Georgia Power Company
Project Management
Route 2, Box 299A
Waynesboro, Georgia 30830
Telephone 404 724-8114
404 554-9961

Vogtle Project

January 31, 1985

Director of Nuclear Reactor Regulation
Attention: Ms. Elinor G. Adensam, Chief
Licensing Branch #4
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

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NRC DOCKET NUMBERS 50-424 and 50-425
CONSTRUCTION PERMIT NUMBERS CPPR-108 AND CPPR-109
VOGTLE ELECTRIC GENERATING PLANT - UNITS 1 AND 2
DRAFT REVIEW COPY OF FSAR CHAPTER 13

Dear Mr. Denton:

Enclosed please find for your review five (5) copies of a proposed draft for VEGP FSAR Chapter 13. As requested by your staff, this draft incorporates Draft Safety Evaluation Report (DSER) open items 90 through 97 as discussed with your staff at a meeting in Bethesda, MD on December 13, 1984. DSER open items 126 through 132 have also been addressed.

If your staff requires any additional information, please do not hesitate to contact me.

Sincerely,

J. A. Bailey

J. A. Bailey
Project Licensing Manager

JAB/sp
xc: D. O. Foster
R. A. Thomas
G. F. Trowbridge, Esquire
J. E. Joiner, Esquire
C. A. Stangler
L. Fowler
M. A. Miller
L. T. Gucwa
G. Bockhold, Jr.

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13.0 CONDUCT OF OPERATIONS

13.1 ORGANIZATIONAL STRUCTURE OF APPLICANT

13.1.1 MANAGEMENT AND TECHNICAL SUPPORT ORGANIZATION

This section provides information concerning corporate organization, functions, and responsibilities, participation in the facility design, design review, design approval, construction management, testing, and operation of the plant.

13.1.1.1 Design and Operating Responsibilities

The following paragraphs summarize the degree to which design, construction, and preoperational activities have been accomplished and describe the specific responsibilities and activities relative to technical support for operations.

13.1.1.1.1 Design and Construction Activities (Project Phase)

13.1.1.1.1.1 Principal Site-Related Engineering Work. Principal site-related work such as meteorology, geology, seismology, hydrology, and demography has been developed and is described in chapter 2. The VEGP preoperational monitoring program is described in the environmental report; this program establishes a preoperational baseline from which to evaluate future monitoring of environmental effects.

13.1.1.1.1.2 Design of Plant and Auxiliary Systems. An evaluation of engineering progress of ~~71.7~~ Approximately 80.0 percent and overall completion of ~~40.1~~ 56.7 percent was indicated as of ~~January 1983.~~ April 1984

13.1.1.1.1.3 Site Layout with Respect to Environmental Effects and Security Provisions. Site layout with respect to environmental effects is described in chapter 2. Site security with respect to plant geographical layout and equipment is described in the security plan.

13.1.1.1.1.4 Development of Safety Analysis Reports. Overall responsibility for preparation of the Final Safety Analysis Report (FSAR) rests with Southern Company Services (SCS) nuclear safety and licensing department. Preparation of the individual sections was assigned to the cognizant technical

groups within Bechtel, Westinghouse, SCS, and Georgia Power Company (GPC).

13.1.1.1.1.5 Review and Approval of Material and Component Specifications. All project specifications for safety-related equipment are reviewed in accordance with the quality assurance program as described in chapter 17.

13.1.1.1.1.6 Procurement of Materials and Equipment. As of January 1983 approximately 80 percent of the specifications for equipment had been awarded. Completion of this activity is scheduled for mid-1984.

13.1.1.1.1.7 Management and Review of Construction Activities. The Vogtle Project is organized on the project management basis whereby all groups involved report directly or indirectly to the ~~project general manager~~ who reports to the senior vice president Nuclear Power ~~president engineering, construction, and project management~~, who in turn reports to ~~a group of executives known as the project management board~~. ~~The vice president and project general manager~~ provides project direction to the ~~project construction manager~~ at the site. Monitoring and review of activities by construction at the site are as follows:

Vice President General Manager Vogtle Project

Executive Vice President Power Supply

The Duty GENERAL MANAGER Vogtle Project

GENERAL Manager Vogtle Nuclear Construction

A. The field operations group under the direction of the ~~assistant construction project managers~~ provides the day-to-day management and planning of the actual physical construction activity onsite.

Project Construction Managers

B. The quality control group under the direction of the manager-quality control provides quality control surveillance and inspection of the construction activity to ensure that good construction practices are followed and that design and regulatory requirements are adhered to by the contractors.

C. The project cost/schedule group under the direction of the manager-cost and schedule provides the project cost and schedule control program and its implementation through the project organization. The group also monitors contractor cost and schedule performance to keep management informed of project status. It provides objective data to identify construction problems early so that alternatives can be developed by management.

D. Support operations personnel control material and equipment availability and ensure that documentation is complete, current, and retrievable.

13.1.1.1.2 Preoperational Activities

13.1.1.1.2.1 Development of Human Engineering Design Objectives and Design Phase Review of Proposed Control Room Layouts. The VEGP control room was designed according to mid-1960s design criteria except for a reduced size control board. The design incorporated the human factor design criteria at that time. An independent evaluation on human factor design has been performed on a mockup of the control room. A detailed discussion of control room design review and human engineering factors is described in chapter 18.

13.1.1.1.2.2 Development and Implementation of Staff Recruiting and Training Programs. The operating staff is described in subsection 13.1.2. Recruiting of personnel to fill these positions started in late 1979. Training programs have been developed for this facility and are described in section 13.2.

13.1.1.1.2.3 Development of Plans for Initial Testing. The GENERAL MANAGER Vogtle Nuclear Operation (GMVNO) ~~plant manager~~ is responsible for all aspects of the initial test program of the VEGP. As part of his responsibilities, the GMVNO ~~plant manager~~ (or his designee) will direct the development of the startup manual.

The startup manual will define the startup organization, define the responsibilities of involved organizations and personnel, delineate the qualifications necessary for startup personnel, and contain the administrative controls necessary for the implementation of that part of the initial test program prior to fuel load. ALSO, REFER TO PARAGRAPH 13.1.2.2.5 FOR A DISCUSSION OF THE INITIAL TEST PROGRAM

The administrative controls, qualification for testing personnel, and other required procedures for conducting that part of the initial test program after fuel load will be included in the plant procedure manual.

13.1.1.1.2.4 Development of Plant Maintenance Programs. The work force assigned to the VEGP will provide qualified maintenance personnel prior to initial fuel loading.

Structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public will be maintained in accordance with the quality assurance program.

The maintenance staff will be sized to perform the routine and preventive maintenance workload. The staff will be supplemented by outside contractors as deemed appropriate by plant management. Maintenance is performed under the direction of cognizant supervisors and in accordance with accepted work practices.

The scope and frequency of the preventive maintenance will be based on past experience with similar equipment and the manufacturer's recommendations. Records will be kept to establish the maintenance history of major safety-related equipment. Maintenance and repairs will be performed by qualified personnel in accordance with written work orders, maintenance procedures, standing orders, vendor technical manuals, and/or applicable codes and regulations. Qualified maintenance personnel will possess the skills to perform work without detailed written procedures. Except for emergencies, maintenance work will be preplanned. Training meetings will be held to foster safety awareness and quality of workmanship.

13.1.1.2 Technical Support for Operations

Technical support for the operation of GPC nuclear power plants has been established and is in effect for Hatch Nuclear Plant. For VEGP the same organizational technical support will become available prior to the start of the initial test program.

13.1.1.2.1 Power Supply Department

The executive vice president-power supply is responsible to the president for the operation and construction of electric generating plants. He has reporting to him the [redacted] vice president-engineering, construction, and project management, the senior vice president-[redacted], the general manager-fuel services, and the general manager-quality assurance [redacted]. The quality assurance organization is described in chapter 17. The principal organizations in the power supply engineering and services department providing this support are mechanical engineering, civil engineering, generating plant electrical engineering, engineering services, and environmental affairs.

The power supply engineering services department provides an interface through which the plant staff may obtain assistance

from engineering, construction, procurement, SCS, and other outside engineering organizations. In addition, environmental affairs manages and coordinates the overall environmental programs to obtain permits and licenses from state and federal agencies.

The ~~generating plant~~ construction services department can supply technical support when requested to manage field operations for civil, mechanical, and electrical construction work.

The power generation services department provides support services in the testing, installation, and maintenance of plant controls and systems and directs power generation laboratories in fossil fuel, environmental, and plant sampling functions. The nuclear generation section has engineers to provide licensing support and to review selected activities within the power generation department. They served as the company interface with SCS in the area of fuel management, fuel procurement, and reprocessing. Upon request, the nuclear generation section can provide technical support in broader areas, including health physics.

~~Outside consultants are used to provide technical support on an as-needed basis.~~

INSERT 13.1.1.2.1

13.1.1.2.2 Engineering and Construction Services ~~and Project Management~~ Department

The ~~senior~~ vice president-engineering and construction, ~~and project management~~ provides overall direction and control of the various engineering disciplines to ensure timely and effective accomplishment of assigned projects. ~~Reporting to him are the vice president and chief engineer power supply engineering and construction services and the vice president and general manager-generating plant construction.~~ His duties include coordinating the engineering efforts of architect-engineers, suppliers, and outside consultants. In addition, he may obtain technical assistance from SCS upon request.

13.1.1.2.2.1 ~~Power Supply~~ Engineering and construction Services Department. The ~~power supply~~ engineering and construction services department is part of the GPC power supply organization. The department is headed by the vice president-engineering and construction services and consists of various groups, i.e., engineering services, engineering, and environmental affairs. ~~These groups report to the vice president and chief engineer-power supply engineering and services.~~ The power supply engineering and construction services organization chart is shown in figure 13.1.1-2.

~~These groups report to the vice president~~ engineering and construction services.

Insert 13.1.1.2.1

In addition, the Power Supply Department includes the Nuclear Power Organization. The Nuclear Power Organization includes the Nuclear Operations Department, which will be responsible for the operation of VEGP. This department includes the Nuclear Generation Engineering Staff, which provides support in the areas of regulatory responses, generic issues, long-term planning, health physics, emergency response capability, nuclear training, refueling operations, and general engineering. The Nuclear Power Organization is additionally responsible for management of Nuclear Construction.

Outside technical support to plant operations outside GPC will be provided by SCS Civil and Architectural, Mechanical, and Electrical Design Disciplines, and the Nuclear Plant Support Department. SCS Nuclear Fuels Department also provided Nuclear fuel contract administrative services, and the Nuclear Safety and Licensing Department provides reload licensing and operating licensing support. Additional outside consultants will be used to provide technical support on an as-needed basis.

Insert 13.1.1.2.2.1.1

Manager of Engineering Services

The manager-engineering services is responsible to the vice president-engineering and construction services through the vice president and chief engineer-power supply engineering and services. Engineering services is responsible for securing and managing all engineering support involving design, procurement, and construction for the company's operating nuclear, fossil, and hydro-electric generating plants. Engineering services maintains an up-to-date status on all phases of the design, procurement, and construction services required for necessary plant additions, modifications, and environmental retrofits.

The manager of engineering services directs the engineering services organization in performing the following functions:

1. Providing a single interface through which the plants may obtain engineering assistance

2. Ensuring that engineering, procurement, and construction efforts are directed toward meeting the needs of the plants

3. Obtaining and reporting the status of engineering, procurement, andconstruction activities

4. Coordinating the activities of the various agencies involved in responding to plant requests for engineering assistance

5. Providing for the orderly flow of information between the plants and the engineering and construction services department

The primary function of the ~~power supply~~ engineering and Construction services department in support of the power supply organization and other GPC operations includes:

A. Providing engineering and technical support for the operation and maintenance of existing electric generating plants.

B. Overall project management and engineering services involving design, budget, procurement, licensing, construction, and startup of retrofit projects for GPC's existing generating plants.

C. Participation with SCS and other GPC departments in the planning, scheduling, budgeting, and performance of engineering and licensing work for GPC's new generating plants.

D. Direct and indirect technical and/or licensing interface with various environmental and other governmental and regulatory agencies and concerned public groups.

E. Miscellaneous administrative support including coordination and performance of activities related to human resources, construction materials and equipment, performance improvement, contract administration, office management and safety and labor relations

The educational background, years of nuclear power plant associated work experience, and total years of engineering or science experience of the ~~14~~ 15 graduate engineers and scientists in the power supply engineering and services department as of ~~September 1, 1981~~ January 22, 1985, are as follows:

A. The number of graduate degrees: baccalaureate - ~~141~~ 124; masters - ~~19~~ 20; Doctorate - 1

Insert 13.1.1.2.2.1

~~B. The total man years of nuclear power plant associated work experience - 380.~~

~~C. The total man years of engineering or scientific experience - 1600, portion of this electrical utility oriented - 1250.~~

INSERT 13.1.1.2.2.1.1, 13.1.1.2.2.1.1.1, 13.1.1.2.2.1.2, 13.1.1.2.2.2.1, AND 13.1.1.2.2.3

13.1.1.2.3 ~~Power Generation~~ Nuclear Operation Department

The ~~power generation~~ nuclear operation department, under the supervision of the senior vice president-~~power generation~~ Nuclear Power has the direct responsibility for the operation and maintenance of ~~Hatch~~ GPC's Nuclear Plants ~~and all generating plants of GPC~~. Support may be provided to the ~~power generation~~ Nuclear Operation department by other GPC departments. Technical, engineering, and administrative personnel of the ~~power generation~~ Nuclear Operation department general office staff consists of ~~50~~ 27 persons qualified on ~~September 1, 1981~~ January 1, 1984, as follows:

(six functional units)

Insert 13.1.1.2.2.1

In addition, the organization of the Vice President, Engineering and Construction Services is providing pre-operational and/or start-up support in the following areas:

a. Development of 53 pre-operational test procedures

b. Computer software support in the area of Vogtle 1 and 2 ERF Computer

c. Qualifications of Class 1E motor insulation

d. Simulator facility

e. Meteorological Tower replacement

f. Fire fighting procedures

g. Pollution control facilities (cost estimate)

h. Environmental licensing interface with agencies and public groups

i. Collection and analysis of samples for the radiological (biological and water quality) monitoring program.

Insert 13.1.1.2.2.1.1

Engineering and Construction Services

The manager-engineering and construction services is responsible to the vice president-engineering and construction services. Engineering and Construction services is responsible for securing and managing all engineering support involving design, procurement, and construction for the company's operating nuclear, fossil, and hydro-electric generating plants. Engineering and Construction services maintains an up-to-date status on all phases of the design, procurement, and construction services required for necessary plant additions, modifications, and environmental retrofits.

The manager of Engineering and Construction services directs the engineering services organization in performing the following functions:

1. Providing a single interface through which the plants may obtain engineering assistance

2. Ensuring that engineering, procurement, and construction efforts are directed toward meeting the needs of the plants

3. Obtaining and reporting the status of engineering, procurement, and construction activities

4. Coordinating the activities of the various agencies involved in responding to plant requests for engineering assistance

5. Providing for the orderly flow of information between the plants and the engineering and construction services department

6. Providing procedural, accounting, cost reporting, and other technical services required by the engineering and construction services department

7. Maintaining a qualified suppliers list for nuclear plants and providing related procurement assistance as required

Insert 13.1.1.2.2.1.1.1

Vogtle Project Manager. Reporting to the manager-engineering AND CONSTRUCTION services the VEGP project manager will be responsible for performing the following functions:

1. Securing all engineering services by analyzing project requirements and assigning engineering responsibility. The project manager is the interface for GPC with BPC, SCS, and Westinghouse in the design and construction of VEGP and, as such, ensures that action or response requested by the participants is made by the proper groups with GPC. The project manager keeps the vice president, Engineering and Construction Services [redacted] informed of project status by providing status reports, which indicate problem areas; in addition, he makes suggestions, as necessary

2. Serving as the principal interface between the Vogtle plant staff and the GPC power supply engineering, construction, and procurement departments, SCS, and/or outside architectural/engineering organizations to ensure coordination of all phases of engineering, procurement, and construction support required by the operating plants

3. Securing, reviewing, and providing conceptual designs and associated costs and estimates for the Vogtle manager-engineering AND CONSTRUCTION SERVICES for the development of plant budgets and preparation of general work orders and plant expenditures

4. Participating with the Vogtle plant staff in reviewing and approving engineering designs, cost estimates, and specifications to ensure that they are responsive to project requirements and in compliance with established company guidelines

5. Reviewing and approving procurement related documents developed by GPC power supply engineering and/or SCS

6. Monitoring project engineering, procurement, and construction progress to ensure that project schedules are met and to ensure that budget and cash flow requirements are met

7. Participating with the manager of environmental affairs and/or other appropriate engineering agencies in order to secure necessary permits, licenses, and tax exempt pollution abatement bond financing for applicable projects

8. Developing and submitting status reports to power supply management and the Vogtle plant staff on all project engineering, construction, and budget matters on a designated regular basis

9. Assisting in the coordination and development and implementation of startup of new facilities and equipment to ensure the initial satisfactory operation of such equipment

10. Continuously participating with the plant staff(s) and the appropriate engineering agencies in evaluating the performance of facilities and equipment

Insert 13.1.1.2.2.2

~~Manager of~~ Engineering. The manager-engineering is responsible to the vice president-engineering and construction services ~~through the vice president and chief engineer-power supply engineering and services~~. Engineering, comprised of the civil, mechanical, and electrical engineering divisions, is responsible for providing engineering support involving design, procurement, construction, and implementation of projects related to GPC;s fossil, and hydro-electric generating plants, and in non-safety related applications to nuclear plants.

In fulfilling these responsibilities, the manager-engineering performs the following functions:

1. Directs the civil, mechanical, and electrical engineering divisions in designing new facilities, modifications, and additions for generating plants and other company projects

2. Contributes to GPC's overall technical competence in engineering design by providing technical advice and assistance, as requested, to other engineering areas

3. Ensures compliance with all appropriate regulatory agencies in matters of engineering

13.1.1.2.2.2.1

Chief Engineers. Reporting to the manager-engineering, each discipline engineers civil, mechanical, and electrical has the following responsibilities:

1. To manage engineering activities associated with the evaluation, design, material procurement, construction, and implementation of necessary projects for new and existing generating plants

2. To manage the activities associated with the evaluation of design alternatives and the recommendation of solutions to design problems considering factors such as costs, schedules, reliability and operating requirements, and technical feasibility for non-safety-applications

3. To direct the design of systems and components to assure a high level of plant productivity and engineering principles

4. To ensure that all engineering design drawings and specifications prepared in the division are based on sound engineering principles

5. To participate in planning to determine the location and type generating plant and plant equipment to assure the availability of electric power when needed

6. To provide assistance to other departments of the company concerning related engineering matters which may contribute to the overall efficiency, design engineering, construction, and operation of generating plants

7. To maintain complete records of planned and existing hydro-electric plant sites in Georgia to aid in managerial decisions (chief civil engineer only)

8. To establish and implement division policies and procedures as required to assure that power supply engineering and services will meet its engineering support objectives.

13.1.1.2.2.3

Manager of Environmental Affairs. The Manager of Environmental Affairs is responsible to the vice president-engineering and construction services. ~~through the vice president and chief engineer power supply engineering and services~~. The section is responsible for managing and coordinating GPC;s overall environmental program principally for generating plants, to assure compliance with state and federal environmental regulations in design, construction, and operation of these facilities. Environmental affairs coordinates and obtains all environmental permits and licenses for generating facilities from the State Environmental Protection Division, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, U.S. Coast Guard, and the Department of Energy. Environmental affairs also directs laboratories in conducting tests, surveys, studies, and analyses to ensure that generating facilities comply with environmental regulations. In performing these services, environmental affairs provides a single interface for communications with outside agencies regarding environmental matters.

A. The number of graduate degrees: baccalaureate - ~~28~~ 21 masters - ~~6~~ 5

B. The total man-years of generating plant operation and maintenance - 541.

B C. The total man-years of nuclear plant experience - ~~237~~ 268.

The structure of the general office ~~power generation~~ Nuclear Power department staff is shown on figure 13.1.1-~~2~~ 3 and described in the following paragraphs:

13.1.1.2.3.1 Senior Vice President-~~Power Generation~~ Nuclear Power. The senior vice president-~~power generation~~ Nuclear Power is responsible to the executive vice president-power supply for the safe, reliable, and efficient operation, and maintenance of ~~all generating plants in the~~ GPC Nuclear plants CONSTRUCTION ~~system~~. He works closely with the other departments to ensure that the plant design, construction, and operation are carried out efficiently and safely.

~~13.1.1.2.3.2~~ Senior Vice President ~~and General Manager~~ Fossil and Hydro ~~Generation~~. All fossil and hydro generating plants come under the administrative control of the vice president ~~and general manager~~ fossil and hydro Operations. He reports to the senior vice president Fossil and Hydro ~~power generation~~.

Two ~~The~~ managers of power generation are each assigned responsibility for a designated group of generating plants. The managers of power generation are responsible to the vice president ~~and general manager fossil and hydro generation~~ for: general manager Fossil and Hydro Operations.

A. Supervision of operation and maintenance of all equipment in the GPC generating plants.

B. Scheduling equipment outages to be compatible with system load demands.

C. Coordinating with the engineering department the construction of new equipment to satisfy GPC operating requirements.

D. Special assignments as required.

~~(Insert 13.1.1.2.4)~~

section RELOCATED

13.1.1.2.3.3 Manager-Power Generation Services. The manager-power generation services is responsible to the senior vice president-power generation and has the following responsibilities:

A. To provide solutions to specific problems arising at generating plants.

B. To provide technical specialization in the areas of combustion turbines, precipitators, fire protection, steam boiler and turbine maintenance, water chemistry, and computer services.

C. To provide management of fossil fuels including inventory control, sampling, analysis, and quality control.

D. To provide technical upgrade training for new employees at generating plants.

E. To originate and maintain a system of general fossil plant operating and maintenance procedures.

F. For power systems engineering.

1. Protective relaying and associated devices.

2. PSCC coordination.

3. Power equipment testing - High-pot, high current, etc.

G. For selection of plant technical personnel, chemists, technicians, and engineers.

13.1.1.2.3.~~4~~2 Vice President and General Manager-Nuclear ~~Generation~~. The vice president and general manager-nuclear ~~generation~~ is responsible to the senior vice president-~~power~~ Nuclear Power ~~generation~~ for the safe, reliable, and efficient operation of all nuclear generating plants in the GPC system.

13.1.1.2.3.~~4~~2.1 Manager-Nuclear ~~Generation~~. The manager-nuclear ~~generation~~ reports directly to the vice president and general manager-nuclear ~~generation~~. ~~Plant managers~~ of each nuclear plant in the GPC system report directly to the manager-nuclear ~~generation~~.

13.1.1.2.3.~~4~~2 ~~Manager Nuclear Engineering and~~ Chief Nuclear Engineer. The ~~manager Nuclear Engineering and~~ chief nuclear engineer reports directly to the vice president and general manager-nuclear ~~operation~~. As ~~manager Nuclear Engineering and~~ chief nuclear engineer has the following responsibilities:

A. Providing regulatory and licensing support for the operating nuclear units.

B. Documenting licensing contacts with the U.S. Nuclear Regulatory Commission (NRC) and maintaining files of all NRC correspondence.

C. Interfacing with the appropriate companies and organizations in the areas of nuclear fuel management, procurement, and reprocessing.

D. Evaluating and preparing amendments to the plant operating licenses and FSARs for operating nuclear units.

E. Preparing and maintaining plant security and emergency plans, including necessary agreements with state, federal, and local agencies.

F. Addressing safety evaluations and unreviewed safety questions for design changes to operating units.

G. Preparing an annual report on the environmental impact of radiological releases from the operating nuclear units.

H. Providing any other technical, licensing, or nuclear expertise, or onsite technical assistance that may be required.

Insert 13.1.1.2.3.2.2.1, 13.1.1.2.3.2.2.2, AND 13.1.1.2.3.2.2.3

13.1.1.2.3.~~4~~.3 Nuclear Licensing and Support Engineers. The nuclear licensing and support engineers report to the chief nuclear engineer and assist him in the discharge of his responsibilities as listed above.

13.1.1.2.3.~~4~~.~~4~~ 3 Manager-Nuclear Training. The manager of nuclear training reports directly to the vice president and general manager-nuclear ~~generation~~. The responsibilities of this position are as follows:

A. Providing the preparation and conduct of training programs at GPC nuclear plants and training centers to ensure compliance with NRC regulations and Institute

13.1.1.2.3.2.2.1
Manager-nuclear regulatory engineering

The manager-nuclear regulatory engineering reports to the manager-nuclear engineering and chief nuclear engineer and is responsible for providing plant support in the areas of licensing, NRC compliance, legal considerations, and fuel management.

The manager-nuclear regulatory engineering is responsible for maintaining the operating licenses, Technical Specifications, Environmental Technical Specifications, and Final Safety Analysis Reports (FSARs) for the operating nuclear plants, and for managing all changes to these documents. This individual is responsible for submittal preparation of correspondence to the NRC regarding the operating nuclear units. This includes responses to requests for information, responses to NRC Inspection and Enforcement Inspection Reports and bulletins, and comments on proposed regulations.

The manager-nuclear regulatory engineering is responsible for fuel management activities. These responsibilities include establishment and maintenance of a fuel procurement policy and management of the implementation of the established policy.

13.1.1.3.2.2.2
Manager-nuclear engineering and evaluation

The manager-nuclear engineering and evaluation reports to the manager-nuclear engineering and chief nuclear engineer and is responsible for providing plant support in the areas of retrofit and generic engineering, special engineering activities, and plant operations support. This supp[illegible] directed towards ensuring compliance with regulatory requirements associated with backfitting and assurance of safe, efficient plant operations.

13.1.1.2.3.2.2.3
The manager-nuclear operation analysis

The manager-nuclear operations analysis reports to the manager-nuclear engineering and chief nuclear engineer and is responsible for providing support for operating nuclear plants in the areas of nuclear plant operations analysis, licensee event report (LER) review, generic review, safety evaluation programs, probabilistic risk assessment, and accident analysis. This individual is responsible for conducting reviews of plant maintenance trends, surveillance trends, licensee event reports, and other incidents, and developing solutions to problems in these areas. This individual provides plant support to ensure compliance with criteria developed by the INPO.

In the area of LER review, the nuclear operations analysis manager is responsible for development of interpretations and corrective actions concerning personnel errors, component failures, and repetitive events. Included in this responsibility is the review of generic events provided by INPO, Nuclear Safety Analysis Center (NSAC), NRC, and other outside agencies in order to make recommendations for action to be taken by the nuclear plants. The manager-nuclear operations analysis develops trends and analyzes root causes for these events.

of Nuclear Power Operations (INPO) standards, and ensuring that ~~power generation~~ Nuclear Operations personnel have the education, training, and skills to safely and efficiently operate and maintain the plants.

B. Administering the utilization of the planned plant site simulators by both GPC personnel and those from outside organizations to maximize the utilization of the simulators.

C. Maintaining the modifying GPC simulators to provide the most cost effective training and ensuring compliance with NRC regulations.

D. Staffing and maintaining a group of qualified instructors who are capable of teaching all aspects of nuclear technology including plant operations, electrical and mechanical maintenance, health physics, chemistry, and control and instrument technology.

E. Ensuring that all training programs and materials are documented to comply with NRC regulations and INPO criteria.

13.1.1.2.3.~~4~~ 2.4.5 Manager-Nuclear Planning and Control. The manager-nuclear planning and control reports directly to the vice president and general manager-nuclear ~~generation~~ operations. The responsibilities of this position are as follows:

A. Providing for the long range planning and scheduling of maintenance work to be performed at GPC nuclear plants in accordance with the long range manpower plan for the nuclear area to ensure that commitments made to the NRC and company management are met and the nuclear plants are adequately staffed.

B. Monitoring the financial activities of the GPC nuclear plants to ensure their adherence to approved budgets and to provide GPC management with information from which to make sound decisions concerning expenditures in excess of the approved budgets.

C. Providing input into the GPC nuclear plants' security efforts from a nuclear generation viewpoint to ensure that changes made by the organization in the physical or manpower makeup of the plants are integrated with the efforts of the security organization.

D. Serving as GPC coordinator with INPO for the purpose of exchanging data and information to enhance and improve the safety and efficiency of GPC nuclear operations.

E. Addressing safety evaluations and unreviewed safety questions for design changes to operating units. 13.1.1-10

F. Providing any other technical, licensing, or nuclear expertise, or onsite technical assistance that may be required

~~improve the safety and efficiency of GPC nuclear operations.~~

Insert 13.1.1.2.3.2.5, 13.1.1.2.3.2.6, 13.1.1.2.4, 13.1.1.2.4.1 AND 13.1.1.3

13.1.1.~~3~~ 4 Corporate Management

Georgia Power Company operates electric generating plants with an aggregate capacity in excess of 14,000 MWe. The company has experience in the design, construction, startup testing, operating, and staffing of modern generating facilities, including Hatch Nuclear Plant, a nuclear power plant with two boiling water reactors.

The corporate organization, which provides the line responsibility for the operation of the VEGP, is shown in figure 13.1.1-1. The ultimate responsibility for design, procurement, construction, testing, quality assurance, and operation of the VEGP rests with the president. The president assigns responsibilities to the various organizations as described in paragraph 13.1.1.2.

Members of the corporate headquarters staff available for the technical support of the Vogtle Project possess that combination of education, experience, and skills commensurate with their level of responsibility, providing reasonable assurance that decisions and actions during the design, procurement, construction, testing, quality assurance, and operation of the VEGP units will not constitute a hazard to the health and safety of the public.

The operating organization for the VEGP is described in subsection 13.1.2. The company technical support organizations for operation, modification, and maintenance are described in paragraph 13.1.1.2 and shown in figure 13.1.1-2, 13.1.1-3, AND 13.1.1-4.

The resumes of selected corporate staff members who provide technical support for VEGP are shown in table 13.1.1-1. 4

There are NO planned increases in the corporate staff by the time of UNIT 1 AND 2 fuel loading.

Insert 13.1.1.2.3.2.5 and 13.1.1.2.3.2.6

13.1.1.2.3.2.5
Manager-nuclear chemistry and health physics

The manager-nuclear chemistry and health physics reports directly to the vice president and general manager-nuclear operations and is responsible for providing plant support in the areas of emergency preparedness, radiological environmental assisment, health physics, radiation protection, plant chemistry, radwaste, and radiological health safety.

In the area of emergency preparedness, this individual has overall responsibility for preparation and maintenance of the Emergency Plan. This includes the development and implementation of emergency drills and exercises; federal, state, and local interfaces; and public information programs. Additional responsibilities are for coordination with offsite medical facilities, development of new emergency facilities, public notification systems, and corporate emergency plans.

The management of radiological environmental assissment activities includes the following regulatory requirements for environmental monitoring, assissment, and reporting as required by federal regulations, and analysis of routine and unplanned releases of radioactive materials.

In the areas of health physics, radiation protection, plant chemistry, and radwaste, the manager-nuclear chemistry and health physics is responsible for overall support of plant programs, including program upgrades and improvements.

13.1.1.2.3.2.6
The manager of nuclear performance

The manager of nuclear performance reports directly to the vice president and general manager-nuclear operations and is responsible for providing nuclear plant support in the areas of nuclear performance, such as:

1. Manage the activities of the nuclear performance department in providing support services to the nuclear generating plants in the preparation of nuclear goal formulation and nuclear performance evaluation to ensure that the nuclear plants are operated safely and economically.

2. Track events of safety significance and such items as nuclear plant capacity factor, plant availability, forced outage rate, and heat rate.

3. Coordinate the nuclear plant reliability data system to ensure full implementation and participation by all operating nuclear plants.

4. Monitor maintenance productivity and performance to develop programs to improve productivity.

5. Develop, direct, and coordinate a nuclear plant performance monitoring program to maximize unit efficiency and nuclear plant productivity at each nuclear generating facility.

A. The number of graduate degrees: baccalaureate - ~~28~~ 22 masters - 6.

B. The total man-years of generating plant operation and maintenance - 541.

B C. The total man-years of nuclear plant experience - ~~237~~ 225.

The structure of the general office ~~power generation~~ Nuclear Power department staff is shown on figure 13.1.1-2 and described in the following paragraphs:

13.1.1.2.8.1 Senior Vice President-~~Power Generation~~ Nuclear Power. The senior vice president-~~power generation~~ Nuclear Power is responsible to the executive vice president-power supply for the safe, reliable, and efficient operation and maintenance of ~~all generating plants in the~~ GPC's Nuclear Plants. He works closely with the other departments to ensure that the plant design, construction, and operation are carried out efficiently and ~~safely~~.

13.1.1.2.~~8~~4 Senior Vice President ~~and General Manager~~ Fossil and Hydro ~~Generation~~. All fossil and hydro generating plants come under the administrative control of the vice president ~~and general manager~~ General Manager fossil and hydro ~~generation~~ Operations. He reports to the senior vice president ~~power generation~~ Fossil and Hydro Operations.

Two. ~~Three~~ managers of power generation are each assigned responsibility for a designated group of generating plants. The managers of power generation are responsible to the vice president ~~and general manager fossil and hydro generation for~~ general manager Fossil and Hydro Operations:

A. Supervision of operation and maintenance of all equipment in the GPC generating plants.

B. Scheduling equipment outages to be compatible with system load demands.

C. Coordinating with the engineering department the construction of new equipment to satisfy GPC operating requirements.

D. Special assignments as required.

Insert 13.1.1.2.4.1

13.1.1.2.4.1

[redacted]

The Manager, Hydro and Power Generation Services has assumed the responsibilities previously held by the Manager, Power Generation Services. Reporting to the Manager, Hydro and Power Generation Services is the Manager, Power Generation Technical Services, whose organization provides technical support in the following areas to fossil-fueled, hydroelectric, and, to a limited extent, nuclear generating plants:

a. Supplementing the plant engineering and technical staff to assist as needed in resolving equipment problems and informing management of industry experience and developments.

b. Power systems engineering in the areas of protective relaying, equipment evaluation, and special testing.

c. Assistance in computer hardware selection, installation, and maintenance, as well as software design.

d. Development of water chemistry analytical procedures, chemical cleaning procedures, environmental policies and procedures, and performance of environmental testing.

e. Operational data analysis, plant performance program development and implementation, maintenance scheduling, and specialized expertise in precipitators and turbine-generators.

As of January 23, 1985, the organization of the Manager, Power Generation Technical Services, who has assumed the responsibilities previously held by the Supervisor, Power Generation Technical Services and the supervisor, Technical Specialization, consists of 21 individuals having the following qualifications.

a. College degrees
   - Baccalaureate : 14
   - Masters : 1
   - Juris Doctorate : 1

b. Total man-years of experience : 278

The structure of the Fossil and Hydro department is shown on Figure 13.1.1-4

13.1.1.3
QA Department

The ~~GPC~~ vice president - general manager QA is responsible functionally to the executive vice president - power supply. The executive vice president has authorized the vice president - general manager QA to manage the QA program for design, construction, testing, operation, and maintenance and to ensure its implementation in accordance with the requirements of the QA manual. The QA department is composed of a staff in the corporate headquarters and at each plant site.

[redacted]

The QA corporate headquarters staff is responsible for defining the QA program, writing the QA program description for safety analysis reports, and writing and publishing the QA manual. Through its audit program, the corporate headquarters staff is also responsible for evaluation of architect-engineer and other support group QA programs.

The QA field staff at each plant site is managed by a QA site manager who reports to the vice president - general manager QA through the QA manager. The QA site manager provides an independent review and evaluation of the adequacy and effectiveness of the site QA program. He ensures that field activities involved in construction, preoperational testing, and plant operations conform to QA program requirements and approved procedures.

~~The QA program is fully described in section 17.2.~~ The QA department will not provide technical support (as defined in Section 13.1.1 of Reg. Guide 1.70) for the operation of ~~the~~ Plant Vogtle. The activities of the QA organization will be limited to quality assurance functions, which are fully described in section 17.2.

TABLE 13.1.1-1 (SHEET 1 OF 26)

OFFSITE TECHNICAL SUPPORT

Richard J. Kelly, executive vice president-power supply

Responsibility and Authority

Overall responsibility for the design, engineering, construction, and operation of all company generating facilities and fuel procurement

Educational Background

Georgia Institute of Technology
B.S., electrical engineering

Professional Experience and Training

Georgia Power Company

Draftsman, designer, distribution engineer, design engineer, generating plant electrical engineer, chief electrical engineer, chief engineer, manager of production, general manager of production, vice president and general manager-power generation, senior vice president-power generation, and senior vice president-group executive-power supply 4

Involved in the design of electrical underground transmission and distribution systems; assigned electrical design duties and responsibilities for hydroelectrical plants on the Georgia Power Company system, the duties of which included the design of two new hydroelectrical generation stations constructed on the system during the years 1957 to 1963 as well as major electrical modifications to several existing hydroelectric stations

Involved in all electrical phases of thermal steam plant design since 1959, including 14 fossil steam units put into operation since that time as well as three units presently under design and construction; also involved in the two nuclear units now in operation and two units in the design and construction stage

TABLE 13.1.1-1 (SHEET 2 OF 26)

George F. Head, senior vice president-power generation

Responsibility and Authority

Responsible to the executive vice president-power supply for the safe, reliable, and efficient operation and maintenance of all generating plants (May 1981-present)

Educational Background

Georgia Institute of Technology
B.S., mechanical engineering

Professional Experience and Training

Georgia Power Company

Senior vice president-power generation, general office power generation, May 1981

Vice president and general manager-fossil and hydro generation, general office power generation, January 1980 4

General manager-fossil and hydro generation, general office power generation, November 1979

Deputy general manager-power generation, general office power generation, January 1978

Deputy general manager-production, general office production, May 1977

Manager-production, general office production, August 1975

Assistant manager-production, general office production, February 1973

Superintendent-production, general office production, July 1969

Coordinator of engineering and construction for Plant Hatch, September 1968

Production engineer, general office production, July 1968

Assistant superintendent, Plant McDonough/Atkinson

TABLE 13.1.1-1 (SHEET 3 OF 26)

Production engineer, general office production, August 1964

Southern Services, January 1964

Southern Services representative at Enrico Fermi Nuclear Plant for 6 years

Assigned APDA and PRDC, April 1958

Plant test engineer, Plant Yates, March 1956

Assistant plant test engineer, Plant Hammond, March 1955

Richard E. Conway, senior vice president-engineering, construction, and project manager

Responsibility and Authority

Overall responsibility for the direction and delegation of responsibility to the engineering, construction, and project management organizations to ensure that their designated functions are accomplished in an efficient and timely manner (1981-present) 4

Educational Background

Georgia Institute of Technology
B.S., mechanical engineering

Harvard Business School
78th advanced management program

Professional Experience and Training

Southern Company Services and Georgia Power Company, Birmingham, Alabama

Vice president, 1978-1981

Georgia Power Company

Project general manager, Scherer Project, 1976-1978

Superintendent of generating plant construction, 1969-1976

Project superintendent, Plant Hatch, 1968-1969

TABLE 13.1.1-1 (SHEET 4 OF 26)

Assistant project superintendent, Plant Branch, 1967-1968

Engineering-construction department, 1963-1967

Assistant plant test engineer, Plant Yates, 1961-1963

Paul D. Rice, general manager-quality assurance and radiological health safety

Educational Background

Vanderbilt University
B.S., mechanical engineering

Professional Experience and Training

Georgia Power Company/U.S. Navy

Commenced nuclear career in 1957 in the Navy nuclear program; held various management positions in the program including 10 years in the senior oversight position at major private and Navy sites where naval reactor plants were constructed and overhauled; has 21 years experience in the nuclear field 4

Jesse T. Beckham, Jr., vice president and general manager-nuclear generation

Educational Background

Georgia Institute of Technology
B.S., chemical engineering

Professional engineer, mechanical engineering

Professional Experience and Training

Georgia Power Company

Responsible for the safe and reliable operation of the operating nuclear units; responsible for directing the operation of the units, providing the licensing support, and providing the corporate guidance and control for these units; during the construction phase at VEGP, responsible for ensuring that the necessary procedures

TABLE 13.1.1-1 (SHEET 5 OF 26)

and startup activities are progressing, along with providing the initial qualified operating staff for the plant

Prior to present assignment, held positions throughout the state while working for Georgia Power Company, including approximately 5 years at Plant Hatch during startup and also 2 years at Plant Branch

U.S. Army

Captain prior to joining Georgia Power Company in August 1963; served in the U.S. Chemical Corps

Jack C. Causey, vice president-fossil and hydro generation

Responsibility and Authority

Responsible for the management of all of the fossil and hydro generating plants 4

Educational Background

Georgia Institute of Technology
B.S., electrical engineering

Professional Experience and Training

Georgia Power Company (past 5 years)

Manager-power generation

Manager-power generation services

Robert H. Bohler, manager-power generation services

Responsibility and Authority

Responsible for directing a staff of approximately 50 employees in providing technical field and support services to the company's power generating plants (August 1979-present)

TABLE 13.1.1-1 (SHEET 6 of 26)

Educational Background

Georgia Institute of Technology
B.S., electrical engineering

Georgia Power Company
Nuclear reactor engineering course, 1958-1959

Professional Experience and Training

Georgia Power Company

Assistance chief electrical engineer, June 1976-August 1979

Chief-engineering services, November 1972-June 1976

Scheduling and standards engineer, April 1971-November 1972

Distribution substation engineer, July 1970-April 1971 4

Customer substation engineer, June 1968-July 1970

Senior design engineer, June 1956-June 1968

Senior draftsman/design engineer, December 1949-June 1956

Emsley F. Cobb, manager-nuclear planning and control

Responsibility and Authority

Responsible for management of the activities of the nuclear planning and control department in providing support services to the company's nuclear plants in the areas of planning, budget controls, procurement, security, and materials management (May 1981-present)

Chairman-safety review board, October 1980-June 1982

Educational Background

Auburn University
B.S., electrical engineering

TABLE 13.1.1-1 (SHEET 7 OF 26)

Professional Experience and Training

Georgia Power Company

Assistant to senior vice president and group executive-power supply, May 1978-May 1981

Responsible for providing assistance to the senior vice president and group executive-power supply

U.S. Navy

Positions in the fossil propulsion plants of several fossil surface ships and assigned to various positions in three nuclear submarines, including commanding officer; provided direct nuclear training to eight nuclear submarines and coordination of nuclear repair efforts in the same submarines from the position of deputy squadron commander, having direct responsibility for these eight submarines, December 1955-December 1958 and October 1961-May 1978 4

Additional Training

Simulator training, Sequoyah Nuclear Plant

Senior reactor operator

Pressurized water reactor orientation

Max Manry, manager-nuclear performance

Responsibility and Authority

Responsible for the management of activities of the nuclear performance department in providing nuclear plant support in the area of nuclear performance (April 1983-present)

Educational Background

Auburn University
B.S., mechanical engineering

TABLE 13.1.1-1 (SHEET 8 OF 26)

Professional Experience and Training

Georgia Power Company

Plant manager, VEGP (pressurized water reactor), April 1982-April 1983

Plant manager, Plant Hatch (boiling water reactor), maintained senior reactor operator license, April 1978-April 1982

Assistant plant manager, Plant Hatch, maintained senior reactor operator license, January 1976-April 1978

Assistant plant superintendent, Plant Hatch, January 1971-January 1976

Assistant plant superintendent, Plant McDonough-Atkinson (fossil), July 1969-January 1971

Plant results engineer, Plant McDonough-Atkinson, May 1967-July 1969 4

Plant results engineer, Plant McManus, August 1963-April 1967

Plant test engineer, Plant Yates, June 1962-August 1963

Assistant plant test engineer, Plant McManus, August 1960-June 1962

Assistant plant test engineer, Plant Arkwright, January 1960-February 1960

Additional Training

Radiological monitoring

Introduction to nuclear power

Basic nuclear fundamentals

Boiling water reactor technology

Observation training

TABLE 13.1.1-1 (SHEET 9 OF 26)

Simulator training

Balance of plant

Prelicensing course (Plant Hatch)

John J. Badgett, manager-nuclear training

Responsibility and Authority

Responsible for all company nuclear training (May 1983-present)

Educational Background

U.S. Naval Academy
B.S. degree

Professional Experience and Training

Georgia Power Company

Superintendent-training, VEGP (senior reactor operator license certified)

General Physics Corporation

Pressurized water reactor simulator instructor, 1980-1981

U.S. Navy

Senior inspector for the 57 naval technical training commands (inspection and quality assurance), 1978-1980

Manager of a major submarine training center, 1975-1978

Executive assistant to the commander of a flotilla, (approximately 30 nuclear-powered submarines), 1974

Commanded a nuclear submarine tender (maintenance, repair, and logistics support activity), 1972-1974

Directed and supervised the training of five nuclear-powered attack submarines (operational training and readiness certification), 1971

4

TABLE 13.1.1-1 (SHEET 10 OF 26)

Commanded two nuclear-powered fleet ballistic missile submarines, 1966-1970

Additional Training

Advanced management and reactor supervisor and safeguards training, Office of Naval Reactors, Washington, D.C., 1966

Advanced training strategic weapons and ballistic missile systems, naval guided missile school, Dam Neck, Virginia, 1965

Naval nuclear propulsion program training, naval nuclear power school, Bainbridge, Maryland, 1964

Naval nuclear power plant operational training, DIG prototype, West Milton, New York, 1964

Len T. Gucwa, manager-nuclear engineering and chief nuclear engineer 4

Responsibility and Authority

Manages the nuclear engineering division of Georgia Power Company's power generation department involving nuclear engineering, nuclear fuel, and nuclear reactor regulation (July 1983-present)

Educational Background

University of Tennessee
B.S., nuclear engineering

Georgia Institute of Technology
M.S., nuclear engineering

Georgia State University
M.B.A

Professional engineer, State of Georgia

Certified senior reactor operator

TABLE 13.1.1-1 (SHEET 11 OF 26)

Professional Experience and Training

Georgia Power Company

Since January 1971 in the engineering, regulatory, and operational support of Georgia Power Company's nuclear reactors, including reactor safety, radiological, and nuclear fuel cycle activities; in July 1983 named manager-nuclear engineering and chief nuclear engineer

Raymond D. Baker, nuclear regulatory engineering manager

Responsibility and Authority

Responsible for licensing of Plant Hatch

Educational Background

University of Tennessee
B.S., nuclear engineering 4

Professional Experience and Training

Georgia Power Company

Engineer and then manager in the nuclear engineering division, nuclear generation department, July 1979-present

Engineer in nuclear section of the engineering department, later the power supply engineering and services department, VEGP, August 1972-July 1979

Engineer-in-training in engineering, production, and construction departments, January 1972-August 1972

William E. Burns, nuclear engineering and evaluation manager

Responsibility and Authority

Responsibilities centered around licensing in the areas of long term retrofit and generic regulatory issues, fire protection, security/safeguards, special engineering activities, inservice inspection, and decommissioning

TABLE 13.1.1-1 (SHEET 12 OF 26)

Educational Background

Georgia Institute of Technology
B.S., mechanical engineering

Professional Experience and Training

Georgia Power Company

Worked in the nuclear engineering division of the power generation department and power supply and engineering services department in positions from design engineer to nuclear engineering and evaluation manager, 1976-present

U.S. Navy

Lead engineering officer of the watch and staff production; training assistant at the S5G naval nuclear propulsion power plant prototype 4

Engineering division officer onboard an S5W nuclear-powered submarine, 1971-1973

Steven C. Ewald, manager-nuclear chemistry and health physics

Responsibility and Authority

Responsible for nuclear facility emergency preparedness programs, environmental monitoring programs, and support of site health physics and chemistry programs

Educational Background

Macalester College
B.A., physics with minor in mathematics and education

Michigan State University
M.S., physics with research in nuclear physics

Michigan State University
M.S., mechanical engineering with emphasis on analysis, modeling, and optimization systems

TABLE 13.1.1-1 (SHEET 13 OF 26)

Professional Experience and Training

Georgia Power Company

Manager-nuclear chemistry and health physics, July 1983-present

Power generation engineer, October 1981-July 1983

Supervisor-nuclear training, VEGP, June 1980-October 1981

U.S. Nuclear Regulatory Commission, Region II

Radiation specialist, January 1977-June 1980

Michigan State University

Nuclear reactor supervisor, division of engineering research, August 1973-January 1977 4

Charles T. Moore, nuclear operations analysis manager

Responsibility and Authority

Responsibilities include plant support in areas of nuclear plant operations analysis, licensee report review, generic review, safety evaluation program, and accident analysis

Educational Background

Georgia Institute of Technology
B.S., industrial engineering

Professional engineer, mechanical, State of Georgia

Professional engineer, mechanical, State of Alabama

Senior reactor operator license certified, Plant Hatch

Professional Experience and Training

Georgia Power Company

Nuclear operations analysis manager, June 1983-present

TABLE 13.1.1-1 (SHEET 14 OF 26)

Assistant plant manager on loan to the Institute of Nuclear Power Operation, June 1981-June 1983

Assistant plant manager, April 1979-May 1981

Power generation engineer, February 1977-March 1979

Assistant production engineer, September 1975-January 1977

Test engineer, February 1974-August 1975

Assistant plant test engineer, August 1972-January 1974

Engineer-in-training, September 1969-November 1969

U.S. Air Force

Officer in charge, aerospace systems branch, August 1970-July 1972 4

Maintenance officers course, February 1970-August 1970

Charles W. Hodges, power generation manager III

Responsibility and Authority

Responsible for the management of Plants Arkwright, Hammond, McDonough/Atkinson, and Yates (fossil)

Educational Background

Auburn University
B.S., mechanical engineering

Professional Experience and Training

Georgia Power Company

Plant manager, Plant Scherer (fossil), past 5 years

U.S. Navy

1951-1955

TABLE 13.1.1-1 (SHEET 15 OF 26)

Carl L. Donaldson, Jr., manager-power generation

Responsibility and Authority

Execute direct supervision of plant managers and responsibility for their compliance with company policies for the most efficient operation and maintenance of generating facilities under his supervision (July 1979-present)

Educational Background

Georgia Institute of Technology
B.S., electrical engineering

Nuclear reactor engineering course, 1958-1959

Professional Experience and Training

Georgia Power Company

Manager-production services, May 1977-July 1979

Assistant to senior vice president-power supply, June 1976-May 1977

Assistant chief electrical engineer, November 1972-June 1976

Chief-engineering services, January 1971-November 1972

Methods engineer, September 1969-January 1971

Electrical equipment engineer, January 1968-September 1969

Senior design engineer, July 1963-January 1968

Design engineer, June 1961-July 1963

Junior engineer, December 1957 - 1961

Preston S. Nix, Jr., manager-power generation

Educational Background

Howard College
B.S., engineering physics

TABLE 13.1.1-1 (SHEET 16 OF 26)

Professional Experience and Training

Georgia Power Company

Manager-power generation, October 1982-present

Plant manager, Plant Bowen, November 1976-October 1982

Plant manager, Plant Hammond, June 1972-November 1976

Assistant plant superintendent, Plant Yates, August 1969-June 1972

Assistant test engineer, test engineer, and results engineer, Plant McManus, July 1962-August 1969

David W. Howell, supervisor-power generation technical services

Responsibility and Authority

Areas of responsibility include power generation procedures, training, power systems, environment, water conditioning, computer application, system performance, and fire protection (August 1979-present)

Educational Background

Rose Polytechnic Institute
B.S., mechanical engineering

Professional Experience and Training

Georgia Power Company

Assistant plant manager, Plant Hammond, July 1978-August 1979

Assistant to senior vice president-power supply, July 1977-July 1978

Procedure engineer, January 1976-July 1977

Results engineer, Plant Wansley, July 1975-January 1976

Results engineer, Plant Branch, July 1973-July 1975

TABLE 13.1.1-1 (SHEET 17 OF 26)

Assistant test engineer, Plant McManus, October 1970-July 1973

U.S. Army

Signal Corps

R. H. Taylor, senior fire protection specialist

Responsibility and Authority

Developed and established a departmental fire prevention/fire protection program for the company's 31 generating plants and coal transloading facility

Educational Background

West Georgia College
B.A., psychology
B.A., sociology

Professional Experience and Training

Georgia Power Company

Supervisor-skills development center, 1974-1975

Safety engineer (safety and fire protection program), Plant Hatch, 1971-1974

Plant operator, Plants Tallulah (hydro), Burton (hydro), Sinclair (hydro), and Yates (fossil), 1960-1971

David M. Ratcliffe, general manager-fuel services department

Responsibility and Authority

Responsible for management of fossil fuel supplies for Georgia Power Company, including procurement and administration of coal and associated transportation contracts

Educational Background

Valdosta State College
B.S., biology

TABLE 13.1.1-1 (SHEET 18 OF 26)

Woodrow Wilson College of Law
Juris doctorate
State bar, Georgia

Professional Experience and Training

Georgia Power Company

Manager-fuel services, fuel services department, 1979-1981

General supervisor-production laboratories, power generation department, 1976-1979

Supervisor-fuel and environmental functions, power generation department, 1976

Senior biologist, power generation department, 1974-1976

Biologist, power generation department, 1971-1974 4

Raymond C. Ashe, fuel contracts manager

Responsibility and Authority

Responsible for providing Georgia Power Company's input into development, reviews, and execution of new contracts and contract amendments; completes federal reports on fuel usage; reviews and administers purchases; adjusts contracts for calorific values; and supports procedure drafting and corporate planning activities

Educational Background

Georgia Institute of Technology
B.S., electrical engineering

Emory University
Juris doctorate
State bar, Georgia

Professional Experience and Training

Georgia Power Company

Manager-fuel supply, fuel supply department, 1970-1979

Assistant to vice president-electric operations, 1963-1970

TABLE 13.1.1-1 (SHEET 19 OF 26)

Division meter superintendent, 1960-1963

Meter laboratory supervisor, 1954-1960

Distribution engineer, 1947-1954

Daniel N. MacLemore, Jr., vice president and chief engineer-power supply engineering and services

Educational Background

Georgia Institute of Technology
B.S., civil engineering

Professional Experience and Training

Georgia Power Company

Directs the power supply engineering and services organization in providing the company with engineering management, technical support, and engineering design services for operating hydro, fossil, and nuclear generating plants, transmission lines, and other facilities; ensures adherence to applicable operating requirements, improves the efficiency of operations, and reduces cost for plants under construction; 1983-present

Project general manager-hydroelectric projects, 1978-1983

Chief civil and mechanical engineer, prior to 1978

Kenneth M. Gillespie, manager-engineering services

Responsibility and Authority

Responsible for managing engineering services division of power supply engineering services (December 1981-present)

Educational Background

Clemson University
B.S., mechanical engineering

TABLE 13.1.1-1 (SHEET 20 OF 26)

Professional Experience and Training

Georgia Power Company

Construction project manager, VEGP, July 1978-December 1981

Project superintendent (construction project manager), Plant Hatch, October 1974-July 1978

Assistant project superintendent, Plant Hatch, July 1973-August 1974

Onsite mechanical engineer, Plant Hatch, July 1969-July 1973

Mobile nuclear exhibit manager, Atlanta, June 1968-July 1969 4

Results engineer, Plant Hammond, March 1967-June 1968

Test engineer, Plant Hammond, February 1964-March 1967

Assistant plant engineer, Plant Arkwright, June 1961-June 1962

U.S. Army

January 1962-February 1964

Additional Training

Management techniques

EEOC training

Productivity seminar

Nuclear power at nuclear utility services

Clovis R. Thrasher, Jr., manager-engineering

Responsibility and Authority

Manages civil engineering division, mechanical engineering division, and electrical division (1978-present)

TABLE 13.1.1-1 (SHEET 21 OF 26)

Educational Background

Massachusetts Institute of Technology
Civil engineering diploma

Georgia Institute of Technology
B.S., civil engineering

Professional engineer (civil)

Professional Experience and Training

Georgia Power Company

Chief civil engineer, civil and mechanical engineering department, 1976-1978

Civil engineer, civil and mechanical engineering department, 1967-1976 4

Structural engineer, engineering department, 1964-1967

Design engineer and structural engineer, engineering department, 1956-1964

Designer and design engineer, engineering department, 1952-1956

Senior draftsman and designer, engineering department, 1948-1952

T. E. Byerley, manager-environmental affairs

Responsibility and Authority

Responsible for environmental reports for construction permits and operating licenses for Plant Hatch and VEGP; supervises nonradiological environmental monitoring

Educational Background

Georgia Institute of Technology
B.S., mechanical engineering

TABLE 13.1.1-1 (SHEET 22 OF 26)

Professional Experience and Training

Georgia Power Company

Manager-environmental affairs, June 1976-present

Assistant to chief civil and mechanical engineer, 1969-1973

Positions in design construction of fossil fueled steam generating plants and hydroelectric plants, 1941-1973

Additional Training

Nuclear power

Nuclear fuel workshop

Introduction to nuclear power 4

1971 Westinghouse school for environmental management

Boiling water reactor - simulator training general physics, Chattanooga

Boiling water reactor - systems, Plant Hatch

Curtis P. Stinespring, III, project manager-engineering services

Responsibility and Authority

Secures all engineering services for a fossil plant, combustion turbine plant, and a barge/train coal transloader; manages engineering, budget, and scheduling for major retrofit construction projects; manages engineering in support of construction, power generation, and project general manager for nuclear plant under construction (January 1982-present)

Educational Background

Georgia Institute of Technology
B.S., civil engineering

TABLE 13.1.1-1 (SHEET 23 OF 26)

Professional Experience and Training

Georgia Power Company

Project manager-engineering services, February 1978-January 1982

Structural engineer, civil and mechanical engineering department, November 1973-February 1978

Assistant structural engineer, July 1972-November 1973

Senior design engineer, July 1971-July 1972

Design engineer, July 1968-July 1971

Junior engineer, June 1967

Junior engineer, North District sales, April 1967-June 1967 4

Junior engineer, South District sales, February 1967-April 1967

Junior engineer, Atlanta Division Underground, September 1964-January 1965

U.S. Army

Signal Corps, January 1963-January 1967

Harry G. Maheras, chief generating plant electrical engineer

Responsibility and Authority

Responsible for the management of the overall operation of the generating plants electrical engineering department (March 1981-present)

Educational Background

North Carolina State University
B.S., electrical engineering

TABLE 13.1.1-1 (SHEET 24 OF 26)

Professional Experience and Training

Georgia Power Company

Project manager-power supply engineering and services department, April 1978-February 1981

Generating plant electrical engineer, electrical engineering department, April 1976-March 1978

Senior test engineer, senior protection engineer, and section head, system operations department, June 1969-March 1976

Junior engineer, test engineer, and senior test engineer, systems operations department, January 1966-August 1969

Engineer-in-training, employee relations department, June 1965-December 1965 4

William C. Philips, chief mechanical engineer

Responsibility and Authority

Responsible for engineering support for all operating plants, plants under construction, and technical support for utility committees (EEI, AEIC, and EPRI); provides evaluation of alternate energy sources and research and development programs; responsible for evaluation of the piping contractor quality control and quality assurance programs at VEGP (January 1983-present)

Educational Background

University of Florida
B.S., mechanical engineering

Professional Experience and Training

Georgia Power Company

Assistant project section supervisor (construction), Plant Scherer, September 1976-January 1983

Assistant project section supervisor (startup), Plant Wansley, October 1975-September 1976

TABLE 13.1.1-1 (SHEET 25 OF 26)

Junior engineer, associate engineer, and construction engineer, Plant Bowen, December 1971-August 1975

Major Henry Thompson, Jr., chief civil engineer

Responsibility and Authority

Responsible for the civil planning, architectural, hydraulic, structural, and materials section (January 1978-present)

Educational Background

Georgia Institute of Technology
B.S., mechanical engineering

Professional engineer (civil)

Professional Experience and Training

Georgia Power Company

Hydraulic engineer, January 1970-January 1978

Senior design engineer, design engineer, and junior engineer, June 1962-January 1970

Ronald H. Pinson, vice president and general manager-generating plant construction

Responsibility and Authority

Directs construction and modification of generating plant facilities; provides technical guidance for field construction activities; maintains relations with contractors, labor unions, and governmental agencies; coordinates interdepartmental working relationships; and provides for development of departmental personnel (July 1981-present)

Educational Background

Auburn University
B.S., mechanical engineering

TABLE 13.1.1-1 (SHEET 26 OF 26)

Professional Experience and Training

Georgia Power Company

Vice president and general manager-generating plant construction, July 1981-present

Ceneral manager-generating plant construction, January 1980-July 1981

Project general manager, Scherer Project, November 1978-January 1980

Manager-generating plant construction, October 1976-November 1978 4

Assistant superintendent-generating plant construction, October 1971-October 1976

Plant superintendent, Plant Bowen, June 1970-October 1971

Plant superintendent, Plant Yates, July 1969-June 1970

Assistant plant superintendent, Plant Yates, August 1964-July 1969

Plant results engineer, Plant Mitchell, June 1963-August 1964

Plant test engineer, Plant Hammond, February 1961-June 1963

Assistant plant test engineer, Plant Hammond, January 1959-February 1961

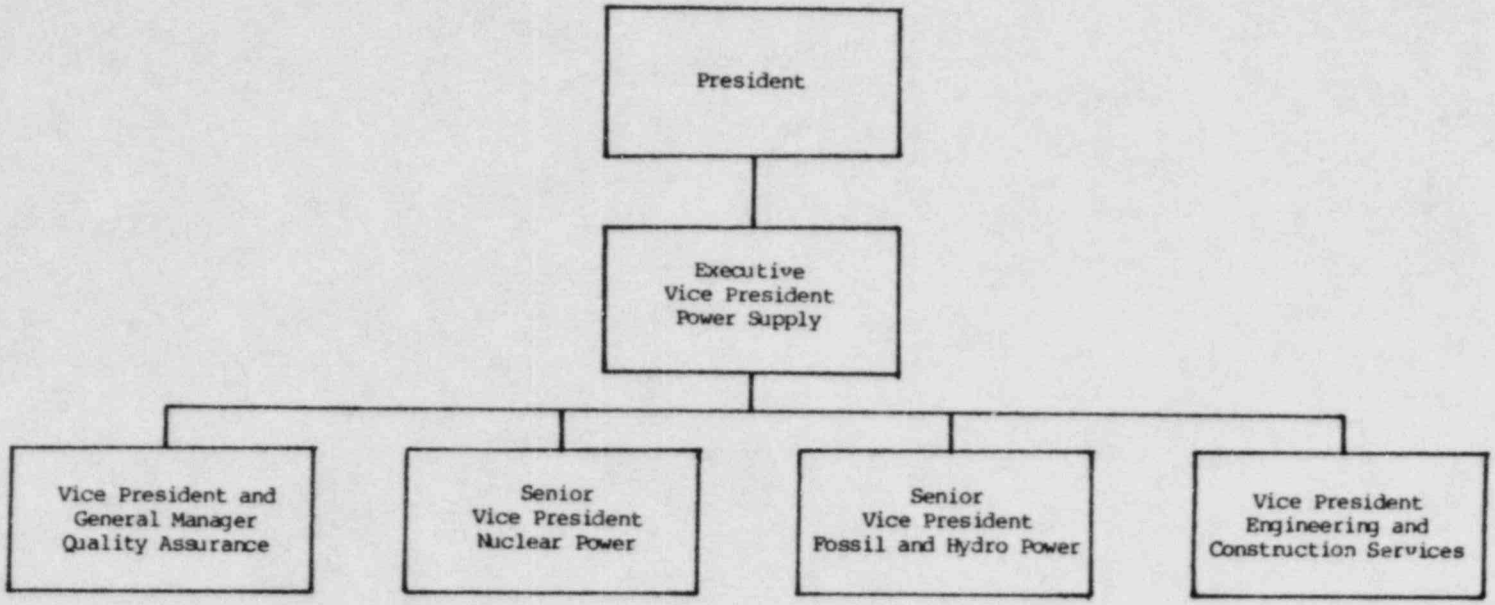


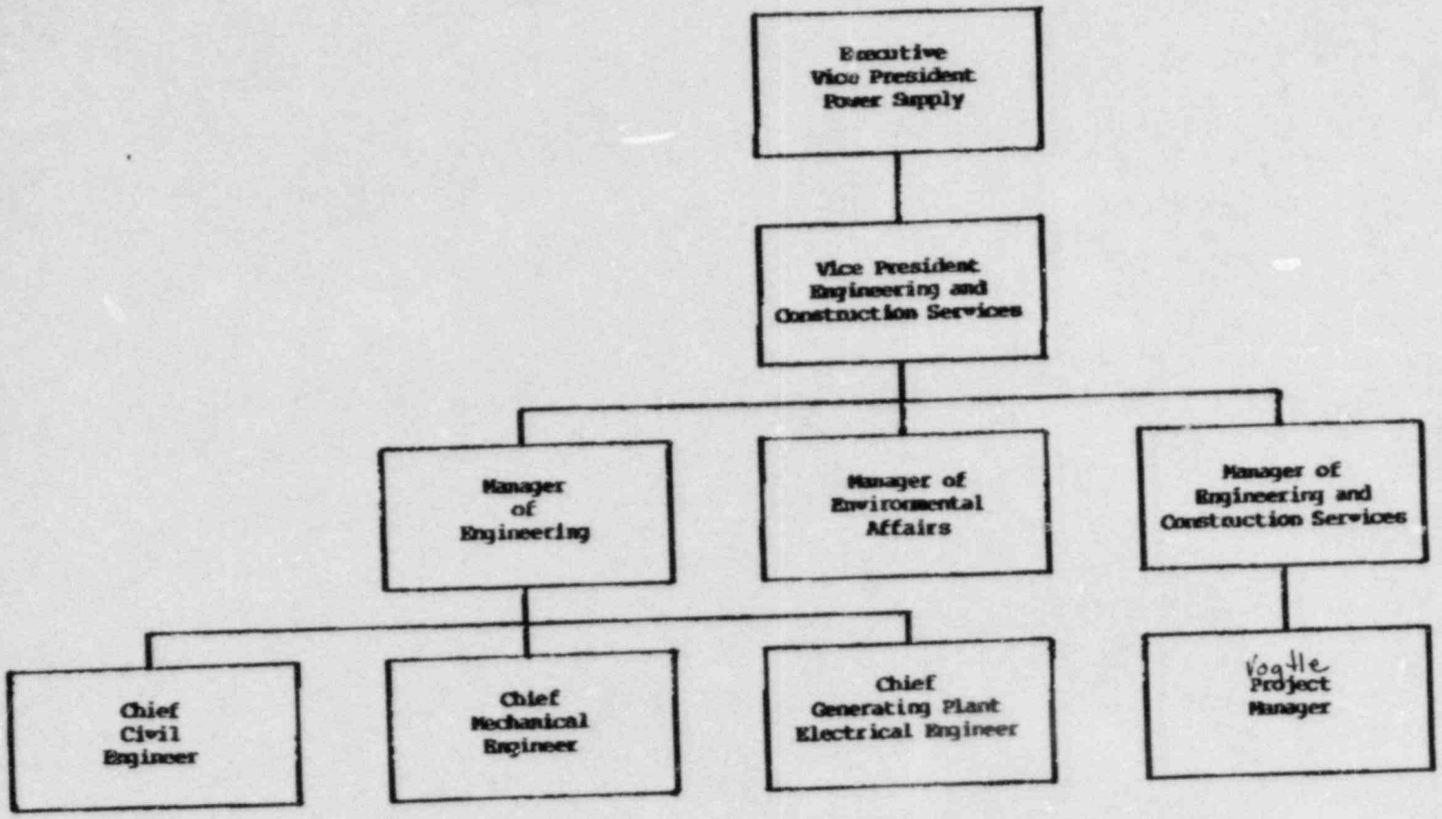
Figure 1

Sheet 1 of 3

VEGP
Units 1 AND 2

Corporate Organization

Figure 13.1.1-1

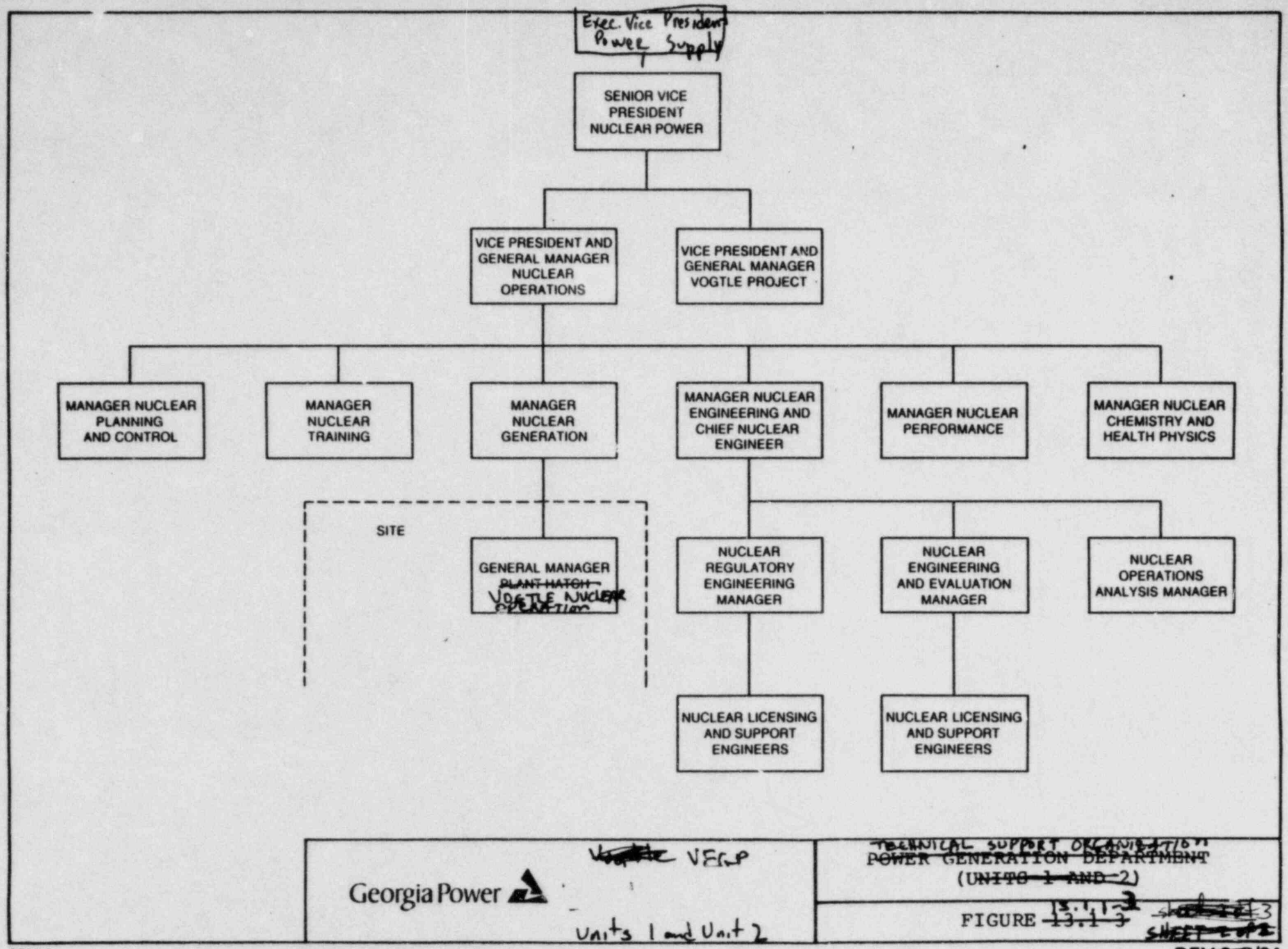


Technical Support Organization

Figure 13.1.1-2

Figure 1

Sheet 2 of 3



Georgia Power

~~Vogtle~~ VEGP

Units 1 and Unit 2

~~TECHNICAL SUPPORT ORGANIZATION~~
~~POWER GENERATION DEPARTMENT~~
~~(UNITS 1 AND 2)~~

FIGURE ~~13.1.1-3~~ 13.1.1-2

~~SHEET 1 OF 3~~
SHEET 1 OF 2

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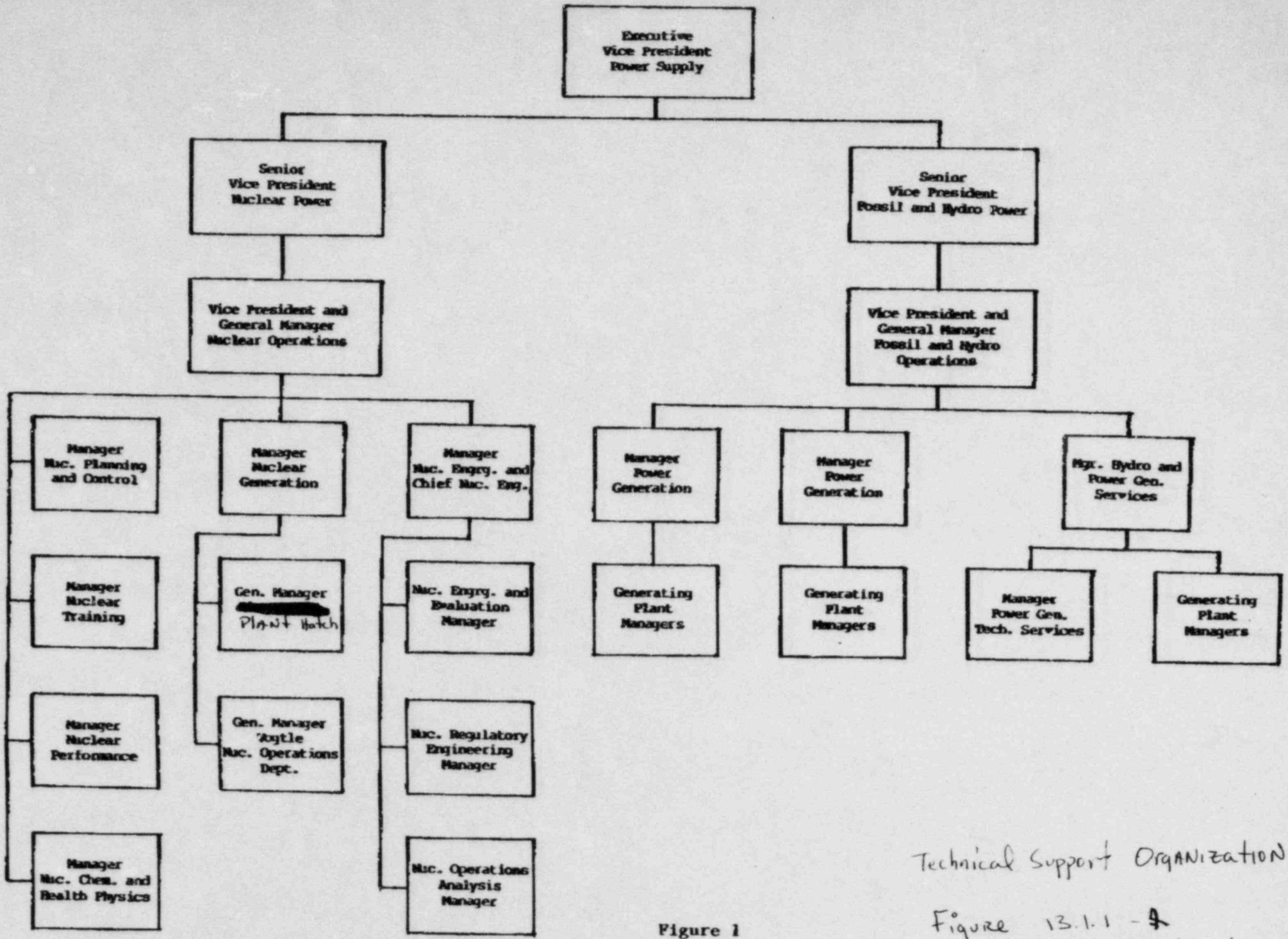


Technical Support Organization

Figure 13.1.1 - 1

~~Sheet 3 of 3~~

Figure 1

Sheet 3 of 3

13.1.2 OPERATING ORGANIZATION

13.1.2.1 Plant Organization

The VEGP consists of two nearly identical nuclear generating units. The plant organization applicable when both units are operational is shown in figure 13.1.2-1. The plant staff, excluding the security department, will be manned with approximately ~~615~~ 385 full-time employees.

13.1.2.2 Plant Personnel Responsibilities and Authorities

13.1.2.2.1 Overall Plant Management

The ~~plant manager~~ General Manager Vogtle Nuclear Operation (GMVNO) of the VEGP is responsible for direct management of the plant, including industrial relations, planning, coordination, direction of operation, training, maintenance, refueling, and technical activities. The ~~plant manager~~ GMVNO is responsible for compliance with the requirements of the operating license, technical specifications, and quality assurance program. In the ~~plant manager's~~ GMVNO absence, the ~~assistant plant manager~~ Manager of Unit Operations assumes this responsibility. The ~~plant manager~~ GMVNO will designate in writing other qualified personnel to assume overall plant responsibility in his absence. (See paragraph 13.1.2.2.2 for succession of responsibility for overall plant operation.)

The ~~plant manager~~ GMVNO reports to the manager-nuclear ~~generation~~ Operations in the ~~power generation~~ Nuclear Operation department. The manager-nuclear ~~generation~~ Operation reports directly to the vice president and general manager-nuclear ~~generation~~ Operations. The ~~plant manager~~ GMVNO has access to the advice and services of technical specialists within Georgia Power Company (GPC) and outside expertise as necessary.

Reporting to the ~~plant manager~~ GMVNO directly and indirectly are the following selected positions:

A. An ~~assistant plant manager~~ Manager of Unit Operations, who, along with the ~~plant manager~~ GMVNO, is responsible for the overall operation and maintenance of the plant.

B. The superintendent-operations, who is responsible for operating the plant safely and efficiently.

C. The superintendent-plant engineering and services, who is responsible for onsite engineering and technical support of the plant.

D. The superintendent-maintenance, who is responsible for performance of preventive maintenance and repairs on plant equipment.

E. The health physics superintendent, who is responsible for the radiation protection program of the plant.

F. The superintendent-regulatory compliance, who is responsible for advising plant management on matters concerning compliance with the Final Safety Analysis Report (FSAR), operating license, technical specifications, approved plant procedures, emergency plan, security plan, etc., and other applicable federal, state, and local regulations.

G. The quality control supervisor, who is responsible for performance of work inspections, verification of procedures used in the control of special processes, and material equipment control of the plant. He report to the Superintendent of Regulatory Compliance

H. The superintendent-administration, who is responsible for developing and implementing office practices which enable correspondence and other general office activities to be accomplished efficiently.

I. The superintendent-nuclear training, who is responsible for the development and implementation of the training and retraining programs for the plant staff. The superintendent-nuclear training is also responsible for administering use of the training simulator.

J. The materials supervisor, who is responsible for preparing requisitions for all operational spare parts, equipment, and miscellaneous supplies for plant use. The materials supervisor is also responsible for receiving, inspecting, shipping, storing, and maintaining an inventory of spare parts equipment and supplies.

The work experience and educational background requirements for department heads and selected personnel are described in subsection 13.1.3. THE RESUMES OF SELECTED PLANT STAFF MEMBERS ARE PROVIDED IN TABLE 13.1.2-1.

13.1.2.2.2 Operations Supervision and Shift Organization

The superintendent-operations is responsible to plant management for the operation of the two units of VEGP and shall possess a senior operators license. The superintendent-operations communicates closely with the other plant

superintendents and supervisors with regard to activities at VEGP. The supervisor-operations reports to the superintendent-operations, [redacted]. The supervisor-operations shall possess a senior operators license.

The ~~shift supervisor~~ Operation supervisor is responsible for seeing that plant operations are conducted in accordance with appropriate standing orders, plant operating procedures, and technical specifications. The ~~shift supervisor~~ Operation supervisor's principal responsibility is ensuring safe plant operation during his assigned shift as addressed in the requirements of item I.A.1.2 of NUREG-0737. The ~~shift supervisor~~ Operation supervisor shall possess a senior operators license.

Under the supervision of the ~~shift supervisor~~ Operation supervisor, the shift supervisor ~~foreman~~ shall assist the ~~shift supervisor~~ Operation supervisor with his duties and responsibilities and shall possess a senior operators license. In addition, he keeps a record of all shift activities and establishes unit load as directed by the load dispatcher or as emergency conditions dictate. Reporting to the ~~shift~~ Operation supervisor or ~~shift foreman~~ Shift supervisor are the plant operators, assistant plant operators, and plant equipment operators. 3

The shift technical advisor reports to the ~~shift~~ Operations supervisor during emergencies and acts to provide both perspective in assessment of plant conditions and dedication to the safety of the plant. During normal operations, the shift technical advisor will report to the senior shift technical advisor, who reports to the superintendent-operations. The shift technical advisor position meets the intent of NUREG-0660, as clarified by NUREG-0737, item I.A.1.1. The shift technical advisor position may be eliminated if the qualifications of the ~~shift~~ Operation supervisor are upgraded. Section 13.2 describes shift technical advisor training, and subsection 13.1.3 describes shift technical advisor qualifications. 7 3

Assistant plant operators monitor the status and make adjustments as needed to maintain control of the various plant processes. Most of their duties are confined to the control room, although they perform routine inspections in other areas of the plant. The operating crew may make radiation and containment surveys within the plant. (In addition to the control room personnel, a health physics technician is on duty during plant operations.) The Technical Specifications state the shift manning requirements for all modes of operation. 3

The succession to responsibility for overall operation of the plant and the authority to issue standing or special orders, in

the event of absences, incapacitation of personnel, or other emergencies, shall be as follows:

A. ~~Plant manager~~. GENERAL MANAGER Vogtle Nuclear Operations (GMVNO)

B. Assistant plant manager. MANAGER Unit Operations

C. Superintendent-operations.

D. Senior reactor operator-licensed superintendent as designated by the ~~plant manager.~~ GMVNO

E. Operations supervisor.

F. Shift supervisor.

~~G. Shift foreman.~~

13.1.2.2.3 Engineering, Health Physics, Laboratory, and Maintenance Supervision

The superintendent-plant engineering and services reports to an ~~assistant plant manager~~ and supervises the engineering staff. Reporting to him are the plant engineering supervisors and a fire protection specialist. (See subsection 9.5.1 for description of fire protection program.) The functions of his staff are to monitor plant performance, provide technical support for plant operation, provide writing support, and interface with other groups to ensure proper engineering support for plant operations. The plant engineering supervisors report to the superintendent-plant engineering and services and aid in his duties and responsibilities. The plant engineering supervisors normally determine when to call consultants and contractors for dealing with complex problems beyond the scope of the company's staff. This position, therefore, corresponds closely to that identified as "engineer in charge" by ANSI 18.1-1971.

Manager Unit Operations

The health physics AND CHEMISTRY superintendent reports to the manager Unit Operations ~~an assistant plant manager~~ and is responsible for the radiation protection program. He verifies that waste shipments or releases of radioactivity from the plant comply with federal, state, and local regulations. Also he ensures that appropriate monitoring devices and protective clothing are available. He is responsible for radiation monitoring devices used by personnel entering the plant and for the maintenance of all required radiation exposure records of plant support and visiting personnel.

The laboratory supervisor-health physics is responsible to the superintendent-health physics, and will aid the superintendent with his duties. ^CHEMISTRY

The laboratory supervisor-chemistry works under the direction of the superintendent-health physics, ^AND CHEMISTRY and is responsible for performing chemical, radiochemical, and radiation sample analyses and maintaining the plant makeup water demineralizer to ensure proper water quality. Laboratory personnel advise operations staff on the operation of plant systems to maintain water quality within the specified limits.

The superintendent-maintenance directs and plans maintenance activities with the assistance of other departments. He has reporting to him maintenance supervisors, and instrumentation and controls supervisors. Maintenance supervisors and foremen direct electricians and mechanics in the upkeep of equipment.

Instrumentation and controls supervisors and foreman are responsible for directing technicians in testing, calibration, surveillance checks, and repair of plant instrumentation and control systems.

13.1.2.2.4 Quality Assurance and Quality Supervision

The ~~plant manager~~ GMVND is responsible for the development and implementation of the quality assurance program during the initial test phase and operational phase of VEGP. Reporting to the ~~plant manager~~ Superintendent Regulatory Compliance, the quality control supervisor will be responsible for inspection activities required by the quality assurance program.

The ^Vice President general manager-quality assurance ~~and radiological health and safety~~, as described in section 17.2 of the FSAR, is responsible to the executive vice president for managing activities of the GPC quality assurance organization. The quality assurance organization will provide a comprehensive independent audit of safety-related activities to verify that they are in compliance with the quality assurance program. The quality assurance program during operations is discussed in section 17.2.

INSERT 13.1.2.2.5

13.1.2.3 Operating Shift Crews

A total manpower in excess of five full shift crews is provided to avoid excessive overtime. ~~The position titles, applicable operator licensing requirements, and the minimum number of personnel planned for each shift are stated in the Technical Specifications and described in paragraph 13.1.2.2.2.~~ 3

The MINIMUM number of Operation SUPERVISOR, shift supervisors, Plant Operator, Assistant plant operators, equipment operators and shift technical advisors are shown in Table 13.1.2-2 "INSERT A"

Insert 13.1.2.2.5

13.1.2.2.5

PREOPERATIONAL AND STARTUP ORGANIZATION

The Initial Test Program Manager

The Initial Test Program Manager reports to the General Manager Vogtle Nuclear Operation. The Initial Test Program Manager is responsible for development and direction of The Initial Test Program Policies and Procedures that are necessary to ensure a successful test program. The Startup Manual describes The Initial Test Program Organization, defines the responsibilities of involved organizations and personnel, delineate personnel qualification and contains the necessary administrative controls. The structure of the preoperational and startup organization is shown on figure 13.1.2-2

REPORTING TO THE INITIAL TEST PROGRAM MANAGER DIRECTLY AND INDIRECTLY ARE THE FOLLOWING SELECTED POSITIONS:

~~13.1.2-1~~

A. The Scheduling and Planning Superintendent is responsible for the development and maintenance of Initial Test Program schedules and of scoping information.

   The Scheduling and Planning Superintendent reports to the Initial Test Program Manager.

B. The Schedule Supervisor is responsible for the development and update of schedules required to support the Initial Test Program.

   The Schedule Supervisor reports to the Scheduling and Planning Superintendent. The positions reporting to the Schedule Supervisor will be schedulers assigned to Start-Up, both GPC and contract.

   The Schedule Supervisor will provide direction to the schedulers in the performance of their duties.

C. The Scoping Supervisor is responsible for the development and maintenance of system scoping/subscoping information to the support system turnover.

   The Scoping Supervisor reports to the Scheduling and Planning Superintendent.

   The Scoping Supervisor provides guidance as to scoping philosophy and technical assistance to the Test Supervisors.

D. The Construction Acceptance Test Superintendent is responsible for the development and implementation of the CAT program.

   The CAT Superintendent reports to the Initial Test Program Manager. The CAT Superintendent represents a single point of contact for all phases of the CAT program. He will utilize primarily maintenance personnel to complete CAT testing.

E. The Construction Acceptance Test Supervisor is responsible for ensuring that CAT's are completed in a timely manner to support the Start-Up Summary Schedule.

The three (3) CAT Supervisors have responsibility divided according to discipline. The disciplines are electrical, mechanical, and I & C.

The CAT Supervisors report to the CAT Superintendent. Support for completing CAT's primarily is from maintenance personnel.

The CAT Supervisors will provide work orders and schedule information to maintenance personnel to complete the individual CAT's.

F. The Preoperation Test Superintendent is responsible for development and implementation of preoperational testing policies and procedures that are necessary for a timely completion of the Initial Test Program. The Preoperational Test Superintendent reports to the Initial Test Program Manager.

The positions reporting to the Preoperational Test Superintendent represent a matrix-type organization composed of Lead Test Supervisors, Test Supervisors, Procedures Supervisor, and Special Test Supervisor. Additional support personnel will be reporting to the Preoperational Test Superintendent to supplement the operating staff during peak work periods.

The Special Test Supervisor is responsible for conducting assigned tests and for directing the individuals providing support for the test activities.

The Special Test Supervisor reports to the Preoperational Test Superintendent. This position will be supported by plant personnel, contractors, or other Southern system employees in completing assignments.

G. The Procedure Supervisor is responsible for the development of and adherence to procedure preparation schedules and administrative requirements.

The Procedures Supervisor reports to the Preoperational Test Superintendent.

No positions report to the Procedures Supervisor. The Procedures Supervisor will, however, coordinate with the Construction Acceptance Test Superintendent, Preoperational Test Superintendent and the Hot Functional and Start-Up Superintendent to develop the required procedure preparation schedules and to maintain the current status of procedures preparation.

H. Technical support will provide assistance to the Lead Test Supervisor and/or the Test Supervisors in their testing activities and assist in the development of preoperational test procedures.

Technical Support personnel report to the Preoperational Test Superintendent.

I. The Lead Test Supervisor is responsible for ensuring timely implementation of preoperational-phase testing and turnover activities so as to support initial test program objectives and milestones.

The Lead Test Supervisor reports to the Preoperational Test Superintendent. The positions reporting to the Lead Test Supervisor represent a matrix-type organization composed of test supervisors.

The Lead Test Supervisor provides specific technical assistance and direction to the test supervisors in conjunction with turnover and testing activities. The Lead Test Supervisor provides the initial review of the completed preoperational test procedures.

J. The Test Supervisor is responsible for conduct of system turnover and testing activities to support the initial test program objectives and milestones.

The Test Supervisor reports to the Lead Test Supervisor.

K. The Hot Functional and Start-Up Test Superintendent is responsible for directing the activities associated with flushing, energization, hot functional testing and start-up testing. This position reports to the Initial Test Program Manager.

The positions reporting to the Hot Functional and Start-Up Test Superintendent are the Energization Supervisor, Start-Up Test Supervisor, Hot Functional Test Supervisor, and Flushing Supervisor.

L. Start-Up Test Supervisor, and Hot Functional Test Supervisor are responsible for conducting the assigned tests and for directing the individuals providing support for the test activities.

These positions report to the Hot Functional and Start-Up Test Superintendent. They will be supported by plant personnel, contractors, or other Southern system employees in completing their assignments.

M. The Flushing Supervisor is responsible to the Hot Functional and Start-Up Test Superintendent for the development and implementation of the flushing procedures and to coordinate the implementation of the flushing procedures in order to verify plant systems are cleaned to the cleanness level specified.

The Flushing Supervisor reports to the Hot Functional and Start-Up Test Superintendent.

The positions reporting to the Flushing Supervisor represent a matrix-type organization. Test Supervisors will report to the Flushing Supervisor while their assigned systems are being flushed. Also, reporting to him will be flushing support such as plant operations personnel, laboratory personnel, and flushing support crafts from Construction.

N. The Energization Supervisor is responsible for energization of the plant electrical distribution in a safe and timely manner as needed to support the initial test program objectives and milestones.

The Energization Supervisor reports to the Hot Functional and Start-Up Test Superintendent.

The Energization Supervisor coordinates electrical system Construction Acceptance Tests and Preoperational Tests to support the initial test program, to minimize the use of temporary power, and to minimize power disruptions of the plant electrical distribution.

13.1.2.2.5.1

QUALIFICATION OF PREOPERATIONAL AND STARTUP PERSONNEL

Initial Test Program Manager and Program Superintendents

Individuals performing these functions shall meet the following requirements:

(1.) A Bachelor Degree in Engineering or related science.

(2.) Four years experience in responsible positions related to power generation of which three years shall be nuclear power.

Lead Test Supervisors, and Preop and Startup Program Supervisors

Individuals performing any of these functions shall have, as a minimum, and Bachelors degree in Engineering or related science and three years of power plant experience including two years Nuclear Power Plant experience.

CAT and Flush Program Supervisors

Individuals who perform this function shall meet the following Preop Phaseminimum requirements:

(1.) A High School Diploma

(2.) Four years experience in the craft or discipline he supervises, one year of which shall be Nuclear Power Plant experience.

Test Supervisor (Preop Phase)

Individuals performing as Test Supervisors during the Preop Phase shall satisfy the following minimum requirement:

(1.) Bachelor Degree in Engineering or related science.

(2.) One (1) year of power plant experience.

(3.) Engineering Technology (Systems) Training (or equivalent).

(4.) Start-Up Program Procedures (SUM) Training (or equivalent).

Test Supervisor (Start-Up Phase)

Individuals performing as Test Supervisors during the Start-Up Phase shall satisfy the following minimum requirements:

(1.) Bachelor Degree in Engineering or related science.

(2.) Two (2) years of power plant experience of which one (1) year shall be nuclear power plant experience.

(3.) Engineering Technology (Systems) Training (or equivalent).

(4.) Start-Up Program Procedures (SUM) Training (or equivalent).

13.1.2.2.5.1.1

SPECIAL CONSIDERATIONS

Individuals who do not possess the formal education requirements specified in this procedure shall not be automatically eliminated where other factors provide sufficient demonstration of their abilities. The Initial Test Program Manager shall evaluate these persons on a case by case basis and provide documentation of this evaluation in the qualification record. Guidance contained in referenced documents may be used in this evaluation.

Completion of formal education beyond the requirements may be used by the Initial Test Program Manager as partial satisfaction of experience requirements.

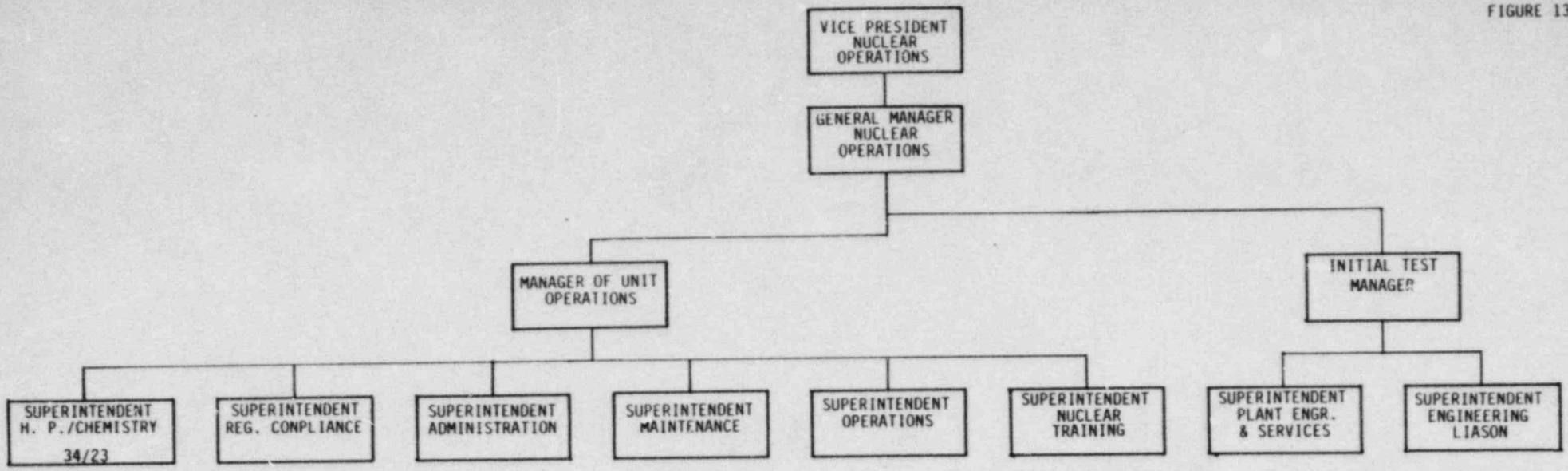
During refueling operations, when the reactor core configuration is being altered, a senior reactor operator will supervise the fuel handling activities in the reactor containment.

Licensed operating personnel will be trained in the radiation protection procedures and will be capable of performing routine or special radiation surveys using portable radiation detectors. These operators will be trained in the use of protective barriers and signs, protective clothing and breathing apparatus, performance of contamination surveys, and checks on radiation monitors. Plant personnel will be trained in the limits of exposure rates and accumulated dose. The shift supervisor is responsible for implementing the radiation protection program in the absence of the superintendent-health physics or his designated alternate.

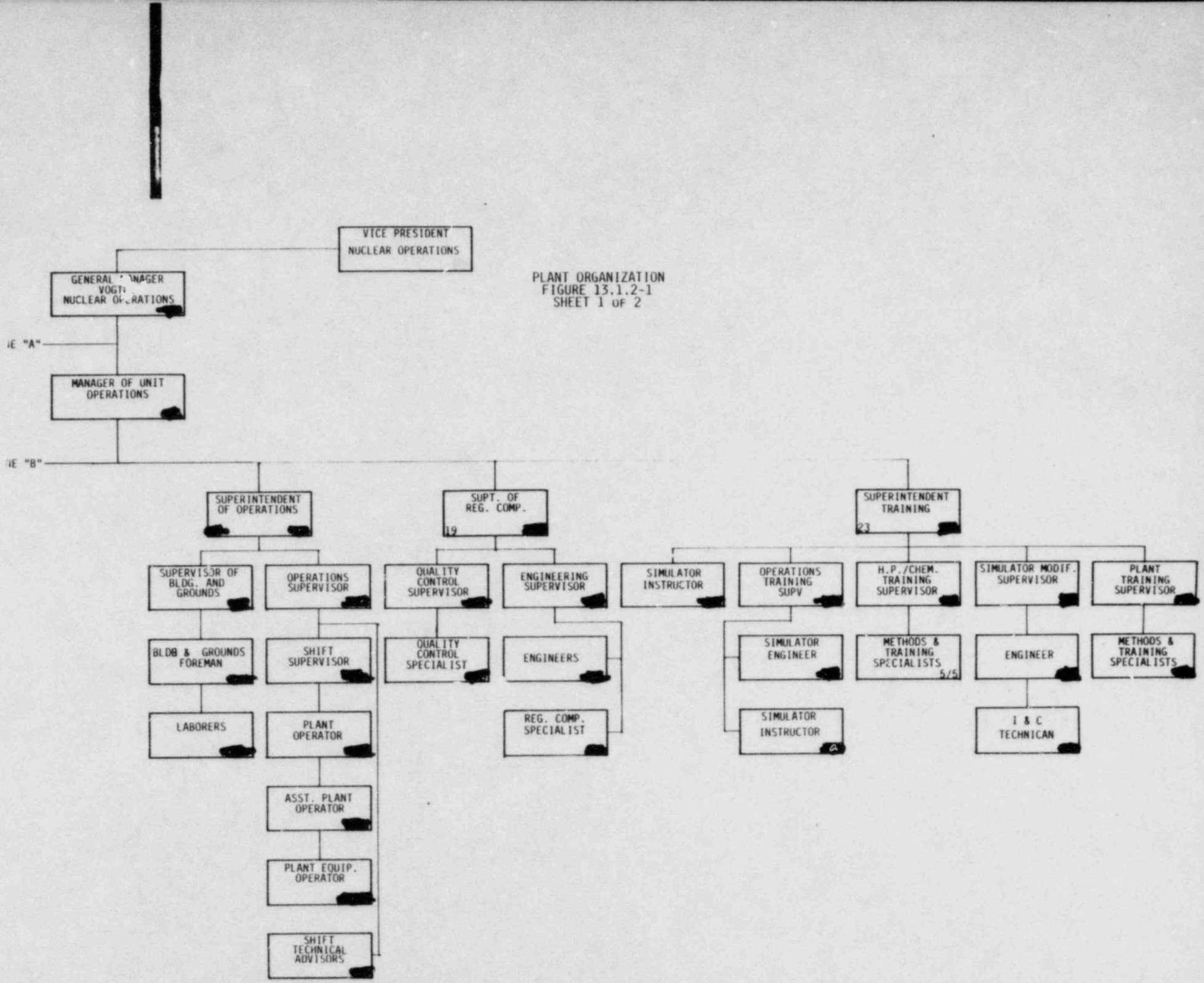
Insert "A"

FSAR table 13.1.2-2 and FSAR figures 13.2.1-2 and 13.2.2- indicate the schedule for ~~licensed operator~~ SRO and RO training to meet the minimum shift staffing and other plant positions

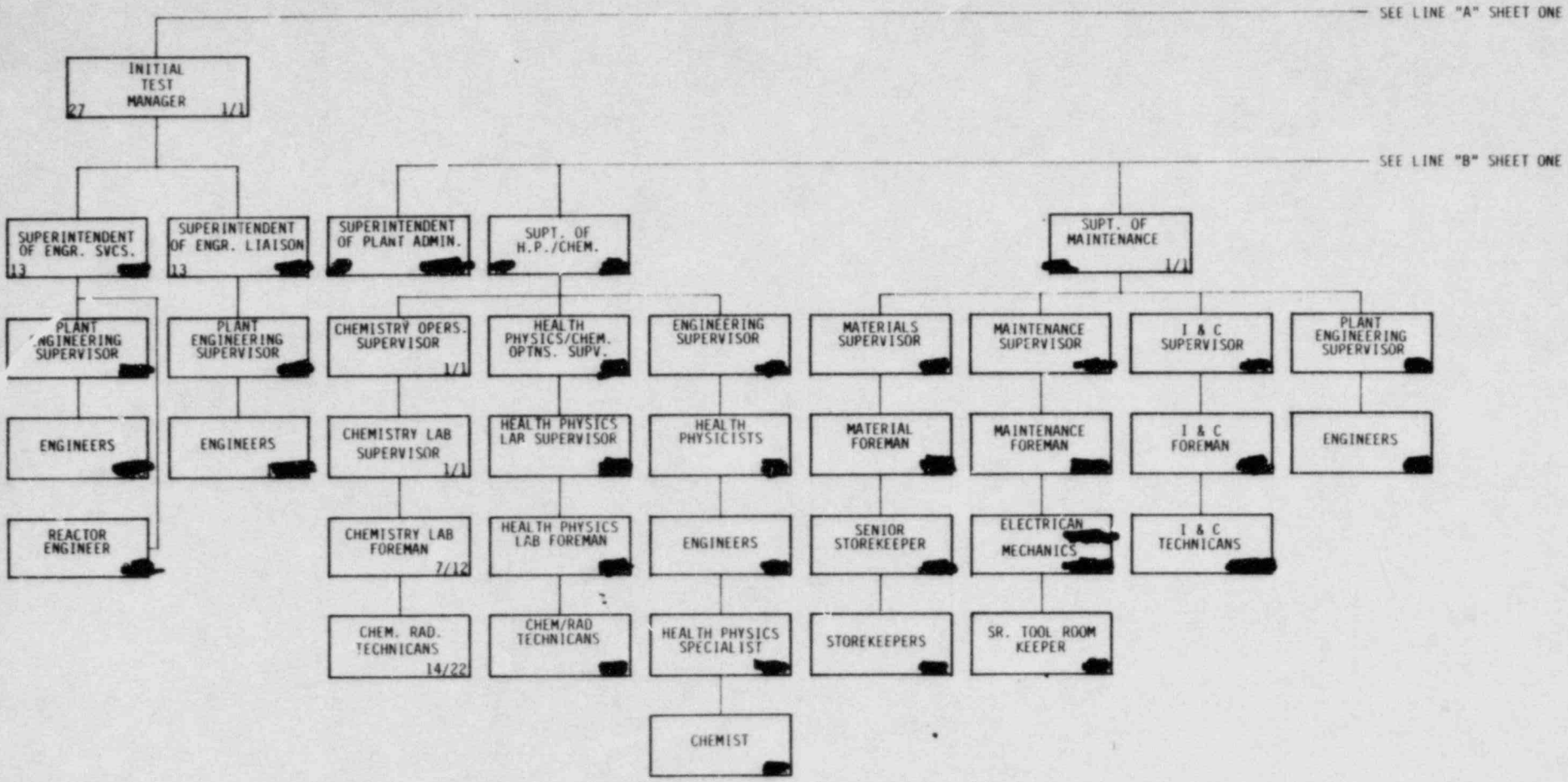
PLANT ORGANIZATION
FIGURE 13.1.2-1



PLANT ORGANIZATION
FIGURE 13.1.2-1
SHEET 1 OF 2



PLANT ORGANIZATION
FIGURE 13.1.2-1
SHEET 2 OF 2



PREOPERATION AND STARTUP ORGANIZATION

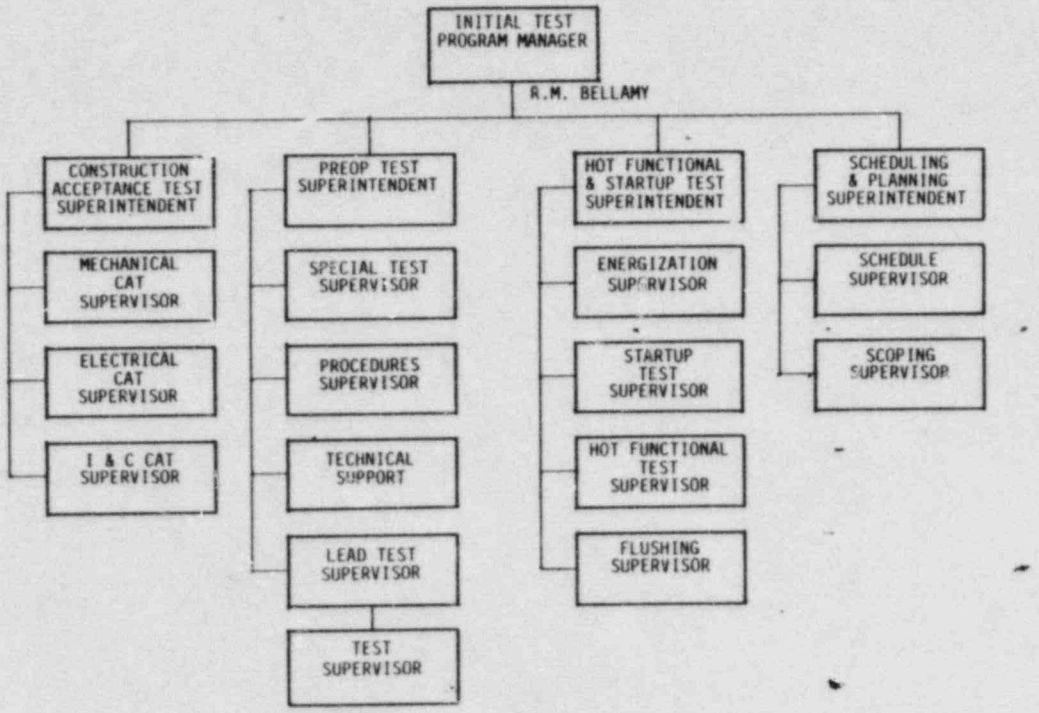


TABLE 13.1.2-~~2~~1

~~Qu~~ RESUMES OF ONSITE SUPERVISORY PERSONNEL

LATER

TABLE 13.1.2-2

[redacted]

MINIMUM SHIFT CREW COMPOSITION
TWO UNITS WITH A COMMON CONTROL ROOM

UNIT 1 IN MODES 1, 2, 3, OR 4

	UNIT 2 IN MODE:		
POSITION	1, 2, 3, OR 4	5 OR 6	DEFUELED
OS	1	1	1
SRO	1	1	1
RO	3	3	2
NLO	3	3	2
STA*	1	1	1

UNIT 1 IN MODE 5 OR 6

	UNIT 2 IN MODE:		
POSITION	1, 2, 3, OR 4	5 OR 6	DEFUELED
OS	1	1	1
SRO	1	0	0
RO	3	2	1
NLO	3	3	1
STA*	1	0	0

UNIT 1 DEFUELED

	UNIT 2 IN MODE:		
POSITION	1, 2, 3, OR 4	5 OR 6	DEFUELED
OS	1	1	0
SRO	1	0	0
RO	2	1	0
NLO	2	1	0
STA*	1	0	0

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* THE STA IS NOT REQUIRED ON SHIFT IF THE QUALIFICATIONS OF THE OPERATIONS SUPERVISOR ARE UPGRADED TO FULFILL THE REQUIREMENTS OF THE STA POSITION.

[redacted]

[redacted]

13.1.3 QUALIFICATIONS OF PERSONNEL

13.1.3.1 Qualifications Requirements

American National Standards Institute (ANSI) N18.1-1971, Standard for Selection and Training for Nuclear Power Plants, is currently used as a basis for establishing the qualifications for personnel in the plant organization. Personnel will either meet the minimum education and experience recommendations of ANSI 18.1-1971 or will complete a qualification program which will demonstrate their ability to perform their job functions.

Table 13.1.3-1 with designated ANSI N18.1 equivalent titles, states the requirements for work experience and educational background for key plant personnel.

The following definitions will be used for qualification of personnel.

13.1.3.2 Definitions

Nuclear power plant - A nuclear power plant is any plant using a nuclear reactor to produce electric power, process steam, or space heating.

Experience - Experience is actual applicable working experience in design, construction, startup, operation, maintenance, or technical services.

Academic training - Academic training is successfully completed college level work leading to a recognized degree.

Related technical training - Related technical training is formal training beyond the high school level in technical subjects associated with the position in question, acquired in training schools or programs conducted by the military, industry, utilities, universities, vocational schools, or others.

On-the-job training - On-the-job training is participation in nuclear power plant startup, operation, maintenance, or technical services under the direction of appropriately experienced personnel.

13.1.3.3 Qualification of Plant Personnel

Nuclear power plant experience will be that nuclear experience acquired in the design, construction, startup, or operation of nuclear power plants. Further, nuclear experience acquired at military, nonstationary, or propulsion nuclear plants may qualify as equivalent experience on a one-for-one time basis.

Nuclear experience acquired in nonpower plants such as test, research, or production reactors may qualify as equivalent to nuclear power plant experience on a one-for-one time basis.

Training may qualify as experience if acquired in appropriate reactor simulator training programs on the basis of 1 month's training being equivalent to 3 month's experience.

Training programs, the culmination of which involves actual reactor operation, may qualify as equivalent to nuclear power plant experience on a one-for-one time basis.

On-the-job training may qualify as equivalent to nuclear power plant experience on a one-for-one time basis.

The qualification of the initial staff personnel holding key managerial and supervisory positions as described in paragraph 13.1.2.2.1 are provided in table 13.1.3-1.

TABLE 13.1.3-1 (SHEET 1 OF 2)

ACCEPTABLE EDUCATION AND EXPERIENCE FOR SELECTION AND TRAINING OF VEGP PERSONNEL

		Recommended Experience (years)				License		Suggested Education (years)			
ANSI N18.1 title	VEGP title	Total Power Plant	Nuclear Power Plant	Other Applicable	Academic Training	Reactor Operator	Senior Reactor Operator	Academic	Related Technical Training	Amount of Education Creditable for Experience[a]	Remarks
Managers											
Plant manager	~~Plant manager~~ GENERAL MANAGER Voglte ~~NUCLEAR OPERATIONS~~ Manager unit operation		3				x[a]	4		4	
Assistant plant manager	~~Assistant plant manager~~	10	3				x[a]	4		4	
Operation manager	Operations superintendent	8	3				x	2 or	2	2	
Technical manager	Superintendent of plant engineering and services		1	/				4		4	
Superintendents not requiring NRC license											
Maintenance manager	Maintenance superintendent	7	1					2 or	2	2	
Radiochemistry-radiation protection	Health physics superintendent		5					2 or	2	4	1 year experience in radiochemistry
Training manager[b]	Superintendent of nuclear training		2	4				4			
Supervisors requiring NRC license	Operation supervisor	4	2				x	2 or	2	2	High school diploma or equivalent required.
	Shift supervisor	4	2[b]				x	2 or	2	2	High school diploma or equivalent required.
	~~Shift foreman~~	~~4[b]~~	~~2[b]~~				~~x~~	~~2 or~~	~~2~~	~~2~~	High school diploma or equivalent required.
Supervisors not requiring NRC license	Material supervisor			4							High school diploma or equivalent required.
	Maintenance supervisor			4							High school diploma or equivalent required.
	QC supervisor			4							High school diploma or equivalent required.
	Laboratory supervisor			4							High school diploma or equivalent required.
Instrumentation and control	I and C supervisor			5				2 or	2	4	6 months experience in nuclear I and C.
	Maintenance foreman			4							High school diploma or equivalent required.
	Laboratory foreman			4							High school diploma or equivalent required.

TABLE 13.1.3-1 (SHEET 2 OF 2)

ANSI N18.1 Title	VEGP Title	Recommended Experience (years)						Suggested Education (years)			Remarks
		Total Power Plant	Nuclear Power Plant	Other Applicable	Academic Training	License: Reactor Operator	License: Senior Reactor Operator	Academic	Related Technical Training	Amount of Education Creditable for Experience	
Instrumentation and control	I and C foreman			5				2 or	2	4	6 months experience in nuclear I and C.
Professional - technical	Plant engineer (reactor engineer)			2	4						
	Shift technical advisor				4			(c)			
Operators to be NRC licensed	Plant operator	2	1			X					High school diploma or equivalent required.
	Assistant plant operator	2	1			X					High school diploma or equivalent required.
Technicians	I and C technicians			2					2		
	QC specialist			2					1		
	Laboratory technician			2					1		
Repairmen	Mechanic			3							
	Electrician			3							
Technical support personnel											
Engineer-in-charge	Plant engineering supervisor			3	4						
Other personnel	Other personnel									Shall be competent in their field	

a. Senior reactor operator license is not required for plant manager, but he or the assistant will have the background required to sit for examination.

b. Required by NUREG-0737.

c. Shift technical advisor training certified by GPC. See paragraph 13.2.2.1.5 for shift technical advisor training.

13.2 TRAINING

13.2.1 LICENSED OPERATOR TRAINING

The VEGP licensed staff will consist of individuals with significant differences in previous education, training, and experience. The licensed training programs have been formulated to provide the required training based upon the individual's prior experience. These programs are designed to provide the highest degree of operator proficiency by effectively using the VEGP simulator.

13.2.1.1 Training Programs

The details of typical training programs, including syllabus, duration, classroom, and on-the-job training, are contained in tables 13.2.1-1 through 13.2.1-5. The programs described in these tables will remain the same for both units before and after initial fuel loading.

Based on the design and design of appropriate approach to training personnel of the licensed operator course, the type and duration of training described in tables 13.2.1-1 through 13.2.1-5 may vary due to the courses contain the topics described, a variation in type and/or duration is acceptable with a change to section 13.2.1.

These programs are designed to train personnel with various backgrounds as indicated in the above tables. These tables include position, titles, and experience of the individual. The VEGP training department is responsible for the coordination of teaching courses and supervising the instruction. The VEGP training department is shown in figure 13.2.1-1. The qualifications of instructors and a description of the instructor requalification program are found in paragraph 13.2.1.3.3.

Individual specific training requirements may be waived on a case by case basis with adequate justification and approval of the Superintendent of Nuclear Training. Justification of waivers may be would include documentation of equivalent course completion at another location, substantial prior job related experience or ~~completion~~ satisfactory completion of an examination covering the course objectives.

13.2.1.1.1 Nuclear Power Plant Theory

Training shall be provided in relevant aspects of nuclear power plant theory as required by 10CFR55 and NUREG 0737 paragraph I.A.2.1 Enclosure 2. The amount of training required is estimated in Tables 13.2.1-1 through 13.2.1-5.

13.2.1.1.2 VEGP Systems and Procedures

Training shall be provided in VEGP Systems and procedures as required by 10 CFR 55 ~~and~~ as indicated in Tables 13.2.1-1 Through 13.2.1-5.

13.2.1.1.3 VEGP License and Technical Specifications

Training shall be provided in VEGP License and Technical Specifications as required by 10 CFR 55 as indicated in Tables 13.2.1-1 through 13.2.1-4.

13.2.1.1.4 Fuel Handling and Core Alterations

Training shall be provided in Fuel Handling and core alterations as required by 10 CFR 55 as indicated in Tables 13.2.1-1 through 13.2.1-4.

13.2.1.1.5 Control Room Operations

Training shall be provided in Control room operations as required by 10 CFR 55 as indicated in Tables 13.2.1-1 through 13.2.1-5. The training shall be accomplished by utilizing a combination of classroom instruction and hands on operating practice on the VEGP plant referenced simulator. The training will prepare the candidate for the

NRC simulator portion of the operating examination.

13.2.1.1.6 Mitigating Core Damage

Training for mitigating core damage will have the course content as described in NUREG-0737, item II.B.4, and will be taught during the courses scheduled in the syllabus, as shown in tables 13.2.1-1 through 13.2.1-5.

13.2.1.1.7 Observation and Walkthrough Training

A program of observation/hot participation training will be undertaken to enhance the operational experience level of the VEGP licensed operators. Prior to initial criticality, those operators who have not previously held a some type license will ~~participate~~ spend a ~~at~~ minimum of 6 weeks in hot participation training at an operating similar facility. In addition these individuals will spend a minimum of 6 weeks in VEGP ~~conducting a [illegible]~~ observing activities related to plant testing and startup ~~[illegible]~~ ~~to complete a checklist of equipment to be located during their assignment to the plant~~ and to become familiar with VEGP equipment and layout. After ~~the~~ initial criticality all license applicants will spend ~~a minimum~~ 3 months conducting observation training as an extra person on shift as

required by NUREG 0737 paragraph I.A.2.1 Enclosure 1.

Personnel who have previously held a same type license will not be required to participate in the 3 month program. Instead they will participate in a 3 weeks ~~long~~ of walk through type training intended to familiarize them with the specific equipment and layout of VEGP.

13.2.1.1.8 Review and Audit

A short period of time will be allocated for each individual license candidate to review material and prepare for a comprehensive audit examination. The effectiveness of the training program in the case of each trainee will be evaluated from the results of a series of written, oral, and manipulation examinations. Applicants for Nuclear Regulatory Commission (NRC) license examinations are given an audit examination which has the same structure as the NRC examination, including a VEGP simulator examination. Since applications for license must be made before the audit examination results are usually available, Georgia Power Company (GPC) will certify to the extensive operating experience based upon the individual's satisfactory progress in the training program. If the individual fails to demonstrate the ability to pass an audit examination or the ability to properly manipulate VEGP simulator controls, GPC will request that the NRC not administer an examination to this individual. Occasionally, the audit examination may uncover a

weak area in an individual's knowledge, but if GPC believes that the individual has sufficient time to correct the problem, certification will not be withdrawn.

The bar charts ~~shown~~ in figures 13.2.1-2 ~~and 13.2.1-3~~ show the schedule of the licensed operator training program in relation to the schedule for preoperational tests, fuel load, criticality, and the expected time for license examinations. If fuel loading is significantly delayed, the VEGP license requalification program will be used to maintain operator proficiency.

13.2.1.2 Operation Experience

Reactor operations experience training will be provided by the VEGP plant-specific simulator, the experience gained from the VEGP staff participating in the preoperational test program, and the experience received by the VEGP staff observing and participating in plant startup or operations of other light-water reactors. The cold license training program will also contain a program of 10 reactor startups on a research/test type reactor to gain actual "at the controls" experience. Personnel with prior Navy nuclear experience as an engineering watch officer, engineering watch supervisor, reactor operator, or other equivalent positions or those who have prior commercial nuclear plant licensed operator experience shall be exempted from 10 reactor startup requirements. A combination of the preceding will satisfy the experience requirements of NUREG-0737, items I.A.2.1. The details of the simulator program are contained in tables 13.2.1-1 through 13.2.1-5. ~~The VEGP simulator conforms with Regulatory Guide 1.149 with the following clarifications~~

The VEGP simulator will conform with the guidance given in Reg Guide 1.149 with the exception of repeating periodic performance testing. Since digital software does not drift or change, retesting of previously verified response would be redundant and unnecessary. Performance testing will be conducted for any ~~design~~ modifications made to the simulator as a result of plant changes which affect training.

Through the use of startup test data, operator observations ~~supported by plant transient charts~~ and plant change notices, the VEGP simulator will be modified and tested to match plant response.

13.2.1.3 Qualification and Requalification Program

The qualification and requalification program for licensed operators and the training department is described in the following paragraphs.

13.2.1.3.1 Licensed Operator Qualification

Reactor operator and senior reactor operator training programs include the qualification requirements contained in NUREG-0737, item I.A..2.1, and are described in tables 13.2.1-1 through 13.2.1-5.

13.2.1.3.2 Licensed Operator Requalification Program

The licensed operator requalification training program will be implemented within 3 months after issuance of an operating license.

The program shall be continuous and may be conducted as an intensive program of several weeks duration each year or may be spaced out over a period of up to 24 months with elements of the program occurring on a periodic basis

Records of the requalification program shall be maintained for a period of two years from the date of the recorded event to document the participation of each licensed operator or senior operator in the requalification program. The records shall

contain copies of written examinations administered, the answers given by the licensee, results of evaluations and documentation of any additional training administered in areas in which an operator or senior operator has exhibited deficiencies. An original or reproduced copy or microfilm will fulfill these record retention requirements. The reproduced copy or microfilm copy will be authenticated by authorized personnel and will be capable of producing a clear and legible copy after storage for a period of two years.

13.2.1.3.2.1 Classroom Study. A planned lecture series will be presented annually (i.e., each calendar year) covering those subjects where training feedback indicates a need for additional training. The lecture series will be based on the following subjects as outlined in 10 CFR 55.

A. Theory and principles.

B. General and specific plant operating characteristics.

C. Plant instruments and controls.

D. Plant protection systems.

E. Engineered safety systems.

F. Procedures.

G. Radiation control and safety.

H. Technical specifications.

I. Applicable portions of 10 CFR.

J. Quality assurance for operations.

K. Major upcoming events.

L. Heat transfer, fluid flow, and thermodynamics.

Fluids and matter
Fluid statics
Fluid dynamics
Heat transfer by conduction, convection and radiation
Change of phase - Boiling
Burnout and flow instability
Reactor heat transfer limits

M. Mitigation of accidents involving a degraded core.

Incore instrumentation
Excore instrumentation
Vital instrumentation
Primary chemistry
Radiation monitoring
Gas generation

13.2.1.3.2.2 On-the-Job Training.

A. Reactivity Controls

Each licensed operator will, during the term of his license, perform a minimum of 10 reactivity control manipulations in a combination of reactor startups, reactor shutdowns, or other control manipulations

which demonstrate his skill and or familiarity with reactivity control systems. Each senior reactor operator shall direct or evaluate the activities of at least 10 control manipulations during his license term. These control manipulations will normally be performed on the VEGP simulator.

The following control manipulations and plant evolutions are acceptable for meeting the reactivity control manipulations required by Appendix A, Paragraph 3.a., of 10 CFR 55. The starred items shall be performed on an annual basis ~~(not to exceed 15 months)~~ once each calendar year all other items shall be performed on a 2-year cycle ~~(not to exceed 27 months)~~ (once each 2 calendar years).

*1. Plant or reactor startups to include a range that reactivity feedback from nuclear heat addition is noticeable and heatup rate is established.

2. Plant shutdown.

*3. Manual control of steam generators and/or feedwater during startup and shutdown.

4. Boration and/or dilution during power operation.

*5. Any significant (10 percent) power changes in manual rod control.

*6. Loss of coolant including:

a. Significant pressurized water reactor (PWR) steam generator leaks.

b. Inside and outside primary containment.

c. Large and small, including leak rate determination.

d. Saturated reactor coolant response.

7. Loss of instrument air.

8. Loss of electrical power (and/or degraded power sources).

*9. Loss of core coolant flow/natural circulation.

10. Loss of condenser vacuum.

11. Loss of service water.

12. Loss of shutdown cooling.

13. Loss of component cooling system or cooling to an individual component.

14. Loss of normal feedwater or normal feedwater system failure.

*15. Loss of all feedwater (normal and emergency).

16. Loss of protective system channel.

17. Mispositioned control rod or rods (or rod drops).

18. Inability to drive control rods.

19. Conditions requiring use of emergency boration.

20. Fuel cladding failure or high activity in reactor coolant or offgas.

21. Turbine or generator trip.

22. Malfunction of automatic control system(s) which affects reactivity.

23. Malfunction of reactor coolant pressure/volume control system.

24. Reactor trip.

25. Main steam line break (inside or outside containment).

26. Nuclear instrumentation failure(s).

B. Knowledge of Systems

Each licensed operator will demonstrate, in the performance of his duties, his satisfactory understanding of the operation of systems and apparatus and his knowledge of operating procedures in each area for which he is licensed.

Any licensed operator who has been inactive for 4 or more months, before resuming licensed activities, will demonstrate adequate knowledge of current plant operations. This shall be accomplished by a review of applicable plant and procedure changes made during the period the operator was inactive, followed by an evaluation by either a certified instructor on the VEGP simulator, the superintendent-operations, assistant plant manager, or plant manager. An unsatisfactory result on the evaluation shall require

the operator to have on-the-job training in areas determined as weak.

To remain on active status, a reactor operator or senior reactor operator is required to have a minimum of 8 h/quarter active participation in operation of the plant or the VEGP simulator.

C. Plant Changes

Each licensed operator will be kept informed of all plant design changes, procedure changes, and license changes. Changes of a magnitude requiring detailed explanation will be reviewed by a special lecture with 100 percent attendance of licensed personnel.

D. Procedures

Each licensed operator will review abnormal and emergency procedures at a minimum of once each 12 months. A delinquency of 30 days on a procedure review will require that the licensee be removed from license duties until such review is completed.

13.2.1.3.2.3 Evaluation.

A. Observation

The performance of licensed operators will be evaluated annually by operating supervision or by a certified instructor usually on the VEGP simulator. This shall include evaluation of actions taken or to be taken during actual or simulated abnormal or emergency conditions. Observation reports are required for personnel (supervisory and nonsupervisory) who hold an NRC license, with the exception of the superintendent-operations, assistant plant manager, plant manager, and certified simulator instructors.

B. Annual Examinations

Annual written examinations will be given to all licensed personnel to determine areas in which requalification training is needed. These examinations are normally evaluated within 30 days (2 months for unusual conditions with corporate office approval). A minimum grade of 80 percent correct on any section shall exempt an operator or senior operator from required attendance at requalification

lectures pertinent to that section. Any section grade less than 80 percent but greater than 70 percent will require attendance at requalification lectures pertinent to that section within 12 months from the examination date.

An overall grade of less than 80 percent correct on an annual written examination, a section grade of less than 70 percent, or an unsatisfactory performance evaluation will require an operator or senior operator to be relieved of licensed duties so that he may participate in an accelerated requalification program. This will be documented with written notification to the individual and to the appropriate department head. An operator or senior operator who has been relieved may return to his licensed duties following completion of accelerated requalification training in areas where he was weak, including a grade of not less than 80 percent correct on examinations given over such areas.

NRC may participate in the annual examination process. Annual examinations will be given at the conclusion of the requalification training program so as to measure the overall effectiveness of the complete program and not to disrupt shift manning and training schedules.

C. Lecture Examinations

Written examinations will be given to individuals who received less than 80 percent on the pertinent section of the annual examination covering material presented in the program lecture series. A grade of less than 80 percent on any required lecture series examination shall require a licensed operator to be rescheduled for additional instruction and testing on that subject within the next 3 months. The 3 months may be extended by the length of time of any refueling outage falling within that period. Lectures presented for information of major upcoming events and/or plant modifications may be documented by attendance record.

13.2.1.3.3 Instructor Qualification and Requalification Program

The qualification and requalification program for instructors as described below includes requirements of NUREG-0737, item I.A.2.3.

This program will be fully implemented prior to fuel load.

A. Initial Qualification

The training department will use a qualification checklist to establish the initial qualification requirements for all new instructors and for instructors whose teaching responsibilities are going to significantly change. These special qualification checklists shall include the following requirements:

7

1. The instructor's supervisor will review the employee's background and establish qualification goals and qualification deadlines. Besides other qualifications, the following minimum goals will be established:

   a. For new instructors who do not have a classroom teaching background, the employee will have to present a lecture to a group of experienced instructors before lecturing plant students. The company's instructor course as a minimum shall satisfy this requirement.

   b. For instructors who teach licensed students, before the new instructor conducts a comprehensive program, the employee will meet NRC requirements by obtaining the appropriate certification. This requirement does not prevent noncertified members of the training staff from teaching licensed personnel in the instructor's area of expertise.

2. The superintendent-nuclear training shall approve the qualification checklist at the time of issue and shall approve the final qualification of each instructor.

Before these instructors teach integrated response, transients, and simulator courses to licensed operators, they will demonstrate their competence by successful completion of a senior reactor operator examination.

B. Certified Instructor Requalification

Licensed or certified instructors will complete the requirements of the licensed operator requalification program annually by teaching, performing, or taking examinations for each required element of the requalification program. Conducting simulator training will be considered the same as supervising license duties in the plant control room. If an instructor is not involved in the preceding requalification program, he may renew his certification by preparing for and taking or conducting a comprehensive audit examination. Instructors who fail to complete these annual instructor requalification requirements will not teach

integrated plant response to licensed students until they renew their certification.

TABLE 13.2.1-1 (SHEET 1 OF 3)

SENIOR
LICENSED OPERATOR ONSITE TRAINING SYLLABUS - PERSONNEL WITH COMMERCIAL PWR LICENSE OR NRC CERTIFICATION (ANY SUPERVISOR, STAFF, ~~OR OPERATOR~~ POSITION)
OR

10

Description	Type	Minimum Integral Duration
Nuclear power plant theory Fundamental of reactor theory General core design Radiological safety and radiation hazards Heat transfer, fluid flow, and thermodynamics Fluids and matter Fluid Statics Fluid dynamics Heat transfer by conduction, convection and radiation Change of phase - Boiling Burnout and flow instability Reactor Heat transfer limits	Classroom or self-study	1 week
VEGP systems and procedures Procedures for design and operating changes Reactor coolant system mechanical design Reactivity control mechanisms and indications Reactor safety systems Emergency and reserve systems Containment and shielding Radiation monitoring system Auxiliary systems Radioactive waste	Classroom or self-study	1 week

TABLE 13.2.1-~~8~~ 1 (Sheet 2 of 3)

Description	Type		Minimum Integral Duration
VEGP license and technical specifications License conditions and limitations Design limitations	Classroom or self-study		1 week
Fuel handling and core alternations Facilities and procedures	Classroom or self-study		3 days
	Classroom	Simulator	~~8~~ 4 weeks (including ~~100~~ 80 h VEGP/simulator)
Control Room Operations			
General operating characteristics	X	X	
Specific operating characteristics	X	X	
Load changes	X	X	
Operating limitations	X	X	
Standard, emergency, and plant procedures	X	X	
Control manipulation		X	
Transients		X	
Mitigating core damage Incore instrumentation Excore Instrumentation Vital instrumentation Primary chemistry Radiation monitoring Gas generation	Classroom or self-study		1 day
Observation training including walkthrough training (only for personnel who have not previously held a same type license, reactor operator or senior reactor operator)	VEGP		3 months (a)

TABLE 13.2.1-1 (Sheet 3 of 3)

Description	Type	Minimum Integral Duration
Walkthrough training (only for personnel who have previously held a PWR SRO license)	VEGP	3 weeks
Review and audit		1 week

a. Prior to initial criticality, applicants for cold licenses will complete observation training at a comparable licensed commercial nuclear power plant for a period of 6 weeks. In addition, applicants will have at least 6 weeks of VEGP shift experience which includes walkthrough training.

TABLE 13.2.1-2 (SHEET 1 OF 3)

SENIOR

LICENSED OPERATOR ONSITE TRAINING SYLLABUS - PERSONNEL WITH OTHER THAN PWR LICENSE OR NRC CERTIFICATION (ANY SUPERVISOR, STAFF, ~~OR OPERATOR~~ POSITION)

OR

Description	Type	Minimum Integral Duration
Nuclear power plant theory Fundamental of reactor theory General core design Radiological safety and radiation hazards Heat transfer, fluid flow, and thermodynamics Fluids and matter Fluid Statics Fluid dynamics Heat transfer by conduction, convection and radiation Change of phase - Boiling Burnout and flow instability Reactor Heat transfer limits	Classroom or self-study	1 week
VEGP systems and procedures Procedures for design and operating changes Reactor coolant system mechanical design Reactivity control mechanisms and indications Reactor safety systems Emergency and reserve systems Containment and shielding Radiation monitoring system Auxiliary systems Radioactive waste	Classroom or self-study	4 weeks

TABLE 13.2.1-~~1~~ 2 (Sheet 2 of 3)

Description	Type		Minimum Integral Duration
VEGP license and technical specifications License conditions and limitations Design limitations	Classroom or self-study		1 week
Fuel handling and core alternations Facilities and procedures	Classroom or self-study		3 days
	Classroom	Simulator	
Control Room Operations			5 weeks (including 100 h VEGP/simulator)
General operating characteristics	X	X	
Specific operating characteristics	X	X	
Load changes	X	X	
Operating limitations	X	X	
Standard, emergency, and plant procedures	X	X	
Control manipulation		X	
Transients		X	
Mitigating core damage Incore instrumentation Excore Instrumentation Vital instrumentation Primary chemistry Radiation monitoring Gas generation	Classroom or self-study		1 day
Observation training including walkthrough training ~~(only for personnel who have not previously held a same type license, reactor operator or senior reactor operator)~~	VEGP		3 months (a)

TABLE 13.2.1-1 (Sheet 3 of 3)

Description	Type	Minimum Integral Duration
~~Walkthrough training (only for personnel who have previously held a PWR SRO license)~~	~~VEGP~~	~~3 weeks~~
Review and audit		1 week

a. Prior to initial criticality, applicants for cold licenses will complete observation training at a comparable licensed commercial nuclear power plant for a period of 6 weeks. In addition, applicants will have at least 6 weeks of VEGP shift experience which includes walkthrough training.

TABLE 13.2.1-3 (Sheet 1 of 3)

LICENSED SENIOR OPERATOR ONSITE TRAINING SYLLABUS PERSONNEL WITH 1 YEAR OF MILITARY PWR EXPERIENCE AS A REACTOR OPERATOR, ENGINEERING WATCH SUPERVISOR, OR ENGINEERING WATCH OFFICER (ANY SUPERVISOR OR STAFF POSITION)

Description	Type	Minimum Integral Duration
Nuclear power plant theory Fundamental of reactor theory General core design Radiological safety and radiation hazards Heat transfer, fluid flow, and thermodynamics Fluids and matter Fluid Statics Fluid dynamics Heat transfer by conduction, convection and radiation Change of phase - Boiling Burnout and flow instability Reactor Heat transfer limits	Classroom or self-study	3 weeks
VEGP systems and procedures Procedures for design and operating changes Reactor coolant system mechanical design Reactivity control mechanisms and indications Reactor safety systems Emergency and reserve systems Containment and shielding Radiation monitoring system Auxiliary systems Radioactive waste	Classroom or self-study	4 weeks

TABLE 13.2.1-3 (Sheet 2 of 3)

Description	Type		Minimum Integral Duration
VEGP license and technical specifications License conditions and limitations Design limitations	Classroom or self-study		1 week
Fuel handling and core alternations Facilities and procedures	Classroom or self-study		3 days
	Classroom	Simulator	
Control Room Operations			5 weeks (including 100 h VEGP/simulator)
General operating characteristics	X	X	
Specific operating characteristics	X	X	
Load changes	X	X	
Operating limitations	X	X	
Standard, emergency, and plant procedures	X	X	
Control manipulation		X	
Transients		X	
Mitigating core damage Incore instrumentation Excore Instrumentation Vital instrumentation Primary chemistry Radiation monitoring Gas generation	Classroom or self-study		1 day
Observation training including walkthrough training ~~(only for personnel who have not previously held a same type license, reactor operator or senior reactor operator)~~	VEGP		3 months (a)

TABLE 13.2.1-3 (Sheet 3 of 3)

Description	Type	Minimum Integral Duration
~~Walkthrough training (only for personnel who have previously held a PWR SRO license)~~	~~VEGP~~	~~3 weeks~~
Review and audit		1 week

a. Prior to initial criticality, applicants for cold licenses will complete observation training at a comparable licensed commercial nuclear power plant for a period of 6 weeks. In addition, applicants will have at least 6 weeks of VEGP shift experience which includes walkthrough training.

TABLE 13.2.1-4 (SHEET 1 OF 3)

LICENSED SENIOR OPERATOR ONSITE TRAINING SYLLABUS - PERSONNEL WITH DEGREE IN ENGINEERING OR APPLICABLE SCIENCES (ANY SUPERVISOR, STAFF, OR ~~OPERATOR~~ POSITION)

OR

Description	Type	Minimum Integral Duration
Nuclear power plant theory Fundamental of reactor theory General core design Radiological safety and radiation hazards Heat transfer, fluid flow, and thermodynamics Fluids and matter Fluid Statics Fluid dynamics Heat transfer by conduction, convection and radiation Change of phase - Boiling Burnout and flow instability Reactor Heat transfer limits	Classroom or self-study	5 weeks
VEGP systems and procedures Procedures for design and operating changes Reactor coolant system mechanical design Reactivity control mechanisms and indications Reactor safety systems Emergency and reserve systems Containment and shielding Radiation monitoring system Auxiliary systems Radioactive waste	Classroom or self-study	6 weeks

TABLE 13.2.1-4 (Sheet 2 of 3)

Description	Type	Minimum Integral Duration
VEGP license and technical specifications License conditions and limitations Design limitations	Classroom or self-study	1 week
Fuel handling and core alternations Facilities and procedures	Classroom or self-study	3 days
	Classroom / Simulator	
Control Room Operations		5 weeks (including 100 h VEGP/simulator)
General operating characteristics	X / X	
Specific operating characteristics	X / X	
Load changes	X / X	
Operating limitations	X / X	
Standard, emergency, and plant procedures	X / X	
Control manipulation	/ X	
Transients	/ X	
Mitigating core damage Incore instrumentation Excore Instrumentation Vital instrumentation Primary chemistry Radiation monitoring Gas generation	Classroom or self-study	1 day
Observation training including walkthrough training ~~(only for personnel who have not previously held a same type license, reactor operator or senior reactor operator)~~	VEGP	3 months (a)

TABLE 13.2.1-4 (Sheet 3 of 3)

Description	Type	Minimum Integral Duration
~~Walkthrough training (only for personnel who have previously held a PWR SRO license)~~	~~VEGP~~	~~3 weeks~~
Review and audit		1 week

a. Prior to initial criticality, applicants for cold licenses will complete observation training at a comparable licensed commercial nuclear power plant for a period of 6 weeks. In addition, applicants will have at least 6 weeks of VEGP shift experience which includes walkthrough training.

TABLE 13.2.1-5 (SHEET 1 OF 2)

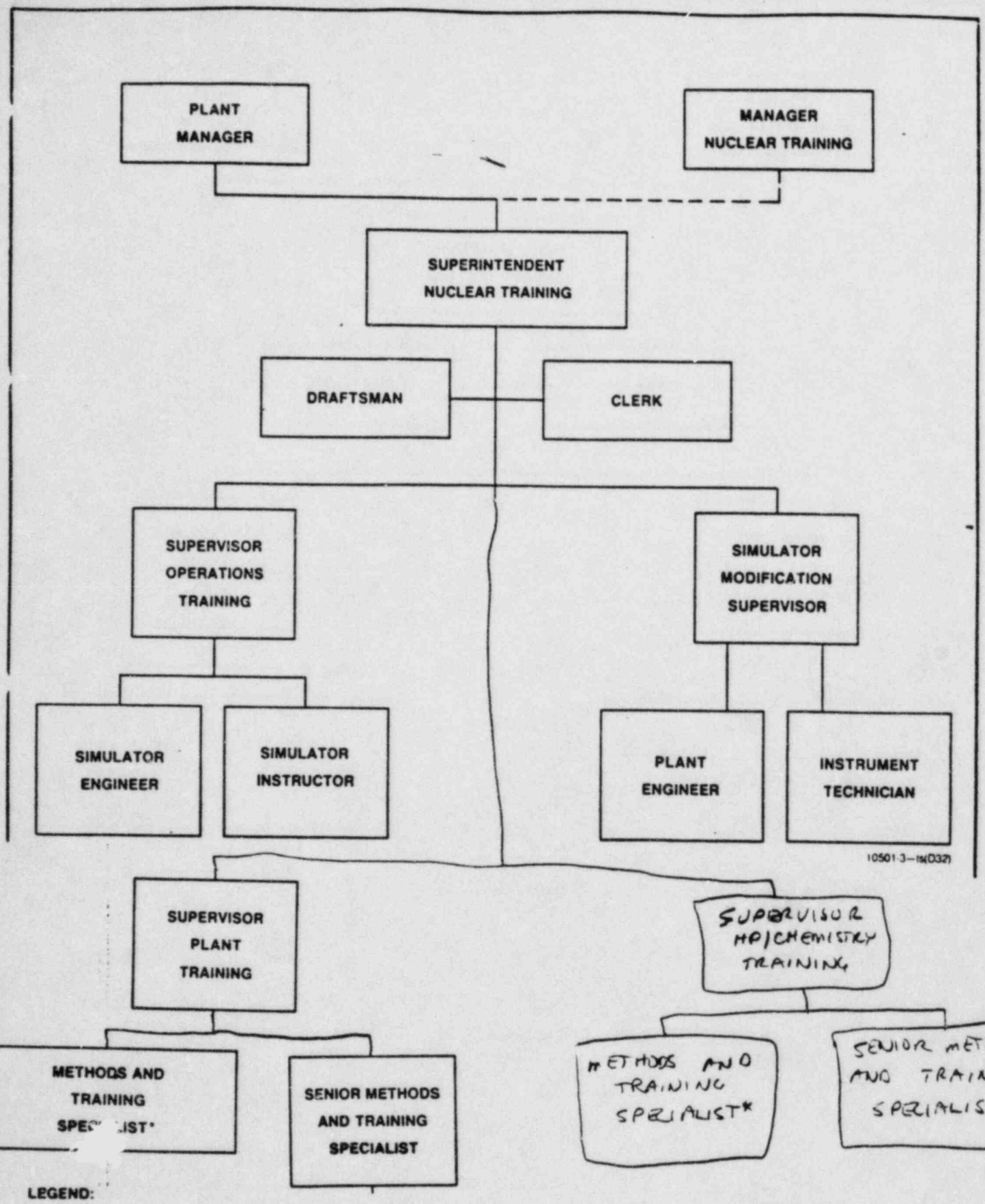
LICENSED OPERATOR ONSITE TRAINING SYLLABUS (PLANT OPERATOR OR ASSISTANT PLANT OPERATOR)

Description	Type	Minimum Integral Duration
Nuclear power plant theory Mathematics Fundamentals of reactor theory General core design Reactor and health physics and radiological safety Materials Heat transfer, fluid flow, and thermodynamics Fluids and matter Fluid Statics Fluid dynamics Heat transfer by conduction, convection and radiation Change of phase - Boiling Burnout and flow instability Reactor Heat transfer limits	Classroom or self-study	12 weeks
VEGP systems for electrical and reactor control (including procedures) Reactor coolant system mechanical design Reactivity control mechanisms and indicators Reactor safety systems Emergency and reserve systems Containment shielding Radiation monitoring systems Auxiliary systems	Classroom or self-study	12 weeks

TABLE 13.2.1-5 (SHEET 2 OF 2)

Description	Type		Minimum Integral Duration
	Classroom	Simulator	
Control Room Operations			6 ~~9~~ weeks
General operating characteristics	X	X	(including 100 h VEGP/simulator)
~~Specific operating characteristics~~	~~X~~	~~X~~	
Load changes	X	X	
Operating limitations	X	X	
Standard, emergency, and plant procedures	X	X	
Control manipulation		X	
Transients		X	
Mitigating core damage	Classroom or self-study		1 day
Incore instrumentation			
Excore Instrumentation			
Vital instrumentation			
Primary chemistry			
Radiation monitoring			
Gas generation			
Observation training including walkthrough training	VEGP		3 months (a)
Review and audit			1 week

a. Prior to initial criticality, applicants for cold licenses will complete observation training at a comparable licensed commercial nuclear power plant for a period of 6 weeks. In addition, applicants will have at least 6 weeks of VEGP shift experience which includes walkthrough training.



LEGEND:

SRO - Senior reactor operator

*Methods and training specialists will have experience in electrical or mechnical maintenance, instrumentation and controls technology, or health physics and chemistry.

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VOGTLE
ELECTRIC GENERATING PLANT
UNIT 1 AND UNIT 2

VEGP TRAINING ORGANIZATION

FIGURE 13.2.1-1

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	Jan 81 to Jun 84	Jul 84 to Dec 84	Jan 85 to Mar 86	Apr 86 to Jul 86	Jul 86 to Sep 86
Initial classroom training (Fundamentals, systems)	SRO 18	RO 18 NLO 18			
Simulator	SRO 18	RO 9	RO* 9		
Hot Participation (extra man-on shift)	SRO 4	SRO 10 RO 12	SRO* 4 RO* 6		
Review and Audit	SRO 18	RO 4 NLO 18	RO 14		
NRC License Exam				SRO* 9 RO* 9	SRO* 9 RO* 9

FSAR SUBMITTAL

PREOPERATIONAL TEST UNIT 1

LICENSE EXAMS UNIT 1 (GROUP I)

PREOPERATIONAL TESTING UNIT 2

LICENSE EXAMS UNIT 1 (GROUP II)

FUEL LOAD AND CRITICALITY UNIT 1 **

LEGEND

SRO = Senior Reactor Operator

RO = Reactor Operator

NLO = Nonlicensed Operator

* Estimated number of students expected to complete training

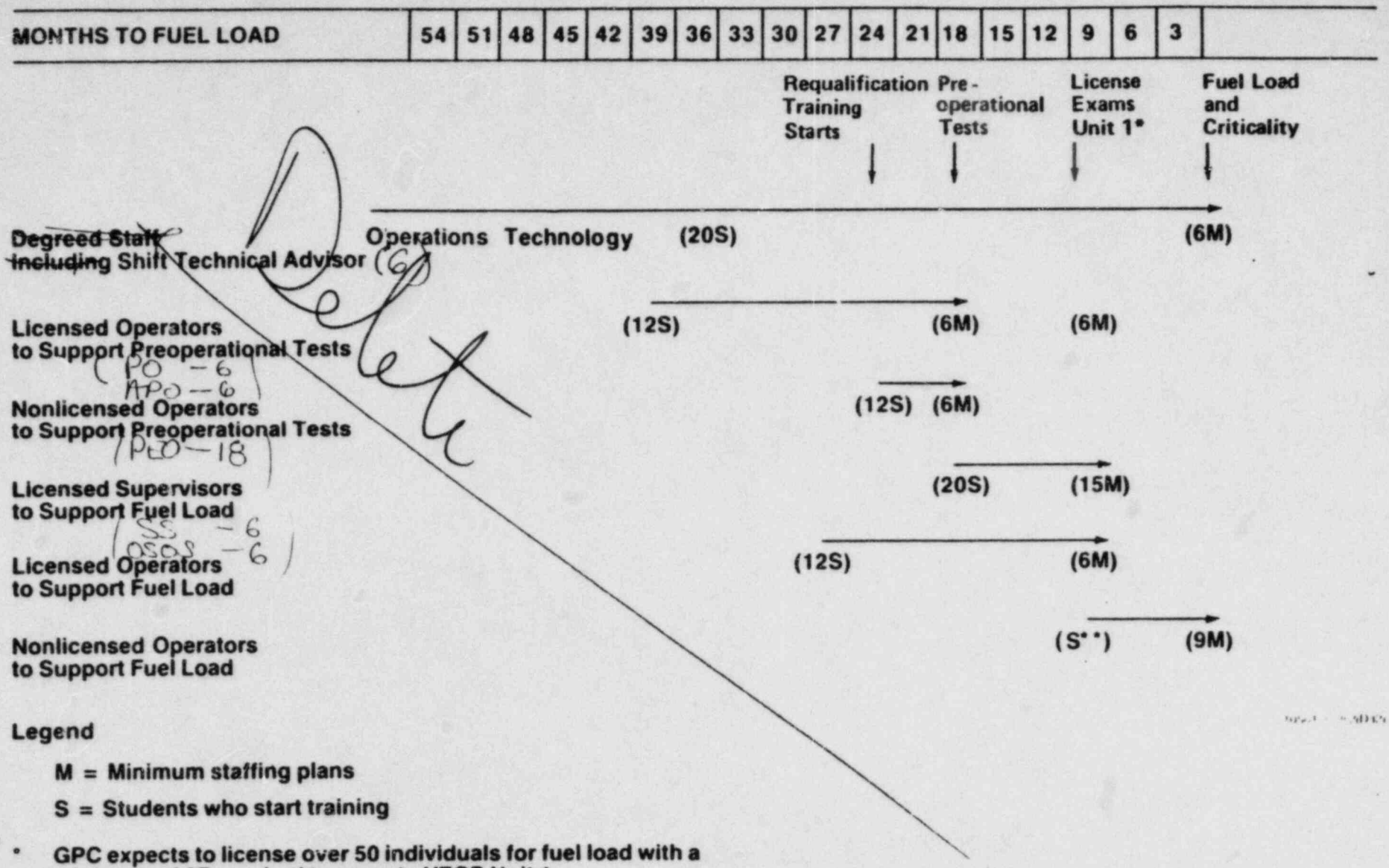
** Sufficient operators will be available for 2 unit operation when unit 1 fuel load

Technical Specification Minimum Staffing

	1 Unit Operation (Maximum staffing for 6 shifts)	2 UNIT OPERATION (Maximum staffing for 6 shifts)	Available Personnel
Senior Reactor Operator (including Shift Technical Advisors)	18	18	18
Reactor Operators	12	18	18
Nonlicensed Operators	12	18	18

VEGP UNITS 1 AND 2 OPERATOR TRAINING

FIGURE 13.2.1-2



Legend

M = Minimum staffing plans

S = Students who start training

* GPC expects to license over 50 individuals for fuel load with a minimum of 27 required to operate VEGP Unit 1.

** Depends upon turnover.

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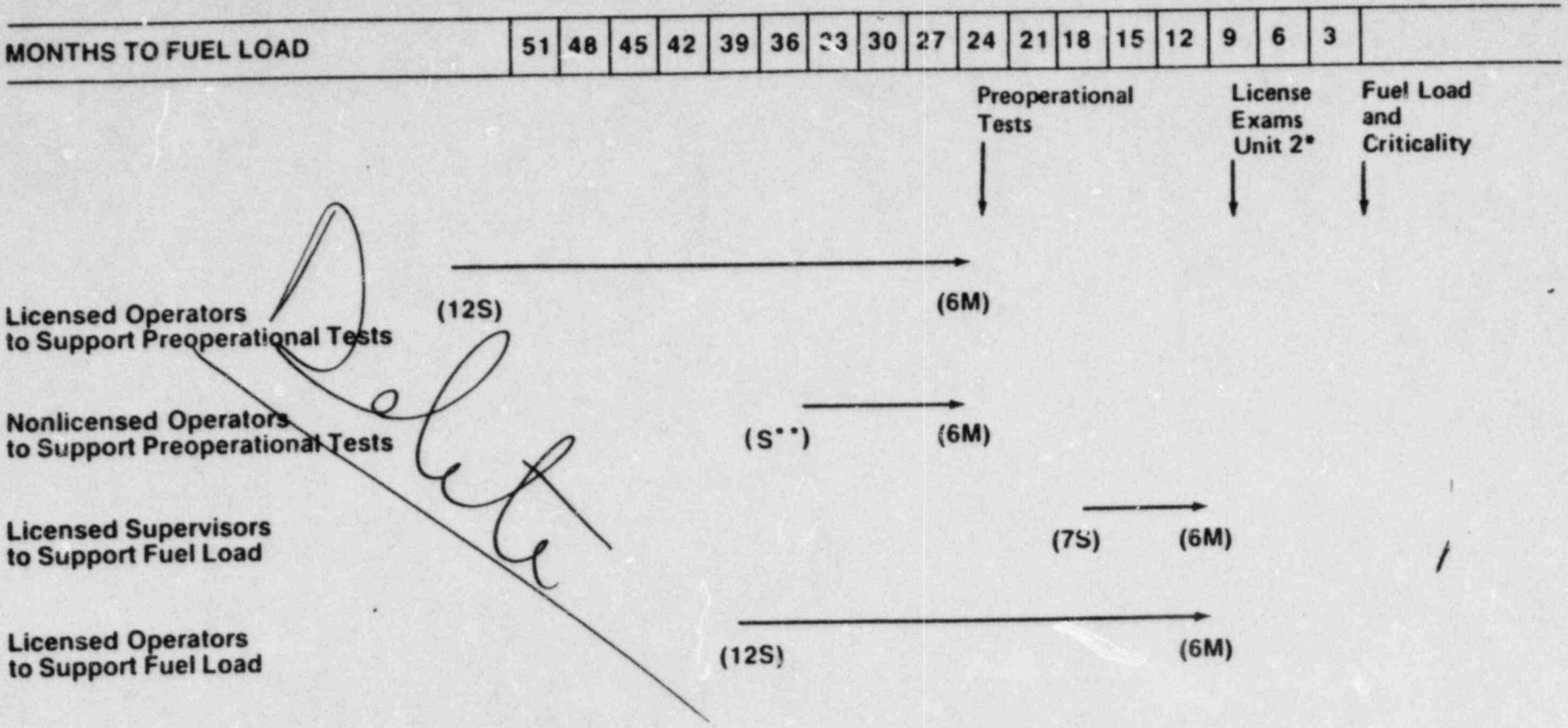
VOGTLE ELECTRIC GENERATING PLANT UNIT 1 AND UNIT 2

VEGP UNIT 1 OPERATIONS TRAINING

FIGURE 13.2.1-2

Amend. 10 9/84



Legend

M = Minimum staffing plans

S = Students who start training

* For the operation of Unit 2, GPC expects to license a minimum of 18 additional individuals. Licensed individuals will have a dual license for both Units 1 and 2.

** Depends upon turnover.

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VOGTLE
ELECTRIC GENERATING PLANT
UNIT 1 AND UNIT 2

ADDITIONAL VEGP UNIT 2
OPERATIONS TRAINING

FIGURE 13.2.1-3

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13.2.2 TRAINING FOR NONLICENSED PLANT STAFF

The VEGP staff will consist of individuals with significant differences in previous education, training, and experience. The training programs have been formulated to provide the required training based upon the individual's prior experience. Personnel will either meet the minimum education and experience recommendation of ANSI/ANS 18.1-1971 or complete a qualification program which will demonstrate their ability to perform the specific tasks. The organization conducting the training for the non-licensed plant staff is the same as that for the licensed plant staff and is shown in Figure 13.2.1-1.

13.2.2.1 Training Program

A training program has been established for each VEGP organizational group. At the time of fuel load, personnel assigned to a particular group will complete the initial training before performing independent tasks or will meet the minimum education and experience required by ANSI/ANS 18.1-1971.

The training programs will be the same before and after initial fuel load. On the job training will be used to supplement the indicated classroom instruction as necessary to prepare individuals for their assigned responsibilities.

~~Waiver of~~ Individual specific training requirements may be waived on a case by case basis with adequate justification and approval of the Superintendent of Nuclear Training. Justification of waivers ~~may~~ would include documentation of equivalent course completion at another location, substantial prior job related experience or ~~completion~~ satisfactory completion of an examination covering the course objectives.

Based on the analysis and design of a systematic approach to training duration of courses for nonlicensed personnel the duration of training specified in the above subsections or paragraphs may vary. So long as the courses contain the topics described a variation in duration is acceptable without a change to section 13.2.2

Training programs for the following organizational groups have been established.

Health physics/radiochemistry	13.2.2.1.1
Instrumentation and controls	13.2.2.1.2
Mechanical maintenance	13.2.2.1.3
Electrical maintenance	13.2.2.1.4
Shift technical advisor	13.2.2.1.5
Nonlicensed operator	13.2.2.1.6
Licensed operator	13.2.1
Training (instructor qualification)	13.2.2.1.7
General employee training	13.2.2.1.8
Fire team training	13.2.2.1.9
Independent review boards	13.2.2.1.10
Quality control	13.2.2.1.11
Engineering and technical support	13.2.2.1.12

The syllabus for each training program, including the duration and the organizational group receiving the training, is described in the following subsection or paragraphs:

13.2.2.1.1 Health Physics/Radiochemistry Training Program

A. Initial Training

Personnel assigned to perform health physics/chemistry duties will complete this initial training program before being assigned to perform independent health physics/chemistry tasks.

Curriculum Outline	Approximate Duration
	6 - 10 h
General employee badge and health physics training	6 h
Respirator training	2 h
Industrial safety and first aid	4 h
New employee fire training	2 h
New employee quality assurance training	1 h
General pressurized water reactor systems and procedures	1 week
General balance of plant systems and procedures	1 week
Health physics fundamentals	2 weeks
Radiation protection	1 week
Chemistry fundamentals	1 week
Mitigating core damage (commensurate with responsibilities)	4 h

B. Continuing Training

After completing initial qualification, health physics/chemistry personnel will usually attend a program each quarter from the following health physics/chemistry schools.

Curriculum Outline	Approximate Duration
Advanced health physics	3 weeks
Analytical chemistry	1 week
Radiochemistry	1 week
Corrosion	16 h

C. Annual Requalification Training or Exemption Testing

Health physics/chemistry technicians will complete annual requalification training or exemption testing to make them aware of and review important changes made to plant emergency and disaster, radiation protection, security, and respirator procedures.

D. Initial Foreman Qualifications (and Student Engineers)

Normally, foremen will have progressed from the initial qualification program through most of the continuing courses before being selected for their position. For personnel who do not follow this path, a special qualification program will be designed to ensure that all elements of the initial qualification

program are completed and selected elements of the continuing program are addressed as appropriate. This special program may include exemption testing to ensure qualification.

Foremen will receive the following training.

Curriculum Outline	Approximate Duration
Plant administrative controls for supervisors	3 days
Labor relations	3 days
New supervisor (or leadership)	1 week

E. Continuing Foremen Training

Foremen will normally attend continuing training on a quarterly basis until all programs from the VEGP health physics/chemistry schools are completed. 7

F. Health Physics/Chemistry Supervisor Qualifications and Training

The health physics/chemistry supervisors will have the qualifications required of health physics/chemistry foremen and will normally attend a similar continuing training program.

G. Incumbents and New Employees

Personnel with experience that exceeds Nuclear Regulatory Commission (NRC) commitments may fill a position in the career path provided that the health physics/chemistry superintendent certifies that the employee's experience qualifications exceed the position requirements. The training department may also accept prior training or experience to fill specific course requirements.

13.2.2.1.2 Instrumentation and Controls Training Program

A. Initial Training

New employees assigned to perform instrumentation and controls maintenance will complete this initial training program before being assigned to perform independent trouble shooting.

Curriculum Outline	Approximate Duration
General employee badge and health physics training	~~6 h~~ 6-10 h
Respirator training	2 h
Industrial safety and first aid	4 h
New employee fire training	2 h
New employee quality assurance training	1 h
General pressurized water reactor systems and procedures	1 week
General balance of plant systems and procedures	1 week
Mechanical/electrical skills for instrumentation and controls	1 week
Mitigating core damage (commensurate with responsibilities)	4 h

B. Continuing Training

After completing initial qualification, instrumentation and controls personnel will usually attend each quarter a program from the following instrumentation and controls schools.

Curriculum Outline	Approximate Duration
Analog electronics	1 week
Digital electronics	1 week
Test equipment	1 week
Process instrumentation	1 week
Process control systems	1 week

C. Annual Requalification Training or Exemption Testing

Instrumentation and controls technicians will complete annual requalification training or exemption testing to make them aware of and review important changes made to plant emergency and disaster, radiation protection, security, and respirator procedures.

D. Initial Foremen Training (and Student Engineers)

Normally, foremen will have progressed from the initial qualification program through most of the continuing courses before being selected for their position. For personnel who do not follow this path, a special qualification program will be designed to ensure that all elements of the initial qualification

program are completed and selected elements of the continuing program are addressed as appropriate. This special program may include exemption testing to ensure qualification. Foremen will receive the following training on a priority basis.

Curriculum Outline	Approximate Duration
Plant administrative controls for supervisors	3 days
Labor relations	3 days
New supervisor (or leadership)	1 week

E. Continuing Foremen Training

Foremen will normally attend continuing training on a quarterly basis until all programs from the ~~Hatch Nuclear Plant~~ VEGP instrumentation and controls schools are completed, then they will complete selected programs from the electrical and mechanical schools, focusing upon initial qualifications first.

F. Instrumentation and Controls Maintenance Supervisor Qualifications and Training

The maintenance supervisors will have the qualifications required of maintenance foremen and will normally attend a similar continuing training program. After initial appointment to the position, on a priority basis, the new supervisor will complete the following training.

Curriculum Outline	Approximate Duration
Electrical, pressure vessel, and piping codes and standards (including nondestructive testing review)	1 week

G. Incumbents and New Employees

Personnel with experience that exceeds NRC commitments may fill a position in the instrumentation and controls career path, provided the maintenance superintendent certifies that the employee's experience qualifications exceed the position requirements. The training department may also accept prior training or experience to fill specific course requirements.

13.2.2.1.3 Mechanical Maintenance Training Program

A. Initial Training

New employees assigned to perform mechanical maintenance will complete this initial training program before being assigned to perform independent mechanical tasks.

Curriculum Outline	Approximate Duration
General employee badge training	6-10 h ~~6 h~~
Respirator training	2 h
Industrial safety and first aid	4 h
New employee fire training	2 h
New employee quality assurance training	1 h
General pressurized water reactor systems and procedures	1 week
General balance of plant systems and procedures	1 week
Maintenance fundamentals	1 week
Mechanical fundamentals	1 week

B. Continuing Training

After completing initial qualifications, mechanical maintenance personnel will normally attend each quarter a program for the following mechanical schools.

Curriculum Outline	Approximate Duration
Pumps and valves - applied heat transfer and fluid flow	1 week
Power transmission, pneumatics, and lubrication	1 week
Machine shop	1 week
Pressurized water reactor systems maintenance	1 week
Balance of plant systems maintenance	1 week

C. Annual Requalification Training or Exemption Testing

Mechanics will complete annual requalification training or exemption testing to make them aware of and review important changes made to plant emergency

and disaster, radiation protection, security, and respirator procedures.

D. Initial Foremen Training (and Student Engineers)

Normally, foremen will have progressed from the initial training program through most of the continuing courses before being selected for their position. For personnel who do not follow this path, a special training program will be designed to ensure that all elements of the initial qualification program are completed and selected elements of the continuing program are addressed as appropriate. This special program may include exemption testing to ensure qualification. Foremen will receive the following training on a priority basis.

Curriculum Outline	Approximate Duration
Plant administrative controls for supervisors	3 days
Labor relations	3 days
New supervisor (or leadership)	1 week

E. Continuing Foremen Training

Foremen will normally attend continuing training on a quarterly basis until all programs from the mechanical schools are completed, then they will complete programs from the electrical schools, focusing upon the initial electrical qualifications first.

F. Maintenance Supervisor Qualifications and Training

The maintenance supervisors will have the qualifications required of maintenance foremen and will normally attend a similar continuing training program. After initial appointment to the position, on a priority basis, the new supervisor will complete the following training.

Curriculum Outline	Approximate Duration
Electrical, pressure vessel and piping codes and standards (including nondestructive testing review)	1 week

G. Incumbents and New Employees

Personnel with experience that exceeds NRC commitments may fill a position in the mechanical career path provided that the maintenance superintendent certifies that the employee's experience qualifications exceed the position requirements. The training department may also accept prior training or experience to fill specific course requirements.

13.2.2.1.4 Electrical Maintenance Training Program

A. Initial Training

New emplcyees assigned to perform electrical maintenance will complete this initial training program before being assigned to perform independent electrical trouble shooting.

Curriculum Outline	Approximate Duration
General employee badge training	6-10 h ~~6 h~~
Respirator training	2 h
Industrial safety and first aid	4 h
New employee fire training	2 h
New employee quality assurance training	1 h
General pressurized water reactor systems and procedures	1 week
General balance of plant systems and procedures	1 week
Maintenance fundamentals	1 week
Direct current fundamentals	1 week
Alternating current fundamentals	2 weeks
Electrical safety, drawings, and test equipment	1 week

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B. Continuing Training

After completing initial qualification, electrical maintenance personnel will usually attend each quarter a program from the following electrical schools.

Curriculum Outline	Approximate Duration
Protection devices, control devices, and motor control centers	3 days
Alternating current modes and generators	3 days
Direct current motors and generators	1 day
Primary systems maintenance	1 week
Secondary systems maintenance	1 week
Solid state theory	3 days
Batteries, chargers, and inverters	1 day
Welding machine maintenance	1 day
Pyrotronics fire detectors	1 day
Conductors and cable terminations	1 day
Motor-operated valve maintenance	1 day
Switchgear and breaker maintenance	3 days

C. Annual Requalification Training or Exemption Testing

Electricians will complete annual requalification training or exemption testing to make them aware of and review important changes made to plant emergency and disaster, radiation protection, security, and respirator procedures.

D. Initial Foremen Qualifications (and Student Engineers)

Normally, foremen will have progressed from the initial qualification program through most of the continuing courses before being selected for their position. For personnel who do not follow this path, a special qualification program will be designed to ensure that all elements of the initial qualification program are completed and selected elements of the continuing program are addressed as appropriate. This special program may include exemption testing to ensure qualification. Foremen will receive the following training on a priority basis.

Curriculum Outline	Approximate Duration
Plant administrative controls for supervisors	3 days
Labor relations	3 days
New supervisor (or leadership)	1 week

E. Continuing Foremen Training

Foremen will normally attend continuing training on a quarterly basis until all programs from the electrical schools are completed, then they will complete programs from the mechanical schools, focusing upon the initial mechanical qualifications first.

F. Maintenance Supervisor Qualifications and Training

The maintenance supervisors will have the qualifications required of maintenance foremen and will normally attend a similar continuing training program. After initial appointment to the position, on a priority basis, the new supervisor will complete the following training.

Curriculum Outline	Approximate Duration
Electrical, pressure vessel and piping codes and standards (including nondestructive testing review)	1 week

G. Incumbents and New Employees

Personnel with experience that exceeds NRC commitments may fill a position in the electrical career path provided that the maintenance superintendent certifies that the employee's experience qualifications exceed the position requirements. The training department may also accept prior training or experience to fill specific course requirements.

13.2.2.1.5 Shift Technical Advisor Training Program

A. Education Requirements

Shift technical advisors will have a bachelor's degree in a scientific or engineering discipline.

B. Training Program

The candidate holds or has held an NRC senior reactor operators license for that type of reactor, or the candidate completes a Georgia Power Company (GPC) shift technical advisor training program ~~consisting of~~ described in Table 13.2.2-1.

1. A 16-week classroom and plant formal training program covering reactor theory, design characteristics, transient analysis, administrative controls, and leadership.

2. A 4-week operations training program covering normal, transient, and accident plant conditions, with a minimum of 80 h of simulator manipulations.

3. A comprehensive examination process including written, oral, and manipulation examinations.

C. Experience Requirements

The candidate will have 1 year of power plant experience and will have performed reactor operator or senior reactor operator duties for that type of reactor, or the candidate will receive 1 month of on-the-job training as an extra shift technical advisor.

Shift technical advisors will receive the following classroom training.

Curriculum Outline	Approximate Duration
Introduction to nuclear power plant systems, classical physics, electricity, and electronics	1 week
Atomic physics and nuclear physics	1 week
Reactor core physics	1 week
Reactor operations	1 week
Heat transfer and fluid flow	1 week
Chemistry, health physics, radiation shielding, and nuclear power plant materials	1 week
Pressurized water reactor technology and system design	6 weeks
Applied theory and thermodynamics and technical specifications	1 week

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Curriculum Outline	Approximate Duration
Transient/accident analysis, mitigating/core damage, and emergency procedures	1 week
Administrative controls and management training	1 week
Preparation for final examination and final examination	1 week

Shift technical advisors will receive the following transient and operations training.

Curriculum Outline	Approximate Duration
Normal systems operation, plant startup, power control, and plant shutdown	1 week
Emergency systems operation, minor malfunctions, plant transients, and core physics	1 week
Trip transients and Final Safety Analysis Report accidents	1 week
Major Final Safety Analysis Report accidents and acciddents beyond the design analysis	1 week

D. Requalification Training for Shift Technical Advisors

Shift technical advisors will attend the same requalification program as NRC-licensed operators. Persons not actively performing the shift technical advisor functions for a period of ~~30 days~~ 4 months or longer shall, prior to assuming responsibilities of the position, as a minimum receive training to ensure they are cognizant of facility/procedure changes that occurred during their absences. 4

Persons not performing the shift technical advisor function for a period of 6 months or longer shall, prior to assuming the responsibilities of the position, undergo an individual requalification program.

13.2.2.1.6 Nonlicensed Operator Training Program

A. Initial Training

After the start of fuel load, all personnel assigned to perform independent plant equipment manipulations

will either complete this initial training program, be qualified to the shift technical advisor level or certified to the senior reactor operator level, or have experience which is equivalent to the following program.

Curriculum Outline	Approximate Duration
General employee badge and health physics training	6-10 h ~~6 h~~
Respirator training	2 h
Industrial safety and first aid	4 h
New employee fire training	2 h
New employee quality assurance training	1 h
General pressurized water reactor systems and procedures	1 week
General balance of plant systems and procedures	1 week
and one of the following	
Turbine building systems and procedures	4 weeks
Auxiliary building systems and procedures	4 weeks

B. Continuing Training

After completing initial qualifications, the nonlicensed operator will complete qualification on the plant systems which were not taught during the initial training. Normally, the nonlicensed operator will qualify on all systems outside the control room and containment during the individual's first 3 years in the plant operations department.

C. Annual Requalification Training or Exemption Testing

Nonlicensed operators will complete annual requalification training or exemption testing to make them aware of and review important changes made to plant emergency, radiation protection, security, and respirator procedures.

D. Nonlicensed Operator Progression

After completing a license training program, many operators will progress to licensed positions. The licensed training programs are described in subsection 13.2.1.

13.2.2.1.7 Instructor Qualification Program and Certified Instructor Requalification Program

This program has been outlined in paragraph 13.2.1.3.3a for all training instructors. In addition to these requirements, the fire protection training instructor shall also meet the requirements outlined in FSAR paragraph 13.2.2.1.9.D and paragraph 9B.C.3.d(2).

13.2.2.1.8 General Employee Training (Badge Training)

A. General Training

All personnel who are granted unescorted access to the VEGP's protected area will receive the following training or, if they have completed a similar program at another plant or facility, will be tested to verify satisfactory knowledge of VEGP procedures.

Curriculum Outline	Approximate Duration
General description of VEGP facilities, general VEGP procedures and instructions, ~~radiological health and safety program~~, station emergency plans, industrial safety program, fire protection program, security program, and quality assurance program	~~8~~ 4 h
Radiation health and safety Will meet the intent of Reg Guide 8.8 for personnel who enter restricted	2 h

areas. Reg Guide 8.27 and 8.29 are being used to develop the radiation protection portion of general employee training. Material discussed in Reg Guide 8.29 Appendix A will be covered except for sections 17, 18, 22, 23, 24, 28, 29 and 31 since these sections would be of little value to

personnel in determining their risk from exposure to occupational radiation.

Radiation worker training 4 h
Additional radiation work practices training will be provided for those personnel who are required to work in radiation controlled areas without HP escort.

B. Annual Exemption Testing

All personnel will complete annual requalification training or exemption testing to ensure that they have retained satisfactory knowledge of VEGP procedures.

C. Temporary Personnel

Temporary maintenance and service personnel will be trained in the following:

Curriculum Outline	Approximate Duration
Industrial safety, security procedures, radiation protection program, and emergency plan	6 h

Prior to completion of the above training requirements, only escorted access will be permitted.

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13.2.2.1.9 Fire Brigade Training

A. Initial Training

Personnel assigned to the fire brigade will complete training in the following areas as designated by FSAR Appendix 9B section 7.5-1 C.3.d (1) (a) through (g) before being assigned as an active brigade member.

Curriculum Outline	Approximate Duration
(a) Indoctrination of the plant fire fighting plan with specific identification of each individual's responsibilities.	4 days
(b) Identification of the type and location of fire hazards and associated types of fires that could occur in the plant.	
(c) The toxic and corrosive characteristics of expected products of combustion.	
(d) Identification of the location of fire fighting equipment for each fire area and familiarization with the layout of the plant, including access and egress routes of each area.	
(e) The proper use of available fire fighting equipment and the corrective method of fighting each type of fire. The types of fires covered should include fires in energized electrical equipment, fires in cables and cable trays, hydrogen fires, fires involving flammable and combustible liquids or hazardous process chemicals, fires resulting from construction or modification (welding), and record file fires.	
(f) The proper use of communication, lighting, ventilation, and emergency breathing equipment.	

Curriculum Outline

Approx. Duration

(a) The proper method for fighting fires inside buildings and confined spaces.

(b) The direction and coordination of the fire fighting activities (fire brigade leaders only).

(c) Detailed review of fire fighting strategies and procedures.

(d) Review of the latest plant modifications and corresponding changes in fire fighting plans.

B. Periodic Retraining

Meetings: Quarterly training will be provided to each fire brigade member to review changes in the fire protection program and provide refresher training. Refresher classroom training courses will be held for all fire brigade members every two years. [Ref: Appendix 9B, 9.5.1 C3 d sections (4) and (5)].

Drills: Quarterly drills shall be performed and at least one drill per year will be performed unannounced to determine the readiness of the fire brigade. Drills shall be repeated in sufficient frequency to ensure that each member of the brigade participates in at least two drills per year. Further at least once per year a drill shall be performed on a "back shift" for each shift brigade. [Ref: Appendix 9B, 9.5.1 C.3. d (7)]

C. Annual Practice

Practice sessions will be held at least once per year for each shift brigade on the proper methods of fighting possible plant fires, breathing apparatuses, and under strenuous conditions. Each member of the fire brigade will experience actual fire extinguishment on an annual basis. This may be done in the quarterly training sessions. Ref's [Appendix 9B, 9.5.1.C.3.d section (6)]

D. Instructor Qualification

Instruction of the fire brigade will be provided by qualified individuals suitably trained in fighting the types of fires that could occur in the plant, using the types of equipment available in the plant. ~~Instructor qualification is outlined in paragraph 13.2.2.3.3.e Ref's [Appendix 9B, 9.5.1.C.3.d section (2)]~~

E. General Employee Fire Training

Fire protection training for plant employees who are allowed unescourted access will include instructions in the following areas

1) Appropriate fire protection administrative controls
2) Fire barrier and fire barrier penetration seals.
3) Response to fire alarms
4) Action and responsibility upon discovery of fires.

Curriculum Outline	Approximate Duration

strategies, type and location of potential fires, forcible entry, fire fighting equipment, field practice on demonstration fires, and fire protection system

B. Quarterly Training Series

Quarterly training will be provided to each fire brigade member to review changes in the fire protection program and provide refresher training. By the use of quarterly training, the initial classroom topics will be repeated every 2 years. Quarterly drills shall be performed and at least one drill per year will be performed unannounced to determine the readiness of the fire brigade. Drills shall be repeated in sufficient frequency to ensure that each member of the brigade participates in at least two drills per year.

C. Annual Practice

Each member of the fire brigade will experience actual fire extinguishment and use of emergency breathing apparatus on an annual basis. Further, at least once per year a drill shall be performed on a "back shift" for each shift fire brigade.

13.2.2.1.10 Independent Review Boards

A. Initial Training

Members of independent review boards have specialized expertise and qualifications to independently and collectively review all aspects of plant activities. The function of training for these individuals is to provide them with information concerning the unique aspects of VEGP's design and operation. The following initial training will be provided to all members of the review boards who are not experts in VEGP operation.

Curriculum Outline	Approximate Duration
Classroom	
Reactor theory, health physics, and primary systems	1 day
Primary systems, emergency systems, heat removal systems, and radiation waste and monitoring systems	1 day
Heat transfer and fluid flow, secondary systems, electrical systems, and accident analysis	1 day
Nuclear instrumentation systems, nuclear control systems, and integrated plant control	1 day
Reactor protection systems and safety injection actuation system	1 day
Simulator and classroom	
Plant heatup, reactor and plant startup, and plant cooldown	3 days
Plant transients	1 day
Plant accidents	1 day

B. Continuing Training

Annually, review board members will receive approximately 16 h of training to review significant industry events. When appropriate, the simulator will be used to demonstrate these events.

13.2.2.1.11 Quality Control Training Program

A. Initial Training

Personnel assigned to perform quality control inspections will complete this initial training program before being assigned to perform independent inspections.

Curriculum Outline	Approximate Duration
General employee badge training	6 h
Respirator training	2 h
Industrial safety and first aid	4 h
New employee fire training	2 h

Curriculum Outline	Approximate Duration
New employee quality assurance training	1 h
General pressurized water reactor systems and procedures	1 week
General balance of plant systems and procedures	1 week
Quality control codes, standards, and procedures	1 week
Nondestructive testing and welding	1 week

B. Continuing Training

After completing initial qualification, quality control personnel will usually attend annually a program to improve their quality control skills or a program from the electrical, mechanical, or instrumentation and controls schools.

C. Annual Requalification Training or Exemption Testing

Quality control specialists will complete annual requalification training or exemption testing to review important changes to plant emergency, radiation protection, security, and respirator procedures.

D. Incumbents and New Employees

Personnel with experience that exceeds NRC commitments may fill a position in the quality control career path provided the plant manager certifies that the employee's experience qualifications exceed the position requirements. The training department may also accept prior training or experience to fill specific course requirements.

13.2.2.1.12 Engineering and Technical Support

A. Initial Orientation Training

Professional personnel who do not have prior nuclear power plant experience will complete the following orientation program normally during the first 6 months at VEGP.

Curriculum Outline	Approximate Duration
General employee badge and health physics training	6 h
Respirator training	2 h
Industrial safety and first aid	4 h
New employee fire training	2 h
New employee quality assurance training	1 h
Reactor theory, health physics and primary systems	1 day
Primary systems, emergency systems, heat removal systems, and radiation waste and monitoring systems	1 day
Heat transfer and fluid flow, secondary systems, electrical systems, and accident analysis	1 day
Nuclear instrumentation systems, nuclear control systems, integrated plant control, and simulator plant operations	1 day
Reactor protection systems, safety injection actuation system, and simulator plant operations	1 day

B. Continuing Training

During periodic reviews of GPC's manpower plans, training goals will be established for professional employees to fill key supervisory positions as vacancies develop.

13.2.2.2 Shift Technical Advisor Training Program

The shift technical advisor training program is described in paragraph 13.2.2.1.5.

13.2.2.3 Mitigating Core Damage Training Program

The VEGP training program for mitigating core damage is not a separate program but is integrated into licensed personnel training, pressurized water reactor senior reactor operator certified personnel training, and shift technical advisor training.

Other personnel including the managers of the health physics, chemistry, instrumentation and controls departments as well as the plant manager will complete training in mitigating core damage commensurate with their responsibilities.

13.2.2.4 Initial Position Task Analysis

The training programs described in section 13.2 are the result of the initial position task analysis for VEGP staffing. The training organization will use a combination of plant equipment reviews by instructors, training committee reviews by plant supervisors, and instruction reviews by students to obtain feedback to update our training plans or the position task analysis. Georgia Power Company stresses the use of this feedback to meet our overall training objective to train for job proficiency.

13.2.2.5 Training Program Syllabus

The VEGP training organization is described in subsection 13.2.1 and figure 13.2.1-1. Georgia Power Company will use the same training programs to qualify its personnel both before and after the initial fuel loading. Almost all programs in this section are considered formal or "classroom" programs. A formal program consists of instruction in the classroom, laboratory, simulator, and field which is supervised by an instructor. Specifically, the shift technical advisor program (paragraph 13.2.2.1.5) and the training (instructor qualification) program (paragraph 13.2.2.1.7) use some on-the-job training before the individuals in these organizational groups are permitted to perform job tasks.

13.2.2.6 Reactor Operations Experience Training

Reactor operations experience training will be provided as outlined in paragraph 13.2.2.1 by using the VEGP simulator, preoperational test program, and observation of other light-water reactors.

13.2.2.7 Differences in Training Programs

The difference in the training programs for individuals based on the extent of previous nuclear power plant experience is described in paragraph 13.2.2.1.

13.2.2.8 Fire Protection Training Program

A description of the fire protection training program used for fire brigade members is described in paragraph 13.2.2.1.9.

13.2.2.9 Training Program Effectiveness

Training program effectiveness is evaluated by either written, oral, or practiced demonstration examinations for each employee.

Figure 13.2.2-1 is a schedule showing the start of each portion of the nonlicensed plant staff training program in relation to the schedule for preoperation tests, fuel load, and expected time for license examination. Since all of the training programs in this section are used for both units before and after fuel load, after a particular program is started, that program will be available for use any time there is a need to qualify additional personnel. At the time of fuel load, sufficient VEGP personnel will be qualified in each organizational group to meet the staffing requirements of subsection 13.1.2.

If fuel loading is delayed, the continuing and requalification training programs as described in this subsection will be implemented to ensure personnel job proficiency.

Table 13.2.2-1

Comparison of Shift Technical Advisor Curriculum with INPO Recommendations

Topic	INPO (HRS)	Georgia Power (HRS)
Education		
HS Fundamentals	240	Note 1
College Fundamentals	520	Note 1
Plant specific applied fundamentals	120	120
Management/Supervisory Skills	40	40
Plant Systems	200	200
Administrative controls	80	Note 2
General Operating Procedures	30	Note 2
Transient/Accident Analysis and Emergency Procedures	30	Note 2
Simulator Training	100	100

Mitigating Core Damage — O Note 2

incore instrumentation
excore instrumentation
vessel instrumentation
primary chemistry
radiation monitoring
Gas generation

Note 1: All Shift Technical Advisors will have a bachelors Degree in a scientific or engineering discipline

Note 2: These topics will be incorporated into the simulator training syllabus

TABLE 13.2.2-1 (SHEET 1 OF 2)

MITIGATING CORE DAMAGE TOPICS INTEGRATED INTO OTHER PROGRAMS

Classroom Topics

- Analytical objective
- Unacceptable safety results for abnormal operational transients
- Unacceptable safety results for accidents
- Approach to safety analysis
  - General
  - Abnormal operational transients
  - Accidents
  - Barrier damage evaluations
- Analyses of abnormal operational transients events resulting in a nuclear system pressure increase
  - Events resulting in a water temperature decrease
  - Events resulting in a positive reactivity insertion
  - Events resulting in a reactor vessel coolant inventory decrease
  - Events resulting in a core coolant flow decrease
  - Events resulting in a core coolant flow increase
  - Events resulting in excess of coolant inventory
  - Loss of habitability of the control room
- Analysis of design basis accidents
  - Introduction
  - Control rod drop accident
  - Loss-of-coolant accident
  - Refueling accident
  - Main steam line break accident
- Three Mile Island Unit 2 incident
- Core cooling mechanics
- Potentially damaging operating conditions
- Recognizing core damage/critical plant parameters
- Hydrogen hazards during severe accidents
- Neutron monitoring/core recriticality

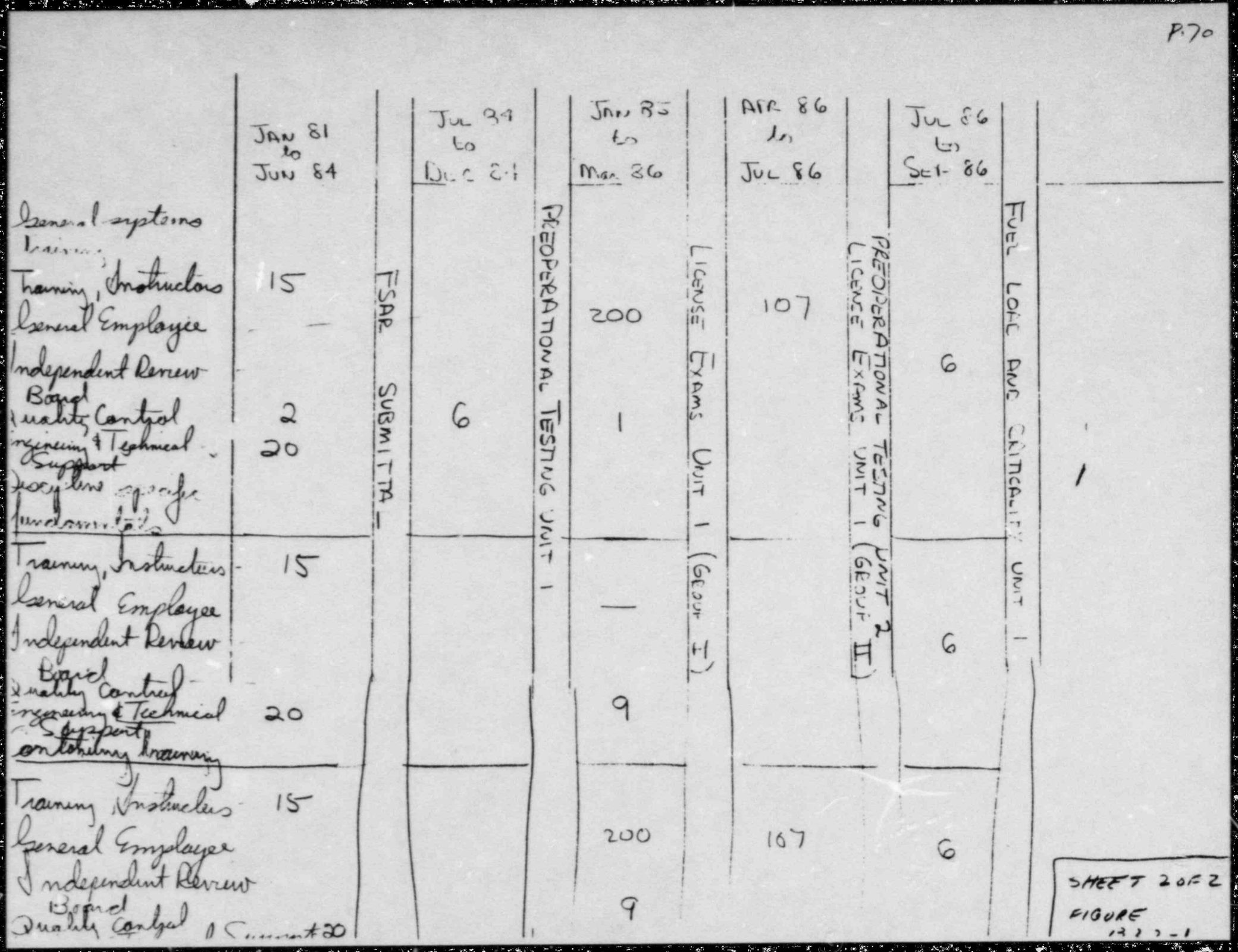
TABLE 13.2.2-1 (SHEET 2 OF 2)

Simulator and Classroom Topics	
Natural circulation and core cooling Abnormal operating instructions Introduction to emergency operating instructions	Power operations leading to reactor trips and recovery
Health physics review Radiation monitoring Radwaste disposal	Power operations with malfunctions leading to controlled shutdown
Condition II and III events Emergency operating instructions	Reactor trip and recovery with malfunctions
Condition II and III events Abnormal operating instructions Emergency operating instructions	Major steam plant failures; reactor coolant pump failures; partial and complete loss of flow
Condition II and III events Alternative cooling techniques Core recriticality	Major plant equipment failures; natural circulation cooldown
Condition IV events Loss-of-coolant accident Reactor coolant system leak	Power operations with condition IV faults
Condition IV events Steam generator tube leak/ rupture	Power operations with condition IV faults
Condition IV events and mitigation Extreme emergency operating instructions	Power operations with condition IV faults; main steam line break
Condition IV events and mitigation Inadvertent safety injection	Power operations with condition IV faults; anticipated transient without trip
Condition IV events and mitigation Loss of auxiliary feedwater	Power operations with condition IV faults; Three Mile Island accident

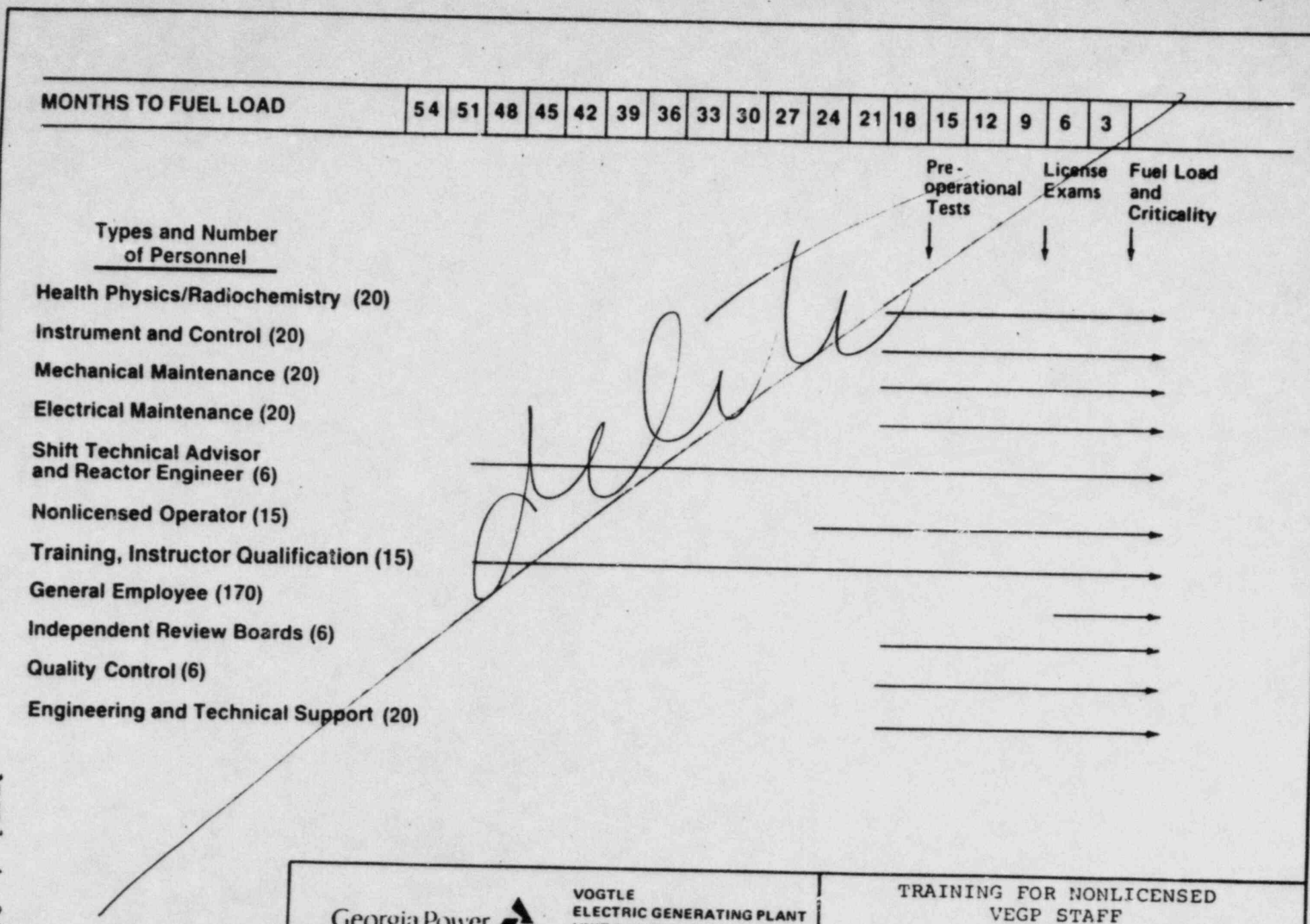
0140V

	Jan 81 to Jun 84	FSAR Submittal	Jul 84 to Dec 84	Preoperational Testing Unit 1	Jan 85 to Mar 86	License Exams Unit 1 (Group I)	Apr 86 to Jul 86	Preoperational Testing Unit 2 / License Exams Unit 1 (Group II)	Jul 86 to Sep 86	Fuel Load and Criticality Unit 1
General systems training										
Health Physics/Radio-Chemistry					25					
Instrument and Control					24					
Mechanical Maintenance					15					
Electrical Maintenance					24					
Reactor Engineering									2	
Discipline specific fundamentals										
Health Physics/Radio-Chemistry							25			
Instrument and Control							24			
Mechanical Maintenance							15			
Electrical Maintenance							24			
Reactor Engineering									2	
Continuing Training										
Health Physics/Radio-Chemistry									25	
Instrument and Control									24	
Mechanical Maintenance									15	
Electrical Maintenance									24	
Reactor Engineering										

SHEET 1 OF 2
FIGURE [illegible]



SHEET 20 OF 2
FIGURE 13.2.2-1



Georgia Power

VOGTLE
ELECTRIC GENERATING PLANT
UNIT 1 AND UNIT 2

TRAINING FOR NONLICENSED VEGP STAFF

FIGURE 13.2.2-1

Amend. 4 2/84

433.9

13.3 EMERGENCY PLANNING

A comprehensive emergency plan for VEGP Units 1 and 2 is provided as a separate volume to this application.

13.4 OPERATIONAL REVIEW

Operating activities that affect nuclear safety are reviewed. The review program is implemented prior to initial fuel loading and ensures review and evaluation of tests and experiments, unplanned events, and proposed change. The program complies within the requirements of 10 CFR 50.54 relating to proposed changes, tests, and experiments. This program is conducted following the recommendations of Regulatory Guide 1.33, 1977, Quality Assurance Program Requirements (Operations), and ANSI N18.7-1976, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants.

The plant manager has responsibility for safe operation of the plant. He is kept abreast of plant operating conditions by the supervisors who are knowledgeable and experienced in their areas of job responsibility. The supervisors monitor operating and maintenance activities as part of their normal duties.

In addition, a formal review program is carried out for changes to systems, procedures, tests, experiments, and after-the-fact review and evaluation of unplanned events that affect nuclear safety. This program is implemented through standing committees, as described below.

13.4.1 ONSITE REVIEW

The plant review board serves as a review and advisory group to the plant manager. The plant review board reviews plant administration, maintenance, and operations as related to nuclear safety and environmental aspects; ensures these activities are consistent with company policy-approved procedures and operating license provisions; and makes recommendations on matters brought before it.

The plant review board is composed of an interdisciplinary group of plant personnel. Collectively they possess the type and degree of expertise required to review unplanned events, proposed changes to systems, procedures, tests, and experiments that affect nuclear safety. The plant review board meets at least once per calendar month. It maintains written minutes of each meeting. The details of the activities and duties of the plant review board are described in plant procedures.

13.4.1 Insert

The Plant Review Board is composed of as a minimum one ~~number~~ member of the Plant staff from those disciplinary groups ~~are~~ listed below:

Operations
Maintenance
Quality Control
Health Physics or Chemistry
Regulatory Compliance
Plant Engineering and Services

Collectively these mumbers possess the type and degree of expertise required to review unplanned events, proposed changes to systems, procedures, tests, and experiment that affect nuclear safety. The chairman and vice chairman of the PRB are designated by the GMVNO. The minimum quorum of the PRB will consist of the PRB chairman or vice and four members. The PRB meets at least once per calender month.

The Plant Review Board is specifically responsible for the following:

a) Review of (1) procedures which establish plant wide administrative controls to implement the Q.A. program or technical specification surveillance program, (2) procedures for changing plant operating modes, (3) emergency and abnormal operating procedures, (4) procedures for effluent releases, (5) fuel handling procedures.

b) Review of (1) program required by technical specifications, (2) proposed procedures and changes to procedures, equipment or systems which involve an unreviewed safety question as per 10 CFR 50.59.

c) Review of proposed tests and experiments which involve an unreviewed safety question.

d) Review of proposed changes to the technical specification.

e) Review of the report of the investigation of violations of the technical specification which covers evaluation and recommendations to prevent recurrence.

f) Review of all reportable event.

g) Review evaluations of plant operations to detect potential nuclear safety hazards.

h) Performance of special reviews, investigations or analyses and reports thereon as requested by the GMVNO or the Safety Review Board.

i) Review of the security plan and implementing procedures and submittal of recommended changes to the GMVNO.

j) Review of the emergency plan and implementing procedures and submittal of recommended changes to the GMVNO.

k) Review of any accidental, unplanned, or uncontrolled radioactive release in excess of 1 Ci, excluding dissolved and entrained gases and tritium for liquid effluents, and in excess of 150 Ci for noble gases or 0.02 Ci of radioiodines for gaseous effluents.

The PRB's authority is as indicated below:

a) Recommend in writing to the GMVNO approval or disapproval of items (a) through (d) above.

b) Render determinations in writing with regard to whether or not each item (a) through (e) above constitues an unreviewed safety question.

c) Provide written notification within 24 hours to the vice president and general manager of nuclear operations and the Safety Review Board of the disagreement between the PRB and the GMVNO ; however, the GMVNO shall have responsibility for resolution of such disagreements to [redacted]

The Plant Review Board will maintain written minutes of each meeting that, at a minimum, document the results of the PRB activities. Further details of the activities and duties of the PRB are described in plant procedures.

13.4.2 INDEPENDENT REVIEW

The SAFETY REVIEW BOARD (SRB) provides an independent review and audit of designated activities in the areas of:

a) nuclear power plant operations;
b) nuclear engineering;
c) chemistry and radiochemistry;
d) metallurgy;
e) instrumentation and control;
f) radiological safety;
g) mechanical and electrical engineering; and
h) quality assurance practices.

Specifically, the SRB will review:

a) the safety evaluations for changes to procedures, equipment, or systems; and tests or experiments completed under the provisions of 10CFR50.59 to verify that such actions did not constitute an unreviewed safety question;
b) proposed changes to procedures, equipment, or systems which involve an unreviewed safety question as defined in 10CFR50.59;
c) proposed tests or experiments which involve an unreviewed safety question as defined in 10CFR50.59;
d) proposed changes to Technical Specifications or Operating License;
e) violations of codes, regulations, orders, Technical Specifications, license requirements, or of internal procedures or instructions having nuclear safety significance;
f) significant operating abnormalities or deviations from normal and expected performance of plant equipment that affect nuclear safety;
g) the results of the PRB's review of all reportable events;
h) all recognized indications of an unanticipated deficiency in some aspect of design or operation of structures, systems, or components that could affect nuclear safety; and
i) reports and meetings minutes of the PRB.

In addition, periodic audits of plant activities will be performed under the cognizance of the SRB to evaluate:

a) the conformance of plant operations to provisions contained within the Technical Specifications and applicable license conditions;
b) the performance, training, and qualification of the plant staff;
c) the results of actions taken to correct deficiencies occurring in plant equipment, structures, systems, or method of operation that affect nuclear safety;
d) the performance of activities required by the Quality Assurance program;
e) the Emergency Plan and implementing procedures;
f) the Security Plan and implementing procedures;
g) the Fire Protection Program and implementing procedures; and
h) any other area of plant operation considered appropriate by the SRB or the Executive Vice President of Power Supply.

13.4.2 (continued)

The SRB will report to and advise the Executive Vice President of Power Supply on matters related to their responsibilities.

The SRB will be composed of a minimum of seven persons who as a group provide the expertise to review and audit the operation of a nuclear power plant. The Chairman and Vice-Chairman and other members shall be appointed by the Executive Vice President of Power Supply or other such person as he may designate. No more than a minority of the SRB will be members of the on-site operating organization. All alternates will be appointed in writing by the absent member to serve on a temporary basis. However, no more than two alternates will participate in SRB activities at any one time. Consultants may be used at the discretion of the Chairman of Vice-Chairman to provide expert advice to the SRB. SRB training is discussed in section 13.2.

The minimum quorum of the SRB necessary for the performance of SRB review and audit functions consists of the SRB Chairman or Vice-Chairman and at least three SRB members. No more than a minority of the quorum will have line responsibility for operation of the plant.

Reports of SRB activities will be prepared, approved, and distributed as described below:

a) minutes of SRB activities will be prepared and submitted to management within 14 days following a meeting;
b) reports of certain reviews will normally be submitted to management within 14 days following completion and SRB approval of the review;
c) audit reports will normally be submitted to management within 30 days following completion and SRB approval.

Open item 131
NOTE: INFORMATION to be provided IN FINAL RESPONSE

13.4.3 INDEPENDENT SAFETY ENGINEERING REVIEWS

The independent safety engineering group will perform independent reviews of plant operations in accordance with item 1.B.1.2 of NUREG-0660 as clarified by NUREG-0737. The function of this group is independent of the safety review board or the plant review board.

The independent safety engineering group will be comprised of a minimum of five technically competent individuals who will report to an appropriate independent level of management.

The independent safety engineering group will review appropriate sources of plant design and operating experience information in view of improving plant safety. They will also review various plant activities to provide independent verification of correct performance of these activities. The independent safety engineering group will provide a monthly report of their activities to advise management on the overall quality and safety of operations.

13.5 PLANT PROCEDURES

This section describes administrative, maintenance, and operating procedures that will be used by the operating organization to ensure that routine, off-normal, and emergency activities are conducted in a safe manner. Operations affecting safety will be conducted in accordance with detailed written and approved procedures.

13.5.1 ADMINISTRATIVE PROCEDURES

Insert 13.5.1

~~13.5.1.1 Preparation of Procedures~~

~~The department superintendents are responsible for initiating, preparing, reviewing, and approving plant procedures which address subjects under their responsibility. They are also responsible for ensuring that their section's work is performed in accordance with the latest approved procedures.~~

Administrative Procedures Description

13.5.1.2 Procedures

These procedures provide rules, ~~instructions~~, policies, practices, or guidelines for the plant staff. They will be completed at least 6 months prior to Unit 1 initial fuel loading.

Administrative procedures will ensure that access to the control room is limited and that the lines of authority, responsibility, and succession in the control room are established. This is in accordance with requirements of NUREG-0737, item I.C.1. The limited access area is shown in figure 13.5.1-1.

Administrative procedures will ~~include~~ measures for feedback of operating experience from within and outside Utilities to the operators and other appropriate personnel in accordance with NUREG-0737, item I.C.5.

These procedures will ~~include restrictions~~ to limit overtime as described in section 6 of the Technical Specifications, in accordance with NUREG-0737, item I.A.1.3, and as revised in ~~Nuclear Regulatory Commission generic~~ letter 82-12.

Procedures have been developed for control of temporary changes to the VEGP procedures.

Conformance with Regulatory Guide 1.33 is discussed in section 1.9. The following are descriptions of the administrative procedures that will be prepared for VEGP Units 1 and 2.

A. Operations Administrative Procedures

The purpose of these procedures is to provide instructions to ensure that plant operations are conducted in an effective, consistent manner in accordance with the operating license, plant procedures, and applicable regulatory requirements, as follows:

1. Procedures will comply with the provisions of 10 CFR 50.54(i) through (m).

2. A procedure which outlines shift supervisors duties will be in conformance with item I.C.3 of NUREG-0737.

3. Shift relief and turnover procedures are developed to ensure that required, signed checklists and logs have sufficient information to ensure plant status is known by operators, in accordance with NUREG-0737, item I.C.2.

4. Special orders procedures provide for both temporary instructions to address subjects not covered by existing procedures and for special instructions for the evening and/or night shift.

5. The authority and responsibilities of the shift technical advisor are described in subsection 13.1.2.

B. Equipment Control Procedures

Procedures for the control of equipment are written to provide control of purchased and nonconforming material and the status of plant equipment. Procedures for removing safety-related equipment from service and returning it to service will ensure that the operability status of that equipment is known, in conformance with item II.K.1.10 of NUREG-0737.

These procedures will include provision of the following:

1. Work authorizations.

Insert 13.5.1 ADMINISTRATIVE PROCEDURES

Administrative procedures ~~[illegible]~~ provide rules, instructions, policies, practices, or guidelines for the plant staff. They will be completed at least 6 months prior to Unit 1 initial fuel loading.

13.5.1.1 Administrative Procedure Descriptions

A. Procedures for Preparation, Review, and Control of Procedures

These procedures establish the controls for the preparation, review, and control of all plant procedures. Included within these procedures are provisions to ensure that new or revised procedures are reviewed for adequacy by appropriately qualified personnel and approved for release by authorized personnel. The General Manager Vogtle Nuclear Operations has ultimate responsibility for all plant procedures; however, a provision is made to establish department heads as the approving authority for those procedures covering activities within their area of responsibility. Provisions exist to ensure that changes or revisions to procedures are reviewed and approved in accordance with the same administrative controls used for review and approval of new procedures. A provision is made to ensure that plant procedures are reviewed at least every two years by a knowledgeable individual to determine if changes are necessary or desirable. Other provisions ensure that procedures once approved are distributed appropriately so that only the most current procedures are used by plant personnel.

B. Procedure for Making Temporary Changes to Procedures

This procedure provides the method for making a temporary change to an approved plant procedure. Inclu in this procedure is a provision to ensure that any such change be approved by at least two ~~[illegible]~~ knowledgeable members of the plant staff of whom one shall be the on-duty supervisor in charge of the shift. Also, included in this procedur is a provision to ensure that temporary changes to procedures are documented and as appropriate incorporated into the next revision of the procedure

C. Procedures for Feedback of Operating Experience

These procedures include measures to ensure that pertinent operating experience information which originates from both within and outside of the plant organization is feedback to operators and other appropriate personnel in accordance with NUREG-0737, Item I.C.5. Included is the identification of organizational responsibilities for reviewing and prioritizing operating experience, and ~~the subsequent distribution~~ for ensuring distribution of pertinent information to the appropriate plant personnel. Steps exist to ensure that information is reviewed by individuals of appropriate technical knowledge and that appropriate corrective actions (such as procedure or program revisions) if needed are specified. Additional steps ensure that plant personnel do not routinely receive a large volume of operating experience which might obscure the lessons to be learned from more significant events, and ~~that~~ also that the program receives periodic evaluation for effectiveness.

D. Procedures for Control Room Access

These procedures give the Shift Supervisor authority to limit access to the Control Room to those individuals responsible for the direct operation or support of the plant. Included are steps which direct personnel other than the on-shift operations crew and the operations chain-of-command to request permission of the Shift Supervisor to enter the limited access area shown in figure 13.5.1-1. Also, these procedures establish good conduct rules for personnel within the the Control Room area to avoid any disruption of operating activity. In addition to the Shift Supervisor, the on-shift Operations Supervisor or the Superintendent of Operations may give permission to enter the limited access area ~~for access not granted~~; however, responsibility for limiting Control Room access shall be ~~the~~ a normal duty of the Shift Supervisor. These procedures address the requirements of NUREG-0737, item I.C.4 for Control Room access while the requirements for establishing the lines of authority

responsibility, and succession in the Control Room are addressed by the procedures described in Section E.

E. Procedures for Operating Duties, Responsibilities, and Authority

These procedures clearly describe the duties, responsibilities, and authority for the Control Room personnel which includes the on-shift Operations Supervisor, the Shift Supervisor, the Plant Operator, the Assisstant Plant Operator, and the Shift Technical Advisor. The command line of authority for these personnel is established by these procedures. Specifically, the on-shift Operations Supervisor is established as the senior operations representative on each shift and shall have responsibility for the safe and efficient operation of the plant; while the Shift Supervisor is established as having responsibility for the safe and efficient operation of his assigned unit (since a Shift Supervisor is assigned to each operating unit on each shift). Included in these procedures are provisions for the on-shift Operations Supervisor to maintain a broad perspective of operational conditions affecting the safety of the plant at all times, and provisions for him not becoming totally involved in any single speration during plant transients or emergency conditions. Other provisions establish the on-shift Operations Supervisor as having the authority and responsibility to declare emergencies and for functioning as the site emergency director until being relieved by a higher ranking qualified manager.

new paragraph → Provisions for ensuring that the on-shift Operations Supervisor is not routinely performing administrative functions that could detract from or which are subordinate to his command function and his responsibility for assuring the safe operation of the plant are exemplified by the following: (a) an Operations Supervisor who is not on-shift shall prepare work and vacation schedules, (b) the Shift Supervisor shall issue clearances for equipment within his assigned unit, (c) the Shift Supervisor shall have the administrative duty of limiting access to the Control Room.

The procedures described in this section are in

accordance with ~~the~~ requirements of NUREG-0737, Item I.A.1.2; Item I.C.3; and Item I.C.4. The process for handling standing ~~and temporary~~ orders is addressed in Section F.

F. Procedures for Standing ~~and Temporary~~ Orders

These procedures provide for the issue of temporary instructions to plant operating personnel to address subjects not covered by existing plant operating procedures. Included in these procedures are provisions for maintaining ~~approved temporary orders~~ and implementing approved standing orders; periodically reviewing standing orders for continued applicability, and ensuring that standing orders are not maintained over one year before deletion or conversion into a plant operating procedure.

G. Procedures for Shift Manning and Overtime Restrictions

These procedures establish the normal and minimum shift positions which must be manned for operation of the plant. Included is the number of individuals to fill these normal and minimum positions for both one unit and two unit operation. These procedures restrict the use of overtime ~~to~~ that may be scheduled to meet the shift crew staffing requirements such that overtime use does not exceed the guidance provided in NUREG-0737, item I.A.1.3 ~~and any procedures to this guidance~~ as revised by NRC Generic Letter 82-12. Additional provisions are made to ensure that the use of any overtime which would exceed the ~~guidelines~~ restrictions of Generic Letter 82-12 must be ~~approved~~ authorized by the General Manager Vogtle Nuclear Operations or the Manager of Unit Operations. ~~The~~ An evaluation of the excess overtime request will be documented.

H. Procedures for Shift Relief and Turnover

These procedures ensure that a comprehensive exchange of information takes place between the on-coming and off-going shift personnel so that the on-coming shift is aware of critical plant status information and system availability prior to assuming duty. Included are provisions to ensure that each individual reviews the logs, round sheets, and checklists which are applicable to his position and that he discusses important items affecting plant operation with the off-going individual. Provisions also include ensuring that an individual is qualified for the position that he will assume. These procedures establish as part of the off-going Control Room operator responsibility the need to ensure that his relief is fully aware of existing plant conditions and is alert, coherent and fully capable of performing his assigned duties. These procedures are in accordance with the requirements of NUREG-0737, Item I.C.2.

I. Equipment Control Procedures

These procedures provide instructions for releasing plant equipment or systems for maintenance, testing, or inspection; they establish the Shift Supervison as the responsible authority for issuing and releasing clearances for equipment to be taken out of service within his assigned Unit. Provisions of these procedures include steps to ensure that equipment taken out of service and placed in a controlled status is clearly identified by the use of tagging. Other provisions provide for a second qualified person verifying the isolation or restoration of a safety-related component or system, including proper realignment unless functional testing can be performed to prove the correct realignment of all equipment, valves, and switches involved. In cases of significant radiation exposure a second verification of safety-related system alignment will not be made. Additional provisions

are made to maintain the status of equipment and to determine the operability of equipment upon return to service; on return to service a system lineup verification will be made and additional lineup verifications may be made at periodic intervals while ~~components are~~ in service. These procedures address the requirements of NUREG-0737, item I.C.6 and item II.K.1.12 and the requirements of ANSI N18.7-1976, section 5.2.6 relative to equipment control.

J X. Maintenance and Modification Administrative Control Procedures

Maintenance of equipment and plant modifications important to plant safety are performed in accordance with written procedures as described in paragraph 13.5.2.2. Administrative controls are provided to ensure compliance with applicable codes, regulations, and requirements.

K X. Fire Protection Procedures

The VEGP fire protection program is governed and implemented through the use of fire protection procedures. These procedures provide guidelines for the following: administrative controls, system operation, fire fighting activities, fire brigade and general personnel training, and agreements with local offsite fire departments, as described in subsection 9.5.1.

L X. Crane Operation Procedures

Crane administrative operating procedures require that crane operators who operate cranes over fuel pools will be qualified and conduct themselves in accordance with ANSI B30.2-1976 (chapters 2 and 3), Overhead and Gantry Cranes.

M X. Temporary Procedures

Temporary procedures are issued as required to provide detailed instructions for specific jobs that are of a specific duration.

N X. Emergency Core Cooling System Outage Data Collection Procedures

These procedures are developed for collection of emergency core cooling system outage data in

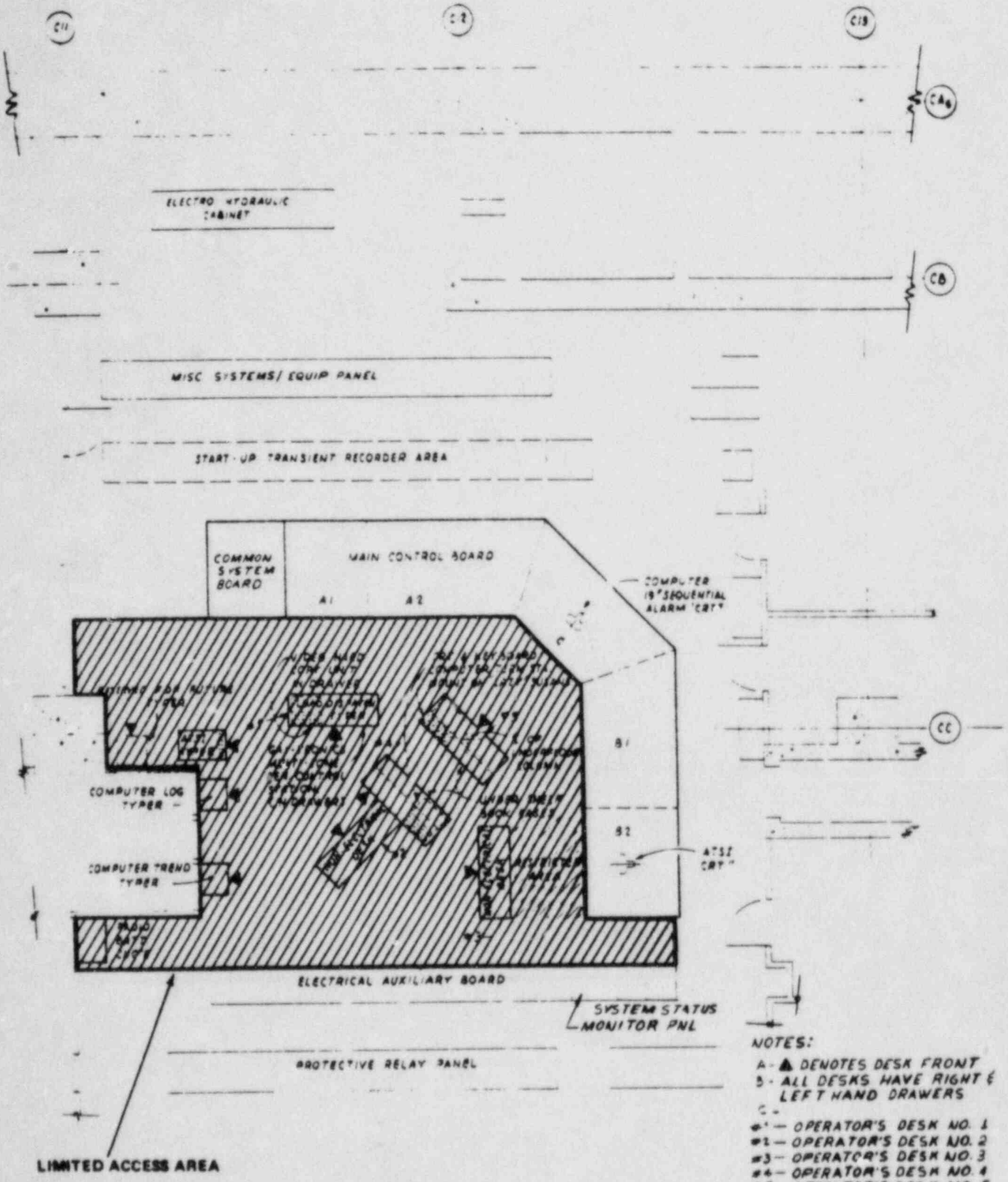
accordance with NUREG-0737, item II.K.3.17; this data will be reported to the Nuclear Regulatory Commission in accordance with the Technical Specifications.

O X. Initial Test Program Administration Procedures

The administrative procedures that establish controls for that part of the initial test program prior to fuel load are described in the VEGP startup manual. The administrative controls for that part of the initial test program after fuel load are included in the plant procedures manual.

P X. Plant Security Procedures

Plant security procedures provide for the implementation of the security plan. (See section 13.6.)



NOTES:

A- ▲ DENOTES DESK FRONT

B- ALL DESKS HAVE RIGHT & LEFT HAND DRAWERS

C-

#1 — OPERATOR'S DESK NO. 1
#2 — OPERATOR'S DESK NO. 2
#3 — OPERATOR'S DESK NO. 3
#4 — OPERATOR'S DESK NO. 4
#5 — OPERATOR'S DESK NO. 5

D. THIS DWG SUPERSEDES SK-E-F-7C REV. A

Georgia Power

VOGTLE
ELECTRIC GENERATING PLANT
UNIT 1 AND UNIT 2

LIMITED ACCESS AREA

FIGURE 13.5.1-1

13.5.2 OPERATING AND MAINTENANCE PROCEDURES

13.5.2.1 Operating Procedures

These procedures are for operation of plant equipment and will be completed approximately 6 months prior to initial fuel loading. These procedures are developed and provided to ensure an effective system for verifying the correct performance of operating activities and reducing human error. This will meet the intent of NUREG-0737, item I.C.6. Conformance of these procedures with Regulatory Guide 1.33 is discussed in section 1.9.

Although format can be varied depending on their nature, these procedures will usually have the following format:

1.0 PURPOSE

The purpose for which the procedure is intended will be briefly and clearly stated.

2.0 PRECAUTIONS AND LIMITATIONS

Precautions will be established to alert the individual performing the task to those important measures which will be used to protect equipment and personnel or to avoid an abnormal or emergency situation.

Limitations on the parameters being controlled and appropriate corrective measures to return the parameter to the normal will be established. Control band may be specified where applicable.

3.0 PREREQUISITES OR INITIAL CONDITIONS

Each procedure will identify those independent actions or procedures which must be completed or those plant conditions which must exist prior to its use. Prerequisites applicable only to certain sections of a procedure will be so identified.

4.0 MAIN BODY

The main body of a procedure will contain step by step instructions in the degree of detail necessary for performing a function or task.

Subsections of this section will vary according to procedure type. Format for each procedure type will be consistent.

restore normal operating conditions following a transient. Such actions are invoked following an operator observation or any annunciator alarm indicating a condition which, if not corrected, could degenerate into a condition requiring action under an emergency operating procedure.

F. Emergency Operating Procedures

The emergency operating procedures specify operator actions to reduce the consequences of an accident or potentially hazardous condition which has occurred. Operators are required to memorize the immediate operator actions of these procedures.

The emergency operating procedures are developed according to the action plan which incorporates developmental information provided in the implementation plan guideline published by the Institute of Nuclear Power Operations.

Technical guidelines (emergency response guidelines) and accompanying background/support information are supplied by the Westinghouse Owners Group. The generic background/support information is made plant specific. In addition, each generic technical guideline is reviewed to determine the information needed to generate plant-specific procedures. An emergency operating procedures writer's guide is developed prior to generating these procedures from the Westinghouse Owners Group technical guidelines. In summary, the emergency operating procedures are developed using the Westinghouse Owners Group technical guidelines, plant-specific background/ support information, and the emergency operating procedures writer's guide.

Each completed procedure is subjected to a two-part review in accordance with the emergency operating procedures verification program. The first part of this review verifies written correctness, while the second part ensures technical accuracy. Upon completion of the verification program, the procedures are tested in accordance with the emergency operating procedures validation program. The validation program requires that all procedures be validated by at least one of the following (in order of preference for validation): using the plant-specific simulator; actual testing on plant systems; or detailed review.

13.5.2.3 Other Procedures

Other procedures are provided in the following areas:

A. Health Physics Procedures

Plant radiation protection procedures are designed to limit and control radiation exposure and the spread of contamination as well as to meet the requirements of 10 CFR 20 and tne as low as reasonably achievable philosophy.

The procedures describe rules and practices or guidelines for personnel protection, radiation surveys, decontamination, handling of radioactive or contaminated materials, and implementation of the as low as reasonably achievable program. The health physics department has responsibility for implementing these procedures and ensuring the compliance of the plant staff with them.

B. Laboratory Procedures

These procedures describe rules, practices, or guidelines for tests, analyses, additions, or dilutions with respect to plant chemistry and radiochemistry. The health physics and chemistry laboratories are responsible for performing these activities.

C. Refueling Procedures

These procedures provide for preparation and performance of refueling operations. They include procedures to disassemble components, refueling equipment preuse maintenance and checkouts, and methods and limits for performing refueling operations.

D. Emergency Plan Implementation Procedures

These procedures provide rules and practices and designate responsiblity and authority for classifying emergencies and responses to such emergencies. The plant staff has the responsibility to follow these procedures. Procedures in this section implement the emergency plan.