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Helping Build Mississippi

P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

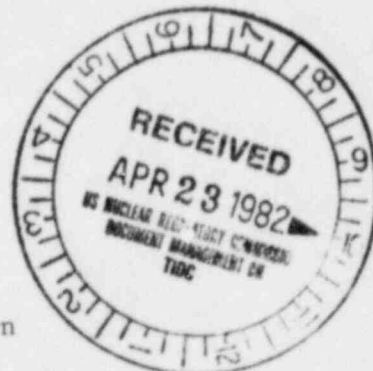
NUCLEAR PRODUCTION DEPARTMENT

April 22, 1982

U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D. C. 20555

Attention: Mr. Harold R. Denton, Director

Dear Mr. Denton:



SUBJECT: Grand Gulf Nuclear Station
Units 1 and 2
Docket Nos. 50-416 and 50-417
File: 0260/0862
Proposed Revisions to FSAR Section 13.1
AECM-82/163

Attached are responses or clarifications pertaining to issues discussed in either the Grand Gulf Nuclear Station Safety Evaluation Report (SER), NUREG-0831, or the Final Safety Analysis Report (FSAR). The attachment address the following:

Portions of Revised FSAR Section 13.1

Regarding revisions to the Grand Gulf FSAR, the content of the last FSAR amendment prior to the projected fuel load has been submitted (Amendment 55, April 19, 1982). Thus, the incorporation of any proposed FSAR revisions, as discussed in the attachment, will be made pending the receipt of further guidance requested informally from the NRC in regard to post-operating license FSAR amendments.

If additional information is required, please advise.

Yours truly,

L. F. Dale
Manager of Nuclear Services

JGC/JDR:rg

Attachment

cc: See next page

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MISSISSIPPI POWER & LIGHT COMPANY

cc: Mr. N. L. Stampley (w/o)
Mr. R. B. McGehee (w/o)
Mr. T. B. Conner (w/o)
Mr. G. B. Taylor (w/o)

Mr. Richard C. DeYoung, Director (w/o)
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. J. P. O'Reilly, Regional Administrator (w/o)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II
101 Marietta St., N.W., Suite 3100
Atlanta, Georgia 30303

CHAPTER 13.0 CONDUCT OF OPERATIONS

13.1 ORGANIZATIONAL STRUCTURE OF APPLICANT

13.1.1 Management and Technical Support Organizations

The Mississippi Power & Light Company (MP&L), Middle South Energy, Inc. (MSEI), and the South Mississippi Electric Power Association (SMEPA) are engaged in the design, construction, maintenance, testing, and operation of the Grand Gulf Nuclear Station with MP&L acting for itself and as agents for MSEI and SMEPA who own the facilities. MP&L is an operating subsidiary of Middle South Utilities, Inc., a registered public utility holding company. Other principal subsidiaries of Middle South Utilities, Inc. include Arkansas Power & Light Company, Louisiana Power & Light Company, and New Orleans Public Service, Inc. These subsidiaries constitute an integrated public utility system called the "Middle South System." MSEI is a wholly owned subsidiary of Middle South Utilities, Inc. created to own and finance the Grand Gulf Nuclear Station for the Middle South System. The South Mississippi Electric Power Association is a rural electrification administration cooperative which has purchased a percentage of the ownership of Grand Gulf Nuclear Station from MSEI and has also authorized MP&L to act as its agent in the design, construction, maintenance, testing, and operation of the facilities.

MSEI has contracted the Bechtel Power Corporation of Gaithersburg, Maryland to provide engineering, procurement, construction, quality assurance, and component testing services for the Grand Gulf Nuclear Station. Bechtel has been continuously engaged in construction and engineering since 1898, including services on nuclear power plants for other utilities, and is therefore considered qualified to provide the services required for the Grand Gulf Nuclear Station design, construction, procurement, quality assurance, and startup.

MSEI has contracted the General Electric Company to design, fabricate, and deliver the single-cycle, boiling water nuclear steam supply system and the first core of nuclear fuel, and to provide technical direction for the installation and startup of this equipment.

13.1.1.1 Design and Operating Responsibilities

The overall responsibility for the design review and approval construction, testing, and operation of the Grand Gulf Nuclear Station has been assigned by the President and Chief Executive Officer of Mississippi Power & Light Company and delegated to the Senior Vice President - Nuclear of Mississippi Power & Light Company. He coordinates all phases of plant activities for the owners as well as Mississippi Power & Light Company. He is assisted by the Mississippi Power & Light Company Site

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Manager for the completion of design and construction activities for Unit One; by the Mississippi Power & Light Company Assistant Vice President - Nuclear Production in the licensing, nuclear fuels management, nuclear plant engineering, records management, startup, operation, and maintenance phases, and in overall management control of Unit One; and is also assisted by the MP&L Manager of Quality Assurance. He will be assisted in carrying out his responsibilities by the Project Engineering Staff and the Manager of Construction. The Assistant Vice President - Nuclear Production is assisted by the Nuclear Plant Manager, the Manager of Nuclear Plant Engineering, and the Manager of Nuclear Services.

13.1.1.1.1 Design and Construction Activities (Project Phase)

The Assistant Vice President - Nuclear Production is responsible for nuclear plant engineering, licensing, nuclear fuel cycle management, records management, and overall management control of Unit One including budgeting, administration, and contract administration. The Unit Two Project Manager will report to the Senior Vice President - Nuclear and will be responsible for project engineering, construction, procurement, and preoperational testing of Unit Two. The Site Manager reports to the Senior Vice President - Nuclear for completion of Unit One work and engineering as well as construction and design of the Emergency Operations Facility. The Site Manager's organization is located on-site, and he provides direction to the Bechtel and GE engineering, procurement, and construction organizations in all activities necessary to complete and test plant systems. Priorities for the Site Manager's activities are provided by the Nuclear Plant Manager who has been assigned the responsibility for the timely completion and fuel load of Unit One. The Site Manager is assisted in this capacity by the Assistant Site Manager. Project Engineering reports to the Assistant Site Manager and provides review and approval authority of all engineering aspects of the plant design. The Assistant Site Manager ensures coordination between MP&L and contractor/vendor organizations and timely resolution of engineering matters. He directs the activities of the Project Engineering organization and the Construction Manager. The Assistant Site Manager will become the Unit Two Project Manager and will report to the Senior Vice President - Nuclear and will be responsible for project engineering, construction, procurement, and preoperational testing of Unit Two.

13.1.1.1.1.1 Principal Site-Related Engineering Work

The principal site engineering activities accomplished under contract for Mississippi Power & Light Company towards the construction and operation of the Grand Gulf Nuclear Station are:

a. Meteorology

A preoperational meteorological monitoring program was established at the site on August 2, 1971 to provide those meteorological factors that bear upon plant

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design, operation, and safety. During the first two annual cycles, the meteorological systems were calibrated by professional meteorologists and technicians employed by Woodward-Envicon (now Woodward-Clyde Consultants). The tower and equipment are being maintained and calibrated by the Instrument Control Section under the direction of the Plant Staff Maintenance Superintendent. This program is discussed in Section 2.3.

Systems - Cont'd

Neutron Monitoring System
Reactor Protection System
Process Radiation Monitoring System
Low Pressure Core Spray System
High Pressure Core Spray System
RCIC System
Fuel Transfer System
Radwaste System
Reactor Water Cleanup System
Fuel Pool Cooling and Cleanup System
Offgas System
Standby Service Water System
Component Cooling Water System
Instrument Air System
Service Air System
Diesel Generator System
Combustible Gas Control System
Standby Gas Treatment System
Plant HVAC System
Power Conversion System
Condensate Storage and Transfer System
Auxiliary AC Power System
125/250 Volt DC Power System
Control Room HVAC System
Diesel Generator Room Ventilation System
Standby Service Water Pump House Ventilation System
Safeguard, Switchgear, and Battery Rooms Ventilation System
Control Building HVAC System
Plant Service Water System
Containment Cooling System
Auxiliary Building Isolation System
Diesel Generator Auxiliary System
Suppression Pool Makeup System
Main Steam Isolation Valve Leakage Control System
Feedwater Leakage Control System
Suppression Pool Cleanup System
Leak Detection System

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The design of Unit 2 structures and systems is scheduled to be completed by August of 1985.

13.1.1.1.1.3 Review and Approval of Plant Design Features

Design control and review is performed in accordance with the Quality Assurance Program for Grand Gulf Units 1 and 2. Prior to turnover of specific plant structures, systems, or components from MP&L Startup to Plant Staff, management review for associated plant design documents (such as Main Single Line and Single Line Meter and Relay Diagrams, Piping and Instrumentation Diagrams, Instrument Installation Details, Bechtel Specifications, and Plant Data Books) is the responsibility of the Manager of Project Engineering. After

such turnover the Manager of Nuclear Plant Engineering will assume the responsibility for review and approval of modifications, additions, or deletions in plant design features as well as the control of design documentation.

After each system is turned over to MP&L, the Project Engineering organization will continue to function, but will have no responsibility for that system on Unit 1. They will be responsible for the re-start and completion of Unit 2, but will be available to provide support for the operating organization as necessary.

13.1.1.1.1.4 Site Layout with Respect to Environmental Effects and Security Provisions

The containment, turbine, radwaste, and auxiliary buildings have portions of their structures located below grade for the station, giving a low profile to the station outline. The grounds in the immediate vicinity of plant structures will be attractively landscaped. Undisturbed portions of the plant site will be maintained in their natural state for use as a wildlife refuge area.

Security provisions in accordance with applicable NRC regulations were incorporated into the Physical Security Plan for Grand Gulf Nuclear Station Units 1 and 2.

13.1.1.1.1.5 Development of Safety Analysis Report

Overall responsibility for preparation of material for the Final Safety Analysis Report (FSAR) and Final Environmental Report (FER) rests with the MP&L Manager of Nuclear Services who has delegated this work to the Manager of Safety and Licensing. Preparation of the individual sections was assigned to the cognizant technical groups within MP&L, or to Bechtel for balance of plant systems and General Electric for NSSS systems, with review and coordination of NRC submittals provided by MP&L.

13.1.1.1.1.6 Review and Approval of Material and Component Specifications

All safety-related project specifications for initial plant construction are reviewed by the Manager of Project Engineering.

13.1.1.1.1.7 Management and Review of Construction Activities

Overall management and responsibility for all construction activities is assigned to the Manager of Construction. Commencing with start of site preparation on May 3, 1974, the following monitoring and review activities have been performed at the construction site by MP&L construction personnel:

- a. Construction personnel monitored the contractor's performance to keep MP&L Management informed of project status. They provided objective data to identify construction problems early so that alternatives could be developed.
- b. MP&L Construction has monitoring responsibility for all onsite construction activities performed by Bechtel and other contractors to ensure compliance with contractual obligations.
- c. MP&L has assigned construction personnel to evaluate and report construction status within their areas of responsibility. At Grand Gulf, this division of responsibility is segregated into the following areas:
 1. Major Plant Components/Areas
 2. Planning and Scheduling
 3. Construction Administration

After each system is turned over to MP&L, the Construction organization will continue to function, but will have no responsibility for that system on Unit 1. They will be responsible for the re-start and completion of construction on Unit 2, but will be available to provide support for the operating organization as necessary.

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

Human engineering design objectives were developed jointly by MP&L Nuclear Plant Staff and the Bechtel Power Corporation.

The design phase review has resulted in the use of several human engineering features, including audio and visual alarm systems, annunciator ring-back, meter limit demarcation, color schemes to provide visual relief in the control room layout, floor layering for noise abatement, adequate work space for minimization of operator fatigue, lighting methods and intensities to minimize glare providing a more diffused lighting

Administrative controls for the test program have been established and overall schedule for the Grand Gulf Units 1 and 2 Startup Test program has been formulated by the MP&L Startup Organization.

The Startup Manual contains instructions for implementing all administrative controls, including quality assurance requirements, which will be adhered to during the test program. The Startup Manual defines the responsibilities of all organizations and personnel involved in the testing program.

The Startup organization has become a part of Plant Staff. The Startup Manager reports directly to the Nuclear Plant Manager.

13.1.1.1.2.4 Development of Plant Maintenance Programs

The maintenance programs will be organized to ensure safe and efficient maintenance of Units 1 and 2 under the direction of the Nuclear Plant Manager. The organization of the plant maintenance forces is described in subsection 13.1.2.2.4. The mechanics, electricians, and instrument technicians report through supervisors to the Maintenance Superintendent. Grand Gulf Nuclear Station will provide qualified and experienced maintenance personnel prior to initial fuel loading.

The Grand Gulf Nuclear Station maintenance program will ensure the safety of the public and plant personnel, provide reliable equipment, and satisfy the requirements of the regulatory agencies having jurisdiction. Those 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 Operational Quality Assurance Program promulgated by MP&L.

The maintenance staff will be sized to perform the routine corrective and preventive maintenance work load. The station staff will be supplemented as necessary by MP&L maintenance crews and outside contractors. Maintenance and repairs of safety-related equipment will be performed under the direction of the cognizant qualified supervisor and engineering groups in accordance with approved procedures.

The scope and frequency of the preventive maintenance will be based on operating experience with similar equipment, engineering judgment, and the manufacturer's recommendations. Records will be kept in accordance with technical specifications and other station requirements to establish the maintenance history of major safety-related equipment which will be stored on the Plant Maintenance History System (MSH). Maintenance and repairs of safety-related equipment will be performed by qualified personnel in accordance with written maintenance instructions, station orders, vendor technical manuals, and other applicable codes, regulations, and notices. Except for emergencies, maintenance work will be preplanned.

13.1.1.1.3 Technical Support for Operations

Technical support for nuclear power plant operations is provided by organizations which report directly to the Assistant Vice President - Nuclear Production in addition to the Nuclear Plant staff. Figure 13.1-1A illustrates the MP&L nuclear organization. The Assistant Vice President - Nuclear Production and his supporting organizations are fully dedicated to managing the operation, maintenance, and technical support of the nuclear power plant.

13.1.1.1.3.1 Nuclear Plant Engineering

Primary responsibilities of the Nuclear Plant Engineering Organization include numerous engineering and support functions for present and future nuclear powered electric generating plants.

The Nuclear Plant Engineering staff is assigned the principal responsibility for support of plant operations in the areas of mechanical, structural, electrical, thermal-hydraulic, metallurgical and materials, and instrument and control engineering. They are responsible for support of chemistry/environmental analysis and maintenance activities in the plant as requested by the Nuclear Plant Manager.

This group also has the principal responsibility for performance of operational analyses, systems engineering, and design and engineering of plant modifications. They are responsible for updating the record copy of all design documents as necessary to reflect the actual configuration of the plant. The Nuclear Plant Engineering staff assumes design control responsibility for specific structures, systems, and components as each structure, system, or component is released from the start-up organization to the plant staff organization for operation. While the Manager of Nuclear Plant Engineering may contract for design work with Bechtel Power Corporation, Middle South Services, Inc. or other design organizations, any such contract work will be initiated, reviewed, approved, and issued by the Manager of Nuclear Plant Engineering. It is the plan of MP&L to expand the Nuclear Plant Engineering group to a size that will be able to perform most design modification work within our own organization. The MP&L approved personnel budget provides for 88 engineering and technical personnel to staff this organization. Currently, there are 44 persons in this organization. The manager and three of the five principal engineer positions are filled at this time. The other two, civil and electrical, will be filled in the near future. Administrative and design control procedures are in effect and are functioning smoothly. Both safety-related and non-safety-related designs have been performed by the Nuclear Plant Engineering organization. While the organization is adequate

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engineering capabilities in the area of environmental monitoring, waste water engineering, and certain hydraulic engineering activities. If issues arise requiring capabilities beyond that of the group, the Principal Civil Engineer is responsible for recommending appropriate assistance.

13.1.1.1.3.1.4 Operational Analysis Group

13.1.1.1.3.1.4.1 Scope of Activities

The activities of the Operational Analysis Group are directed by the Operational Analysis Principal Engineer. The Operational Analysis Group is responsible for performing integrated system operational analysis and safety review in the following areas:

1. Perform evaluations of system off-normal thermal-hydraulic conditions and plant transients
2. Investigate and evaluate system operational anomalies
3. Perform independent safety reviews of equipment deficiencies, repetitive equipment malfunctions, and plant systems performance
4. Provide technical support to the plant staff in the event of an emergency
5. Review and evaluate the applicability of industry and NRC informational bulletins and orders and provide appropriate responses
6. Provide recommendations and feedback to plant and corporate management on matters affecting safety and plant operation

The resolution of safety or operational issues requiring capabilities beyond that of the group or which may be deemed to require independent analysis may be recommended by the Operational Analysis Principal Engineer. The Principal Engineer will also serve as a participating member of the offsite Safety Review Committee.

13.1.1.1.3.1.4.2 Technical Qualification Guidelines

The Operational Analysis Group organization and responsibilities are within the general guidelines of NUREG-0731 (Draft Report for Interim Use and Comment) as specifically described in subsection 13.1.1.1.3.1.4.1 above. The group will consist of a minimum of five dedicated personnel with responsibilities and training in the following areas:

<u>Area of Capability</u>	<u>Training (Minimum)</u>
Thermal-Hydraulics	B.S. in Mechanical, Nuclear or Chemical Engineering

Core Physics and Control	B.S. in Nuclear Engineering
Plant Transients	B.S. in Mechanical or Nuclear Engineering
Reactor System Behavior	B.S. in Engineering and SRO B.S. in Engineering

In addition, each individual in operations analysis shall have a minimum of two years' professional experience in the area of his specialty. Qualifications of the Operational Analysis Principal Engineer shall include a minimum of an appropriate Bachelor's degree and 6 years' experience in power plant operation and/or design.

The Operational Analysis Principal Engineer reports to the Manager of Nuclear Plant Engineering, who reports to the Assistant Vice President - Nuclear Production.

13.1.1.1.3.1.4.3 Technical Support Resources

Thermal-hydraulic and transient analytical models incorporating specific plant-unique parameters will be utilized by the Operational Analysis Group to identify and quantify operating safety margins during transient or off-normal plant operating and emergency conditions. The analytical and computer capabilities of Middle South Services are utilized to provide support for performing plant-specific transient analyses and to respond to requests for assistance.

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Scenarios which could affect the safety of plant operations or which could lead to degradation of the integrity of the fuel or cladding will be developed for the purposes of training staff personnel.

The Operational Analysis Group may also utilize other qualified off-site vendors, nuclear steam system suppliers, consultants, or national laboratory staff personnel for safety-related analyses and/or consultation as deemed appropriate.

13.1.1.1.3.1.4.4 Safety Review Functions

The safety review functions to the Operational Analysis Group will include, but will not be limited to, the following:

1. Evaluation for technical adequacy and clarity of operations procedural changes important to safety
2. Independent safety assessment and evaluation of plant performance

3. Review and analysis of operating anomalies
4. Performance of reviews and safety-related assessments of plant organizational activities as assigned by the off-site Safety Review Committee

13.1.1.1.3.1.5 Engineering Services Group

The activities of the Engineering Services Group are directed by the Engineering Services Supervisor. The Engineering Services Group is responsible for providing administrative assistance to the other groups. These services include document control, personnel administration, supplies management, etc. The group is also responsible for control and management of the Nuclear Plant Engineering Administration Manual.

13.1.1.1.3.2 Nuclear Services

The Nuclear Services staff is located in the MP&L General Office in Jackson, Mississippi. The Nuclear Services staff will be supported by the Nuclear Activities Department of Middle South Services, Inc. as necessary in matters concerning fuel procurement, use, and disposition. The Risk Control Section of Middle South Services, Inc. will also provide support in matters concerning fire protection, safety, and insurance.

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The Nuclear Services staff will act as the normal contact point for MP&L with the NRC in all matters concerning licensing and is responsible for responding to all NRC bulletins and orders. This staff will provide administrative services to the corporate Safety Review Committee and the Assistant Vice President - Nuclear Production.

The Nuclear Services staff is organized in four sections: Nuclear Fuels, Safety and Licensing, Administrative and Business Services, and Nuclear Records Administration. Staffing requirements for the Nuclear Services staff are found in Table 13.1-2 and the organization chart in Figure 13.1-6. As indicated in Table 13.1-2, some use is presently being made of consultants; however, as of Unit 1 fuel load, all key positions will be filled by permanent MP&L personnel.

13.1.1.1.3.2.1 Nuclear Fuels Section

The Nuclear Fuels Section is responsible for: management of the overall nuclear fuel cycle, including the control of design activities associated with nuclear core design; technical support for fuel licensing and associated reports; fuel fabrication contracts placement and administration; support to the plant staff for fueling and refueling operations; and coordination of in-core utilization activities between Middle South Services, Inc. and the plant.

13.1.1.1.3.2.2 Safety and Licensing Section

The Safety and Licensing Section has the responsibility of reviewing and commenting on communications from the Nuclear Regulatory Commission; interpreting provisions of the Atomic Energy Act, Code of Federal Regulations, and other documents as they apply to the station; and monitoring plant administrative procedures, technical specifications, FSAR, FER, and amendments to these documents, for compliance with pertinent government regulations.

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The Safety and Licensing Section is subdivided into three groups: Licensing, Nuclear Safety, and Radiation Protection and Environmental.

The Licensing Group has the primary responsibility for obtaining the operating licenses for the station and coordinating resources to respond to the Nuclear Regulatory Commission's requests for additional information. This includes maintenance, distribution, and revision of the FSAR, FER, Security Plan, and Fire Protection Plan; responses to NRC questions; applications for source and SNM licenses; licensing review of design changes; and scheduling the submission of FSAR and FER amendments and other licensing documents.

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The Nuclear Safety Group is responsible for nuclear safety aspects of the Safety and Licensing Section responsibilities. This includes: evaluation, tracking, and resolution of generic licensing issues such as unresolved safety issues or Three Mile Island related concerns; ensuring the performance of needed safety analysis work which may be required for 10 CFR 50.59 reports; overseeing probabilistic risk analysis concerns; maintenance, revision, and control of plant technical specifications; evaluation, tracking, and, as needed, resolution of specific safety concerns raised in Inspection and Enforcement bulletins, circulars, and notices and related areas such as INPO/NSAC significant operating event and significant operating experience reports as well as preparation of formal responses to the NRC where required; preparation of reports required by 10 CFR 50.59; and review of 10 CFR 21 and 50.55(e) reports prior to submittal to the NRC.

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The Radiation Protection and Environmental Group is responsible for maintaining an overview of radiation protection activities at GGNS; monitoring ALARA efforts and progress and reporting results to upper management; performing periodic health physics and ALARA appraisals; reviewing aqueous and airborne effluent and solid radwaste shipment data; and performing and evaluating related radiation protection activities.

Additionally, the group is responsible for obtaining environmental permits, making revisions to the Final Environmental Report, and evaluating radiological and non-radiological factors to ensure protection of the public and the environment.

The group has the responsibility for the preparation, evaluation, and coordinated maintenance of the GGNS Emergency Plan; controls the MP&L Corporate Emergency Plan Procedures; and provides assessment of the overall effectiveness of MP&L emergency preparedness.

13.1.1.1.3.2.3 Administrative and Business Services Section

The Administrative and Business Services Section is responsible for providing general support to the Nuclear Services Group and Nuclear Production in the areas of: budget development, consolidation, and presentation; cost monitoring and reporting; procurement activities involving policy variations; negotiations, placement, and administration of contracts (except those involving nuclear fuel); and development and maintenance of procedural control documents.

This group performs other functions to support the Nuclear Services Group in areas such as interface with the Quality Assurance organization for nonconformance tracking and resolution, scheduling, and handling of special tasks.

13.1.1.1.3.2.4 Nuclear Records Administration Section

The Nuclear Records Administration Section is responsible for all general clerical work for the Nuclear Services Group, including a computerized filing system, document microfilming system, and Nuclear Services record storage.

13.1.1.1.4 Quality Assurance

The Manager of Quality Assurance is responsible for implementing the Corporate Quality Assurance Programs in all phases of plant activities; he reports directly to the Senior Vice President - Nuclear. The detailed responsibilities assigned to the Manager of Quality Assurance and the Quality Assurance Staff are described in Section 17.2 of the FSAR (MP&L Operational Quality Assurance Manual - Topical MPL-TOP-1A, accepted by the NRC).

13.1.1.1.4.1 Nuclear Site Quality Assurance Manager

The Nuclear Site Quality Assurance Manager reports to the Manager of Quality Assurance and is located at the plant site. He reviews Plant Quality Procedures for the Manager of Quality Assurance; provides for working and quality interface and direct communication with the Plant Quality Superintendent; and directs the quality assurance staff located at the plant site in auditing, monitoring, and reviewing plant site activities (including the activities of the plant staff, the plant quality staff, the startup staff, and onsite contractors and consultants) to verify implementation of the Operational Quality Assurance Program. He has the authority, as delineated in the appropriate Quality Assurance Procedure, to initiate action to

is assisted by Division Managers who are responsible for the performance of all divisional activities in accordance with company policies, methods, and procedures.

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The Vice President and Secretary of the Company and Chief Financial Officer is responsible for all financial, security, treasury, and accounting functions; reviewing, interpreting, and implementing rulings of regulatory authorities with respect to financial and accounting matters and rates and service policy; preparing and maintaining minutes and rates and service policy; preparing and maintaining minutes of corporate proceedings, including directors' and stockholders' meetings; custody of permanent corporate records; economic forecasts, budgetary procedure and control; proceedings before regulatory bodies involving rates, service policy, and financial and accounting matters, and liaison with the Middle South Computer Center on all company data processing requirements.

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13.1.1.2.1.2 Senior Vice President - Nuclear

The corporate organization which provides the line responsibility for the operation of the company is shown in Figure 13.1-1. The ultimate responsibility for the safe and reliable operation of the Grand Gulf Nuclear Generating Station rests with MP&L Senior Vice President - Nuclear who reports to the President and Chief Executive Officer. The Senior Vice President - Nuclear is responsible for overall design, construction, operation, maintenance, quality assurance, and availability improvement of all nuclear power production and related facilities; licensing and compliance with all applicable regulatory requirements for design, construction, operation, and maintenance of nuclear power plants; the safety and security of all nuclear power production and related facilities. He is assisted by the organizations of the Assistant Vice President - Nuclear Production for operations phase activities, the Site Manager for completion of Unit One design and construction activities, and the Manager of Quality Assurance; who are responsible for management and technical support functions for Grand Gulf Nuclear Station. The Assistant Vice President - Nuclear Production is responsible for overall operation, maintenance, nuclear plant engineering, and availability improvement of all nuclear production facilities; licensing in compliance with all applicable regulatory requirements; and safety and security of all

nuclear power production facilities. The Manager of Quality Assurance is responsible for verifying implementation of the Corporate Quality Assurance programs in all phases of plant activities. The MP&L Management and Technical Support Organization for the Grand Gulf Nuclear Station is shown in Figure 13.1-1A.

13.1.1.2.1.3 Assistant Vice President - Nuclear Production

The Assistant Vice President - Nuclear Production reports directly to the Senior Vice President - Nuclear. He is directly responsible for management and direction of all activities associated with the efficient, safe, and reliable operation of the station, and his activities and responsibilities are fully dedicated to matters concerning the safe nuclear production of electric energy. He shall provide general management direction for the following activities:

- ° The establishment and approval of the qualification requirements for all plant staff positions
- ° The establishment and approval of qualification requirements for all offsite staff management positions that support safety-related activities at the plant
- ° The establishment and supervision of functional units providing review of operational activities that are independent of the plant staff
- ° The requirements established for the nuclear plant industrial security plan, fire protection program, and plant staff training program
- ° The periodic assessment of plant staff training and the operational quality assurance program
- ° The review of NRC nuclear power plant inspection reports
- ° The review of deficiencies and violations of plant procedures and Technical Specifications requirements, and concurrence with corrective action taken to preclude recurrence
- ° The Safety Review Committee and the Plant Safety Review Committee, serving as chairman of the Safety Review Committee
- ° The certification for operators and senior operators completed pursuant to Sections 55.10(a)(6) and 55.33(a)(4) and (5) of 10 CFR Part 55; and the certification of plant personnel in the category of managers
- ° The establishment and promulgation of nuclear operating policy

The Assistant Vice President - Nuclear Production is assisted in management and technical support activities for Grand Gulf Nuclear Station by three managers as shown in Figure 13.1-1A. The Nuclear Plant Manager organization's management and technical functions for Grand Gulf Nuclear Station is subsection 13.1.2. The Manager of Nuclear Plant Engineering and the Manager of Nuclear Services organizations' management and technical functions for Grand Gulf Nuclear Station are as described below:

13.1.1.2.1.3.1 Nuclear Plant Engineering

The Manager of Nuclear Plant Engineering reports directly to the Assistant Vice President - Nuclear Production.

The Manager of Nuclear Plant Engineering is assisted by several principal engineers who are each responsible for work within their assigned discipline. Initially, principal engineers will be assigned in the disciplines of mechanical, electrical, civil/structural, environmental, and operational support (operations analysis and maintenance) engineering. The organization chart for this group is shown in Figure 13.1-5.

In addition to the principal engineers, the staff will include secretarial and administrative personnel. The Nuclear Plant Engineering staff shall include at least one person in each of the area listed below who is qualified and designated to provide technical support to the plant staff. Those persons designated by the Manager of Nuclear Plant Engineering will be kept up-to-date on plant systems, equipment, and problems so they can promptly assist the Plant staff in the event they are needed. Their job assignments will be primarily related to engineering activities associated with the Grand Gulf Nuclear Station. Their training will be aligned to ensure they are kept current on matters such as plant modifications, plant problems, and problems on other similar plants, and to keep them prepared to provide support to the Plant staff in the event of an emergency. In cases where more than one qualified person in each area is required to support accident response, the Manager of Nuclear Plant Engineering may designate persons from other staffs, provided such persons are assigned full-time in the designated area of responsibility. Such persons will be obtained from other organizations within GGNS or from the architect-engineer, the NSSS vendor, or nuclear-oriented companies.

- a. Mechanical, structural, thermal-hydraulic, fluid systems, metallurgical, and materials
- b. Electrical, instrumentation, and controls

13.1.1.2.1.4 Project Manager for Grand Gulf Nuclear Station,
Unit Two

The Project Manager for Grand Gulf Nuclear Station, Unit Two will report directly to the Senior Vice President - Nuclear and will be responsible for engineering, construction, project procurement, and preoperational testing activities. He

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will be assisted in management and technical support activities for Grand Gulf Nuclear Station by the Manager of Construction and the Project Engineering Staff as shown in Figure 13.1-1B. The Project Manager's staff will include MP&L construction and engineering personnel augmented by administrative personnel and contracted employees as necessary to place Unit Two of GGNS into commercial operation. At that time, all assigned management and technical support functions will be transferred to the Assistant Vice President - Nuclear Production for the duration of the operations phase.

13.1.1.3 Qualifications of Technical Support Personnel for Operations

The following members of the corporate staff available for the technical support of the Grand Gulf Nuclear Station possess those qualifications of education, experience, and skills commensurate with their level of responsibility that provides reasonable assurance that decisions and actions during the operation and maintenance of the GGNS units will not constitute a hazard to the health and safety of the public. The qualifications for nuclear plant staff personnel are described in subsection 13.1.3.

13.1.1.3.1 Senior Vice President - Nuclear

The Senior Vice President - Nuclear shall hold a bachelor's degree in science or engineering in a field associated with power production. He shall have at least 10 years experience associated with power plant design, construction, and operation, of which at least 5 years must be nuclear-related experience.

The Senior Vice President - Nuclear may authorize deviations from the qualification requirements stated below and in subsection 13.1.3.

13.1.1.3.2 Assistant Vice President - Nuclear Production

The Assistant Vice President - Nuclear Production shall have a bachelor's degree in science or an engineering degree in a technical discipline generally associated with power production and have at least 10 years of broad experience associated with power plant design, construction, and operation. He shall have at least 5 years of nuclear power plant design, construction, or operation experience. The qualifications of the Assistant Vice President - Nuclear Production meet these requirements and are detailed in Appendix 13A.

13.1.1.3.3 Managers

The Manager of Nuclear Plant Engineering and the Manager of Nuclear Services shall have demonstrated operational and

engineering management capability in their areas of responsibility. Both of these managers shall have a bachelor's degree generally associated with his function and 8 years of responsible experience. Three years of this experience shall be specifically related to his functional responsibilities. In addition, these managers shall have suitable depth of training and experience to meet the requirements of emergency and accident response plans. The holders of these management positions meet these requirements. The Manager of Nuclear Plant Engineering position corresponds to the "Engineer-in-Charge" as defined by ANSI N18.1-1971 for the Grand Gulf Nuclear Station. Refer to Section 17.2 for the qualification requirements for the Manager of Quality Assurance. Their qualifications are detailed in Appendix 13A.

13.1.1.3.4 Principal Engineers in Nuclear Plant Engineering

Principal engineers in Nuclear Plant Engineering are filling management level positions in the technical support of GGNS and shall each hold at least a bachelor's degree in engineering or physical science with at least 6 years of experience in power plant operation or design. The qualifications of principal engineers are detailed in Appendix 13A.

13.1.1.3.5 Group Managers in Nuclear Services

Those persons filling group manager level positions in this organization shall hold at least a bachelor's degree in engineering or physical science and have at least 6 years of responsible experience in nuclear power plant operation, design, or technical support. The qualifications of these personnel are detailed in Appendix 13A.

13.1.1.3.6 Designated Technical Support Personnel (Other Than Plant Staff)

Persons who have been designated as technical support personnel by the Manager of Nuclear Plant Engineering or the Manager of Nuclear Services shall have a bachelor's degree in engineering, the physical sciences, or an equivalent area and at least 3 years of professional experience in the field in which they are designated to provide technical support or assistance in the event of an emergency if they are in a "lead" category.

13.1.1.3.7 Staff BWR Consultant

An additional staff member with extensive BWR power plant experience will report to the Assistant Vice President - Nuclear Production. This staff member will function as an advisor to the Safety Review Committee and to upper MP&L management concerning BWR plant operations. This position will be filled through the first full year following fuel load.

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Shall be authorized by the Nuclear Plant Manager or the Assistant Plant Manager in accordance with Administrative Procedure No. 01-S-06-2, and the reason shall be documented in a proper manner.

- f. If a reactor operator or senior reactor operator has been working more than 12 hours during periods of extended shutdown (e.g., at duties away from the control board), such individuals are not assigned shift duty in the control room without at least a 12-hour break preceding such an assignment.
- g. The plant staffing policy permits the licensed reactor operators and senior reactor operators to be periodically assigned to other duties away from the control board during their normal tours of duty.
- h. If a reactor operator is required to work in excess of 8 continuous hours at the controls, he will be periodically relieved of primary duties at the control board, such that periods of duty at the board do not exceed approximately 4 hours at a time.
- i. These guidelines on overtime do not apply to the shift technical advisors, as they are provided sleeping accommodations, and a 10-minute availability is ensured.

The minimum shift manning and movement of key individuals are as follows:

- a. When operating in Modes 1, 2, or 3 (Power Operation, Startup, or Hot Shutdown, respectively), a licensed senior reactor operator is required to be in the control room at all times.
- b. A minimum of two licensed senior reactor operators are required to be on site at all times, other than during cold shutdown conditions, to ensure the availability of one senior reactor operator in the control room without affecting the freedom of the shift supervisor to move about the site as needed.
- c. The balance of the shift for a single unit in operation is comprised of two licensed reactor operators (ROs), two unlicensed operators, and one radiation protection representative.
- d. For both units in operation, the minimum shift staffing will include one shift supervisor who shall be a licensed senior reactor operator (SRO), two licensed senior reactor operators (SROs), three licensed reactor operators (ROs), three unlicensed operators, and one radiation protection representative. This allows credit

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for licensed senior reactor operators (SROs) and licensed reactor operators (ROs) to serve as relief operators on more than one unit; however, these individuals must be properly licensed on both of the units.

- e. With one unit under construction and one unit operational, the minimum shift crew includes one shift supervisor who shall be a licensed senior reactor operator (SRO), one licensed senior reactor operator, two licensed reactor operators (ROs), two unlicensed operators, and one radiation protection representative.
- f. With one unit under construction and one unit operational but shut down (cold shutdown and refueling), the minimum shift crew includes one shift supervisor who shall be a licensed senior reactor operator (SRO), one licensed reactor operator (RO), one unlicensed operator, and one radiation protection representative.
- g. With both units operational but shut down (cold shutdown and refueling), the minimum shift crew includes one shift supervisor who shall be a licensed senior reactor operator (SRO), one licensed senior reactor operator, two licensed reactor operators (ROs), three unlicensed operators, and one radiation protection representative.
- h. With one unit operating and one unit shut down (cold shutdown and refueling), the minimum crew includes one shift supervisor who shall be a licensed senior reactor operator (SRO), one licensed senior reactor operator, three reactor operators (ROs), three unlicensed operators, and one radiation protection representative.
- i. A member of the Nuclear Plant Staff with an SRO will be on site at all times when at least one unit is loaded with fuel.
- j. At all times, a licensed senior reactor operator (SRO) will be in the control room from which a reactor is being operated. From time to time the shift superintendent may act as relief operator for the licensed senior reactor operator assigned to the control room.
- k. When both reactors on site contain fuel in the core, there shall be two licensed reactor operators in the control room at all times.
- l. Nonlicensed operators will be properly qualified to support the unit to which they are assigned.

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- m. Shift crew assignments during periods of core alterations shall include a licensed senior reactor operator (SRO) to directly supervise the core alterations. The licensed senior reactor operator or limited SRO may have fuel handling duties, but does not have other concurrent operational duties.

The Operations Section and Shift Organization are shown in Figures 13.1-3 and 4. These figures indicate the minimum shift complement in various modes of station operation and those positions requiring NRC licenses.

At least one Radiation Protection Section representative will normally be on duty at all times. Plant staff and technical support personnel will be present or on call at all times. This crew composition provides adequate manpower to cover operating contingencies which can reasonably be expected to

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Supervisor are specified in the appropriate operations procedures. These procedures require that they possess a valid SRO and that the formal transfer of authority is recorded in the plant log.

- c. If the Shift Supervisor is absent at any time from the control room including offices adjacent to the control room during routine operations, a lead control room operator is designated to assume the control room command function. These temporary duties, responsibilities, and authority are defined in the appropriate procedures.

13.1.2.2.3.2.1 Operations Assistants

The Operations Assistants serve as administrative assistants to the Operations Superintendent, performing such functions as review of procedures; review of operating reports, data, and logs; auditing administrative controls; preparing budgets; scheduling vacations and shift coverage; ensuring compliance with the operating license and approved procedures; reviewing completed operating and surveillance data; making recommendations on hiring new personnel; preparing purchase requisitions and ensuring adequate supplies of consumables to support operations; preparing operating procedures and directives; assisting in implementation of the fire protection and surveillance programs; and preparing and scheduling refueling activities for the Operations group. The Operations Assistants also serve as reliefs for the Shift Superintendent or the Shift Supervisor as necessary.

13.1.2.2.3.3 Senior Reactor Operators, Reactor Operators, and Non-Licensed Operators

The licensed operators (Senior Reactor Operators and Reactor Operators, Nuclear Operators-A) perform operations as directed by their assigned Shift Supervisor, monitor control room instrumentation, respond to plant or equipment abnormalities in accordance with approved plant procedures, direct the activities of the other operators, and log operations, systems, or equipment abnormalities and plant data. Plant shutdowns or scrams may be initiated by these operators when observation of plant conditions and equipment indicate a nuclear safety hazard exists, or approved procedures so direct. Licensed operators manipulate process controls as necessary to match load demand and to respond to other process changes.

Non-licensed operators perform routine non-safety-related duties outside the control room as assigned and necessary for continuous, safe plant operation and are available to the Shift Superintendent and Shift Supervisor for additional work assignments that may arise. They assist in plant startup, shutdown, surveillance, and emergency response as directed by the Shift

and for support in the area of computer and software development. In addition, he is responsible for all plant tests after the initial fuel load.

The Technical Support Superintendent is assisted by the Technical Engineering Supervisor, Reactor Engineering Supervisor, and Maintenance Engineering Supervisor.

The Technical Engineering Supervisor is responsible for the computer engineering efforts and results to ensure safe unit operation and plant availability and capacity improvements. The Reactor Engineering Supervisor is responsible for onsite core management and periodic reactor testing, in-plant nuclear materials control and accountability, and the STA and plant licensing programs. The Maintenance Engineering Supervisor is responsible for ensuring engineering and planning and scheduling support in all phases of maintenance activities. The Maintenance Engineering Supervisor is assisted by a staff of engineers and planners for each discipline (mechanical, electrical, and I&C), and he is responsible for the technical adequacy of all phases of maintenance at Grand Gulf Nuclear Station. He performs such duties as:

- a. Assisting in planning and scheduling maintenance work
- b. Monitoring maintenance work and providing technical guidance
- c. Coordinating and developing preventive and corrective maintenance procedures and instructions
- d. Implementing requirements of the Quality Assurance program as related to maintenance engineering and planning and coordinating collection of required quality-related data as related to maintenance
- e. Evaluating and updating spare parts requirements
- f. Coordinating collection and retention of maintenance history information and evaluation of same for required changes to the Preventive Maintenance Program
- g. Providing reliable data to technical engineering as requested
- h. Assisting in developing a Maintenance Training Program

The Technical Support Superintendent reports directly to the Nuclear Support Manager.

13.1.2.2.11 Plant Quality Superintendent

The Plant Quality Superintendent reports to the Nuclear Plant Manager and is responsible for assuring the implementation of the Operational Quality Assurance Program at the plant site,

including preoperational and startup testing activities by inspection and checking. He maintains a working and quality interface and direct communication with the Manager of Quality Assurance, the Site Manager, and the Nuclear Site Quality Assurance Manager.

The Plant Quality Superintendent is responsible for developing and implementing Plant Quality Procedures and Instructions; for reviewing plant and preoperational and startup test procedures for compliance with quality requirements; for establishing plant checking and inspection programs necessary to verify conformance to quality requirements, including preoperational and startup testing activities; for supervising the plant quality staff; and for evaluating the status and effectiveness of the Quality Assurance Program at the site on a periodic basis and reporting his findings to the Nuclear Plant Manager, and Site Manager, and the Manager of Quality Assurance.

The Plant Quality Superintendent has the authority and organizational freedom to identify quality problems, provide or recommend solutions, and verify implementation of solutions. He has the authority, as delineated in the Plant Quality Procedures, to initiate action to stop unsatisfactory work and control further processing, delivery, or installation of nonconforming items or continuation of nonconforming services pending correction of the nonconforming condition.

13.1.2.2.12 Radwaste Supervisor

The Radwaste Supervisor reports to the Operations Superintendent and is responsible for the management of all radioactive wastes at the facility. This includes implementing administrative controls necessary to ensure radioactive materials are handled in accordance with the station license and pertinent regulations; developing and implementing controls necessary to regulate liquid inventories in the liquid radwaste system; regulating laundering operations and the Water Inventory Control Station; and reviewing operating and surveillance data. He is also responsible for coordinating the shipment of radwaste materials and laundry to offsite facilities.

13.1.2.2.13 Fire Protection and Safety Coordinator

The Fire Protection and Safety Coordinator reports to the Operations Superintendent and is responsible for developing, implementing, and supervising all aspects of the plant fire protection and safety programs. This includes implementing administrative controls necessary to ensure that the plant is protected against fire in accordance with the operating license and other requirements and verifying the adequacy of operational

fire protection systems. He also acts as the Plant Fire Chief and is responsible for coordinating preventive maintenance on the fire protection system and fire protection instruction to all plant employees. He monitors plant housekeeping and storage and investigates and reports fires as required by procedure.

13.1.3 QUALIFICATIONS OF NUCLEAR PLANT PERSONNEL

13.1.3.1 Qualification Requirements

The following minimum qualification requirements have been used as general guidelines for the staffing by MP&L of the key nuclear plant positions for the Grand Gulf Nuclear Station described in Section 13.1.2. The MP&L program for the selection of these key plant personnel and others required to complete and maintain the minimum nuclear plant staffing needs for the Grand Gulf Nuclear Station shall meet or exceed the requirements of the NRC Regulatory Guide 1.8, Revision 1 (September 1975) as interpreted in Appendix 3A and as specified in ANSI N18.1-1971, "Selection and Training of Nuclear Plant Personnel." Where additional personnel, such as consultants, are used by MP&L, these qualifications need not be applied, as their work will be supervised and reviewed by an MP&L staff member who meets qualifications. The number and classification of Nuclear Plant staff personnel for the operation of one unit for the Grand Gulf Nuclear Station is given in Figure 13.1-2. The qualifications with regard to educational and experience backgrounds of key Nuclear Plant positions at the time of initial core loading or appointment to the active position will be as described below.

13.1.3.1.1 Nuclear Plant Manager

The Nuclear Plant Manager shall have 10 years of responsible power plant experience of which a minimum of 3 years will be

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nuclear power plant experience. Further, before being acceptable for full responsibility in the job, they shall hold and continue to maintain a valid NRC Reactor Operator's license.

All operators, whether or not they are to be licensed by the NRC, should have a high school diploma or equivalent and should possess a high degree of manual dexterity and mature judgment. Selection interviews and examinations should be used for all operators to aid in determining individual ability to progress to high levels of responsibility and to eventual NRC licensing.

There will be at least one individual with substantial BWR operating experience on the operating shift until 100 percent power. Two of the Shift Superintendents have previously held licenses at operating BWRs and therefore have substantial BWR operating experience. Three of the Shift Superintendents, while on the operating shift, are provided with contract personnel having substantial previous BWR operating experience, including startups, shutdowns, and scram and scram recoveries. Contract personnel serve on shift as advisors to the Shift Superintendent. Additionally, two of the three Shift Superintendents, not previously holding a license at an operating BWR were assigned to operating shifts at another operating BWR, for a period of six months following completion of their SRO training.

13.1.3.1.7 Shift Technical Advisors

The Shift Technical Advisor shall have a bachelor's degree or equivalent in a scientific or engineering discipline and a minimum of 12 months of nuclear power plant experience. A maximum of 6 months of this experience may be obtained in the military or at a production nuclear plant and will be evaluated on a case-by-case basis. A maximum of 3 months of systems and operations training may be applied toward these experience requirements. At least 6 months of their experience shall be with the plant at which he will be assigned to a shift. This may be waived provided he has 6 months experience at an essentially identical plant. Experience gained at the nuclear station prior to initial fuel load is acceptable, if the individual actively participates in preparation and review of plant procedures and test programs, and is on-site for at least 1 year during the preoperational test phase. In the event an individual who is qualified and usually performs the STA function for a period of 30 days or longer, prior to assuming responsibility of the position, he shall, as a minimum receive training sufficient to ensure that he is cognizant of plant procedure changes that occurred during his absence. In addition, the STA must have an in-depth understanding of nuclear plant equipment, systems, developed analytical skills and the ability to make sound judgments under stressful conditions in addition to his combination of education, training, and nuclear plant experience.

13.1.3.1.16 Technical Support Superintendent

The Technical Support Superintendent shall have a Bachelor of Science degree in engineering, or its equivalent, and at least five years in an engineering position in power generation. At least three years of the five years must be nuclear power plant experience, including preoperational or startup testing or plant operations.

13.1.3.1.16.1 Reactor Engineering Supervisor

The Reactor Engineering Supervisor shall have a bachelor's degree in engineering or the physical sciences and at least two years' experience in such areas as reactor physics, core measurements, core heat transfer, and core physics testing programs.

13.1.3.1.16.2 Technical Engineering Supervisor

The Technical Engineering Supervisor shall have a bachelor's degree in engineering or physical sciences, or their equivalents, and two years' technical experience. At least one of the two years' experience must be nuclear power plant experience.

13.1.3.1.16.3 Maintenance Engineering Supervisor

The Maintenance Engineering Supervisor shall have a bachelor's degree in engineering or physical sciences, or their equivalents, and two years' technical experience. At least one of the two years' experience must be nuclear power plant experience.

13.1.3.1.17 Other Nuclear Plant Non-Licensed Superintendents and Supervisors

Other Nuclear Plant Non-Licensed Superintendents and Supervisors shall have a high school diploma or equivalent and a minimum of 4 years of experience in the craft or discipline he supervises. Qualification requirements for Non-Licensed Quality Assurance Supervisors are given in Section 17.2 (MP&L QA Topical - MPL-TOP-1A) which has been accepted by the NRC.

13.1.3.1.18 Fire Protection and Safety Coordinator

The Fire Protection and Safety Coordinator shall have a Bachelor of Science degree in industrial safety or an engineering, mathematics, or physical science discipline and 4 years' industrial experience in fire protection; or a high school diploma or equivalent and 12 years' experience as a professional fire fighter, of which 5 years must be in a supervisory capacity.

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TABLE 13.1-3

PLANT STAFF
PERSONNEL FOR OPERATIONS⁶

<u>Organization</u>	<u>1 Unit Operation</u>	<u>2 Unit Operation</u>	<u>Projected Unit 1 Fuel Load</u>	<u>Present Staff Level</u>	<u>Present Contract Personnel</u>
Plant Management	9	9	9	9	1
Maintenance					
Superintendent	1	1	1	1	200 ³
Mechanical	59	68	59	45	
Electrical	22	23	22	19	
Instrumentation and Control	42	48	42	35	
Warehouse	7	8	7	6	
Chemistry/Radiation Control					
Superintendent	1	1	1	1	
Rad. Con.	19	22	19	14	
Chemistry	12	14	12	10	
Environmental Monitoring	3	3	3	3	
Plant Quality					
Superintendent	1	1	1	1	
Representatives	8	9	8	6	6 ⁴
Training and Administrative					
Superintendent	1	1	1	1	1
Administrative	1	1	1	1	
Training	12	12	12	11	7 ⁵
Security ¹	6	6	6	6	83
Technical Support					
Superintendent	1	1	1	1	
Technical Engineering	17	19	17	13	3
Maintenance Engineering	14	16	14	8	5
Reactor Engineering/ Licensing	10	10	10	9	
Office Services	38	52	38	48	
Operations					
Superintendent	1	1	1	1	
Assistants	2	2	2	0 ⁷	
Radwaste Supervisor	1	1	1	1	
Fire Protection and Safety Coordinator	1	1	1	1	

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TABLE 13.1-3 (Cont.)

<u>Organization</u>	<u>1 Unit Operation</u>	<u>2 Unit Operation</u>	<u>Projected Unit 1 Fuel Load</u>	<u>Present Staff Level</u>	<u>Present Contract Personnel</u>
Shift Superintendent (SRO)	5	5	5	7	
Shift Supervisors (SRO)	5	10	5	4	
Operator A (RO)	15	25	18 ²	17	
Operator B	15	20	19 ²	20	
Auxiliary Operators	10	15	10 ²	8	
Trainees	5	5	11 ²	11	

¹Numbers do not reflect officers contracted from Capitol Security. This number is now 83 officers.

²SROs, ROs, and trainees are maintained at a high enough staffing level to allow for attrition.

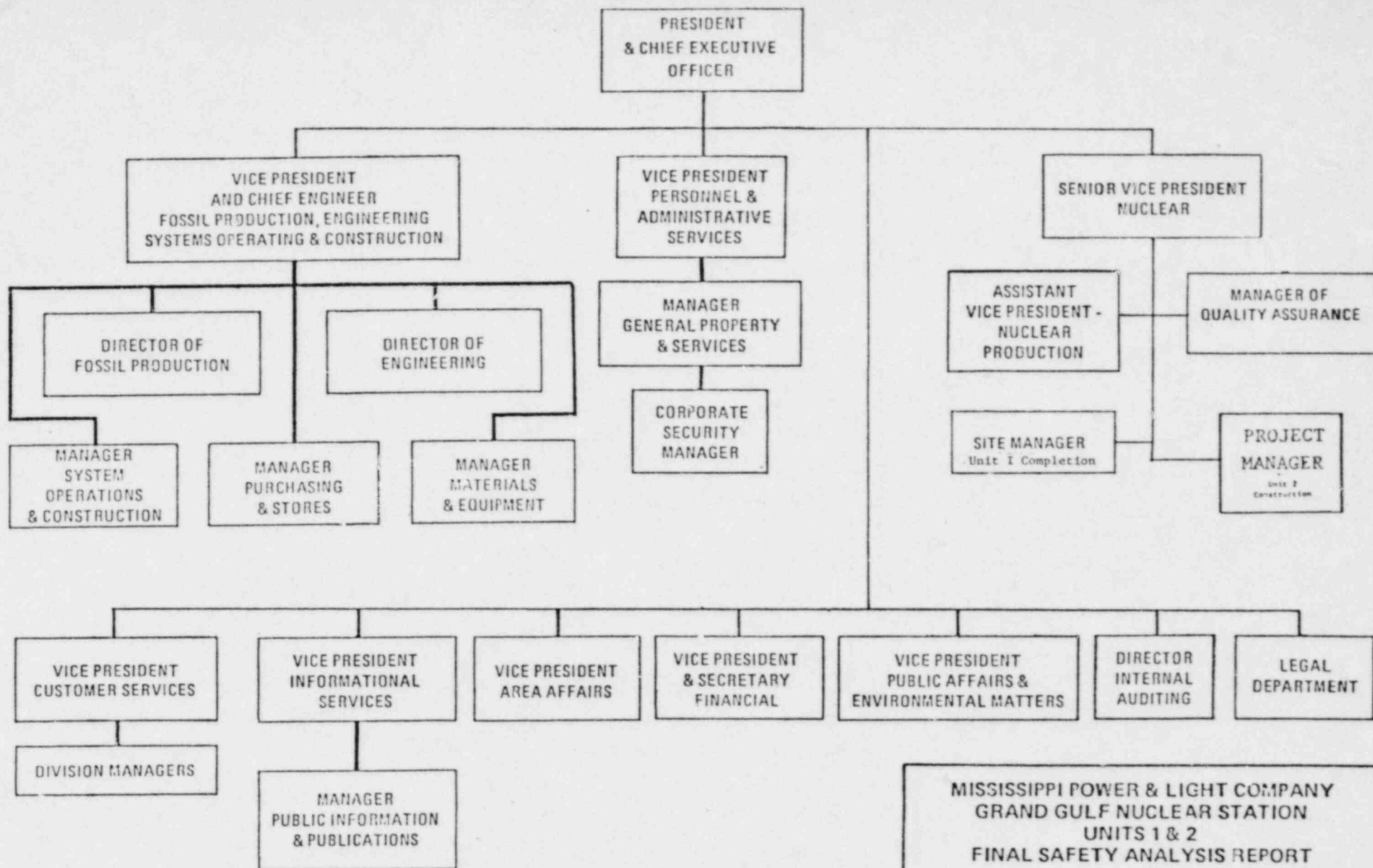
³Distributed in all maintenance disciplines.

⁴These contractors to be used during preoperational and startup phase.

⁵To be phased out by time of commercial operation.

⁶These are planned numbers and may be adjusted as operational experience dictates.

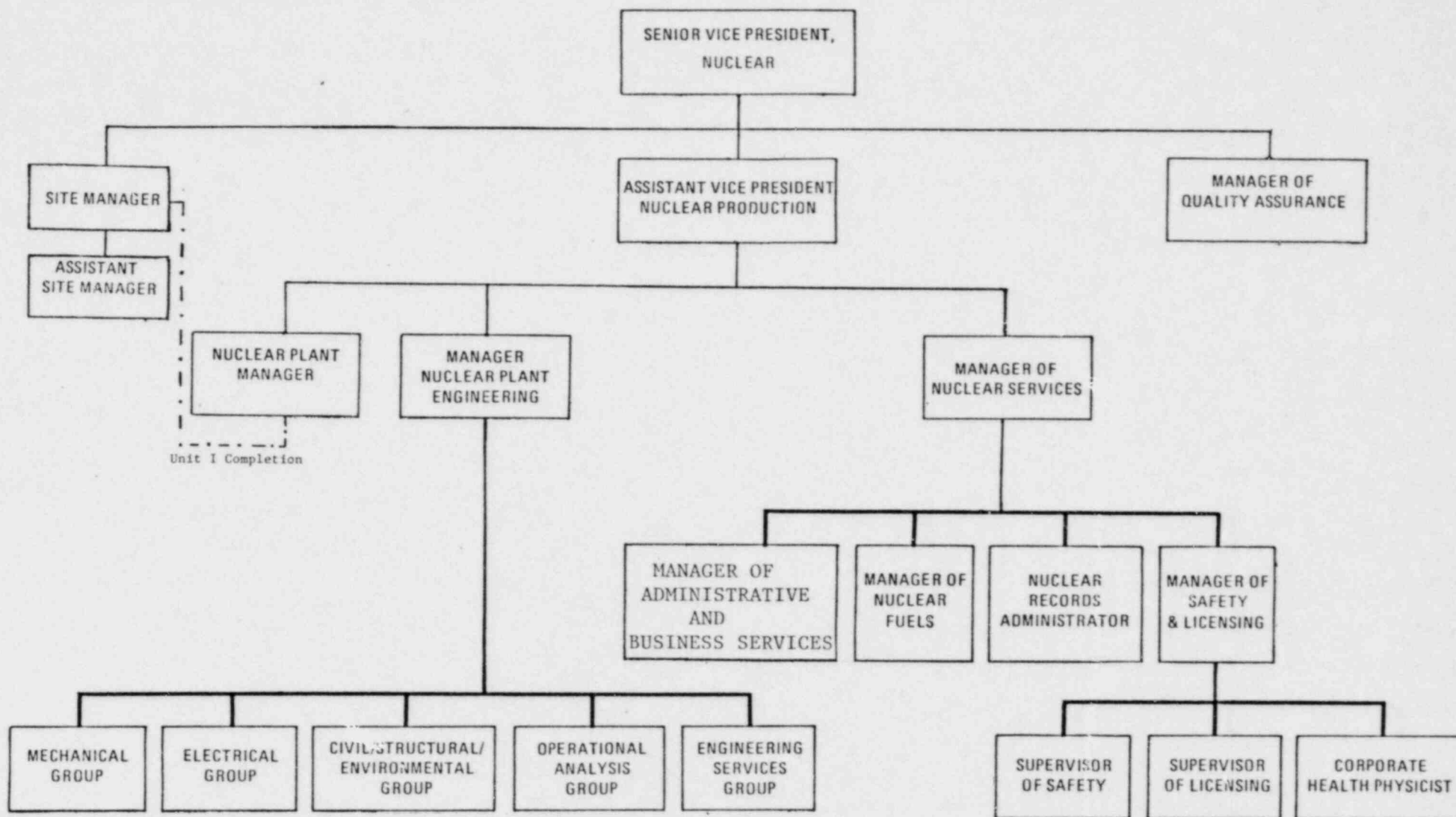
⁷These positions are currently being filled by two (of seven) shift superintendents until permanent assignment is made.



MISSISSIPPI POWER & LIGHT COMPANY
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UNITS 1 & 2
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MISSISSIPPI POWER & LIGHT COMPANY
CORPORATE ORGANIZATION

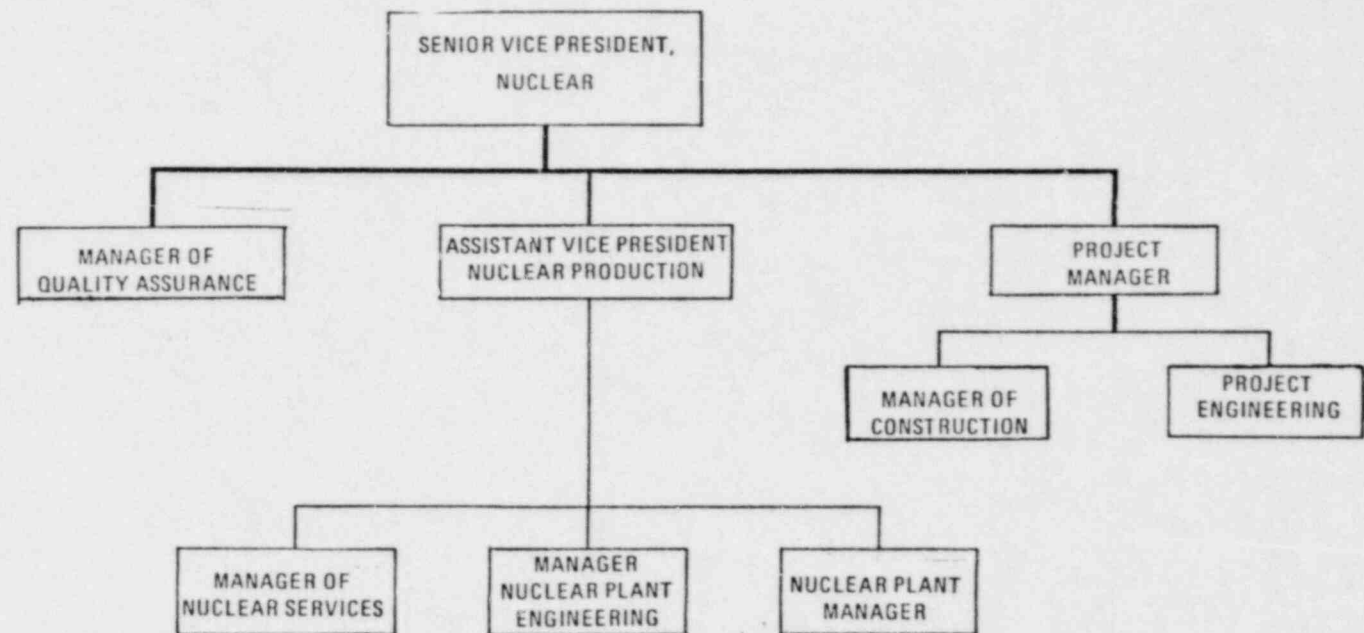
FIGURE 13.1-1



——— LINES OF RESPONSIBILITY
 - - - LINES OF COMMUNICATION
 - - - LINES OF COMMUNICATION & DIRECTION

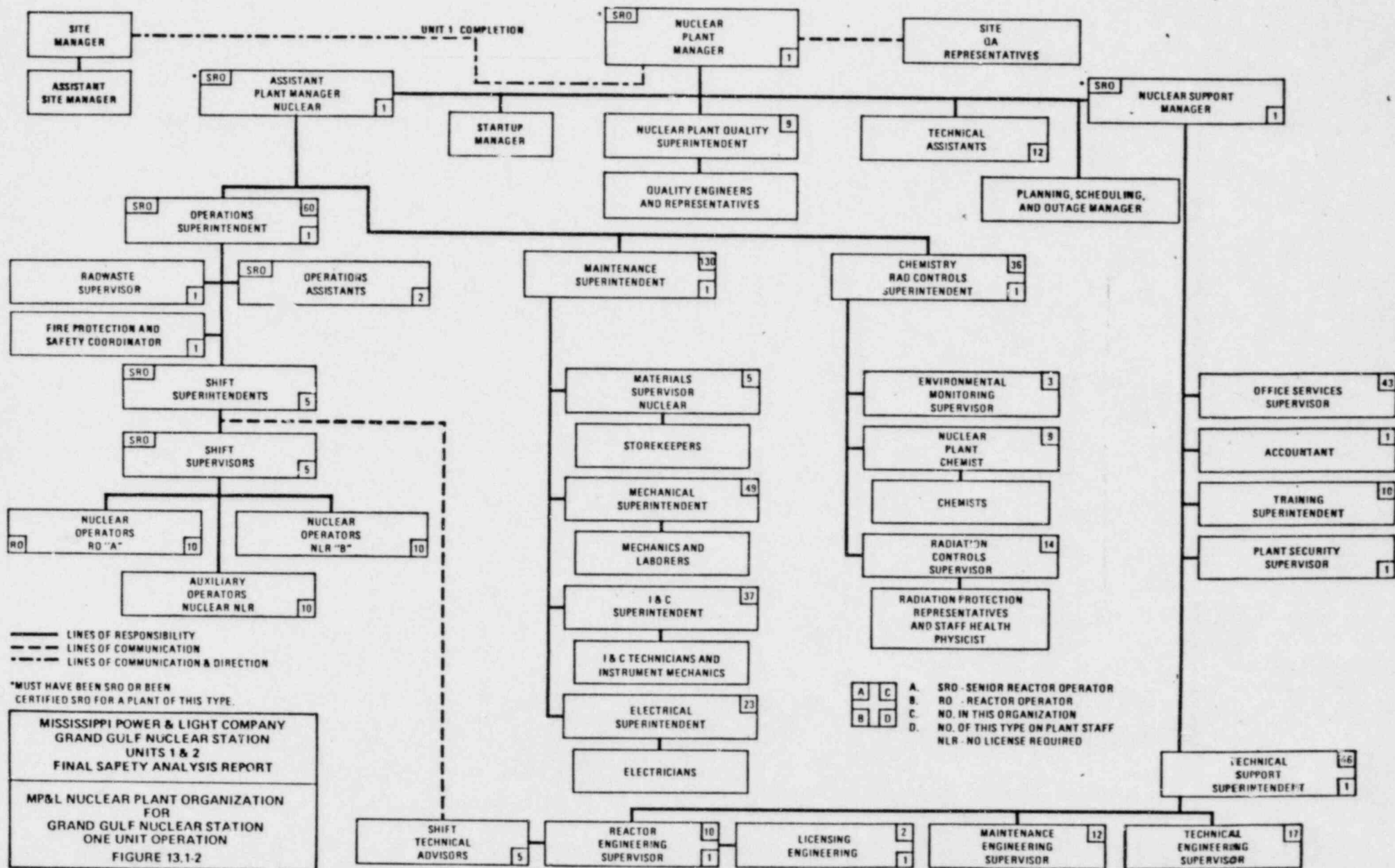
MISSISSIPPI POWER & LIGHT COMPANY
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 UNITS 1 & 2
 FINAL SAFETY ANALYSIS REPORT

MP&L MANAGEMENT AND
 TECHNICAL SUPPORT ORGANIZATION
 FOR UNIT I
 GRAND GULF NUCLEAR STATION
 FIGURE 13.1-1a



MISSISSIPPI POWER & LIGHT COMPANY
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UNITS 1 & 2
FINAL SAFETY ANALYSIS REPORT

MP&L MANAGEMENT AND
TECHNICAL SUPPORT ORGANIZATION FOR
UNIT 2 CONSTRUCTION
GRAND GULF NUCLEAR STATION
FIGURE 13.1-1.b

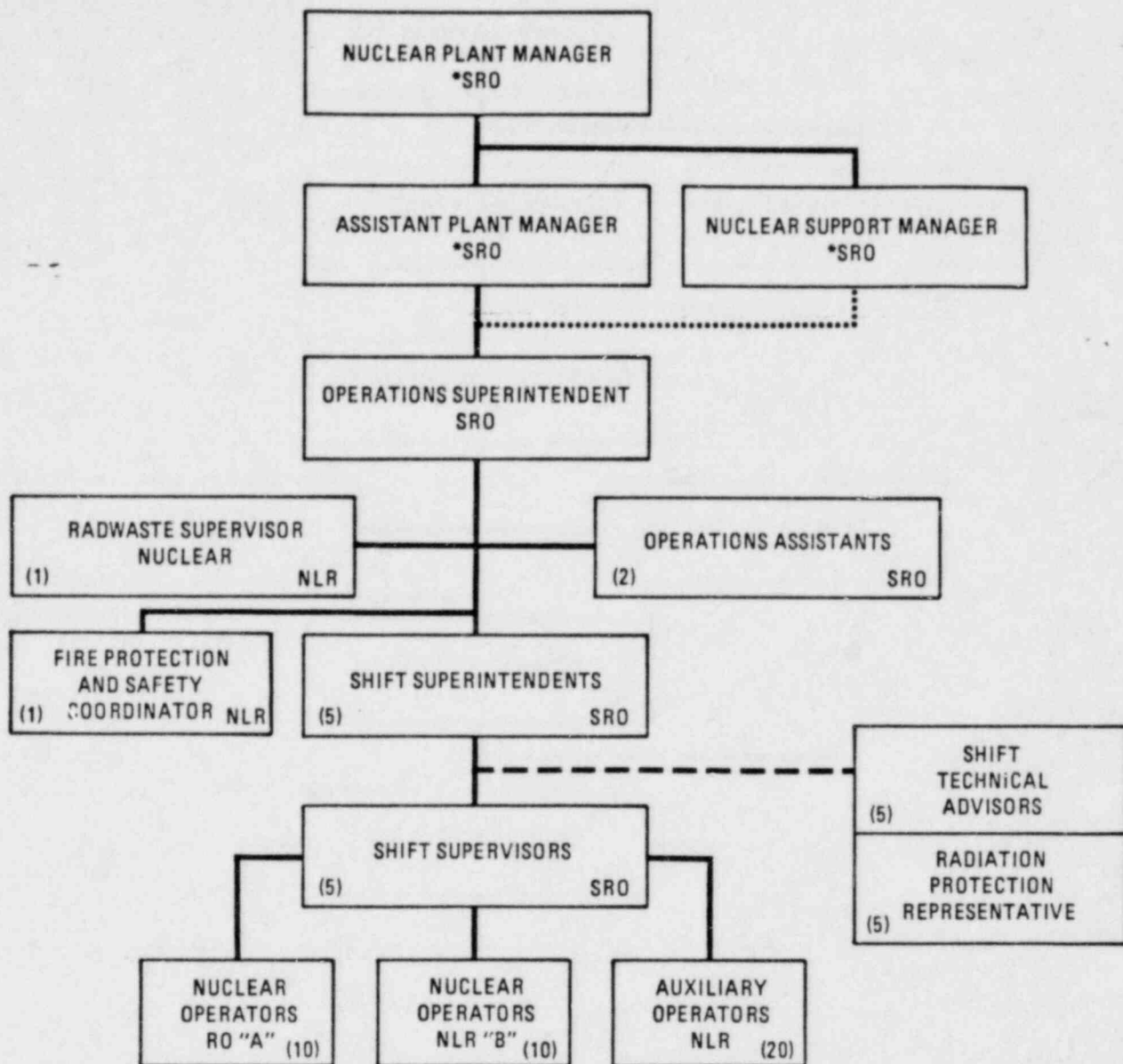


*MUST HAVE BEEN SRO OR BEEN CERTIFIED SRO FOR A PLANT OF THIS TYPE.

MISSISSIPPI POWER & LIGHT COMPANY
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UNITS 1 & 2
FINAL SAFETY ANALYSIS REPORT

MP&L NUCLEAR PLANT ORGANIZATION
FOR
GRAND GULF NUCLEAR STATION
ONE UNIT OPERATION

FIGURE 13.1-2



- NOTES:
- SRO - SENIOR REACTOR OPERATOR
 - RO - REACTOR OPERATOR
 - NLR - NO LICENSE REQUIRED
 - (X) - NUMBER OF PLANT PERSONNEL ASSIGNED TO THIS POSITION
 - - SHIFT TECHNICAL ADVISOR COMMUNICATES WITH SRO'S BUT REPORTS TO THE REACTOR ENGINEERING SUPERVISOR
 - * - THE PLANT MANAGER, THE ASSISTANT PLANT MANAGER, AND THE NUCLEAR SUPPORT MANAGER ARE TRAINED TO SRO LEVEL IN ADDITION TO THOSE IN THE OPERATIONS ORGANIZATION.
 - - TEMPORARY LINE OF SUCCESSION IN THE EVENT OF INCAPACITY OF BOTH THE PLANT MANAGER AND THE ASSISTANT PLANT MANAGER. SEE SUBSECTION 13.1.2.2.1

MISSISSIPPI POWER & LIGHT COMPANY
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FINAL SAFETY ANALYSIS REPORT

GGNS UNITS 1 AND 2
PLANT OPERATIONS ORGANIZATION
ONE UNIT OPERATION
FIGURE 13.1-3

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Minimum On-Duty Operations Shift Organization

A. Single Unit Operating*

1 SS (SRO)
1 SRO
2 RO
2 AO
1 RPR

D. Both Units Shut Down**

1 SS (SRO)
1 SRO
2 RO
3 AO
1 RPR

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B. Single Unit Shut Down**

1 SS (SRO)
1 RO
1 AO
1 RPR

E. One Unit Operating*,
One Unit Shut Down**

1 SS (SRO)
1 SRO
3 RO
3 AO
1 RPR

C. Both Units Operating*

1 SS (SRO)
2 SRO
3 RO
3 AO
1 RPR

SS = Shift Supervisor
SRO = Licensed Senior Reactor Operator
RO = Licensed Reactor Operator
AO = Auxiliary Operator, Non-Licensed
RPR = Radiation Protection Representative

NOTES:

- (1) In addition, one shift technical advisor is assigned per shift during plant operation in Modes 1 through 3.
 - (2) A licensed senior reactor operator or senior reactor operator limited is required, in addition, to directly supervise any core alteration activity during refueling.
 - (3) In order to operate or supervise the operation of both units, an operator (SRO or RO) must hold an appropriate, current license for each unit.
- * - Modes 1 through 3 - Power Operation, Startup, and Hot Shutdown per Technical Specifications
- ** Cold Shutdown and Refueling per Technical Specifications

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GRAND GULF NUCLEAR STATION
UNITS 1 & 2
FINAL SAFETY ANALYSIS REPORT

GGNS UNITS 1 AND 2
OPERATIONS SHIFT ORGANIZATION

FIGURE 13.1-4

CHAPTER 13

APPENDIX 13A

RESUMES

POSITIONS

(1)	Norris L. Stampley	Senior Vice President - Nuclear
(2)	James P. McGaughy, Jr.	Assistant Vice President - Nuclear Production
(3)	George B. Rogers	Site Manager
(4)	C. Randy Hutchinson	Startup Manager
(5)	Hal Morgan	Construction Superintendent
(6)	T. H. Cloninger	Assistant Site Manager
(7)	C. K. McCoy	Nuclear Plant Manager
(8)	T. E. Reaves, Jr.	Manager of Quality Assurance
(9)	L. F. Dale	Manager of Nuclear Services
(10)	C. L. Tyrone	Manager of Nuclear Fuels
(11)	J. D. Richardson	Manager of Safety and Licensing
(12)	C. L. Stuart, Jr.	Assistant Plant Manager - Nuclear
(13)	D. L. Hunt	Training Superintendent
(14)	R. A. Ambrosino	Nuclear Support Manager
(15)	G. A. Johnson	Operations Superintendent
(16)	R. L. Shaddix	Radwaste Supervisor
(17)	D. Anderson	Shift Superintendent
(18)	R. Keeton	Shift Superintendent
(19)	L. Moulder	Shift Superintendent
(20)	L. R. Miller	Shift Supervisor
(21)	G. Lhamon	Shift Supervisor
(22)	W. Bearden	Shift Superintendent
(23)	J. L. Robertson	Shift Superintendent
(24)	C. Hicks, Jr.	Shift Supervisor
(25)	R. C. Fron	Principal Engineer Civil Group (Acting)
(26)	J. Warner	Shift Superintendent
(27)	W. Russell, Jr.	Shift Supervisor
(28)	Johnny F. Pinto	Manager, Nuclear Plant Engineering
(29)	Milton E. Abbott	Corporate Security Manager
(30)	Dr. L. R. McKay	Corporate Health Physicist
(31)	D. Wasson	Shift Technical Advisor
(32)	K. Rass	Shift Technical Advisor
(33)	P. Different	Shift Technical Advisor
(34)	K. Walker	Shift Technical Advisor
(35)	A. White	Shift Technical Advisor
(36)	D. Pace	Shift Technical Advisor
(37)	J. R. Elms	Maintenance Superintendent

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(38)	S. Roberts, Jr.	Materials Supervisor - Nuclear
(39)	R. V. Moomaw	I & C Superintendent
(40)	E. E. Wilson	Electrical Superintendent
(41)	R. Weedon	Chemistry & Rad Controls Superintendent
(42)	R. D. Brown	Nuclear Plant Chemist
(43)	G. D. Williams	Radiation Control Supervisor
(44)	R. G. Williams	Office Services Supervisor
(45)	S. P. Hutchins	Principal Electrical Engineer (Acting)
(46)	A. McCurdy	Technical Support Superintendent
(47)	W. R. Patterson	Reactor Engineering Supervisor
(48)	F. Walsh	Maintenance Engineering Supervisor
(49)	(Delete)	
(50)	R. T. Halbach	Assistant to the Plant Manager
(51)	J. W. Yelverton	Nuclear Site Quality Assurance Manager
(52)	T. G. Lee	Staff Health Physicist
(53)	V. Holmberg	Fire Protection and Safety Coordinator
(54)	S. H. Hobbs	Supervisor of Nuclear Safety
(55)	J. G. Cesare	Supervisor of Licensing
(56)	P. J. Richardson	Licensing Assistant
(57)	W. F. Adcock	Principal Mechanical Engineer
(58)	C. W. Angle	Principal Engineer - Operational Analysis
(59)	J. C. Roberts	Startup Supervisor
(60)	D. E. Stewart	Project Startup Engineer
(61)	M. G. Farschon	G.E. Site Operations Manager
(62)	D. G. Cupstid	Startup Test Supervisor
(63)	A. O. Hollis	Startup Group Leader
(64)	J. S. Schuyler	Startup Group Leader
(65)	B. L. Phillips	Startup Group Leader
(66)	R. G. Cockrell	Startup Group Leader
(67)	J. B. Balken	GE Operations Superintendent
(68)	T. R. Enright	GE Lead Startup Test Design and Analysis Engineer
(69)	W. F. Mashburn	Civil Engineer
(70)	A. L. Grace	Security Training Supervisor
(71)	G. H. Lee	Acting Training Supervisor
(72)	A. D. Hotham	Simulator Supervisor
(73)	P. Wolfinger	Shift Advisor previously BWR licensed
(74)	C. M. Dugger	Shift Advisor previously BWR licensed

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(75)	W. S. Iliff	Shift Advisor previously BWR licensed
(76)	M. L. Jones	Engineering Services Supervisor
(77)	J. B. Richard	Middle South Services Inc. Member of Safety Review Committee
(78)	E. L. Hammond	Member GGNS Safety Review Committee
(79)	J. I. Paulk	Member GGNS Safety Review Committee
(80)	J. F. Groves	Staff BWR Consultant
(81)	C. C. Hayes, Jr.	Nuclear Plant Quality Super- intendent

Douglas L. Hunt - Continued

Naval Reactors Representative (Limited Duty Officer) - Shippingport Atomic Power Station, Shippingport, Pennsylvania. Responsibilities included performance of audits and surveillances of subcontractors performing modifications to accommodate light water breeder reactor conversion. Assisted Duquesne Light Company in developing 10 CFR 50 QA Program (plant was previously under naval reactors QA). Was member of Joint Test Group and Joint Refueling Group, 1974-1977.

1977 - Present Mississippi Power & Light Company,
Jackson, Mississippi

Maintenance Planner at Grand Gulf Nuclear Station - Coordinated efforts with subcontractor to begin preservice inspection. Established schedules, approved procedures, and interfaced with authorized inspector and QA to establish baseline inspection techniques in accordance with ASME Section XI.

Assistant Maintenance Supervisor at Grand Gulf Nuclear Station - Responsible for supervision of production crafts (mechanics, electricians, and instrumentation control) in Maintenance. Directly involved in recruiting efforts to fill craft and supervisor positions in maintenance. Also responsible for establishing and outfitting maintenance shops, and developing procedures and instructions for maintenance activities.

Nuclear Plant Quality Superintendent at Grand Gulf Nuclear Station - Responsible for the review and monitoring of the onsite GGNS operations QA program as well as the supervision, training, and certification of Plant Quality Representatives and inspection personnel. Also provide QA/QC guidance and training to plant staff. Reports directly to the Plant Manager.

Training Superintendent at Grand Gulf Nuclear Station- The Training Superintendent is responsible for implementing the Grand Gulf Nuclear Station Training Program. The Training Superintendent schedules all plant personnel for training and retraining, directs and coordinates the plant training instructors, and maintains records of completed training. He reports to the Nuclear Support Manager for direction. The Training Supervisor, Simulator Supervisor, and Security Training Supervisor report to the Training Superintendent.

Ted H. Cloninger - Continued

management of the Project Architect-Engineer's engineering staff as well as the NSSS supplier's engineering staff.

Manager of Project Engineering - The Nuclear Project Engineer was responsible for all project engineering coordination, for engineering interfaces between the Site Management staff, Nuclear Production staff, and other Project organizations as required, the review of A-E/Contractor Procurement, maintaining the GGNS Q-List, and processing nuclear steam supplier invoices.

Assistant Site Manager - Reports to Site Manager on design and construction activities, coordinates activities of Construction Manager and Project Engineering staff.

Professional Membership:

Registered Professional Engineer

Resume No. 25

Name: Robert Charles Fron

Birthdate: 1954

Formal Education and Training:

B.S. Civil Engineering, Pennsylvania State University, 1976
M.S. Civil Engineering, Pennsylvania State University, 1978

Experience:

1976 Pennsylvania Power & Light Company,
Berwick, Pennsylvania

Co-op Engineer - Member of Cost and Scheduling Group for
Pennsylvania Power & Light Company at the Susquehanna Steam Electric
Station.

1977 Philadelphia Electric Company,
Pottstown, Pennsylvania

Co-op Engineer - Assigned to the Construction Quality Group at the
Limerick Generating Station Construction Project. Duties included
review of the technical specifications and the quality control
procedures and the monitoring of construction activities.

1978 - 1980 Bechtel Power Corporation,
Port Gibson, Mississippi

Field Engineer - Assigned to the Grand Gulf Nuclear Project as a
Quality Assurance Engineer and as an Electrical Field Engineer on
Unit 2. Aided in the revision of the Nuclear Quality Assurance
Manual for the Grand Gulf construction project.

1980 - Present Mississippi Power & Light Company,
Jackson, Mississippi

Manager of Nuclear Plant Engineering (Acting) (1980-1981) - During
assignment at Grand Gul Nuclear Station have developed NPE
administrative procedures to respond to MP&L QA and ANSI N45.2
requirments.

Principal Civil Engineer (Acting) (1980-Present) - Assigned to the
Civil/Structural/Environmental Sub-group of Nuclear Plant
Engineering at the Grand Gulf Nuclear Station. Assignments include
general civil, structural, and concrete design on NPE design
projects.

Resume No. 28

Name: Johnny F. Pinto

Birthdate: 1943

Formal Education and Training:

B.S. Electrical Engineering, University of Houston, 1971
Electronic Technician Class A School
Basic Submarine Training
Basic Nuclear Power School
Nuclear Power Training Unit
Speed Variator School, GE
Nuclear Instrumentation and Controls Warranty School, GE
Installation and Services Engineering Radiation Protection
School, GE
Field Engineering Program Training, GE

Experience:

1962 - 1968 U.S. Navy

Electronics Technician - Reactor control and instrument
systems, reactor maintenance and repair.

1972 - 1975 General Electric Company

Test Engineer (1972) - Drive Systems Product Department
Quality Assurance testing of electronic components.

Engineer at Browns' Ferry Nuclear Power Plant, Electrical
and Electronics Nuclear Unit (1973) - Responsible for
drawing control, hardware installation and checkout,
equipment procurement, and onsite engineering revisions.

Startup Engineer at Edwin I. Hatch Nuclear Plant (1973-
1974) - Responsible for construction testing, system
verification, and preoperational testing of NSSS and
BOP. Coordinated activities of 11-man group.

Engineer at Brunswick Nuclear Power Station (1974-
1975) - Originally assigned to coordinate United
Engineers and Constructors, Carolina Power and Light,
and General Electric efforts in support of radiation
waste preoperative testing to meet end-of-the-year
licensing commitment. Efforts resulted in assignment
of one year to continue in radiation waste areas and
to begin construction testing on second unit in the
following areas: reactor recirculation system,
feedwater control, standby liquid control, fuel pool
cooling, and reactor water clean-up.

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Johnny F. Pinto - Continued

1976 - 1981 Brown & Root, Inc.

- - Senior Project Engineer, South Texas Project - Discipline Project Engineer for instrumentation and controls. Participated as a member of the Engineering Project Management team in the overall coordination of all disciplines. Directly supervised the following disciplines in all activities relating to the project: Design Assurance Group, Nuclear Shielding, Nuclear Analysis, Special Problems, and TMI.

1981 - Present Mississippi Power & Light Company, Jackson, Mississippi

Manager, Nuclear Plant Engineering - Reports directly to the Assistant Vice President - Nuclear Production. Directs the activities of the principal engineers assigned to mechanical, electrical, civil/structural, environmental, and operational engineering. Is member of the Corporate Safety Review Committee.

Professional Memberships:

American Society of Professional Engineers
Texas Society of Professional Engineers
Institute of Electrical and Electronic Engineers
Instrument Society of America

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Resume No. 45

Name: Steven P. Hutchins

Birthdate: 1952

Formal Education and Training:

B.S. Electrical Engineering, University of
Pennsylvania, 1976
Management Orientation Course, Public Service Electric
and Gas Company

Experience:

1976 - 1977 Public Service Electric and Gas Company,
New Jersey

Shift Engineer - Synthetic Natural Gas Plant -
Provided engineering coverage during plant operation.
Maintained functional readiness of flow indicators,
thermostats, switches, etc. for computer inputs.

Gas Dispatch Computer Engineer - Developed study on
how a computer could best be utilized for dispatch
operations. Drafted CRT display of local metering
stations and all required inputs.

1977 - 1979 Bechtel Power Corporation, San Francisco,
California

Field Electrical Engineer - Construction Nuclear Power
Plant (Susquehanna Steam Electric Station) - Reviewed
raceway layout drawings for interferences and design
completeness. Performed in-process inspection and
field design modifications to seismic raceway and
conduit installation, equipment placement, and cable
pulling activities. Determined material and tool
requirements by means of drawing take-off.

System Turnover Engineer - Reviewed station single
lines and schematic drawings for formation of turn-
over packages. Developed startup packages for
turnover to the client for systems such as the
125 Vdc distribution feeds, the uninterruptible
power supplies, and the station computer.

PGCC/ACR Engineer - Coordinated the work activities
of eight engineers for the complete installation,
cable pulling/termination, and field testing of a
GE-supplied power generation control complex coupled
with an advanced control room. Provided field

Steven P. Hutchins - continued

support to home office engineering for all BOP control room modifications. Coordinated backchargeable work activities through GE site engineering for all NSSS modifications and installation of ship-short materials. Performed in-process inspection for the installation of a transient monitoring recorder.

1979 - 1981 Baldwin Associates, Clinton, Ill.

Lead Area Electrical Engineer - (Control & Diesel Generator Buildings)
- Supervised five engineers and technical assistants providing field engineering for installation of lighting, sound power, P.A., fire protection, and telephone systems. Provided field engineering and scheduled inputs for the complete installation of a General Electric supplied "Power Generation Control Complex" (including installation, cable pulling, terminations, ship-short installation, and design modifications and rework). Provided field engineering and design input for the installation of seismic Class 1E cable pan and conduit supports.

1981 - Present Mississippi Power & Light Co., Jackson, Miss.

Principal Engineer Electrical Group (Acting) - Reports to Manager, Nuclear Plant Engineering. Supervises lead and other electrical engineers. Responsible for electrical designs/design modifications, electrical cable and equipment layout, electronic engineering and control/control logic engineering. Provides consultation advice in all areas of electrical and electronic engineering.

Professional Membership:

Power Society, Institute of Electrical and Electronic Engineers

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Robert T. Halbach - Continued

1981 - Present Mississippi Power & Light Company,
Jackson Mississippi

Assistant to the Plant Manager at Grand Gulf Nuclear Station - Responsible to the Plant Manager for the selection, recruiting, and hiring of qualified personnel to operate the plant, ensuring that selected personnel meet all regulatory requirements for education and experience. Duties include preparation and revision of job specifications, preparation and implementation of recruiting plans to meet personnel requirements, and coordination of all plant staff hiring with the Corporate Personnel Department. Prepares personnel budgets. Plans and implements medical, security, and psychological screening of all personnel where required.

Responsible to the Plant Manager and the Corporate Personnel Department for personnel administration. Duties include ensuring that all hiring and promotion is done in accordance with company policy and regulatory rules and requirements (Equal Employment Opportunity Commission Rules, Department of Labor Rules, etc.). Also plans and controls the implementation of company benefit programs for plant personnel.

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Resume No. 73

Name: Pete Wolfinger

Birthdate: 1946

Formal Education and Training:

Nuclear Power Plant Operator Training, Georgia Institute of Technology
BWR Simulator and SRO Certification, Morris, Illinois
BWR Observation Training
Technical Writing, Georgia Power Co.
Line Management School, Georgia Power Co.
Senior Reactor Operator SOP-2143
Certification Docket No. 55-4399

Experience:

1967 - 1979 Georgia Power Company

Equipment/Assistant Boiler-Turbine Operator (1967-1971) -
Participated in operational activities during construction of two 500-megawatt, "once-through," supercritical fossil fuel units. Operated systems and control boards through flushing, preoperational testing, and the startup program. Operated steam driven boiler feed pumps, precipitator equipment, pulverizers, polishing demineralizers, and other equipment standard to coal-fired units. Also gained experience operating six other coal-fired units.

Nuclear Plant Operator, Edwin I. Hatch Nuclear Station (1971-1973) - Reviewed piping and instrumentation diagrams and flushing prints and procedures for possible errors or operational problems. Compiled fact sheets for nuclear steam supply and balance of plant system. Was selected to draw simplified piping and instrumentation diagrams because of drafting ability. Monitored systems construction for possible operating problems and initiated design changes in areas where problems were found. Participated in writing operating, annunciator response, and emergency procedures. Promoted to Shift Foreman and obtained a Senior Reactor Operator's license before the initial fuel loading of the first unit.

Pete Wolfinger - Continued

Shift Foreman (1973-1978) - Responsible for supervising the operation of Units 1 and 2 of the Edwin Hatch Nuclear Station during flushing, preoperational testing, fuel loading, and startup testing. Supervised the operating crew on shift. Responsible for clearing equipment for maintenance and outage activities. Initiated design changes to improve systems operation in problem areas. Responsible for troubleshooting immediate and potential problems requiring in-depth knowledge of plant systems and system-to-system interface. Established and directed a training program dealing with the basis of nuclear power plant operation for the new operators on the second unit. Participated in writing, reviewing, and revising the operating, abnormal operating, annunciator response, and emergency procedures. This position required obtaining a "cold" Senior Reactor Operator's license for initial fuel loading on each unit.

Shift Supervisor (1978-1979) - Held overall responsibility for both nuclear units. Responsible for coordinating activities between departments during the startup test program, normal operation, and outages. Responsible for supervising the operation of the radwaste facility during the startup of the second unit. Made "on-the-spot" decisions concerning plant operation, transients, procedure and technical specification interpretations, and equipment problems. Supervised plant operation during preoperational testing and the startup program which required knowledge of system design, logic, and operating characteristics. Reviewed operation of nuclear steam supply and support systems to determine where design changes were necessary. This position required holding a Senior Reactor Operator's license.

Startup Engineer (1979-1980) - Initially assigned to the construction test group with the responsibility for flushing, hydrostatic testing, and construction assurance testing of primary systems. Later transferred to the joint startup group and was assigned as Startup Engineer for numerous systems. Responsibilities here included performing preoperational testing and training of plant operators, mechanics, chemists, and electricians. Participated in cold hydro, steam generator hydro, and preparation for hot functional.

Pete Wolfinger - Continued

1980 - 1981 United Engineers and Constructors, Inc.

Startup Engineer: Assigned to a 600 MWE canadian D₂O Candu Reactor, responsible for hydrostatic testing, flushing, and startup testing of the heat transport purification system discovered design problems and participated in subsequent fix. Compiled model commissioning package for the heat transport startup group. Responsible for writing commissioning reports and system documentation. Wrote tests as applicable for the main heat transport system.

1981 - Present Mid Continent Systems Corporation

Supervisory Service Engineer - provides assistance to the operations and startup groups at the Grand Gulf Nuclear Station in their procedural efforts and tests coordination.

Resume No. 74

Name: Charles M. Dugger

Birthdate: 1950

Education and Training:

Hinds Junior College, General Studies
Southeastern Illinois College, Chemistry Major
U.S. Navy Nuclear Power School
Various Navy technical schools
Licensed Senior Reactor Operator, Brunswick Steam
Electric Plant

Experience:

1971 - 1976 U.S. Navy, San Diego, California,
USS Scamp SSN (558)

Served as a member of the Electrical Division. Qualified all engineering watch stations. Served as the leading first class Petty Officer.

1976 - 1980 Carolina Power and Light Company

Senior Reactor Operator - Served as Shift Supervisor in charge of both Brunswick units and as a Radwaste Supervisor coordinating process waste.

1980 - Present Nuclear Services Corporation, Tulsa, Oklahoma

Supervisory Service Engineer - Assigned to NSC Tulsa regional office to provide assistance to the operations and startup groups at the Grand Gulf Nuclear Station in their procedural efforts and test coordination. Assigned as BWR experienced shift supervisor during startup operation of GGNS Unit 1.

Resume No. 75

Name: William S. Iliff

Birthdate: 1950

Education and Training:

B.S. Peru State College, Peru, Nebraska
BWR Technology, Morris, Illinois
BWR Simulator, Morris, Illinois
GE DEH Operations Training
Nuclear Fuel Inspection Training
NRC Reactor Operators License
NRC Senior Reactor Operators License

Experience:

1973 - 1981 Nebraska Public Power District, Brownsville
Nebraska

Engineering Assistant (1973-1974) - Responsible for procedure preparation and review during construction and startup of Cooper Nuclear Station. Performed engineering reviews on various systems, startup testing, and vessel internal assembly.

Unit Operator (1974-1980) - Performed normal plant operational duties including surveillance procedures, plant startup, and shutdown. Directly responsible for control room activities and four other operators.

Shift Supervisor (1980-1981) - Responsible for safe and efficient plant operations and all activities performed on site. Duties consisted of crew leadership, administration, and plant responsibility.

1981 - Present Quadrex Corporation, Tulsa, Oklahoma

Supervisory Service Engineer - Responsible for providing consulting engineering services to various utility clients in south-central U.S. Assigned as BWR experienced shift supervisor during startup operation of GGNS Unit 1.

Mr. Iliff has been involved in six refueling outages, and in three of these he was in direct charge of refueling activities.

Resume No. 76

Name: Milton Lofton Jones

Birthdate: 1949

Formal Education and Training:

B.S. Mathematics, Mississippi College, 1971
M.S. Mathematics, University of Mississippi, 1976

Experience:

1973 - 1974 Rankin County Schools

Mathematics teacher

1976 - 1981 Westinghouse Electric Corp., Lighting Business
Unit, Vicksburg, Mississippi

Sales Negotiator, Marketing Representative, and
Utility Marketing Representative in Marketing Department - four years.

One year in Engineering Department as Design Engineer in the "Standardization Task Force" analyzing/restructuring all product lines and product information systems including computerized inventory file listings. Collateral duty as the Business Unit Standards Engineer responsible for material/process specifications.

1981 - Present Mississippi Power & Light Company, Jackson, Mississippi

Engineering Services Supervisor, Nuclear Plant Engineering - Reports to Manager, Nuclear Plant Engineering. Responsible for document control, personnel administration, and supplies management. Responsible for control and management of the Nuclear Plant Engineering Administration Manual.

Professional Membership:

American Mathematics Society

Resume No. 77

Name: Jackson B. Richard

Birthdate: 1930

Formal Education and Training:

Undergraduate Studies in Architectural Engineering,
Louisiana State University
B.S. Science and Engineering, U.S. Naval Academy
Chief Reactor Operator Training, U.S. Navy
Ballistic Missile Schools, U.S. Navy
Prospective Commanding Officer Schools, U.S. Navy

Experience:

1952 - 1978 U.S. Navy

Engineering Officer, Executive Officer, Commanding Officer, Division Officer, Deputy/Division Director Pentagon and White House Staffs. Shipboard power plant related management background and achievements included successful, safe, and reliable "hands-on" operation, maintenance, and preparation for inspection and certification of one oil-fired steam, two diesel-electric, and three nuclear power plants. Included were: construction coordination, overseeing, testing, and initial operation of three nuclear power plants; preparing and organizing plant and ship operating, maintenance, and emergency procedures; and establishing, operating, and supervising equipment and machinery preventative and corrective maintenance programs.

Headquarters positions ashore included a broad range of responsibilities in positions with the following offices: Office of the Chief of Naval Operations - Staff Officer and Branch Head in Current Plans and Policy Branch of Strategic Plans, Policy and Operations directorate; Office of Naval Intelligence - Division Director and Intelligence Programs Manager; Bureau of Naval Personnel - Project Management Office Deputy Director and Division Director in Human Resource Management directorate; Executive Office of the President of the United States - Special Action Office Deputy Assistant Director and Military Aide.

Headquarters management achievements included: establishing and operating a new federal action office, establishing and operating a new naval

Jackson B. Richard - Continued

project office for development of innovative concepts of human resource management; establishing and operating a new naval staff division created to develop personnel programs; operating a staff division managing two highly successful technical information collection programs, directing an annual \$15 million special equipment procurement program, and marketing and sponsoring a \$1 billion electronics system development and procurement program (FY 1974-75 dollars); budgeting, managing, and controlling financial resources.

Additional shipboard-related management background and achievements included instituting programs for and conducting recurring squadron level annual operational reactor safeguards examinations for eight nuclear power plants.

During two years as Commanding Officer of a naval submarine base, achievements included successful management of a complete range of industrial and personnel support services. Included were: operating a marine and power plant intermediate repair activity which accomplished nuclear reactor, electrical, mechanical, piping, structural and electronic repairs and alterations, including planning, estimating, work force management, quality assurance, and radiological controls support; providing annual repair facility labor output of 800 man-years; budgeting and financial control of a \$15 million annual operation (FY 1976-77 dollars); providing personnel support services for a staff of 1200 and a tenant population of 3500; security, environmental monitoring and disaster control plans, preparations and services; operating, maintaining, and upgrading a \$275 million replacement cost base (FY 1977 dollars).

1978 - 1981 Nuclear Systems, Inc., Baton Rouge, Louisiana

Vice President and Secretary-Treasurer, General Manager of Gamma Industries Division - As chief operations officer, was responsible for all management, operations and profit/loss aspects of business of Gamma Industries, a manufacturing, sales, and service business providing radioisotopes and other manufactured products to the non-destructive testing industry and specialized nuclear and engineering services to the manufacturing and construction industries. During the period, increased Gamma Industries' sales 63 percent and

Jackson B. Richard - Continued

improved division financial performance from loss to significant profit. Achieved Gamma Industries business sales volume of \$4.5 million for FY 1981 with 50 employees. Managed extensive Gamma Industries involvement with State and Federal agencies regulating the radioisotopic and radiography application industry. As a member of the corporate management team, significantly contributed to reversal of Nuclear Systems, Inc. financial performance from significant loss in FY 1979 and FY 1980 to solid profit for all four quarters of FY 1981. As Corporate Secretary and Corporate Treasurer for the first two years, coordinated transition of all company business to a computer system and assisted in actions to divest a totally owned subsidiary corporation and plan and start up a new operating division.

1981 - Present Middle South Services, Inc.

Principal Nuclear Engineer and Manager, System Nuclear Operation - Consultant services include sitting membership on Safety Review Committees, analyzing ongoing operations and safety performance, supporting construction and licensing preparation and reviews, and providing special project support for three commercial nuclear power plants.

1981 - Present Private Consultant, Baton Rouge, Louisiana

Consultant services include analyzing business risks and recommending corporate marketing policies associated with computer equipment sales to the commercial nuclear power industry.

Professional Memberships:

American Nuclear Society
Atomic Industrial Forum
American Society for Non-Destructive Testing
Non-Destructive Testing Management Association
Member of Grand Gulf Nuclear Station Safety Review
Committee representing Middle South Services, Inc.

Resume No. 78

Name: Ellery L. Hammond

Birthdate: 1936

Formal Education and Training:

BSME Northeastern University, 1959
MSME Northeastern University, 1962
Two years of graduate work in Business Administration
at Northeastern University
Ten-week course of Univac Computer Programming
Two-week course at Bailey Meter Company for turbine
cycle work
Two-week course at M.I.T. in Water-Cooled Reactor
Safety
Fifteen-week course at Yankee for reactor operator
license
Received R.O. License #2055 at Yankee on October 26,
1966
Five-week BWR Orientation course
One-week BWR Simulator course at General Electric's
Training Center
Courses required for Senior Reactor Operator Cold License
a) Five-week BWR Technology course
b) Twelve-week BWR Simulator course at General
Electric's Training Center
c) One-week BWR Observation course at Dresden
Nuclear Station
Received SRO License #1987 at Duane Arnold Energy
Center on December 20, 1973

Experience:

1959 - 1961 Raytheon Corporation

Mechanical Engineer - Designed and controlled the
assembly of several complex automatic machines for
use in the manufacturing of silicon transistors.

1961 - 1962 Clevite Corporation

Mechanical Engineer in Training - Worked in produc-
tion, research, and quality control departments. In
each department was concerned with reducing the costs
in the manufacture of diodes and transistors.

Ellery L. Hammond - Continued

1962 - 1965 New England Power Company

Technical Assistant to the Superintendent of Salem Harbor Generating Station - Responsible for plant performance testing and calculations on three 125-MWe coal-fired units. These tests were performed on the turbines, boilers, condensers, and several other plant components. Responsible for planning and following overhauls of the turbine and boilers using the critical path method (CPM). Responsible for writing reports to the Edison Electric Institute on the plant performances of these three units.

1965 - 1969 Yankee Atomic Electric Company

Plant Reactor Engineer - Responsible for all reactor and secondary plant performance calculations, special nuclear material accountability for the plant site, writing of refueling procedures, and all reactor component inspections. These calculations included the reactor performance during many experimental chemical injection tests for pH control and core reactivity anomalies. When operator training courses were conducted, was responsible for teaching reactor theory to prospective reactor operators. Conducted all the photography work required for maintenance records and reports. Besides several refueling reports, wrote a manual on special nuclear material safeguards for the plant and was involved in the format required by the Atomic Energy Commission.

1969 - 1970 Public Service Company of New Hampshire

Staff Engineer - Responsible for the liaison between the Production Department and the Engineering Department during the initial design phases for the Seabrook Nuclear Station. Responsible for ensuring that proper operating and maintenance considerations would be incorporated into the design of the Seabrook Station. In addition to reviewing equipment specifications and drawings, was responsible for writing the initial draft of the technical specifications and the N-45 inservice inspection program for the Seabrook Station. Participated in the initial DRL meetings with the AEC prior to the issuance of the Seabrook construction permit. Prior to the Seabrook Station deferment, organized the training program for the station personnel and coordinated the plant startup.

Ellery L. Hammond - Continued

After the deferment, was responsible for the mechanical engineering review of a 400-MW oil-fired cycling station. Added unique features to a standard oil-fired unit; induced draft fans to obtain negative boiler pressures and an electrostatic precipitator to remove particles in exhaust gases.

1970 - 1979 Iowa Electric Light & Power Company

Nuclear Design Engineer (1970-1971) - Responsible for assuring that the design of nuclear-oriented systems conformed to proper engineering standards required by the AEC. This job entailed the review of piping and instrument drawings, functional control diagrams, equipment specifications, layout drawings, and other related design considerations. Provided the information for decisions that concerned the operation of the facility. These decisions affected plant and administration building layout, shielding layouts, computer programs for plant performance calculations and various other production-oriented items.

Responsible for conducting a primary containment leak rate test on the bare containment that utilized the "absolute" method of calculation during the Chicago Bridge and Iron's acceptance test of the vessel.

Responsible for the detailed layouts of the NSSS main control room and radwaste control room panels.

Assistant Chief Engineer (Assistant Plant Superintendent)
for the 550 MW Nuclear Plant at Palo, Iowa (1971-1976) - Responsible for the overall direction of major aspects of the Duane Arnold Energy Center which included proper control over the operation of the facility and its maintenance and technical services activities. Involved in development of the plant organization and selection of 90 member staff. Additional responsibilities included: Chairman of Operations Review Committee, Emergency Director of Duane Arnold Preparedness Plan, Security Director of Industrial Security Plan; also responsible for Operating Plant Quality Assurance Program, Training Director, and Pre-operational and Startup Test Coordinator.

Ellery L. Hammond - Continued

Chief Engineer of the Duane Arnold Energy Center (1976-1979) - Responsible for the entire operation of the facility. Responsible for administering the union contract and following the job bidding procedures, apprenticeship program progressions, and overtime agreements. Participated in the management-union negotiations for new contracts. Responsible for hiring policy, budget system, management control system, and revised security plan.

Manager of Nuclear Operations for the Duane Arnold Energy Center (1979-1980) - Reported to the Assistant to the Vice President on matters pertaining to the operation and maintenance of the Duane Arnold Energy Center.

1980 - Present Gulf State Utilities

Plant Manager of River Bend Nuclear Station - Responsible for developing a plant staff, procedures, and training programs that will allow River Bend to meet the NRC requirements prior to fuel load. Once the facility becomes operational, will be responsible for the entire operation and maintenance of the plant.

Professional Memberships:

American Nuclear Society Secretary for the Reactor Operation Division
Chairman of BWR Owners Group Subcommittee on Control Room Improvements
Member of Grand Gulf Safety Review Committee

Resume No. 79

Name: John I. Paulk

Birthdate: 1928

Formal Education and Training:

Vanderbilt University, 1946-1948
B.S. General Engineering, U.S. Naval Academy, 1952
Ph.D. Nuclear Engineering, North Carolina State University,
1962

Experience:

1952-1956 U.S. Air Force

Nuclear Supervisor

1956-1957 DuPont

Associate Service Engineer

1961-1963 Tennessee Valley Authority

Reactor Physicist

1963-Present Mississippi State University

Associate Professor Nuclear Engineering (1963-1964) -
Research at Savannah River in 1964

Professor and Head of Department of Nuclear Engineering
(1964-1980)

Associate Dean for Research, Director of Engineering
and Industrial Research Station and Professor of
Nuclear Engineering (1981 - Present) - Conducted or
directed research on hermetic seals, core analysis,
diffusion of thermal neutrons, diffusion of fission
gases, and other nuclear-related subjects.

Publications:

The Diffusion Parameters of Heavy and Light Water Mixtures at
Different Temperatures by the Pulsed Source Method,
Dissertation, North Carolina State University, 1962, and
with A. W. Waltner in Transactions of the American Nuclear
Society, November 1962.

John L. Paulk - Continued

Neutron Generator Experiments, Experimental Physics Division
Quarterly Report, Savannah River Laboratory, with P. B. Park
and N. P. Baumann, November 1964.

Hermetic Seal Test Evaluation, Engineering and Industrial Research
Station Report, Mississippi State University, with G. R. Hoke
and E. F. Harwell, June 1965.

Hermetic Seal Evaluation for Electronic Components, Engineering
and Industrial Research Station Report, NUE 004, with
R. D. Guyton et al., 1968.

Correlations of Measured Leak Rates by Helium Mass Spectrometer
and Radioactive Gas Techniques for Crystal Can Relays.
Paper presented during Seal Integrity of Electronic Parts
Seminar at Marshall Space Flight Center, with M. J. Berkebile,
September 1968.

Effect of Very Slow Reactions of Elemental Carbon on its Return
to Biological Cycles, Developments in Industrial Microbiology,
Vol. 14, 1973, with R. G. Tischer and J. S. Dhindsa.

Sterilization of the Boll Weevil by Radioactive Fumigation, Journal
of Georgia Entomological Society, Vol. 13, (4), 1978, with
J. W. Haynes, J. R. Dawson, and Norman Mitlin.

A Manual of Nuclear Engineering Experiments, Vol. 1 and Vol. 2,
coauthored with Dr. P. S. Shieh, for use in nuclear engi-
neering laboratory courses.

Professional Memberships:

American Nuclear Society
Sigma Pi Sigma
Sigma Xi
Tau Beta Pi
Atomic Industrial Forum
Professional Engineer, Mississippi
Chairman of Nuclear Energy Committee, Mississippi State
University
Member of Mississippi Radiation Advisory Council
Member of Grand Gulf Nuclear Station Safety Review Committee

Resume No. 80

Name: James F. Groves

Birthdate: 1925

Formal Education and Training:

University of Tennessee and Career Institute of Chicago,
Engineering, Mathematical Analysis and Economics,
1961-1966
6 months on-the-job reactor operating experience and
training at Oak Ridge National Laboratory
4 months on-the-job reactor operating experience and
training at Consolidated Edison's Indian Point
Nuclear Station, Unit 1
10-week Basic Reactor Technology at EGCR
1-week Simulator Training at EGCR
1-week Elements of Health Physics
5-week GE-BWR Plant Technology Course
12-week GE-BWR Simulator plus two 1-week refreshers
135-hour Westinghouse PWR Plant System Familiarization
Course
72-hour Onsite Lecture Program, Watts Bar Nuclear Plant
1-week PWR Simulator Short Course
14 other formal job-related technical and non-technical
courses, including four in supervisor development
and modern management techniques

Experience:

1951 - 1981 Tennessee Valley Authority

(1951-1953) Participated in TVA's Student Generating
Plant Operator Training Program at Hales Bar, Watts
Bar, Johnsonville, and Shawnee Steam Plants.

(1953-1960) Held, in sequence, every operating position
from assistant operator through shift supervisor
during some phase of startup and subsequent opera-
tion of all ten 150-MWe pulverized-coal-fired
boiler-turbo-generator units at TVA's Shawnee
Steam Plant.

(1954-1956) Plant Training Representative for operators

(1957-1958) Instructor for class of 22 student operators

(1958) Attended Principles of Reactor Engineering semi-
nars conducted by engineers and scientists from Oak
Ridge National Laboratory

James F. Groves - Continued

(1960-1966) Served with TVA's forces at the Atomic Energy Commission's Experimental Gas-Cooled Reactor (EGCR) Project near Oak Ridge, Tennessee, certifying at the Senior Reactor Operator level.

(1966-1968) Power Plant Operations Specialist in TVA's Chattanooga Corporate Office.

(1968-1971) Operations Supervisor at TVA's Browns Ferry Nuclear Plant during preoperational stage.

(1972-1976) Assistant Power Plant Superintendent at Browns Ferry during preoperational testing of Units 1, 2, and 3, and startup and subsequent operation of Units 1 and 2. Each unit was comprised of a 3293-MW_t General Electric boiling water reactor and a 1098-MWe GE turbo-generator. Licensed Senior Operator, Units 1 and 2.

(1976-February 1980) Power Plant Superintendent at Watts Bar Nuclear Plant during preoperational phase of two 3411-MW_t Westinghouse pressurized water reactors each powering a 1218-MWe Westinghouse turbo-generator.

(February 1980-August 1981) On loan to Institute of Nuclear Power Operations (INPO). Served concurrently as an Evaluation Team Manager and as the Operations Department Manager.

(August 1981-November 1981) Project Manager on Director of Nuclear Power's staff in TVA's corporate Office of Power.

1981 - Present Theophilus, Inc.

Staff BWR Consultant for Grand Gulf Nuclear Station -
Advises the Assistant Vice President - Nuclear Production and other executive personnel concerning operation and technical aspects of boiling water reactors.

Professional Memberships:

Certified Senior Reactor Operator, EGCR
Licensed Senior Reactor Operator,
Browns Ferry Nuclear Plant, Units 1 and 2
Served on Board of Directors, Watts Bar Chapter of National Management Association, 1978-1979

Resume No. 81

Name: Curtley Curtis Hayes, Jr.

Birthdate: 1952

Formal Education and Training:

B.S. Industrial Technology, Mississippi State University, 1974
Introduction to Section III, V, & XI, ASME Code, 1977
Basic Principles of Nondestructive Testing, Rockwell International, 1977
BWR/6 Design and Fundamentals, General Electric, 1978
Auditor Training, Bechtel, 1978
GE BWR/6 Grand Gulf Technology, 1978
MP&L Plant Quality Training, 1978
Middle South Services Lead Auditor Training, 1979
Grand Gulf Nuclear Station Blueprint Reading, 1980
Leadership Supervisory Training, MP&L, 1980
Deficiency Screening Training, MP&L, 1980
Statistical Quality Control, 1978

Experience:

1974 - 1977 Chicago Bridge & Iron Nuclear Company

Quality Control Inspector - Certified in accordance with ANSI N45.2.6-1973 as a Level II inspector. Responsibilities included maintaining dimensional control through designated dimensional examination of fabricated pieces, assembly fitups, and overall nuclear reactor pressure vessel dimensions including the proper documentation of each inspection. Obtained training in nondestructive testing and inspections, basic welding techniques, and principles of Quality Assurance. Utilized optical equipment including jig transit, tilting level, builders level, theotolite, and plumb aligner; and mechanical measuring equipment including inside micrometer, outside micrometer, vernier, vernier angle gauge, depth micrometers, and tape measures.

1977 - Present Mississippi Power & Light Company, Jackson, Mississippi

Senior Plant Quality Representative (1977-1980) - Certified as Level II Quality Inspector in accordance with ANSI N45.2.6-1973. Certified as Senior Quality Assurance Engineer in accordance with plant procedures. Responsibilities included monitoring and review of Grand Gulf Nuclear Station plant activities, procedures, and work functions for conformance

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Curtley Curtis Hayes, Jr. - Continued

to Operational QA program. Handled and controlled QA records; prepared quality procedures, instructions, program reviews, and reports. Participated in the training and indoctrination of plant staff personnel in the requirements of the OPS QA Program. Additional responsibilities included receipt inspection of nuclear spare parts and components; trend analysis of deficiencies; and review of vendor contracts and site procurement documents. Assisted in development of plant procurement procedure and the computerized Requirements Procedures Tracking System (RPTS).

Startup Test Supervisor (1980-1982) - Responsibilities included preparation of preoperational and acceptance test procedures utilizing drawings, technical specifications, and vendor manuals; supervision of startup testing in accordance with written procedures and within the guidelines of the Grand Gulf Startup Manual. Additional responsibilities included review and acceptance of system turnover packages and supervision of craft personnel performing maintenance on startup controlled systems.

Nuclear Plant Quality Superintendent (1982 - Present) - Responsible for the review and monitoring of the GGNS onsite operational QA program as well as the supervision, training, and certification of Plant Quality Representatives and inspection personnel. Also provides QA/QC guidance and training to plant staff personnel. Reports directly to the Plant Manager.