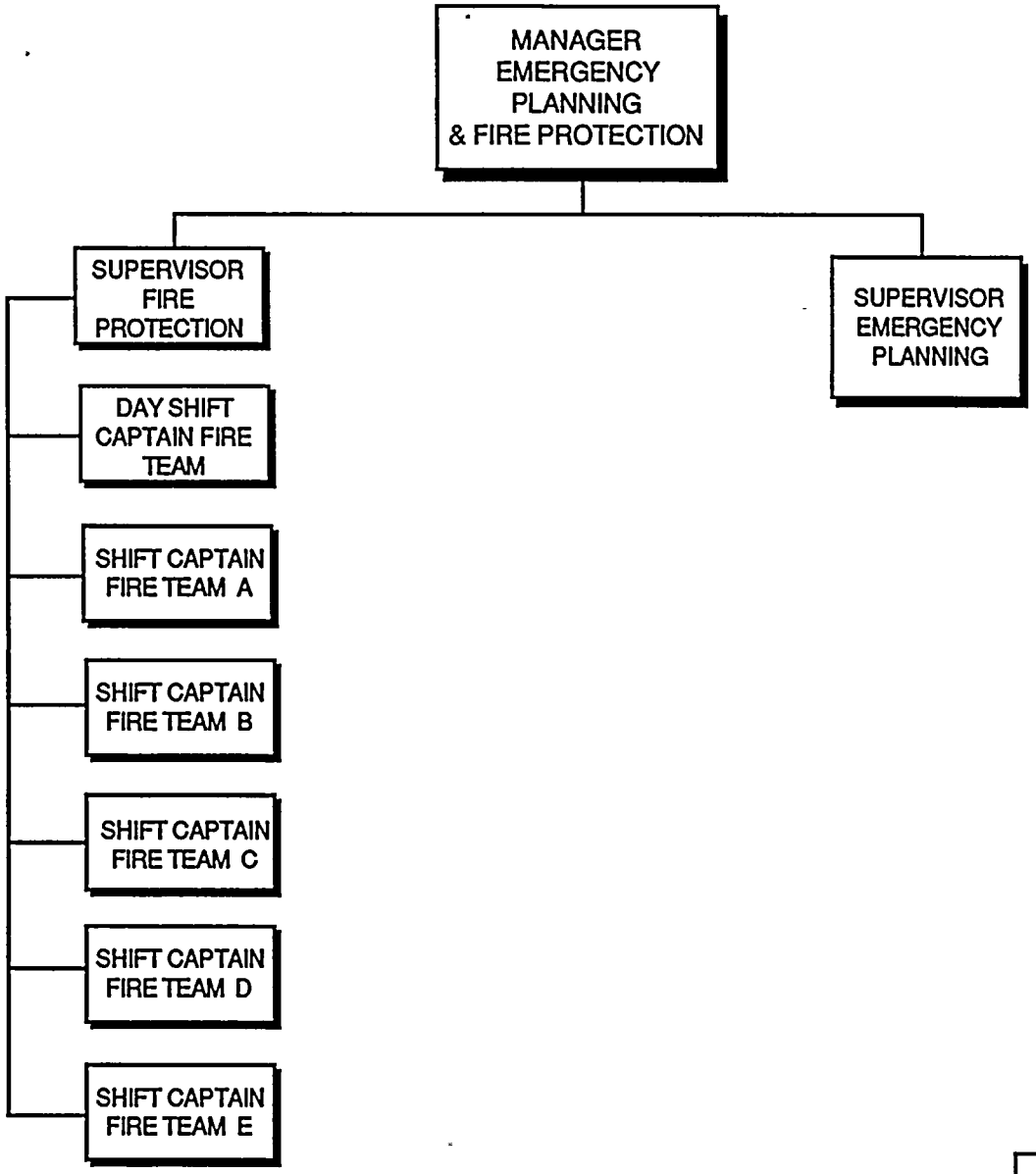
APS NUCLEAR PRODUCTION
Figure 13.1-3



APS NUCLEAR SITE SERVICES
Figure 13.1-4

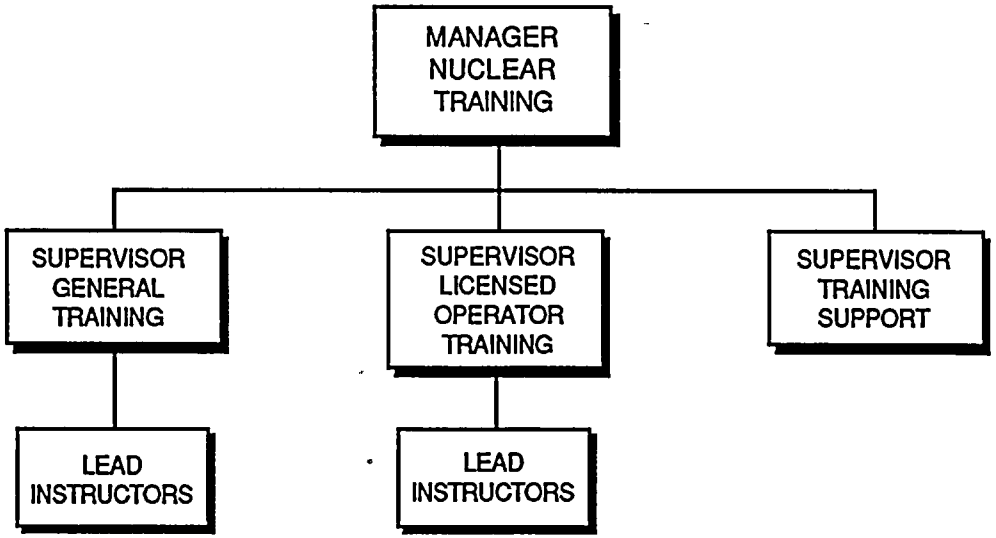


APS NUCLEAR SECURITY
Figure 13.1-5

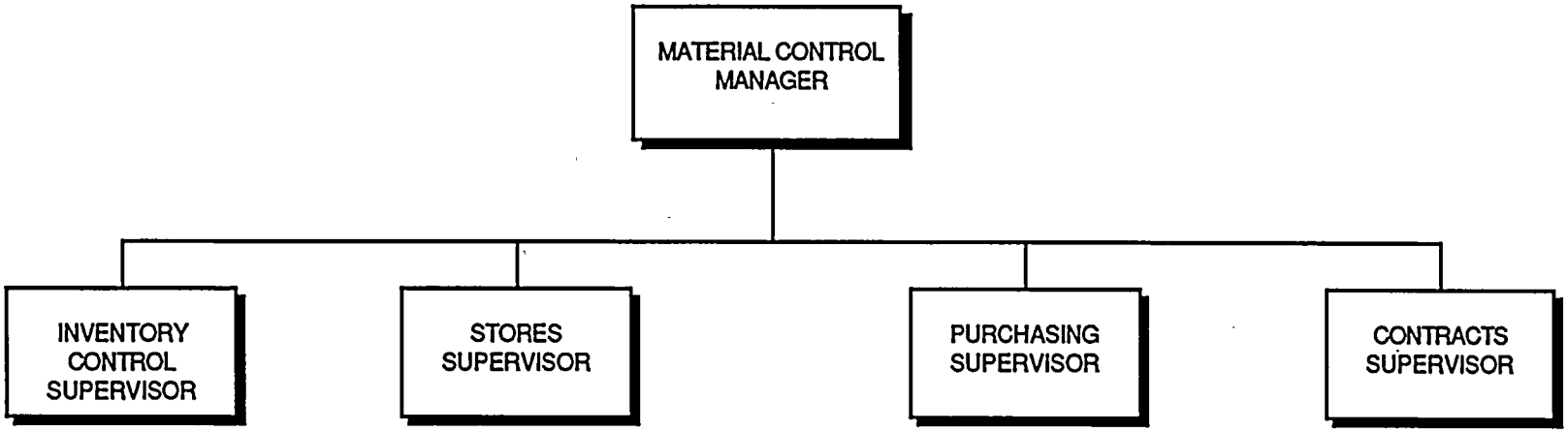


APS NUCLEAR EMERGENCY PLANNING & FIRE PROTECTION

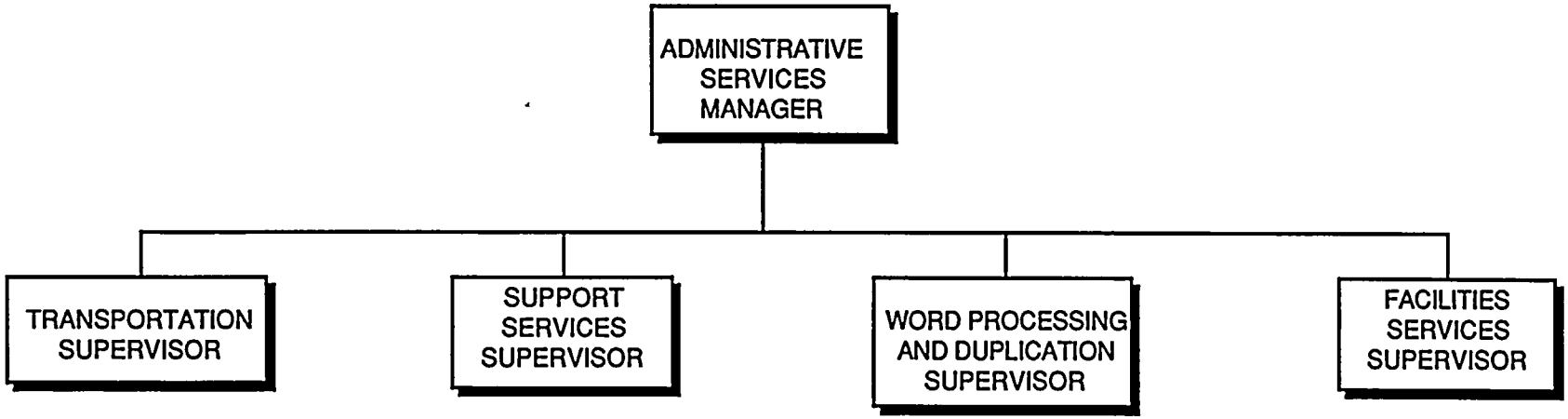
Figure 13.1-6



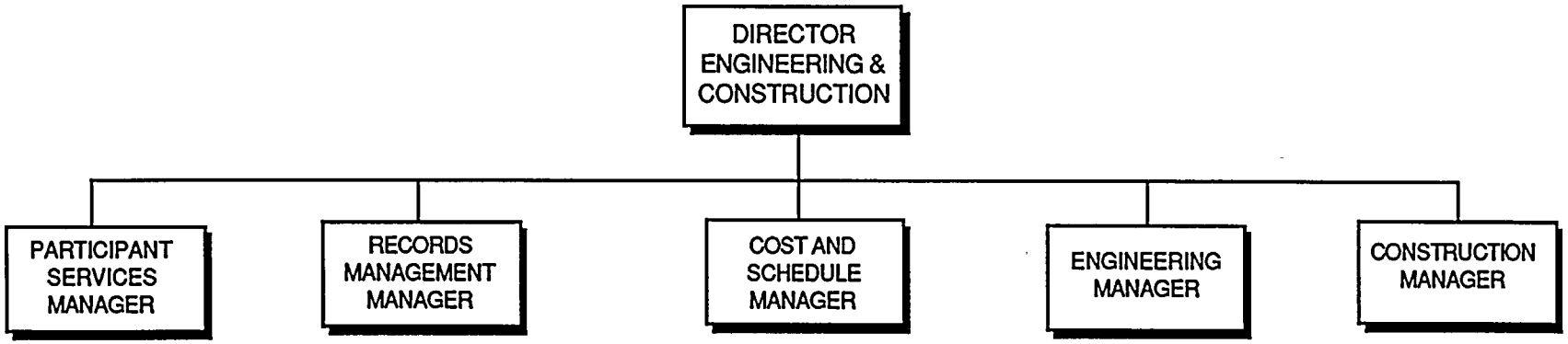
APS NUCLEAR TRAINING
Figure 13.1-7



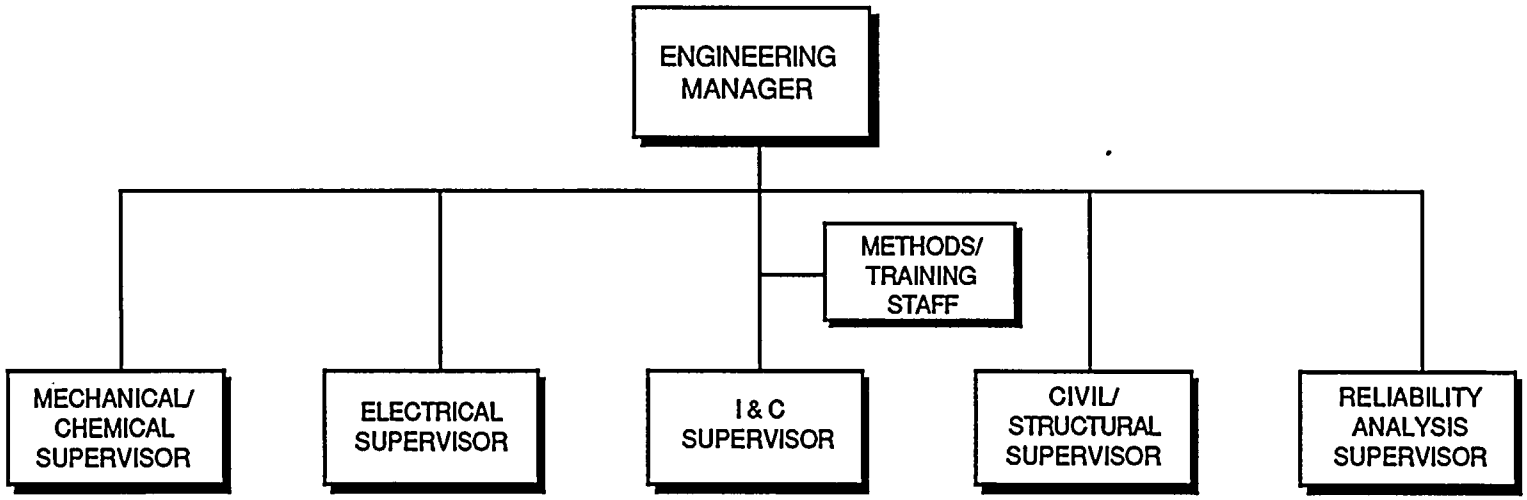
APS NUCLEAR MATERIAL CONTROL
Figure 13.1-8



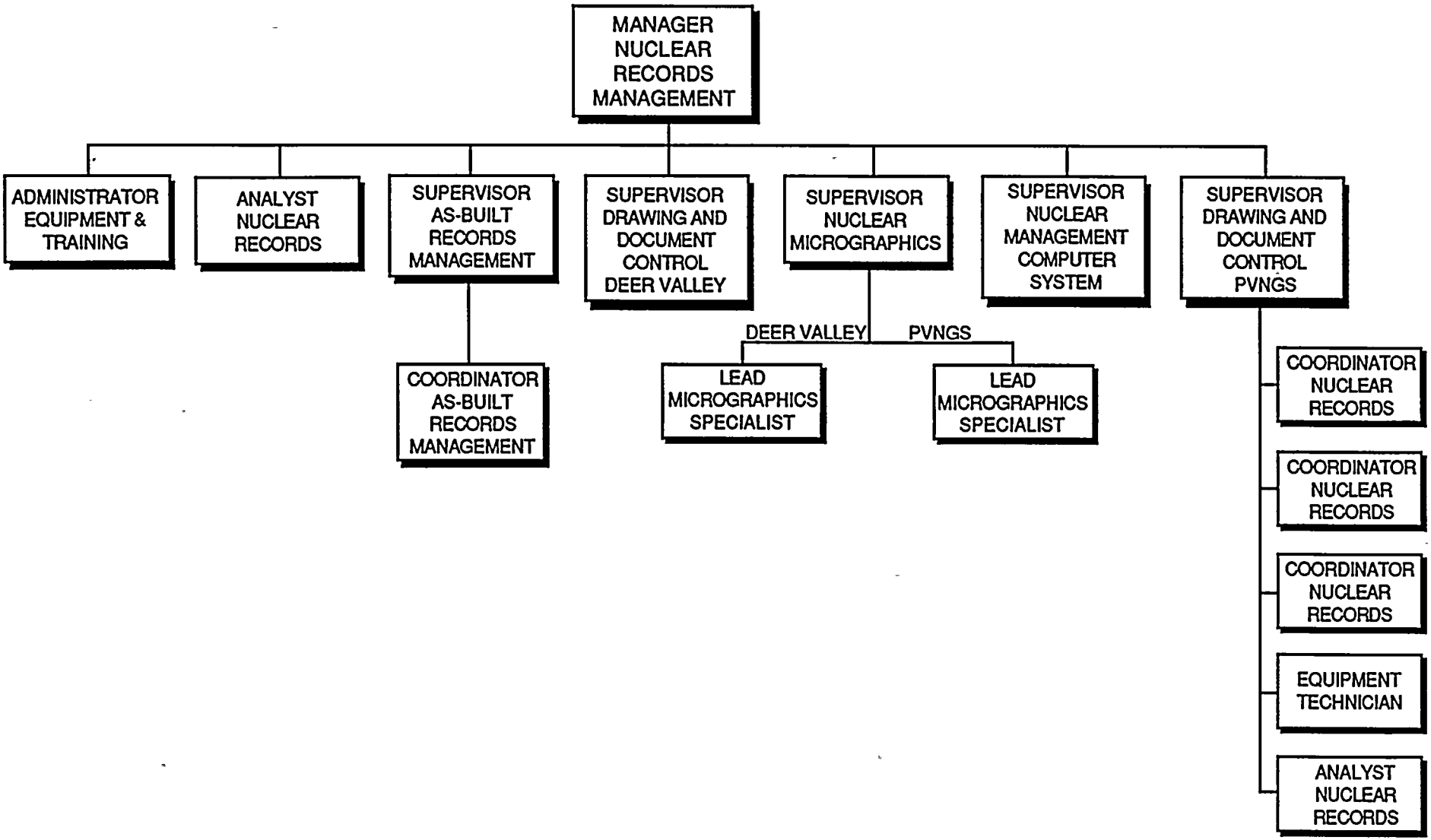
APS NUCLEAR ADMINISTRATIVE SERVICES
Figure 13.1-9



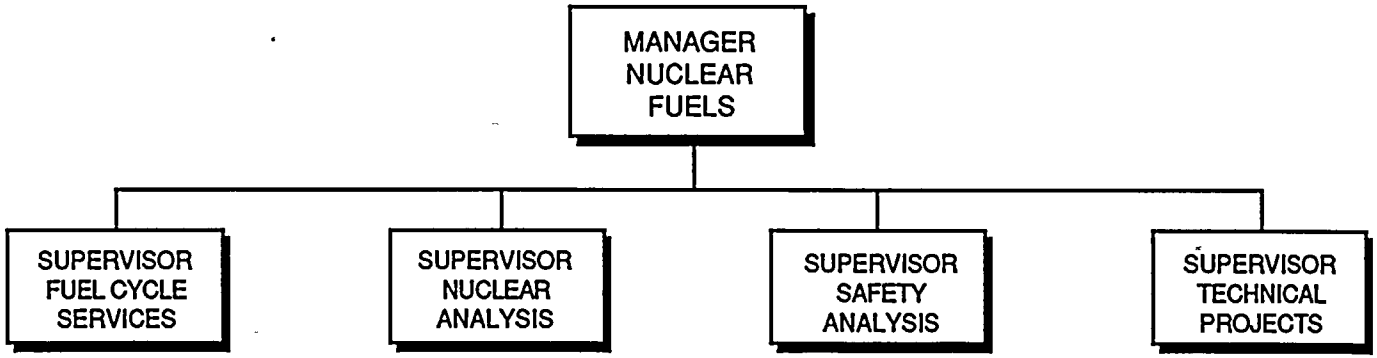
APS NUCLEAR ENGINEERING AND CONSTRUCTION
Figure 13.1-10



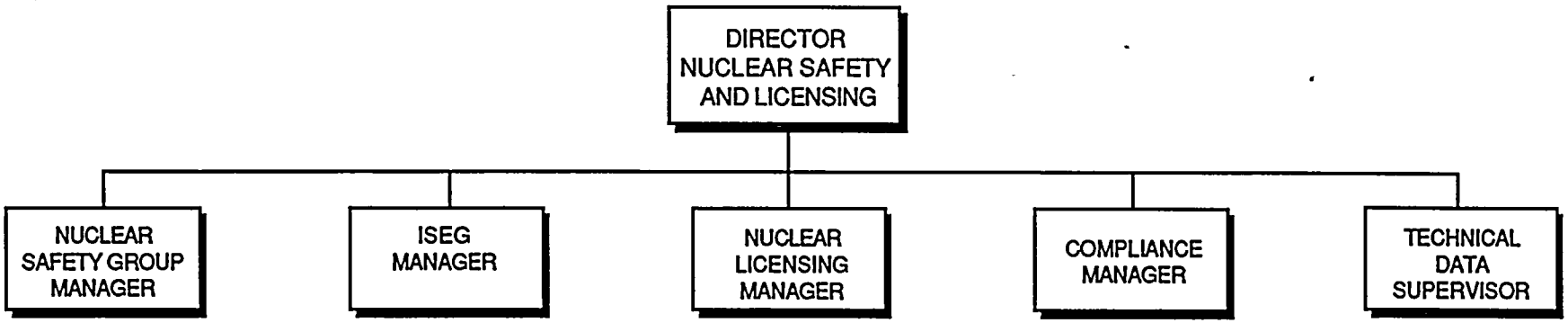
APS NUCLEAR ENGINEERING
Figure 13.1-11



APS NUCLEAR RECORDS MANAGEMENT
Figure 13.1-12

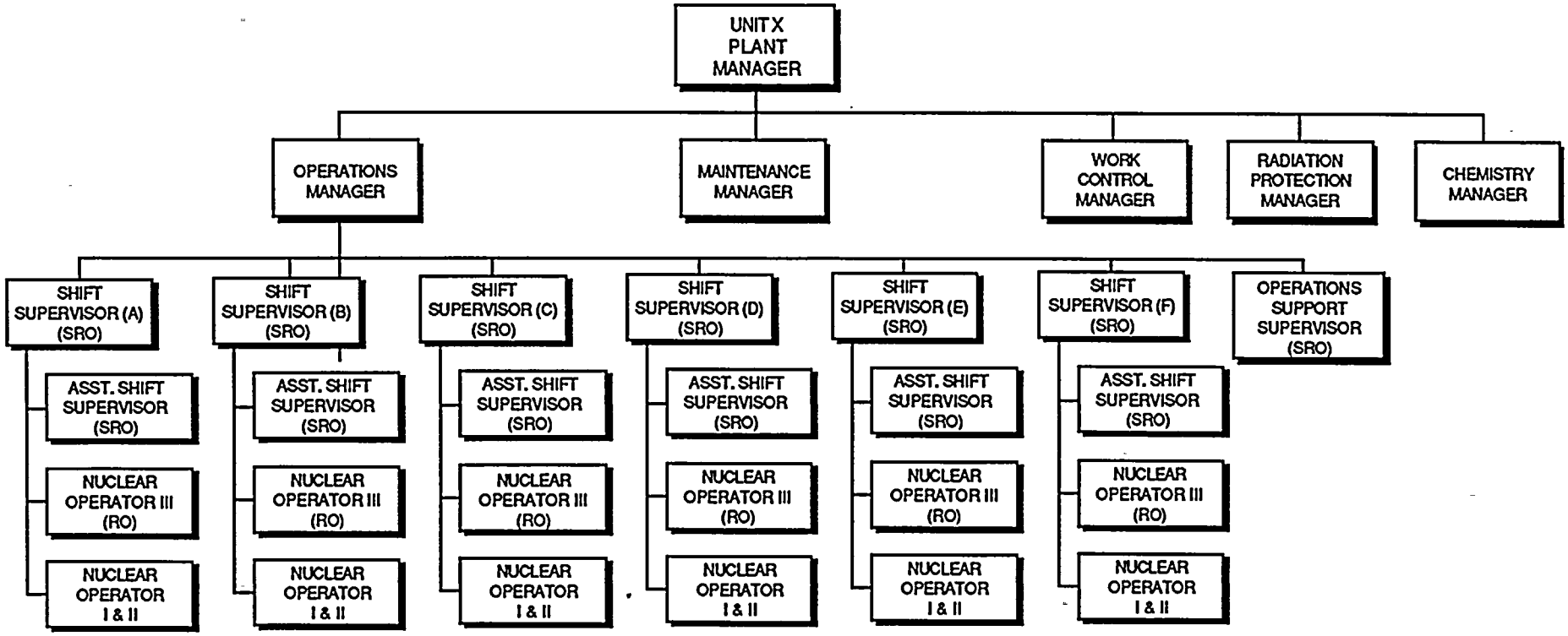


APS NUCLEAR FUELS
Figure 13.1-13



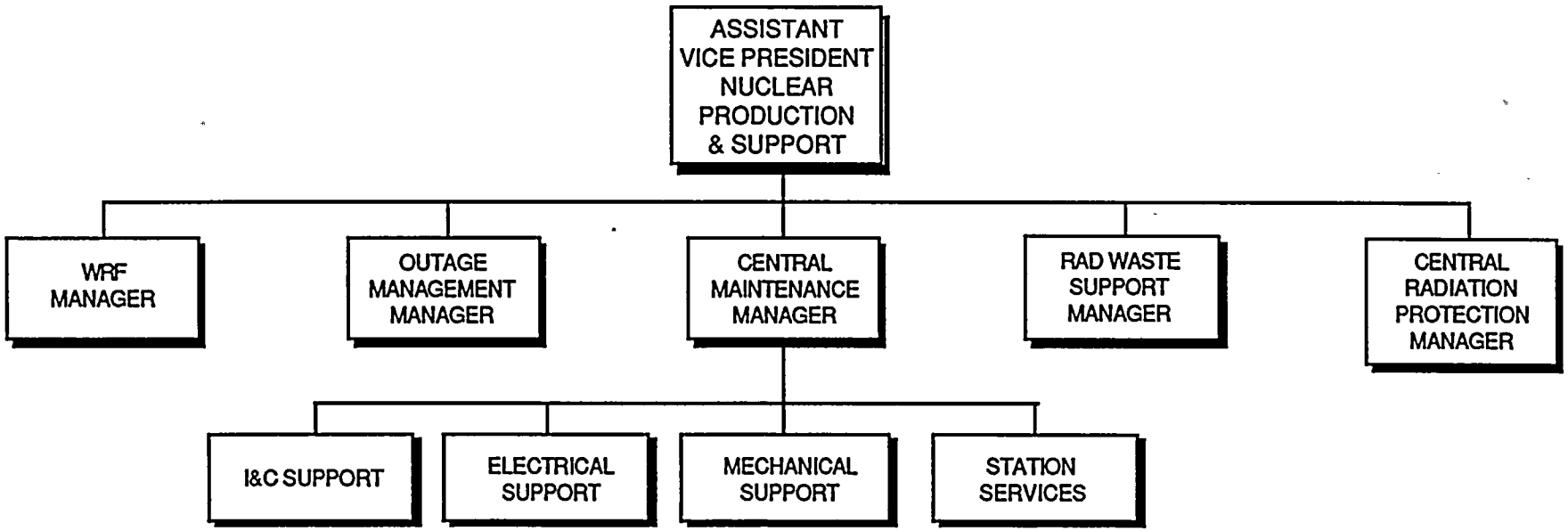
APS NUCLEAR SAFETY AND LICENSING

Figure 13.1-14



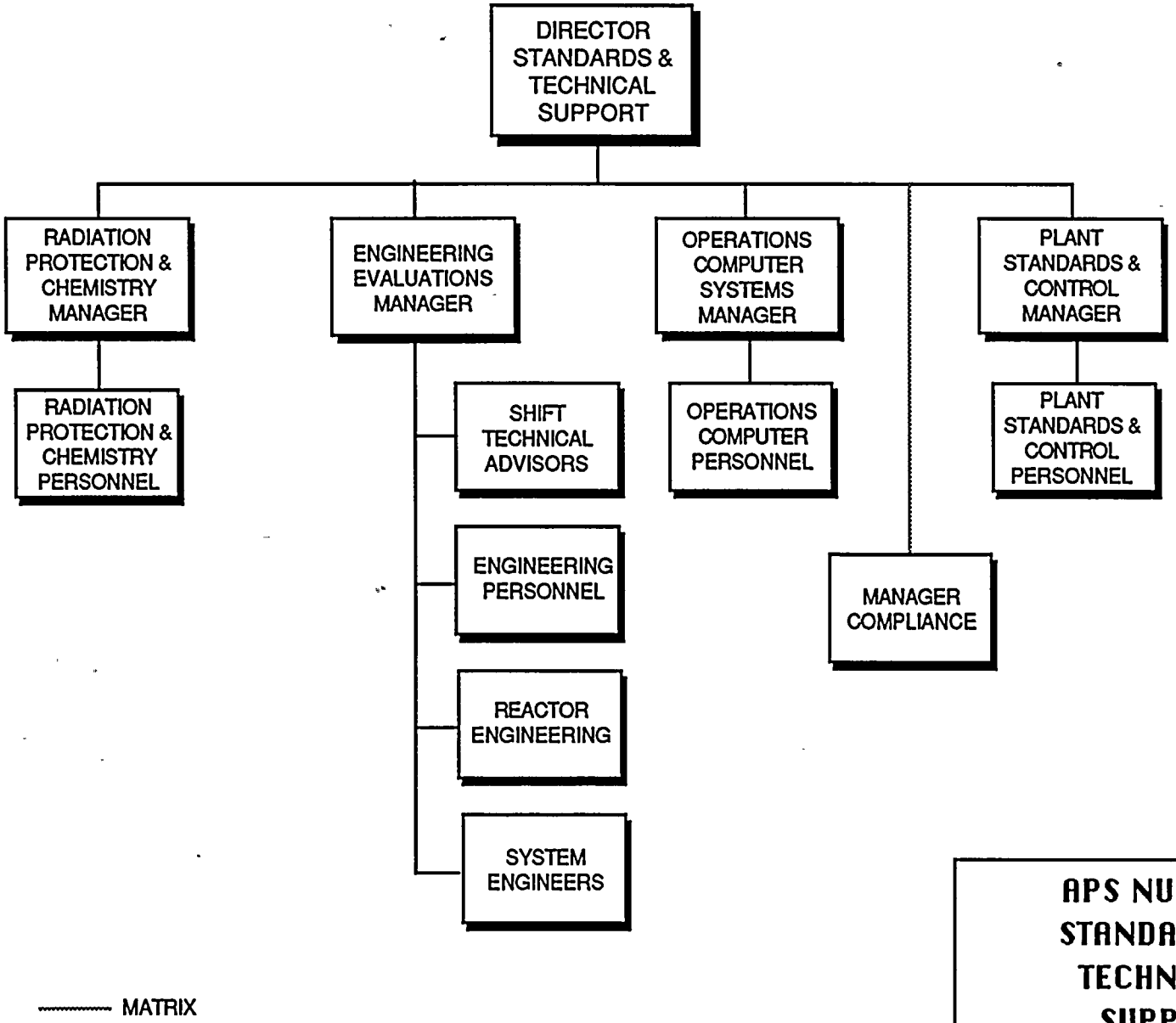
APS NUCLEAR UNIT SPECIFIC ORGANIZATION

Figure 13.1-15



APS NUCLEAR PRODUCTION SUPPORT

Figure 13.1-16



APS NUCLEAR STANDARDS & TECHNICAL SUPPORT
Figure 13.1-17