

SOUTH CAROLINA ELECTRIC & GAS COMPANY

POST OFFICE BOX 764

COLUMBIA, S. C. 29218

May 21, 1982

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Virgil C. Summer Nuclear Station
Docket No. 50/395
Management and Organizational Update

Dear Mr. Denton:

Over the past two years South Carolina Electric and Gas Company (SCE&G) has met and corresponded with the NRC Staff numerous times concerning the organization and management of the Virgil C. Summer Nuclear Station. This letter is to provide you with additional information including changes to the organization, resume's of certain key personnel that are not included in the FSAR, and the status of management plans as previously outlined to the staff.

On April 28, 1982, SCE&G announced several changes in the corporate organization of the company including the following:

Virgil C. Summer elected Chairman of the Board and Chief Executive Officer

John A. Warren elected President and Chief Operating Officer

Myself elected Senior Vice President, Power Operations

O. W. Dixon, Jr. elected Vice President Nuclear Operations

Please note that although Mr. Dixon is now the first focal point for the entire nuclear organization, the Nuclear Safety Review Committee (NSRC) reports to the Senior Vice President, Power Operations. We believe that these changes improve our organization and provide a greater level of direct experience with the Virgil C. Summer Nuclear Station within upper corporate management.

While discussing these changes with members of the NRC Staff, we were requested to provide resume's of key SCE&G personnel within the nuclear organization who are not contained in the FSAR. These along with a marked-up FSAR and Technical Specification change including organization charts are provided as Attachments I, and II respectively. The changes to the FSAR will be incorporated in the next amendment.

In a letter to you dated March 25, 1981, we outlined our corporate plans for the nuclear organization in three phases. These plans were designed to first compensate for the Company's lack of nuclear operating experience second, acquire the necessary in-house expertise and finally, maintain necessary technical and operating competence for the life of the facility. SCE&G has made substantial progress toward the fulfillment of these plans. Specifically,

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SCE&G has responded in fulfilling the following commitments.

- 1) To improve the level of nuclear operational experience within the Company, SCE&G has added several personnel with experience at large commercial operating nuclear power plants to our staff. Four (4) of these persons (Mr. Melvin N. Browne, Mr. Vincent R. Albert, Mr. Gene G. Soult and Mr. Glenn E. Higginbotham) were discussed in our letter of May 27, 1981. Since that time we have added Mr. Mike Williams in the position of Manager, Nuclear Operations Education and Training. Mr. Williams has had experience in the development and conduct of training programs for nuclear applications. His resume' is included in Attachment I.
- 2) To provide additional technical support, SCE&G has contracted for ongoing engineering support services from Gilbert Associates, Inc. and Westinghouse as well as emergency engineering services if required. This was reviewed by the Staff during their February 1981 audit documented in our letter of March 25, 1981.
- 3) To improve our training programs, the Company has created a corporate organization, reporting to the Vice President, Nuclear Operations, responsible for the development, implementation and evaluation of operating and technical training programs for the Nuclear Operations Department. As discussed in our letter of January 15, 1981, this organization provides for upgrading of the corporate training function. Mr. Mike Williams (who was mentioned previously as a recent addition to our company) serves in this organization.
- 4) To augment the personnel staff of the Vice-President and Group Executive, Nuclear Operations, a consultant with experience at a large commercial power reactor, Mr. Michael Stern, was secured part time to serve in an advisory role. Mr. Stern has performed this function for over a year and served as a voting member of the Nuclear Safety Review Committee (NSRC). This was documented in our letters of March 25, 1981 and January 15, 1982. Consistent with our commitments and progress in acquiring operational experience within our organization, SCE&G will continue to retain Mr. Stern as a consultant on an as needed basis.
- 5) To provide additional technical expertise and large commercial power reactor experience to the NSRC, Mr. Melvin Browne will be added as a voting member to that committee. Mr. Browne's past experience was discussed previously in our May 27, 1981 letter. Another experienced individual now serving on the NSRC is Mr. Samuel R. Ross. Mr. Ross is a consultant to the South Carolina Public Service Authority. He has experience in various areas associated with the siting, design, and licensing of nuclear power plants.

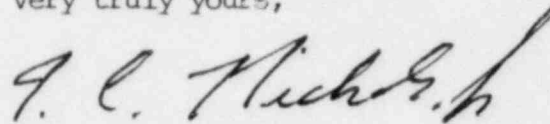
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His resume' is included in Attachment I.

In summary, SCE&G is proceeding in our comprehensive management upgrading plan. The changes discussed here as well as those in previous correspondence on this matter illustrate our progress and enhance our ability to operate the Virgil C. Summer Nuclear Station in a safe and reliable manner.

If you have any questions, please let us know.

Very truly yours,



T. C. Nichols, Jr.
Senior Vice President
Power Operations

TCN:lkb

Attachments (2)

cc: V. C. Summer	(w/o attach.)
G. H. Fischer	(w/o attach.)
H. N. Cyrus	
T. C. Nichols, Jr.	(w/o attach.)
M. B. Whitaker, Jr.	
J. P. O'Reilly	
H. T. Babb	
D. A. Nauman	
C. L. Ligon (NSRC)	
W. A. Williams, Jr.	
R. B. Clary	
O. S. Bradham	
A. R. Koon	
M. N. Browne	
G. J. Braddick	
J. L. Skolds	
J. B. Knotts, Jr.	
B. A. Bursey	
NPCF	
File	

ATTACHMENT 1

RESUME

NAME: Osmund W. Dixon, Jr.

POSITION: Vice President, Nuclear Operations

FORMAL EDUCATION: 1947-1949 - Furman University, Greenville, S. C.
Principal Courses - Math and Science

1949-1953 - U. S. Naval Academy, Annapolis, Md.
BS in Engineering - Graduated with Distinction

ADDITIONAL EDUCATION:

1. Accounting - University of S. C. - Extension Division - 1959
2. Graduate School - University of S. C. - Design of Steel Structures - 1968;
Combustion Kinetics - 1971; Basic Nuclear Engineering - 1972
3. Numerous short courses and seminars in supervisory management and communication skills.
4. Numerous short courses and seminars in engineering subjects such as power plant engineering, instrument and control systems, heat transfer, fluid mechanics, thermal hydraulics, thermodynamics, lubrication, nondestructive examination, materials, welding, etc.

REGISTRATION: 1963 - Registered Professional Engineer
State of South Carolina

EXPERIENCE:

1953-1957 - Engineering officer aboard naval combatant ships. Responsibilities included operation, maintenance and repair of electrical, auxiliary, boiler and main propulsion systems. Qualified Officer of the Deck underway and Engineering Officer of the Watch.

1957-1960 - S. C. Electric & Gas Company:

Electrical and Instrument Supervisor at McMeekin Station. (2-125 MW coal fired units).

Responsible for maintenance of electrical and instrument and control systems for the two (2) unit steam electric units and for a four (4) unit hydro plant. Also, worked in checkout, startup and performance testing of these units.

Designed, installed and checked out control systems to convert the hydro plant to automatic control by the system dispatching office.

- 1960-1961 - Assistant Superintendent at Plant Hagood (2-20 MW and 1-40 MW oil/gas fired units). Responsible for operation and maintenance of the three (3) steam electric generating units. Designed, installed and checked out control systems for central control of plant auxiliaries and boiler burners.
- 1961-1963 - Assistant Superintendent at Canadys Station. Responsible for the startup, operation and maintenance of two (2) 127 MW coal fired units at Canadys Station. Also, had responsibility for review and approval of the design of plant auxiliary and instrument control systems. Designed and supervised installation for modifications to plant coal handling and auxiliary cooling systems.
- 1964-1967 - Superintendent at Canadys Station. Responsible for the design of mechanical, electrical and instrument and control systems for Unit 3, a 200 MW unit with coal fired once-through boiler. Also responsible for startup, operation, maintenance and performance testing of Unit 3; and continued operation and maintenance of Units 1 and 2.
- 1967-1970 - Manager of Engineering/Fabricating Division, Columbia Supply Company. Responsible for design, fabrication, installation and startup of materials handling systems for the sand, clay and stone industries.
- 1970-1971 - S. C. Electric & Gas Company:

Senior Engineer - Production Assurance. Performed inspections of plant operating and maintenance programs and reviewed equipment and unit performance of the company's hydro, fossil and gas turbine generating plants.
- 1972-1976 - Manager, Quality Assurance. Responsible for establishing and implementing the quality assurance program for the Virgil C. Summer Nuclear Station. Included the development of the QA plan and procedures and audits of affected company organizations, architect-engineers, NSSS supplier and vendors. Included personal involvement in the writing of the QA plan and procedures and participation in audits as team leader or member.
- 1976-1977 - Manager, Nuclear Engineering. Responsible for the design and engineering of the Virgil C. Summer Nuclear Station. Directed work of the SCE&G engineering department, architect-engineer and coordinated design interface with NSSS supplier. Maintained close involvement with the architect-engineer in the development of balance of plant systems, review of design control practices, assessment of new regulation requirements/guidance and implementation of project design criteria.

- 1977-1980 - Group Manager, Production Engineering. Responsible for the design, licensing and environmental program for the Virgil C. Summer Nuclear Station. Also responsible for the design, major modifications and environmental monitoring and permitting for new and backfit projects for hydro and fossil power plants. Also, chaired the company task group investigating the accident at Three Mile Island Unit 2 (TMI-2) to identify any improvements which could be made in the Summer Plant to avoid and/or mitigate accidents similar to that at TMI-2. Continued close involvement in the design of the BOP systems and NSSS design, engineering and equipment fabrication for the Summer Station.
- 1980-1982 - Group Manager, Production Engineering, Quality Control and Construction. Responsible for the siting, permitting, environmental studies, design, quality control and construction of electric generating facilities. Also responsible for the design, major modifications and environmental monitoring and permitting for new and backfit projects for hydro and fossil power plants. Established a close involvement in the construction and quality control activities for the Summer Nuclear Station. Maintained a close liason and involvement in the engineering and operations development for the startup of the Summer Nuclear Station and supplied close construction support for the startup program. Maintained responsibility for engineering of piping systems and/or reconciling the as-built piping systems to the designed condition, including continued involvement in responses to IEB 79-02 and IEB 79-14. Member of the Summer Nuclear Station Safety Review Committee.
- 1982-Present - Vice President, Nuclear Operations. Responsible for the total nuclear program for S. C. Electric & Gas Company with respect to the Summer Nuclear Station. This includes environmental studies and monitoring programs, plant licensing, design and engineering, plant security, emergency planning, education and training, fuel services and plant startup, operations and maintenance.

PROFESSIONAL ORGANIZATIONS:

Member Southeastern Electric Exchange Construction Committee and the EEI Construction Committee

ASME

ISA (former member)

EEI Task Group on Availability Engineering

Member Southeastern Electric Exchange Quality Assurance Committee (former member and chairman)

EEI Quality Assurance Task Force (former member)

RESUMES

General Manager, Nuclear Operations

Appointee: William Alonzo Williams, Jr.

For Education: 1943 14 months University of Florida

1947 17 months University of Florida

1951 B.S. U. S. Naval Academy

1955 B.S. Nuclear Engineering, North Carolina State University

1956 M.S. Nuclear Engineering, North Carolina State University

Training: Various short courses in management, environmental affairs, and project control

Participated and presented papers in numerous national and international forums

Experience: 1951-1954 Installations officer, U. S. Air Force. Responsibilities included air base maintenance and repair, (roads and grounds, structures, runways) and utilities operations in Florida and Japan.

1954-1956 U. S. Air Force officer student at N. C. State University

1956-1958 U. S. Air Force officer assigned to the Corps of Engineers (Army Nuclear Power Program) at the Engineering Research and Development Laboratories, Ft. Belvoir, Va. Responsibilities included development of staffing and training program for non-propulsive nuclear power plants for the military services and participated in the final stages of construction and initial startup of the APPR-1 (SM-1) nuclear power plant.

1958-1960 U. S. Air Force officer assigned to the Office of Army Reactors, Hqtrs. U. S. Atomic Energy Commission. Responsibilities included project management of the PM-1, an air transportable, shop-fabricated nuclear power plant for remote locales (1500 kw capacity).

1960-1973 Career employee of the U. S. Atomic Energy Commission at its Hqtrs. in Germantown, Maryland. Initially assigned as projects officer in Water Reactors Branch, Division of Reactor Development with assignments of increasing responsibilities, including Chief of Project Control Branch and Chief of Desalting and Process Applications Branch. Responsibilities

RESUMES

- 1960-1973 (Continued) included technical management of nuclear power plant projects, R&D programs, and cooperative projects and programs with the utility industry. Additionally, participated in long range energy planning, Federal energy program development, international energy programs, economic forecasts of energy options, advanced siting concepts for power plants, and a wide range of planning, evaluation and environmental activities. As part of assigned responsibilities, had a continuing involvement with negotiations and contracting activities, budgeting, personnel, legal, and other non-technical operations. Work ranged from unclassified to highly classified activities. Contacts on a frequent basis included top management of industry and utilities, Congressional and Executive Branch officials and staff, State and local governments, foreign officials, and international agencies.
- 1973-1976 Technical Assistant to General Manager, S. C. Public Service Authority, Moncks Corner, S. C. Principal responsibilities included nuclear activities of the Authority, Chairman of Budget Review Committee, and advisor and assistant to the General Manager concerning a broad range of technical and management areas.
- 1976-1980 Senior staff member of South Carolina Public Service Authority, Moncks Corner, South Carolina, with positions of Executive Assistant until June 1977, and Vice President thereafter. Principal responsibilities included nuclear programs of the Authority, organization and system security, external financing, as well as a range of technical and management matters relative to utility operations and energy planning.
- 1980 General Manager, Nuclear Operations, South Carolina Electric and Gas Company, Virgil C. Summer Nuclear Station. Responsible for the effective and efficient management of all activities related to the 900 megawatt plants' checkout, start-up, operation, emergency planning and security consistent with Company policies and within NRC and other government regulations.

RESUMES

Manager, Nuclear Security

Appointee: Jerry P. Harrison

Formal Education: 1964 B. S. in Mechanical Engineering,
University of South Carolina

1976 M. S. in Management,
Duke University

Engineering Registrations: Registered Professional Engineer
in North Carolina & South Carolina

Training: No nuclear-related training

Organizational Affiliations: Nuclear Security Subcommittee of
Edison Electric Institute's
Security Committee - 4 years

SCE&G representative on Physical
Security Coordinating Group of KMC,
Inc., a Washington-based consulting
firm on nuclear security matters - 4
years

Experience: 1965-1969 Captain, U.S. Air Force. Served
as Minuteman Launch Officer Instructor.
Experience included classroom and
computer-controlled trainer instruction
and the complete design and implementa-
tion of a course to train Airborne
Launch Control Officers.

1969-1970 Heating and Cooling Engineer,
Carolina Power and Light Company
Provided technical support to local
architects and engineers concerning
heat losses/gains, duct layout,
equipment selection, etc. Developed
feasibility studies of annual heating
and cooling costs which compared
annual estimates using electricity,
natural gas, oil, etc.

1971-1972 Senior Staff Engineer, Carolina
Power and Light Company
Provided technical and administrative
support to manager of Technical
Services Department. Coordinated all
departmental budgeting, compiled
10-year projection of construction
expenditures, compiled various presenta-
tions for the Board of Directors,
coordinated Corporate responses related
to regulatory bodies, reliability
councils, surveys, etc.

RESUMES

- 1973 Administrative Assistant to the President, Carolina Power and Light Company
Supported Company President by coordinating details not requiring his personal attention, screening his mail and some of his telephone calls, gathering information as required, etc.
- 1974-1977 Principal Engineer - Staff, Carolina Power and Light Company
Supervised administrative unit of 3 to 6 people. Basic unit responsibilities were to coordinate inter- and intra-Group activities such as compiling construction and O&M budgets, compiling and issuing 10-year projection of construction expenditures, supporting the Executive Vice President's construction budget presentations to the Board of Directors, acting as liaison between CP&L and regulatory bodies, coordinating Corporate responses to requests/requirements related to reliability councils, prospectuses, regulatory agencies, misc. surveys, etc.
- 1977-1978 President and Treasurer, Palmetto State Personnel, Inc.
Founded this Company using personal resources. Accomplished/coordinated all incident details including license application, forms design, bookkeeping systems, office procedures, office location/layout, staffing, etc.
- 1978-Present Manager, Nuclear Security
South Carolina Electric and Gas Company
Developed and managed 120 man nuclear security organization responsible for security operations and the maintenance of all electro-mechanical security equipment from inception. Responsible for all organizational functions and needs including the staffing, training, and equipping of all security personnel and the development and implementation of all required specifications, plans, procedures, etc.

RESUMES

Accumulative work experience
before fuel loading:

Non-Power Plant (Utility) 9 years

Nuclear Power Plant 4 years

Total Credible Power
Plant Experience 4 years

(Total electric utility - 13 years)

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Coordinator, Emergency Planning

Appointee: Kenneth E. Beale

Formal Education: 1964 AAS Nuclear Electronics Engineering,
Old Dominion University

1968 2 weeks basic Radiological Health, Department
of Health, Education and Welfare, Rockville,
Maryland

1971 2 weeks Occupational Radiation Protection,
Department of Health, Education and Welfare,
Winchester, Massachusetts

1975 17 weeks Health Physics Training/Refresher,
Delware Valley Society for Radiation Safety,
Philadelphia, Pennsylvania

1977 1 week Health Physics in Radiation Accidents,
Oak Ridge Associated Universities and the
U. S. Energy Research and Development Administration,
Oak Ridge, Tennessee

Training: Badcock and Wilcox Training
Gamma Spectroscopy

Westinghouse Onsite Training

Experience: 1964-1965 Radiological Monitor at the Newport News Ship-
building and Dry Dock Company. Performed routine
radiation and contamination surveillance on nuclear
submarines during construction and overhaul.

1965-1967 Senior Health Physics Technician, Goddard Space
Flight Center. Directed the radiological
activities of the health physics technicians and
ensured the inventory and control and leak testing
of over 1,000 radioactive sources. Provided health
physics coverage at NASA launch sites for unmanned
space flights for payloads requiring the use of
radioactive sources.

1967-1973 Radiation Protection Engineer, General Public
Utilities, Saxton Nuclear Experimental Reactor.
Provided direction for all health physics activities
for plant operation and subsequent decommissioning
of the reactor site.

1973-1976 Health Physics Supervisor, Metropolitan Edison
Company, Three Mile Island Nuclear Station.
Responsible for implementing the health physics
program, which included the start-up and refueling
operations.

RESUMES

- 1967 Health Physics Supervisor, South Carolina Electric and Gas Company, Virgil C. Summer Nuclear Station. Responsible for implementing all health physics activities. Includes training and retraining of health physics personnel and all other plant personnel. Ensures that all liquid and gaseous effluents are released within the state and federal regulations, and the reports pertaining to these releases and other health physics activities are submitted to the appropriate agencies.
- 1980 January-September Emergency Coordinator, South Carolina Electric and Gas Company, Virgil C. Summer Nuclear Station. Responsible for the planning and coordination of emergency activities for the station. Develops, implements and maintains the emergency preparedness program for the station and offsite agencies.
- 1980 Coordinator, Emergency Planning, South Carolina Electric and Gas Company. Responsible for overall emergency preparedness related to the Virgil C. Summer Nuclear Station and the company. Develops and maintains emergency plans for the station and the company. Coordinates all emergency planning activities with offsite emergency organizations and agencies.

Accumulative work
experience before
fuel loading:

Fossil power plant	1 month
Nuclear power plant start-up	86 months
Nuclear power plant experience	177 months
Nuclear experience in non power plants	36 months
Total Creditable Power Plant	17 years, 9 months

RESUMES

Senior Engineer

Appointee:

Leland D. Shealy

Formal Education:

1963 B.S. Mechanical Engineering, University of South Carolina

1967 M.S. Mechanical Engineering, University of South Carolina

1969 Graduate level courses in Nuclear Power Reactor Design, Carnegie-Mellon University

1973 Continuing education course in Nuclear Fuel Management, Georgia Institute of Technology

1974 Continuing education course in Nuclear Power Safety, Georgia Institute of Technology

Training:

Westinghouse Training: Westinghouse Nuclear Training Center, Zion, Illinois

1. Fundamental nuclear reactor training (completed December 1974).
2. Operating PWR observation (completed April 1975).
3. Simulator training (completed June 1975).

Successfully completed Westinghouse certification for Senior Reactor Operators License, June 1975.

Westinghouse Onsite Training

Experience:

1963-1967 Evaluation engineer, fossil plant, assigned to evaluate power plant performance and recommend changes to improve efficiency of operations; developed several computer programs to improve the analysis and data handling for evaluating plant performance; also directed a test group which did code type performance tests on the various equipment in the plant.

1967-1968 Technical Support Engineer, CVTR experimental reactor, involved in plant operations, special testing, performance evaluations, and handling of failed fuel.

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- 1968 Project Engineer, fossil power plant, responsible for the evaluation and upgrading of pollution control equipment: responsible engineer on the installation and start-up of the first electrostatic precipitator in the Company's system.
- 1968-1969 Special one year assignment by SCE&G to Westinghouse Advanced Reactor Division in Waltz Mills, Pennsylvania; participated in conceptual design of 300 mw demonstration liquid metal fast breeder reactor plant. During this time reviewed the plant design and assisted in plant layout, thermal hydraulic design, and core structural design.
- 1969-1972 Project Manager on the engineering and construction of the only combined cycle power generation facility in the Company's system; this project utilized the exhaust heat from gas turbines to generate steam to power and oldest existing steam turbines on the Company's system. This modification improved the thermal efficiency of the plant from 19% to 27%.
- 1973-
October
1974 Operations Department, Virgil C. Summer Nuclear Station, responsible for reviewing and commenting on plant layout engineering specifications, and system design. Also involved in the evaluation and selection of equipment for the plant.
- October
1974-
June
1975 SRO training as outlined under Westinghouse training above.
- June
1975-
December
1978 Appointed Plant Manager of Virgil C. Summer Nuclear Station, responsible for staffing and training of personnel, preparation of operating information for licensing, start-up, operation, and maintenance of the plant.
- December
1978 Senior Engineer, was responsible for assisting the General Manager, Nuclear Operations, in carrying out his administrative duties. Participated in developing an agreement of settlement for the Westinghouse Fuel Contract Litigation and served as a member of the Company's TMI Review Committee. Has overall responsibility for the Technical Specifications of the V. C. Summer Nuclear Station. Overviews the technical activities of the Nuclear Operations Groups and makes recommendations, identifies problem areas, coordinates, and assist as a representative of the General Manager, Nuclear Operations, in their resolutions as necessary.

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Accumulative work
experience before
fuel loading:

Fossil power plant	8 years
Nuclear power plant CVTR	12 months
Nuclear power plant design	12 months
Nuclear power plant start-up Virgil C. Summer Nuclear Station	28 months
Nuclear power plant simulator training creditable as experience - 3 months experience for 1 month of training	6 months
Nuclear power plant - training creditable as experience (Carnegie- Mellon University, Georgia Institute of Technology - class- room study, SRO training less simulator, on site training.	12 months
Nuclear power plant experience at Virgil C. Summer Nuclear Station	65 months
Total Creditable Power Plant Experience	19 years, 3 months

TABLE 13.1-1 (Continued)

RESUMES

Administrative Assistant

Appointee: Carroll L. Ligon

Formal Education:

1949-51 Mechanical Engineering, Clemson University, Clemson, S. C.

1960 BS Degree, Military Science, University of Maryland,
College Park Maryland1966-67 MBA Degree, Business Administration, George Washington
University, Washington, D. C.

1969 IBM Computer Executive Course (2 weeks), St. Louis, Mo.

Training:

1952-53 Aviation Cadets, Undergraduate Pilot Training (13 months),
Foster Air Force Base, Victoria, Texas1954 Squadron Officers School (10 weeks), Maxwell Air Force Base,
Montgomery, Alabama1961 Air Force Supervisors School (6 weeks), Randolph Air Force
Base, San Antonio, Texas1965 Air Command & Staff School (by correspondence) Craig Air
Force Base, Selma, Alabama1968 IBM 1410 Programming Course (3 1/2 months), Keesler Air
Force Base, Biloxi, Mississippi1970-71 Air War College (10 months), Maxwell Air Force Base,
Montgomery, Alabama. (Also completed two graduate electives,
each lasting 5 months, Remote Computer Terminals, and Human
Relations)1973-74 South Carolina Electric and Gas Company Supervisory Development
Program, Phase 1, 2, & 3; Columbia, South Carolina

Experience:

1949-52 Duke Power Company, approximately 12 months of summer jobs
and jobs while waiting to enter pilot training. Jobs consisted
of utility, machine shop, and maintenance crews within the Duke
Hydro System.

1952-74 U. S. Air Force

1953-1960

Various Pilot Duties. Actively flew daily, including air defense, all weather, and pilot instructional upgrading flights. Flew approximately 4,000 flying hours, mostly in single engine fighters or jet trainers; however, accomplished approximately 300 hours in multi-engine aircraft, and currently hold a commercial multi-engine jet license with an instrument rating.

1960-1962

Assistant Flight Commander, Instructor Pilot. Assisted and supervised flight training for approximately 45 student officers and 15 instruction pilots. Scheduled daily flying training for the flight. Evaluated the flying training by testing both students and instructors. Flew with students who were having difficulties in the program. Counseled students concerning flying, other training, and personal problems.

1962-1965

Chief, Officer Training, additional duty as Wing Foreign Training Officer, pilot training base (360 students). Supervised teaching of officer training courses in pilot training. Reported directly to the ranking officer on the base concerning the training of foreign students from 15 different countries attending U. S. Pilot training. Assisted in developing new graduate level training courses to be taught at all USAF pilot training bases (approximately 200 classroom hours to be taught during the training year). Continued to counsel students having difficulties. Worked with the town's people, local, state, and Federal officials in developing a foreign training program which included activities built around the "American way of life." Program was so successful that it was presented as a model program to Mr. Katzenbach, Under Secretary of Defense, to be fully developed and approved as a standard foreign training program for all of the pilot training bases.

1967-1968

Chief, Current Operations, Headquarters, 35 Tactical Fighter Wing, Vietnam. Supervised the unit responsible for scheduling and coordinating approximately 70 combat aircraft per day for 3 fighter squadrons (24 aircraft each), 1 bomber squadron, and the No. 2 Royal Australian Squadron. Required close coordination of higher headquarters, the maintenance, munitions, and flying units. Flew over 200 combat missions in addition to supervising the above operation. Flew with all units to gain understanding of their unique problems. Wrote instructions for aircraft units who were directing Australian aircraft in target areas. Designed chart system to gauge accurately the future utilization and expenditure of available combat resources.

1968-1970

Chief, Automation Division, Headquarters, Air Force Communications Service. Supervised 38 personnel of the Command & Control Computer Center. Center provided IBM 1410 operation, software development, and computer operational printouts distribution to all of the headquarters staff. The purpose was to possess a quick response from a worldwide reporting system. Directed development of a worldwide readiness reporting system to improve the reliability and availability of communications

and flight navigational aids. Developed more complete in-house procedures for better control of workloads and projects along with procedures to improve accuracy and timeliness of automated reports. Coordinated and implemented a time-sharing program with the Military Airlift Command to improve their worldwide operation.

1971-1974

Acting Chief, Force Operations Branch, Headquarters, U. S. Readiness Command. Acted as Chief or as Action Officer during the period. Supervised the workload of the branch who monitored and analyzed the personnel, equipment, and training readiness of major U. S. Army and Air Force units located in the Continental United States. The command's task was to furnish the necessary manpower and equipment resources to other parts of the world during a crisis - for example, new unit support to Vietnam and aircraft support to Israel; humanitarian efforts to Nicaragua, Iceland, and Africa. Coordinated joint efforts of both the U. S. Army and the U. S. Air Force. Made operational decisions for Commander in Chief of the Command while acting as the Team Chief of the Crisis Management Team. This team was activated during periods of crisis or contingencies with representatives from all the staffs. Made study of the Joint Operations Division; recommendations resulted in reorganization of the division involving other units outside of the division.

9/74 - 11/78

South Carolina Electric and Gas Company, V. C. Summer Nuclear Site - Warehouse and Document Supervisor. Responsible for the receipt, storage, and issue of all safety and non-safety materials/equipment utilized to build the V. C. Summer Nuclear Plant. Responsible for the receipt, storage, indexing, control and distribution of all QA design, construction, historical records and drawings required by U. S. Government regulations and for the convenience of construction personnel. Also responsible for the reproduction effort to support all nuclear site personnel. Manpower, equipment, systems and inside and outside work areas were requisitioned and developed to support the above responsibilities. Especially noteworthy was a microfilm/mini-computer system to store and retrieve QA records which was conceived, designed, developed and implemented over the four year period under the Warehouse and Document Supervisor's direct supervision. Control of this system will at a later date be turned over from the QC Manager, Construction, to the Manager, V. C. Summer Nuclear Station. Also noteworthy was a reorganization integrating the SCE&G Document Section (Vault Area) and the Reproduction Section with the Daniel Construction Company Master File and Distribution Sections. To expedite coordination and paper flow among the Sections, the Warehouse and Document Supervisor implemented the reorganization under one head and streamlined procedures for document handling, reproduction and control.

11/78 - Present

Same Employer, Administrative Supervisor, V. C. Summer Nuclear Station.

Responsible for administrative, training, and quality control activities required to support the Plant Manager and his staff in safely maintaining and operating the nuclear plant. In addition, accumulating, storing and retrieving Quality Assurance records related to the design, manufacture, construction, repair and operations activities of the nuclear power plant; community liaison activities are also major responsibilities of this position.

Accumulative
Work Experience
before Fuel
Loading:

Hydro Power Plant 12 months

Nuclear Power Plant Construction 50 months

Warehousing; document storing,
retrieving, reproduction, distributing
and controlling.

Nuclear Power experience at V. C. 20 months

Summer Nuclear Station (Adminis-
tration) before fuel loading.

Total creditable power plant 6 years
experience 10 months

DAN ALLEN NAUMAN

SUMMARY:

Over ten years managerial experience related to commercial nuclear power plant design, construction, operation, quality assurance, security and nuclear fuel management. Broad experience in mechanical design, operating, servicing and surveillance engineering involving diesel, steam turbine, gas turbine and nuclear stationary and propulsion plants and auxiliaries. Experience in nuclear fuel management related to new design and optimized utilization. Practical experience in application of quality control methods, testing and personnel qualification. Registered Professional Engineer in the state of California.

EDUCATION:

U. S. Coast Guard Academy
B. S. Naval Engineering (with honors) - 1963
U. S. C. G. Merchant Marine Inspection School - 1967
University of Pittsburgh
Post-graduate study in Metallurgy - 1969
Post-graduate study in Business Administration - 1969-1972
University of South Carolina Executive Development Program - 1979

EXPERIENCE:

1976-Present	South Carolina Electric & Gas Company
1981-Present	Group Manager, Nuclear Services - Responsible for all aspects of nuclear quality assurance, nuclear fuel management, and nuclear quality control. Supervise the ongoing development of these areas through the Manager, Quality Assurance; the Manager, Nuclear Fuel Management; and the Manager, Nuclear Quality Control. Nuclear Fuel Management includes the aspects of design and evaluation of new fuel designs for future reloads, and optimizing fuel movement such that maximum energy output is obtained. Included are responsibilities for ARMP computer model development and liaison with station reactor engineers measuring day to day core performance. Nuclear Quality Control includes all aspects of operational quality control inspection including major modifications and outages.
1978-1980	Group Manager of Quality Assurance and Security - In addition to the responsibilities indicated for quality assurance below, managed the development of both nuclear and conventional security systems within the Company. Developed the organization to not only operate, but design, install and maintain diverse security systems. The operational programs ranged from those related to nuclear fuel diversion and sabotage with risk to the public; to those concerned with protection of Company personnel and property.
1976-1978	Manager of Quality Assurance - Responsible for all aspects of design, development, implementation, surveillance and audit of quality assurance programs within the Company. Accountable for ensuring that all of nuclear safety related structures, systems and components for nuclear power plants are designed, fabricated, erected, tested, and operated according to engineering specifications and regulatory requirements.
1972-1976	Gilbert Associates, Inc.

1973-1976 Quality Assurance Program Manager - Responsible for the development and implementation of the quality assurance system for the design, manufacture and installation of a 2775 Mwt nuclear power generation plant. Included are quality aspects of specification generation, procurement control, vendor surveillance and design control audits for balance of plant systems, audits of the nuclear steam system supplier and associated vendors.

1972-1973 Quality Assurance Mechanical Engineer - Review and evaluation of specifications, proposals, procurement documents and drawings, performance of vendor evaluation surveys and analysis, review and evaluation of methods of manufacturing, nondestructive testing and inspection within the quality assurance program. Performance of general design and nuclear steam supply system audits.

1968-1972 Westinghouse-Bettis Atomic Power Laboratory, West Mifflin, PA

1970-1972 Senior Mechanical Engineer - Performed feasibility study and conceptual design of fueling/refueling system for an advance submarine reactor.

1968-1970 Mechanical Engineer - Design of, and specification preparation for, fueling/refueling systems required for new class aircraft carrier and associate prototype plant installation at Naval Reactors Facility, Idaho. Included equipment design and preparation of specifications, system descriptions and servicing operational procedures.

1963-1968 U. S. Coast Guard

1967-1968 Merchant Marine Inspector during all phases of construction and testing of commercial marine vessels. Inspection consisted of general surveillance, radiographic examination of weldments, ultrasonic gaging and examination, P.T. and magnetic particle examination, materials testing and certification, welder qualification and vessel start-up and operational testing.

1963-1968 Sea Duty - Qualified engineering watch officer and assistant engineering officer. Qualified deck watch officer.

MEMBERSHIP IN COMMUNITY, CIVIC, AND PROFESSIONAL ORGANIZATIONS

Registered Professional Engineer
Member of Edison Electric Institute QA Committee
Member and past Vice Chairman Southeastern Electric Exchange QA Committee
Member of Atomic Industrial Forum Committee on Design, Construction & Operation
Member of American Society for Quality Control
Member of Columbia Chapter of the American Nuclear Society
Member of Quail Valley Civic Organization

DAVID R. MOORE

Manager of Quality Assurance

Fifteen years experience in the field of QA/QC in Engineering, Supervisory and Management capacities. Experience in nuclear and nonnuclear QA program development and implementation including quality planning from review of specifications through incorporation of requirements into manufacturing and construction stages. Experience includes the development of programs and systems, inspection techniques and inspection tools to implement quality program requirements in the manufacture and construction of nuclear power plants and components. Experience in monitoring and auditing nuclear and nonnuclear QA programs. Qualified Lead Auditor. Experience also includes four years experience as QA Program Manager for QA consultant to SCE&G and Ohio Edison Company for their nuclear power plants. Associated with the V. C. Summer Nuclear Station since 1974.

EXPERIENCE: SCE&G since 1978

1980 - present Manager of Quality Assurance - Responsible for total SCE&G/QA function.

1979 - 1980 Director Surveillance Systems (QA) - Responsible for surveillance function within SCE&G/QA.

1978 - 1979 Senior Engineer (QA) - Responsible for implementing the SCE&G/QA functions.

Gilbert/Commonwealth since 1974

1977 - 1978 Quality Assurance Program Manager - Responsible for QA Program Consultation for Ohio Edison Co., Erie Nuclear Units 1 and 2.

1976 - 1977 Quality Assurance Program Manager - Responsible for Consultation to develop and execute QA Systems for SCE&G.

1975 - 1976 Quality Assurance Engineer - Mechanical - Assigned V. C. Summer Nuclear Station Project.

1974 - 1975 Quality Assurance Engineer - Mechanical - Not project assigned.

1971 - 1974 Westinghouse Electro-Mechanical Division, Cheswick, Pa.
Quality Assurance Engineer - Responsible for Nuclear Shop orders for R. C. Pumps, valves and CRDM's.

1967 - 1971 Townsend Company, Ellwood City, Pa.
Quality Control Engineer and Inspection Supervisor - Responsible for directing inspection department and physical testing lab.

DAVID R. MOORE (Cont'd.)

1965 - 1967 Armco Steel Corporation, Ambridge, Pa.
Engineering Assistant - Responsible for layout and
detailed equipment design and modification.

EDUCATION: B.S. Mechanical Engineering, Carnegie Mellon University,
1971

REGISTRATION: Professional Mechanical Engineer - Pennsylvania (1971)
Professional Quality Engineer - California (1976)
Professional Engineer - South Carolina (1978)
Southeastern Electric Exchange QA Committee Member

DOUGLAS C. WARNER

SUMMARY:

Broad technical background in areas of nuclear power plant design and operation, radioactive waste transportation and disposal, transient analysis, incore nuclear analysis, decommissioning and reload core design. Experienced corporate spokesperson.

EDUCATION:

B. S. Nuclear Engineering - 1967-1972
University of Tennessee

M. S. Nuclear Engineering - 1972-1976
University of Tennessee

EXPERIENCE:

1976-Present

South Carolina Electric & Gas Company

1980-Present

Manager, Nuclear Fuel Management, Nuclear Services Department - Responsible for all aspects of nuclear fuel and its utilization. These activities include uranium procurement, conversion, enrichment, fabrication, fuel economics, incore nuclear analysis, reload design, off-site review of reactor engineering procedures and practices, fuel-related design changes, special material accountability, spent fuel management, potential reprocessing and high-level waste disposal options.

1977-1980

Nuclear Engineer and Administrative Assistant, Nuclear Operations Department - This position was involved in preliminary nuclear fuel management activities, decommissioning rulemaking and plant specific studies, corporate representation related to South Carolina Radioactive Waste Transportation and Disposal legislation, transient analysis training (RETRAN), emergency planning and extensive public communications interactions.

1976-1977

Nuclear Engineering, Production Engineering Department - Responsible for engineering design evaluation and review of nuclear steam supply system and balance of plant components of the V. C. Summer Nuclear Station. Other areas of responsibility included engineering support to Nuclear Operations, nuclear fuel planning, accident analysis review and licensing assistance.

1975-1976

Research Assistant - Worked on research related to in situ thermocouple response time verification for the Electric Power Research Institute

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS:

Member of Edison Electric Institute Nuclear Fuels Committee
Member of Southeast Utilities Nuclear Fuel Management Group
Member of Columbia Chapter of the American Nuclear Society
Member of Electric Power Research Institute Advanced Recycle Methodology
Users Group

CONTINUING EDUCATION

Back End of the Light Water Reactor Fuel Cycle - March 19-23, 1978
Computer Applications for the Nuclear Utility - September 5-9, 1978
Basic RETRAN Code Workshop - April 30-May 4, 1979
Nuclear Power & Adversary Confrontation - June 10-June 14, 1979
State Workshop on Facility Decommissioning - September 11-13, 1979
Power Shape Monitoring System Workshop - September 27, 1979
Plant Specific Reload Methodology Training by Science Applications Incorporated -
Begun March 1981
DOE Workshop on Spent Fuel Storage Technologies - May 19-20, 1981
Quality in Nuclear Fuel Design - November 16-18, 1981

May 4, 1982

BIOGRAPHICAL DATA

Abney A. Smith, Jr.
2209 Quail Hollow Court
West Columbia, SC 29169

Residence Phone: 794-0777
Business Phone: 748-3689

Personal Background

Born in Charleston, South Carolina, December 14, 1943. Lived in North Charleston, South Carolina until 1962. Married to the former Mary Belle Davis of Clinton, South Carolina. Two daughters - Angela age 11, Emily age 6.

Educational Background

Graduated from North Charleston High School in 1961. Was Student Council Secretary (1959), Vice President (1960) and President (1961). Lettered in tennis and captain of tennis team in 1960 and 1961. Delegate to Boys' State in 1960. Received North Charleston High School Hall of Fame award in 1961. Furman Scholar candidate in 1961. Received full academic scholarship to College of Charleston in 1961. Member of Glee Club, Drama Guild, Hi-Y and National Honor Society 1959-1961.

Attended College of Charleston in September-December, 1962. Member of Pi Kappa Phi Fraternity.

Attended Sullivan School (Preparatory) Washington, D.C. in January - April, 1963.

Graduated from United States Military Academy, West Point, New York in 1966 with a Bachelor of Science Degree. Attained rank of cadet captain. Served as company commander. School intramural tennis and squash champion. Intramural "Most Valuable" Award 1964 and 1965.

Completed following Army Schools: Airborne (1966), Ranger (1967), Vietnamese Language (1967), Military Advisor (1967), Military Instruction - Ft. Benning Infantry School (1969).

University of South Carolina - B.S. in Civil Engineering. Completion in July, 1978.

Work Experience

Life guard at community swimming pool and taught swimming instruction in summer of 1959 and 1960. Worked in father's business (parts department) during the summer of 1961.

June 1966 - June 1970

Served in U.S. Army-Infantry branch. Attained rank of Captain. Served one year of combat in Vietnam in 1967-1968. Advisor to Vietnamese Ranger Battalion in III Corps area. Advisor team leader (4 man team) in 1968 (Decorations and medals include Combat Infantry man's Badge, Vietnamese Ranger Badge, Vietnamese Honor Medal, Vietnamese Service Metal, Bronze Star, Army Commendation Medal

with one cluster, Airborne wings, Ranger tab). Served at Ft. Jackson, SC as committee leader of patrolling and escape and evasion techniques and as advanced infantry training company commander. Served at Ft. Benning, GA as committee leader of rifle platoon tactics live fire range.

June 1970 - January 1973

Smith Industrial Equipment Company - Sales and Managerial work in family heavy construction equipment dealership. Organized system for coordinating shop work, parts ordering and distribution, and sales territory assignments. Supervised personnel in charge of each department to include office, sales, shop, parts. Reviewed and approved all expenditures and monitored monthly financial statement. Closed out financial transactions for equipment sales (Equipment consisted of dozers, backhoe, and frontend loaders ranging from approximately \$12,000 each to \$80,000 each). Attained position of Vice President.

January 1973 - July 1978

South Carolina Electric & Gas Company - QA Analyst (1973 to August 1976), Quality Engineering Specialist (August 1976 to January 1978), Office Supervisor (August 1976 to January 1978). Participation in QA activities involved in nuclear contracts, to include bidder and proposal evaluation, preaward post award survey, procedure review, surveillances (hardware inspection and system evaluation) and audits. Specific contracts handled in entirety included B. L. Montague, Florida Steel, Lone Star Industries, Giant Portland Cement, Becker Sand and Gravel, Nelson Stud and Unistrut. Also, coordinated QA agent activities for other nuclear contracts. Reviewed design documents, primarily in the civil - structural discipline, and design changes and nonconforming conditions affecting the criteria specified in these documents. Reviewed on Site contracted QA programs and monitored the initial on Site contractor work prior to the Site QA staff being assigned. Also, reviewed SCE&G/QC procedures and monitored initial on Site QC work primarily in the areas of soils, reinforcing steel, and concrete. Also reviewed North dam subsurface grouting contractor's QA Program and monitored subject work. Organized initial system for Site QA Surveillances and initially coordinated QA activities with Site personnel. Performed audits of Agents and Groups with SCE&G involved in nuclear safety related activities. Specific areas audited in the past include GAI/PER design control program, GAI/QAD activities for SCE&G, GAI/Woodward Clyde/Dames & Moore Resident Engineer program, SCE&G Nuclear Engineering group, Daniels Construction Company (Site and Corporate), SCE&G/QC group. Reviewed vendor, contractor, agent and internal group procedures and other QA documents for compliance with regulatory requirements, SAR requirements and other QA Program requirements. Wrote instructions and procedures for implementing the SCE&G/QA Program. Coordinated schedule for annual review of SCE&G/QA procedures and plans. Maintained status of SCE&G/QA audits and vendor surveillances and coordinated schedule of audits each quarter.

Set up system for maintaining audit status and tracking items needing resolution and verification. Supervised general office work to include typing and handling and filing of correspondence. Organized filing system to include receipt, logging, distributing and filing of correspondence in such a manner that complete

control and traceability are maintained. Set up a system for tracking response required of SCE&G/QA and required of other group organizations to SCE&G/QA and for following up to assure that responses are made. Supervised activities of clerical personnel.

January 1978 - 1980

Construction Site QA Coordinator/Operations QA Supervisor. Responsible for the coordination and supervision of all on station SCE&G QA activity related to the construction, turnover, initial startup, testing and operations QA program initiation for the V. C. Summer Nuclear Station. The responsibilities herein necessitated the direction of 2 Quality Engineers, 9 surveillance specialists and 2 clerical support personnel to achieve maximum coverage of all safety related work activity. The primary station QA activities included Types I and II surveillances, procedure reviews, procurement requisition reviews and nonconformance and design document reviews.

1980 - October 1981

Director, Surveillance Systems. Responsible for the direction of all SCE&G Quality Assurance activities related to the surveillance of construction, turnover, initial startup, testing, operations and manufacturing for the V.C. Summer Nuclear Station. Surveillance systems include those techniques developed to monitor and evaluate processes or activities in the areas above. The responsibilities herein necessitated the management of ten permanently assigned Surveillance Specialists and other Engineers and Specialists within the SCE&G/QA organization and from qualified Agents. Responsibility also included the direction of QA procedure reviews, procurement requisition reviews and nonconformance and design document reviews on station. In management of the Surveillance Systems, budgetary control considerations were necessary to adapt to schedules of the construction/operation/manufacturing activities.

November 1981 - present

Manager, Nuclear Quality Control. Responsible for the development of quality control methods, programs and procedures within the Nuclear Operations Department to increase and enhance plant availability and ensure public safety and confidence. Also, responsible for the implementation of all aspects of the SCE&G Nuclear Quality Control Program. Additional responsibilities include long term planning for the ASME owners authorization, "N" stamps and managing the nondestructive examination portion of the Inservice Inspection Program. These responsibilities necessitate the management of two Nuclear QC Directors, three lead/supervisory inspectors, thirteen discipline inspectors, one clerical support personnel and agent/contract inspection personnel to support the inspection services required.

Membership in Community, Civic and Professional Organizations

1970-1972 Member of North Charleston Rotary Club. Served on Board of Directors

1970-1973 Member of Hibernian Society of Charleston

1972 Served as President of North Charleston Citizens' Scholarship Foundation

1970-1973 Member of South Carolina Equipment Dealers' Association

1966-Present Member of Association of Graduates, USMA

Former Member of North Charleston United Methodist Church

Taught 9th grade Sunday School and Member of Administrative Board

Presently, member of Mt. Hebron United Methodist Church. Ninth and tenth grade Sunday School Teacher. Serve on Scholarship Committee.

1974 - Present Quail Hollow Community Association - Social Committee
Past member of QHCA Board

1978 Registered as an Engineer in Training in South Carolina

1981 - Present Lexington County Zoning Board - Vice Chairman

BIOGRAPHICAL SKETCH
HAROLD T. BABB

I. PERSONAL

Place of Birth - Georgia
Date of Birth - January 26, 1930
Age - 52

Present Address - 341 Tram Road
Columbia, South Carolina 29210

II. EDUCATION

College - North Georgia College
Graduated - 1950, Bachelor of Science in Physics
- USC - Executive Development Program - 1977

III. EXPERIENCE

1. Four years service in United States Army. Discharged with rank of Captain. Decorations included Bronze Star, two Purple Hearts, seven Battle Stars.
2. Six years experience with E.I. duPont de Nemours and Company, Aiken, South Carolina, in Nuclear and related Instrument and Automatic Control Engineering.
3. Two years experience in teaching evening courses in electronics at Southern Methodist College, Aiken, South Carolina.
4. Joined Carolinas-Virginia Nuclear Power Associates, Inc., in September, 1960, participated in design of the plant, organized and supervised Instrument and Electrical Maintenance Section. Technical Support Supervisor May, 1963; Company Manager, October, 1963; responsible for Company Management. Elected President of CVNPA in 1969.
5. Director of Power Resources for South Carolina Electric & Gas Company, 1967.
6. Managing Director, Nuclear Project-Design & Engineering, 1971.
7. General Manager-Production Engineering, April 1, 1975.
8. General Manager-Nuclear Operations and System Planning, December 1, 1977.
9. Executive Assistant to Vice President and Group Executive, Nuclear Operations, November 1980
10. Group Manager Nuclear Education and Training, September 1981.

May 5, 1982

IV. PROFESSIONAL AND SOCIAL ACTIVITIES

1. Member of the American Nuclear Society. Past Director of Reactor Operations Division.
2. Presented several papers to both local and national technical society meetings.
3. Co-authored article published in "Nucleonics".
4. Amateur Radio License.
5. Member of South Carolina Water Resources Commission.
6. Member of Reactor Staffing Standards Committee (ANS-3), American Nuclear Society.
7. Listed in Who's Who in the South and Southwest.
8. Nuclear Advisory Committee for Aiken Technical Education Center.
9. Nuclear Engineering Technology Advisory Committee for Midland Technical Education Center.
10. Member of Atomic Industrial Forum.
11. Member of the Instrument Society of America.
12. Past Chairman Edison Electric Institute Nuclear Plant Design and Operating Task Force.
13. Past Member Water Research Institute - Clemson University.

MICHAEL B. WILLIAMS
MANAGER, NUCLEAR OPERATIONS EDUCATION & TRAINING

EDUCATION:

M.A. Degree in Business Management, Central Michigan University
B.A. Degree in Biology, Coker College

LICENSES:

USNRC Senior Reactor Operator SOP-1927 (H.B. Robinson Plant)
USNRC Reactor Operator OP-3060 (H.B. Robinson Plant)

EXPERIENCE:

South Carolina Electric & Gas Company, 1981 - present
Carolina Power & Light Company, 1978 - 1981
NUS Corporation, 1978
Carolina Power & Light Company, 1971 - 1978
U.S. Navy, Nuclear Power Program, 1963 - 1971

SOUTH CAROLINA ELECTRIC & GAS COMPANY: As Manager, Nuclear Operations Education and Training, responsible for development and implementation of training and education programs for operations personnel associated with the V.C. Summer Nuclear Station. Personnel to be trained include station, corporate office staff, and contractors. Responsible for procurement and operation of a full scope simulator duplicating the station (3 loop, 2775 MW thermal, Westinghouse design) control room.

CAROLINA POWER & LIGHT CO. - As Director, Nuclear & Simulator Training, responsible for providing effective nuclear plant operator training in conformance with applicable regulatory requirements and plant needs to ensure the availability of the large numbers of skilled personnel necessary for the safe and efficient operation of the Company's nuclear generating plants. Responsible for the efficient operation of the Shearon Harris Nuclear Power Plant Simulator (PWR) including provision of modifications as required; procurement of the Brunswick Unit 2 Simulator (BWR) and development of training programs for each. As Principal Quality Assurance Specialist, responsible for managing the Nuclear Plant Surveillance Program at the Company's operating nuclear generating plants, H. B. Robinson Unit 2 (PWR) and Brunswick Unit 1 and Unit 2 (BWR). Provided surveillance programs to determine the adequacy

of approved plant procedures and practices, the degree of implementation and the quality of work being accomplished.

NUS CORPORATION - Responsible as Manager, Production Training Services Department, for the development and conduct of all training services for nuclear and fossil electric utility and industrial clients. These programs include NUS generic programs or special programs, conducted at NUS or on-site. Responsible for providing services to utility clients including consulting, personnel selection, testing, audit examinations, and program evaluations. Responsible for furnishing on-site individuals to administer client programs, including the development of client training and related materials. Responsible for providing services related to the use of power plant simulators and trainers.

CAROLINA POWER & LIGHT CO. - As Project Administrative Specialist, responsible for supervising nuclear and fossil Generation Department administration including finance and cost control; non-fiscal administration including personnel selection and administrative procedures development; contract administration; and implementation of the Nuclear Plant Reliability Data Program (NPRD) at three operating and four nuclear units under construction. As Senior Scientist, responsibilities included administration of NRC type "Audit Exams," development of training programs for fossil and nuclear plant applications. As member of the nuclear plant simulator procurement team, conducted design reviews and acceptance test procedure development. As Shift Foreman at H. B. Robinson Plant, supervised operating shifts as combined fossil/nuclear station, licensed by NRC as SRO and RO on Westinghouse Pressurized Water Reactor. Taught "Hot License" and regualification training courses at Robinson Plant. As Control Operator and Auxiliary Operator was assigned responsibilities on both fossil and nuclear units.

U. S. NAVY - Engineering assignments to new construction and operational fleet ballistic missile and attack nuclear submarines.

MICHAEL B. WILLIAMS

Manager, Nuclear Operations Education and Training

Page 3

CURRENT MEMBERSHIPS - Industry Review Group for Training and

Education Division, Institute of Nuclear Power Operations.

Advisory Committee for Nuclear Technology Degree Program, Aiken
Technical College.

NAME: B. Tyndall Estes, Jr.

POSITION: Administrative Assistant to the Group Manager,
Nuclear Education and Training

FORMAL EDUCATION: Clemson University, 1966-1970, B. S. in
Mechanical Engineering
International Correspondence School, 1973,
Stationary Steam Engineering
Westinghouse Nuclear Training Center, 1974-1975,
Senior Reactor Operator Certification.

REGISTRATION: Registered Professional Engineer, South
Carolina, #6512, 1977

Reactor Operator License, U. S. Nuclear
Regulatory Commission, OP-5834, 1982

EXPERIENCE:

12/81 - Present Administrative Assistant to the Group Manager,
Nuclear Education and Training, South Carolina
Electric & Gas Company. Responsible for
coordination and evaluation of input from
the operations and training groups in the
development of the V. C. Summer Simulator con-
tracted from Westinghouse to be used as an
integral part of the Nuclear Operations
training programs. Assist in the development
and maintenance of the Nuclear Education and
Training Manual and training budgets, in the
interpretation of applicable regulations and
standards, and in the Management of the Nuclear
Training Center facilities. Additionally,
at the direction of the Group Manager, will
assist in the review, evaluation, and audit of
operating and technical training programs,
instructor certification program, and training
records.

5/81 - 11/81 Simulator Project/Plant Coordinator, South
Carolina Electric & Gas Company. Responsible
for operations and training input concerning
the V. C. Summer Simulator contract, design, and
acceptance testing.

EXPERIENCE:

3/78 - 4/81

Nuclear Training Coordinator, South Carolina Electric & Gas Company. Managed a training staff of twelve persons. Responsible for the Cold/Hot License groups for initial plant licenses, development of general employee training, emergency plan training, and fire brigade training. Also responsible for personnel qualification and training records and training budgets. Taught primary, secondary, and control systems; gave system qualification audits and approved tests. Assisted in the development of technician training programs; also assisted in other administrative duties, such as negotiation of the simulator technical description, layout and preliminary specifications for the training center, development of a veterans benefit program for license training, presentations to the Nuclear Regulatory Commission, and lectures on Nuclear Power Operations.

7/75 - 2/78

Nuclear Operations Engineer, South Carolina Electric and Gas Company. Review technical information pertaining to systems in the V. C. Summer Nuclear Plant. Write operations and administrative procedures; wrote the "Training" section, Chapter 13.2 of the Final Safety Analysis Report. Taught classroom lectures on plant systems. Worked in the plant startup group.

10/74 - 6/75

Nuclear Operations Engineer, South Carolina Electric & Gas Company. Attended the Westinghouse Nuclear Operations school for instruction in nuclear theory, nuclear systems, and operations of a simulated control board. Passed an examination of sixteen hours written and five hours oral and operations to obtain a Senior Reactor Operator certification.

2/71 - 9/74

Results Engineer, South Carolina Electric and Gas Company. Supervised four personnel--two laboratory technicians, a results technician, and a clerk. Conducted equipment performance tests, managed plant water treatment equipment, inspected water and fuel analysis data and operating logs, recommended maintenance or modification for equipment and coordinated maintenance in water treatment. Supervised the chemical cleaning of fossil fuel boilers.

SUMMARY OF QUALIFICATIONS

Samuel R. Ross
R. W. Beck and Associates
P. O. Box 50232
Indianapolis, Indiana 46250

WORK EXPERIENCE

Public Service Company of Colorado - 1957-1961

Responsible for performance calculations, plant tests, and control system maintenance for electric generating stations.

Temporary Assignment with General Atomic, San Diego - 1961-1963

Participated in design of high temperature gas-cooled nuclear power reactor systems.

Participated in reactor pressure vessel design.

Assisted with flow model tests.

Assisted with digital and analog computer studies in fields of heat transfer and fluid mechanics.

Participated in design of systems and components for power plant steam cycle.

Assisted with neutron diffusion analysis of reactor cores on IBM 7090 computer.

Public Service Company of Colorado - 1963-1978

Responsible for coordinating preparation and submission of licensing documents for a nuclear power station, including Safety Analysis Reports, Environmental Reports and Permit to Discharge.

Liaison with AEC, EPA, State Department of Health, and other Federal, State, and local agencies, including numerous meetings with AEC Division of Reactor Licensing in Washington.

Responsible for site selection and preliminary site investigations for a nuclear power reactor, including administration of studies of demography, meteorology, seismology, hydrology, environmental radiation surveillance, aquatic biota and ecology.

Responsible for observing and evaluating start-up and initial operation of Peach Bottom Atomic Power Station.

Coordinated presentation by University faculty members of course in nuclear engineering fundamentals to Company personnel.

Participated in nuclear speakers bureau.

Staff support for nuclear project administration.

Administration of environmental monitoring programs for a nuclear reactor.

Responsible for nuclear fuel cycle technology and analysis.

Participated with consultant in quality assurance audit of nuclear fuel manufacturing facility operations.

Member and Technical Secretary of Nuclear Facility Safety Committee for review and audit of plant operations for the Fort St. Vrain Nuclear Generating Station.

Member of utility industry Gas Cooled Fast Reactor Program Review Committee and Helium Breeder Associates Program Management Committee.

Served as working group member, Edison Electric Institute Reactor Assessment Panel.

Member of Edison Electric Institute Nuclear Fuels Committee.

Served as member of State and utility industry committees on radiological health, including Member of Radiation Safety Task Force of the Accident Prevention Committee of the Edison Electric Institute.

Served as member of utility industry committee on seismic siting criteria.

Served as member of ANS Standards committee for radioactive gas waste system.

Responsible for long range planning of Denver Steam Heat System.

Performed economic feasibility studies of alternate sources of electric generation, including small hydroelectric and byproduct fuels.

Responsible for electric system planning activities related to future power generation, particularly nuclear generation.

Responsible for special studies related to power generation.

Responsible for studies of electric system generation costs and consequences of load management.

Responsible for evaluations of alternate sources of power generation.

R. W. Beck and Associates - 1978 to Present

Performance of power supply studies for municipal power systems.

Preparation of Engineer's Report in conjunction with financing of participation by a municipal power agency in a coal-fired generating station.

Coordination of calculations of estimated damages for anti-trust litigation.

Responsible for market potential and cost recovery aspects for a study of an independent spent nuclear fuel storage facility.

Prepared testimony regarding classification of nuclear plant systems as pollution control facilities.

Associated with the Safety Review and Audit Board for the Nebraska Public Power District Cooper Nuclear Station.

Member of the Advisory Council to the Institute of Nuclear Power Operations.

EMPLOYMENT

Principal Engineer, R. W. Beck and Associates, 1980 to present.

Supervising Engineer, R. W. Beck and Associates, 1978 to 1980.

Supervisor, System Planning, Public Service Company of Colorado, 1973 to 1978.

Research & Development Engineer, Public Service Company of Colorado, 1968 to 1973.

Staff Engineer to Assistant Vice-President of Engineering, Public Service Company of Colorado, 1963 to 1968.

Special Assignment, Nuclear Design Engineering, General Atomic, San Diego, 1961 to 1963.

Results Engineer, Power Production Department, Public Service Company of Colorado, 1956 to 1961.

Line Officer, U. S. Naval Reserve, Active Duty 1954 to 1956.

EDUCATION

Purdue University, B. S. Mechanical Engineering, 1954.

Postgraduate Studies: Mechanical Engineering and Business;
University of Colorado Denver Center
San Diego State College

Colorado State University, graduate program in Fundamentals of Nuclear Engineering.

The P. U. R. Guide, public utility management course.

PROFESSIONAL AFFILIATIONS

American Nuclear Society

Chairman, Reactor Operations Division, 1979-1980;

Vice Chairman, Reactor Operations Division, 1978-1979;

Secretary, Reactor Operations Division, 1977-1978;

Executive Committee, Reactor Operations Division, 1974-1977;

Candidate for Society Board of Directors, 1975;

General Chairman, Conference on Reactor Operating Experience, Denver, 1971;

Chairman, Colorado Section, 1970-1971.

Member, American Society of Mechanical Engineers

Registered Professional Engineer, Colorado, Indiana, Michigan.

ATTACHMENT 2

13.1.1.2.1 South Carolina Electric and Gas Company
Corporate Management

29 | The SCE&G corporate organization for handling all matters pertaining to the Virgil C. Summer Nuclear Station, including design, procurement, construction, quality assurance, testing, training, and operation, is shown in Figure 13.1-3. The departments primarily involved with plant activities and their relationships are described below.

31 | The Vice-President and Group Executive, Engineering and Construction, is
21 | responsible for the construction of power facilities of the Applicant.
The Engineering and Construction Department is separated into the Pro-
duction Engineering Department and the Construction ^{and Quality Control.} Department ~~and is each~~
headed by ^a ~~the~~ Group Manager, ~~Production Engineering, QC, and Construc-~~
~~tion.~~ ^{and the Group Manager} The Group Manager, Production Engineering ~~A QC, and Construction and Quality~~
Control report ~~x~~ directly to the Vice-President and Group Executive, Engineering
and Construction.

The Vice President ~~and Group Executive~~, Nuclear Operations, is responsible for the quality assurance, engineering, licensing, training, and operation of SCE&G nuclear power generating facility.

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The General Manager, Nuclear Operations, is responsible for station operations including start-up and test, power ascension, commercial power operation, nuclear security and emergency planning. He is assisted in accomplishing his responsibilities by the Manager of Nuclear Security, the Emergency Planning Coordinator and the Manager, Virgil C. Summer Nuclear Station.

The Group Manager, Nuclear Engineering and Licensing, has the responsibility for plant and equipment design; plant licensing; and corporate health physics and environmental programs, geologic and hydrologic studies relating to plant siting, design, construction and support to plant operations. This department is divided into four functional areas; Nuclear Engineering, Nuclear Licensing, the Independent Safety Engineering Group and Corporate Health Physics and Environmental Programs. The Group Manager, Nuclear Engineering and Licensing, reports directly to the Vice President ~~and Group Executive~~, Nuclear Operations.

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The Group Manager, Nuclear Services, is responsible for the areas of Nuclear Fuel Management, incore technical support fuel cycle requirements and quality assurance relating to design, construction and operation, and nuclear quality control relating to the operation and modification of the Virgil C. Summer Nuclear Station. Details of the quality assurance and nuclear quality control programs are found in Chapter 17.

The Group Manager, Nuclear Education and Training, is responsible for the development, implementation, and evaluation of operating and technical training programs for the Nuclear Operations Department in coordination with or open recommendation of the General Manager, Nuclear Operations; the Group Manager, Nuclear Engineering and Licensing; or the Group Manager, Nuclear Services. The Group Manager, Nuclear Education and Training, reports directly to the Vice President ~~and Group Executive~~, Nuclear Operations.

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The General Manager, Purchasing, has the company wide responsibility for procurement of equipment and materials. This includes procurement of safety related items during design, construction and operations of SCE&G power facilities. Purchase requisitions for the Virgil C. Summer Nuclear Station are initiated by personnel of the plant staff, nuclear engineering, or purchasing. Additional information pertaining to procurement is found in Chapter 17.

Site layout with respect to environmental effects and development of Safety Analysis Reports are done by Gilbert through coordination of the efforts of Westinghouse, Gilbert, Dames and Moore, and SCE&G.

Security during construction is the direct responsibility of the SCE&G Construction Department. Gilbert provides planning for the inclusion of security requirements in the design of the Virgil C. Summer Nuclear Station for the operations phase. The latter security planning and design documents are subject to the review and approval of the SCE&G Nuclear Engineering Department, but are reviewed by all affected SCE&G organizations.

Construction management is the responsibility of the SCE&G Construction Department under the direction of the Nuclear Site Manager who reports to the ^{Group} ~~Manager~~, Construction ^{and Quality Control.} Daniel is the constructor. Construction activities are directed by the Daniel Project Manager who reports to the SCE&G Nuclear Site Manager. Project Managers for other site contractors, performing safety-related construction activities, report to the SCE&G Nuclear Site Manager administratively and to the Daniel Project Manager for scheduling and coordination of work activities.

Quality control activities are the direct responsibility of the SCE&G Quality Control Manager who reports to the SCE&G ^{Group} ~~Manager~~, Construction ^{and Quality Control.} Site quality control activities are performed by, or under the direction of the SCE&G Quality Control Manager, except for those contractors which have quality control responsibility. SCE&G has quality control responsibility for the Daniel scope of construction except for the ASME Boiler and Pressure Vessel Code related activities.

the Manager Virgil C. Summer Nuclear Station, who reports to the General Manager, Nuclear Operations. The General Manager, Nuclear Operations reports to the Vice-President ~~and Group Executive~~, Nuclear Operations. 132

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Four Assistant Managers (the Assistant Manager, Support Services; Assistant Manager, Maintenance Services; Assistant Manager, Technical Support; and the Assistant Manager, Operations) report to the Manager Virgil C. Summer Nuclear Station and provide the group management for all plant operations. Line management is provided by additional supervision under these group supervisors.

29

Administrative, technical, operations, maintenance, health physics, and chemistry personnel make up the plant operating staff. Appropriate numbers of personnel may be added or deleted as necessary to balance the work load. The plant operating staff is organized as indicated on Figure 13.1-5.

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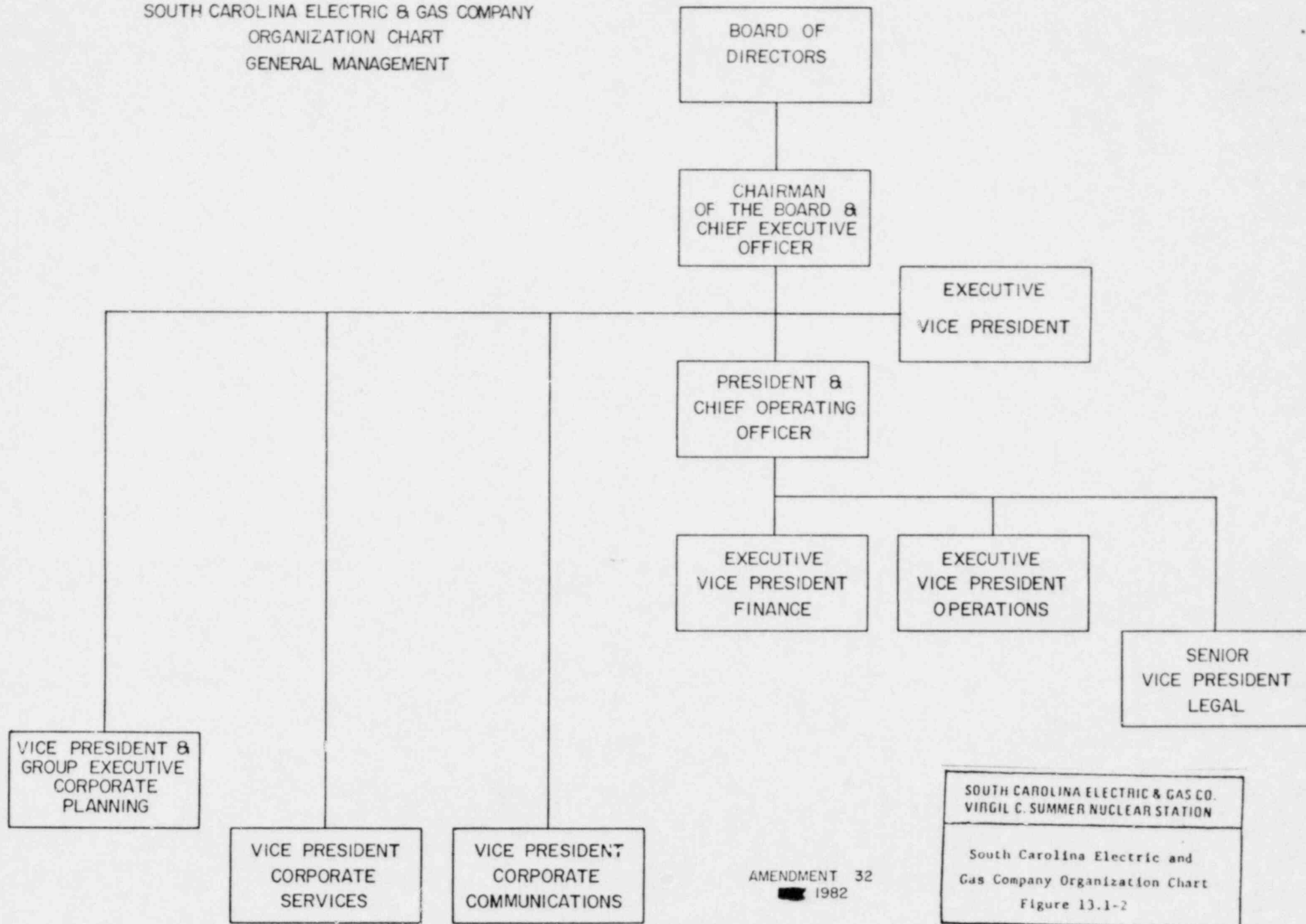
13.1.2.2 Personnel Functions, Responsibilities, and Authorities

Virgil C. Summer Nuclear Station personnel have a combination of education experience and skill commensurate with their level of responsibility. These qualities provide assurance that decisions and actions during normal and abnormal conditions will be such that the plant is operated in a safe and efficient manner in the interest of the health and safety of the public.

The overall operating responsibility for the Virgil C. Summer Nuclear Station rests with the Manager Virgil C. Summer Nuclear Station. The Manager Virgil C. Summer Nuclear Station is responsible for plant operations in a safe, reliable, and efficient manner by ensuring compliance with all requirements of the operating license. The Manager Virgil C. Summer Nuclear Station has overall responsibility for the startup and test program, as described in Chapter 14.

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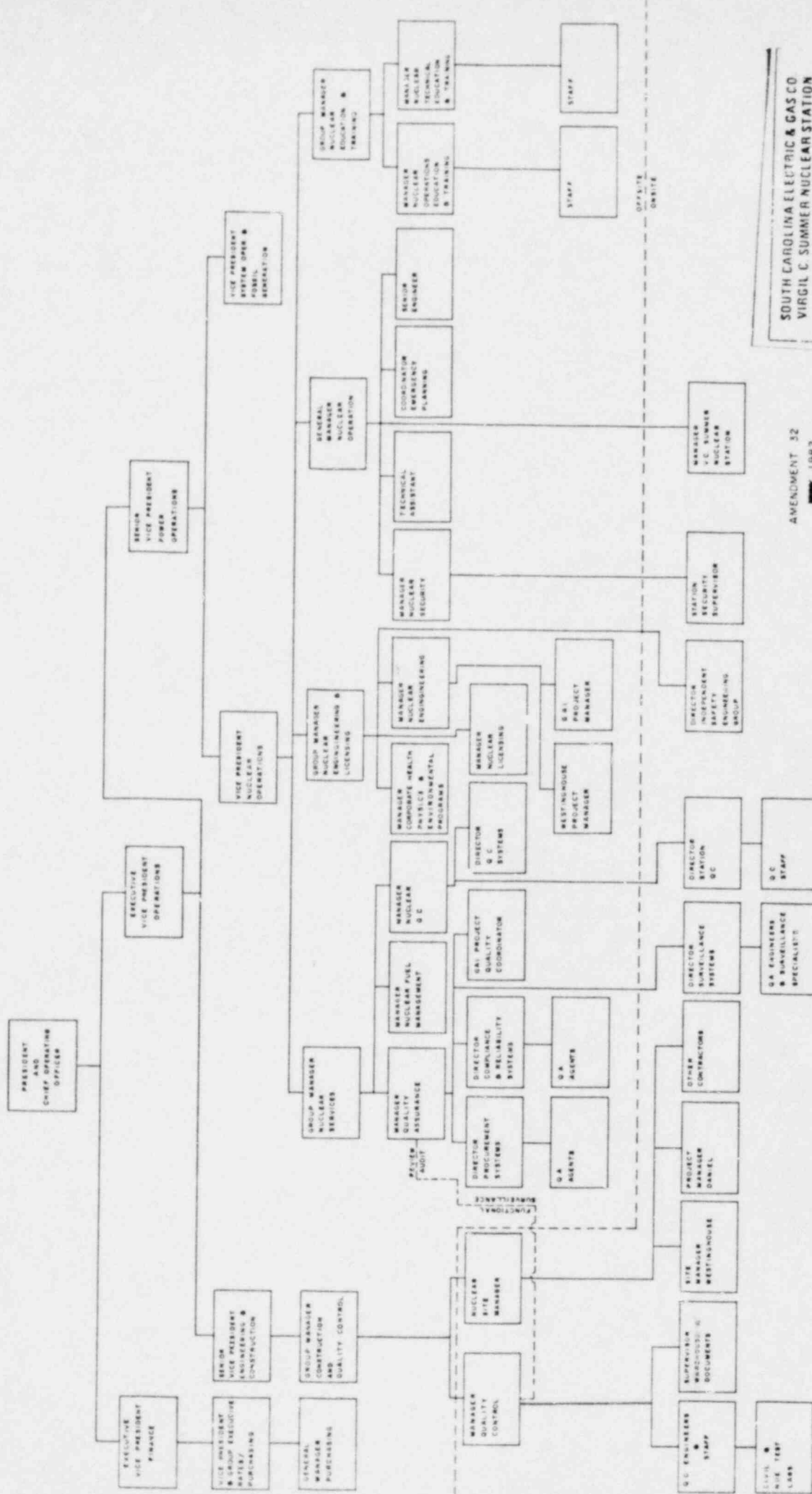
SOUTH CAROLINA ELECTRIC & GAS COMPANY
ORGANIZATION CHART
GENERAL MANAGEMENT



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SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

South Carolina Electric and
Gas Company Organization Chart
Figure 13.1-2

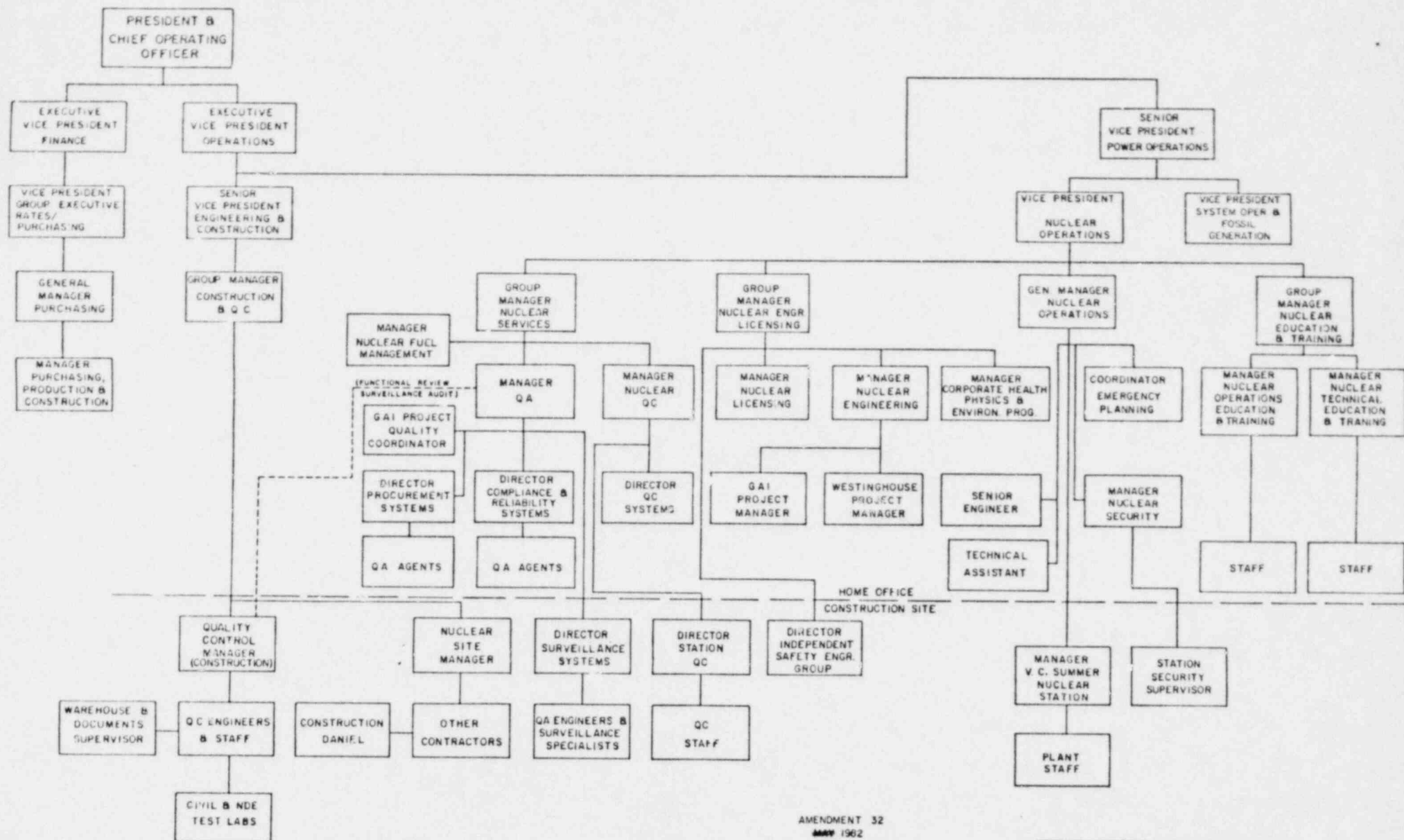


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SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C SUMMER NUCLEAR STATION

Figure 13.1-3

South Carolina Electric & Gas Co.
Precursor Organization Chart



**SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION**

Figure 13.1-4
South Carolina Electric & Gas Co.
Major Modification
and Maintenance
Organization Chart

The SCE&G Vice President and Group Executive, Engineering and Construction directs the project construction with the assistance of the Group Manager, ~~Production Engineering, QC and Construction~~ ^{Construction and Quality Control} ~~the Manager of Construction~~ ^(Construction) the QC Manager and the Nuclear Site Manager. Construction is under the overall supervision of the SCE&G Nuclear Site Manager, with quality control (QC) the responsibility of the SCE&G QC Manager. Both report independently to the ^{Group} Manager of Construction ~~Engineering, QC and Construction~~ ^{and Quality Control}.

The SCE&G Vice President and Group Executive, ^{Rates/Purchasing} ~~Purchase Rate Regulation and Security~~ assisted by the General Manager, Purchasing, and the Manager of Production and Construction Purchasing is responsible for procurement of equipment, material and services.

17.1.1.1.1 Quality Assurance Program Organization

QA Figures 17.1-1 and 17.1-2 show the lines of responsibility for the QA Program. QA activities pertaining to the design, procurement, fabrication, handling, installation and testing of safety-related structures, systems and components are carried out in accordance with procedures that have been developed to conform to the 18 criteria as set forth in Appendix B of 10 CFR 50. These procedures are assembled in the SCE&G QA Procedures Manual, the Gilbert QA Manual, the SCE&G QC Manual, the SCE&G Nuclear Engineering Procedures Manual, the SCE&G Purchasing Procedures Manual, the Westinghouse WRD Quality Assurance Plan, the Daniel Construction Company (Daniel) Construction Procedures Manual, the Gilbert Project Management Manual and vendor and contractor procedures manuals.

The SCE&G QA Program involves personnel from various organizational groups within the company. The general responsibilities of these groups are as follows:

1. Quality Assurance Group

The Group Manager, Nuclear Services provides administrative control and coordination of the role and mission of the QA section. He is responsible to

24 evaluate the performance of the QA Program to assure adequacy and
allocation of sufficient resources to perform the role and mission.
The Group Manager is the link to effective executive corrective action
whenever identified. The Group Manager, Nuclear Services through the
32 | Vice President ~~and Group Executive~~ Nuclear Operations is responsible to
24 | identify needed senior management action. The Manager of QA reports to
the Group Manager. The Manager of QA is responsible for the direction
and implementaton of the total QA Program. These responsibilities
include:

- 21
- a. Preparation and revision of the overall QA Program, assisted as needed by the Gilbert QA Division, Westinghouse, each group or organization performing quality activities and/or other agents.
 - b. Review and approval of the QA Program and associated documents generated by SCE&G and its agents, Gilbert, Westinghouse, Daniel vendors and contractors.
 - c. Review and/or approve revisions to the QA program and associated documents.
 - d. Schedule, perform and/or direct performance of audits of SCE&G, its agents, Gilbert, Westinghouse, Daniel, vendors and contractors, and the surveillance of Daniel, vendors and contractors.
 - e. Audit and approve solutions to safety-related interface problems which arise.
 - f. Monitor the status of the QA Program to assure effective implementation.
 - g. Identify that appropriate corrective action is taken to accomplish changes where activities do not comply with QA and QC plans or procedures.

1. Participate in the inspection program as required.
- m. Participate in the test control program as required.
- n. Perform functions as required in connection with the licensing of the Virgil C. Summer Nuclear Station.

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3. Procurement

Procurement is the responsibility of the Vice President and Group Executive, ^{Rates/Purchasing} ~~Purchasing, Rate Regulation and Security~~ who is assisted by the General Manager, Purchasing and the Manager of Purchasing, Production and Construction.

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- a. Select qualified bidders with the assistance of engineering, operating and QA groups.
- b. Solicit bids for equipment, materials and services.
- c. Submit commercial, QA and technical evaluations to the SCE&G Purchasing Committee which select vendors.
- d. Issue and control changes to purchase orders.
- e. Prepare, in cooperation with the QA and nuclear engineering groups, procurement procedures.

4. Nuclear Site Manager

^T the SCE&G Nuclear Site Manager has the overall responsibilities for the construction activities performed on the site by Daniel, contractors and subcontractors. Administratively, the SCE&G Nuclear Site Manager reports to the ^{Group} ~~Manager of Construction~~ and ^{and Quality Control} is responsible for the cost and scheduling of the work done on the site. All work done on the site by the various crafts of Daniel, contractors and

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subcontractors is under the jurisdiction of the Daniel Project Manager. The Daniel Project Manager also has the responsibility for compliance with the Daniel QA Manual for Nuclear Construction in the fabrication and installation of ASME Code, Section III components. For major modifications, a project manager having the same responsibilities as the Nuclear Site Manager above may be appointed.

5. Quality Control Manager

32 The SCE&G QC Manager also reports to the ^{Group} Manager of Construction and Quality Control. The SCE&G QC organization is shown in Figure 17.1-3. The SCE&G QC Manager supervises the QC efforts at the site in accordance with the SCE&G QC Plan. The QC organization performs the following major functions but are not limited to these:

- a. Work and communicate with Daniel, Daniel QC and QA and SCE&G QA groups at the site.
- b. Supervise the activities of commercial testing organizations at the site, who are under contract with SCE&G.
- c. Prepare QC procedures for inspection of construction activities.
- d. Stop work on structures, systems and/or components when work is not in compliance with specified standards, codes, design documents or procedures.
- e. Be responsible for the testing and inspection of work performed by Daniel, contractors and subcontractors at the construction site except when QC is provided by Daniel (ASME Code Work), or ASME contractors or subcontractors. SCE&G/QC will be responsible for testing and inspection of piping hangers where the intent of ASME Code requirements is being met.

f. Inspect on receipt, material and equipment for conformity to purchase documents and perform acceptance tests as required except when QC is provided by Daniel (ASME Code work). File test reports, certificates of release, and other documents necessary to verify quality.

15

g. Perform warehousing functions.

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h. Maintain the permanent file for QA records, inspection reports, tests, certificates of release and other QA documents.

i. Report potentially significant deficiencies found in construction in accordance with approved procedures.

17.1.1.1.2 Lines of Authority and Communication

As noted in Figure 17.1-1, the complex multi-organizational QA Program requires definite lines of authority and communication with control by independent checks. These relationships warrant discussion to illustrate how overall administrative control of the Program by SCE&G is achieved.

1. Overall Project

The line of authority within the organization clearly provides the flexibility for quality related problems to be identified and resolved. The SCE&G Manager of QA, having a direct line through the Group Manager Nuclear Services to the Vice President ~~and Group Executive~~ ^{and the Senior Vice President Power Operations} Nuclear Operations, can inform SCE&G top management of unresolved QA issues.

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2. Quality Assurance

The Vice President and Group Executive, Engineering and Construction is made aware of the QC activities by the SCE&G QC Manager through his line of authority to the ~~Manager of Construction and the Group Manager Production, QC and Construction and Quality Control~~

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The QC staff and the independent test laboratories are under the direction and supervision of the SCE&G QC Manager.

21 The General Manager, Purchasing, has a direct line of authority
32 through the Vice President and Group Executive, ~~Purchasing Rates/~~
~~Regulation and Security~~ ^{Purchasing} through which the Executive Vice President
~~Administration~~ ^{Finance} is kept informed of the status of the purchasing
operations.

15 The line of authority extends downward such that the SCE&G Group
24 Manager Nuclear Services monitors and controls the direction of QA
18 activities through the Manager, Quality Assurance, his staff, QA
organization on site, the Gilbert Project Quality Coordinator and
other agents, as needed.

21 As can be seen in Figure 17.1-1, there are five key Group Managers
(General Managers) within the SCE&G organization who provide the
necessary coordination and communication channels to allow infor-
mation and project status to flow into the QA Program.

18 a. The SCE&G Manager QA is responsible for the overall functional
control of the QA Program and provides guidance and coordination
24 through communications with the Manager, Nuclear Engineering, the ~~Manager~~
~~Senior Licensing Engineer~~ ^{Nuclear}, and the Manager, Purchasing, Production
32 and Construction. The Manager of QA is responsible to review
and comment on safety-related (including ASME Code) construction
and QC procedures. Audits and site surveillance are performed
to assure tht safety-related work (including ASME Code) is
accomplished in accordance with the QA Program requirements
described herein. This enables the QA functions and responsi-
18 bilities within the overall administration of the project to be
under the guidance and coordination of the SCE&G Manager of QA
with the cooperation of SCE&G management. Thus, problem areas
anywhere within the QA Program are resolved through the respon-
sible SCE&G management.

17.1.2.2 Administrative Controls

The SCE&G corporate QA policies and procedures are aimed at the goal of obtaining a plant which is safe, and reliable in accordance with the requirements of 10 CFR 50, Appendix B. The procedures used in implementing the QA Program incorporate provisions for proceeding to successive levels of management until resolution is obtained, with ultimate resolution by the Executive Vice President, Operations.

21

The Vice President ~~and Group Executive~~, Nuclear Operations performs a continuing review of the SCE&G QA Program with and through the SCE&G Group Manager Nuclear Services and Manager of Quality Assurance; and reports on the effectiveness of the programs to the Executive Vice President, Operations *through the Senior Vice President Power Operations*

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The Manager of QA through the SCE&G Group Manager Nuclear Services has been delegated the responsibility for the establishment, maintenance, control, distribution, and verification of implementation of the QA Program by the Vice President and Group Executive, Nuclear Operations. The Group Manager Nuclear Services shall annually, or as deemed necessary, have the SCE&G QA Program reviewed and revised where required. Affected organizations may submit recommended changes as they see fit. Proposed revisions, as a result of the QA review or recommended changes by others, are submitted to SCE&G groups having responsibilities in the QA Program for comment prior to revision of the Program. Conflicting comments are resolved by the SCE&G Manager of QA with the concerned parties. Revisions affecting Code requirements shall be submitted to the Authorized Inspection Agency for acceptance prior to implementation.

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24

The procedures and instructions which govern the activities of SCE&G in the design and construction of the Virgil C. Summer Nuclear Station are contained in the QA Manual, the Nuclear Engineering Procedures Manual,

4. Design Document Control

Design documents are controlled as follows:

- a. Specifications are issued and controlled from a controlled distribution section which maintains the record copy of specifications and a master distribution list.
- b. Drawings are prepared and checked by designers and draftsmen. After review and approval by the Gilbert Project Engineer, they are issued through a central distribution group. Record copies and master distribution lists are used to provide assurance that the latest revisions are promptly forwarded to the proper organizations. Lists of latest available revisions of drawings are furnished to those on distribution lists to ensure that the latest revision is in use.
- c. Changes to the SAR requirements are controlled by use of a form which is initiated by the cognizant project engineer. Significant changes and associated justifications are reviewed by the SCE&G Nuclear Engineering and Licensing Department.
- d. Significant field or shop changes to drawings and specifications for safety-related equipment are allowed only after approval by Gilbert and/or the SCE&G ~~Group Manager~~ ^{Manager Nuclear} ~~Production Engineering,~~ ~~QC and Construction~~ or his designee. All authorized changes are documented and controlled as described below:

or scrap. The measures must include controls to prevent further processing where justified until the disposition has been approved. When the disposition is acceptance "as is," repair, or rework, the documentation shall verify acceptability and describe the "as built" item.

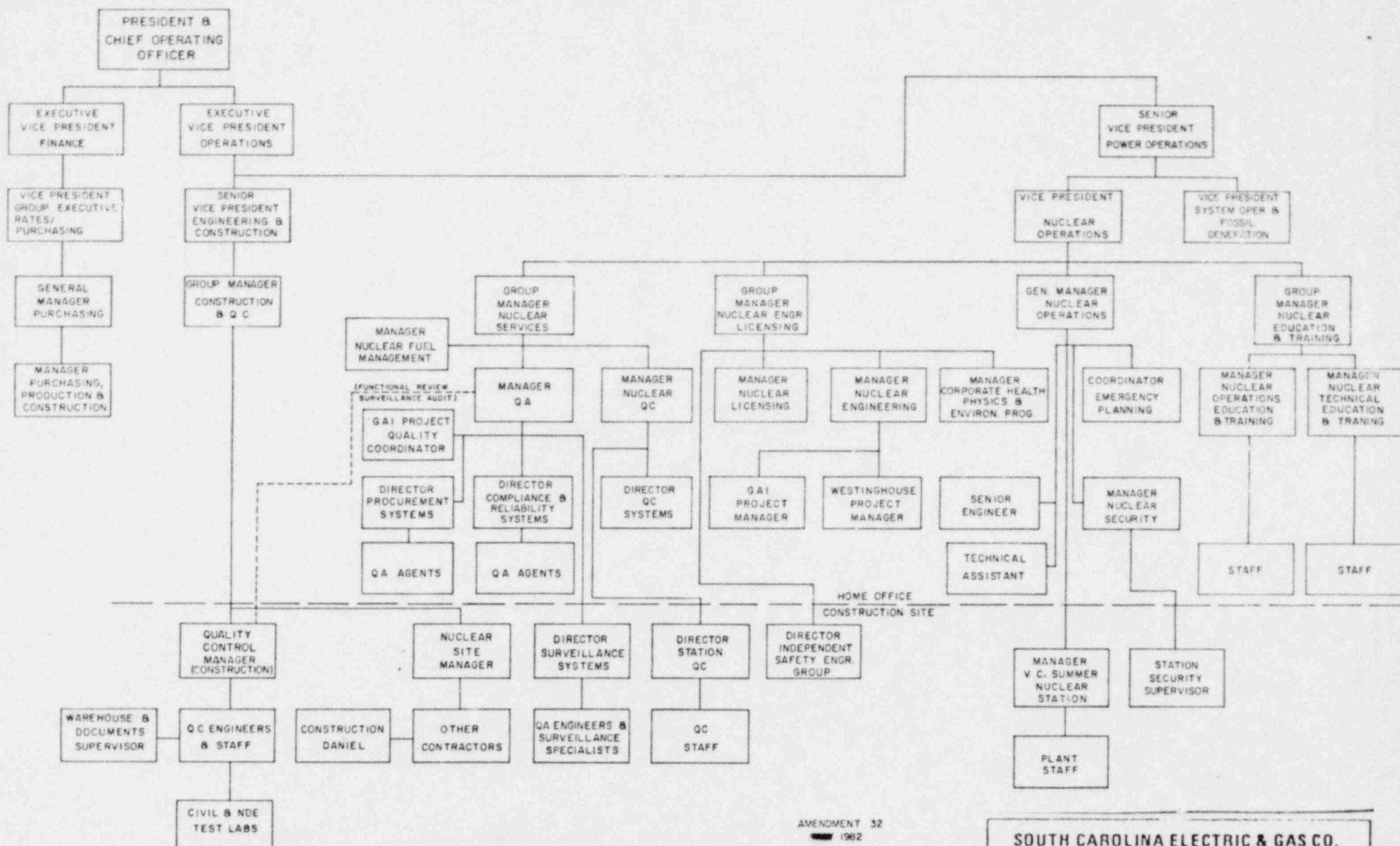
32 | Approval must be obtained from the SCE&G ^{Nuclear} ~~Production~~ Engineering Department and QA organizations, or their agents, whenever the disposition would result in an item which would not satisfy the contract documents. The request for such approval must be in writing to the SCE&G Production Engineering Department, or their agent.

17.1.15.2 Site Controls

2 | At receiving inspection, the QC Inspector will identify those items which do not conform to requirements by placing a HOLD or REJECT tag on the item. REJECT items are removed from the site.

HOLD items are placed in segregated storage when practical, and maintained there until disposition of the nonconformance. Large items, or those which may not practically or physically be segregated shall have the HOLD tag placed on the item in a conspicuous location.

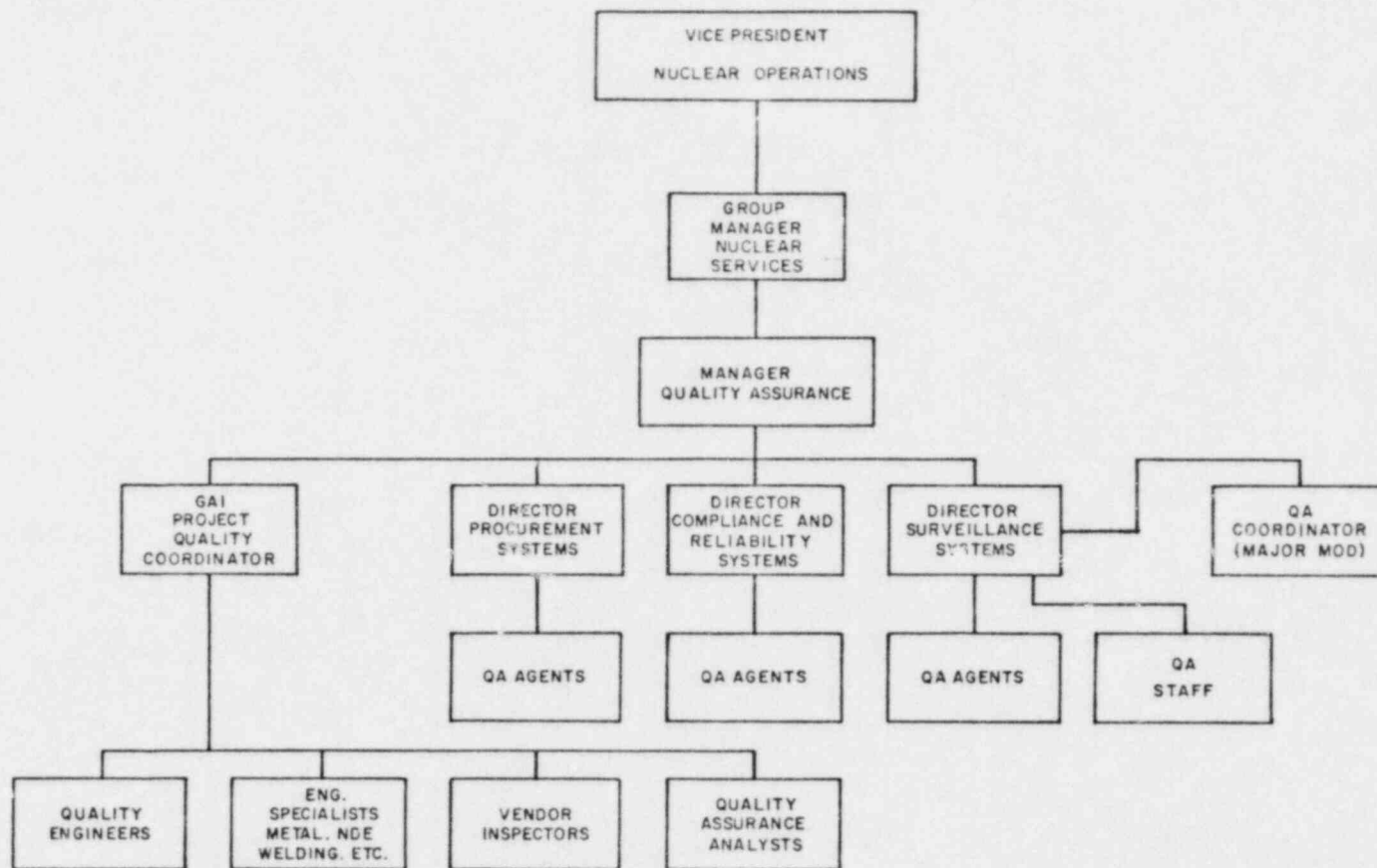
15 | The QC Inspector or Engineer initiates a Deficiency Notice for the nonconformance, or, after consulting the discipline QC Supervisor, a Nonconformance Notice for nonconformances which require SCE&G Production Engineering resolution. Deficiencies are those nonconformances which can be corrected by existing approved instructions or procedures or by replacement of a broken or nonconforming part. The discipline QC Supervisor reviews all Deficiency Notices to determine whether a Nonconformance Notice must be prepared. Deficiency Notices and Nonconformance Notices are distributed to SCE&G QA and other involved organizations.



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**SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION**

Figure 17.1-1
South Carolina Electric and Gas Co.
Virgil C. Summer Nuclear Station
Quality Assurance
Organization Chart



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SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

Figure 17.1-2
South Carolina Electric and Gas Co.
Virgil C. Summer Nuclear Station
Quality Assurance
Organization Chart

SCE&G recognizes the need for its nuclear power plants to be operated under formalized control to assure safety and requires that proper administrative and procedural controls be developed for each nuclear power plant.

5 | The SCE&G Operational QA Program was implemented where practical upon issuance of the Operational QA Plan, and will be fully implemented at least 90 days prior to fuel loading.

21 | The SCE&G organizational structure responsible for implementing the appropriate portions of the Operational QA Program prior to 90 days before fuel loading is shown in Figure 17.1-1. In this organization, the Manager, Virgil C. Summer Nuclear Station is responsible to the General Manager, Nuclear Operations, and follows plant construction, staffing and testing.

21 | The organization structure for operation of the Virgil C. Summer Nuclear Station and implementation of the Operational QA Program 90 days prior to fuel loading and thereafter is shown in Figure 13.1-4. As during final construction, the Manager, Virgil C. Summer Nuclear Station, reports to the General Manager, Nuclear Operations, who reports to the Vice-President ~~and Group Executive~~, Nuclear Operations. The organization of the Virgil C. Summer Nuclear Station is shown in Figure 13.1-5. During major modification and maintenance, services of the Construction Department, as required, are used as shown in Figure 17.1-1.

21 | The Executive Vice President Operations, is responsible for the administration, design, construction and operation of all power plants for the safe and efficient production transmission and distribution of electric power. The Vice President ~~and Group Executive~~ of Nuclear Operations is responsible for all aspects of the operation of the nuclear power plant. Purchasing services are provided to requirements generated within Nuclear Operations by the Administrative Division of the Company. These key executives are assisted by the staffs as shown in Figure 13.1-4.

Quality assurance services are provided under the direction of the Vice-President, ~~Group Executive~~, Nuclear Operations. This Senior Company officer causes the Operational QA Program policy and plan to be developed and specified. SCE&G Executive level endorsement of and commitment to implementation and support of an effective operational quality assurance program is demonstrated by both the ~~President and~~ ^{Chairman and Chief Executive} ~~Chief Executive~~ Officer and the Executive Vice President, Operations signature of the policy statement in the Operational QA Plan. This statement requires conformance to the Operational Plan by all organizations performing safety related work relating to Summer Station. The policy also assigns sufficient authority to organizations to assure attainment of quality objectives.

The senior officers are provided periodic reports as to the status and adequacy of the Operational QA Program including the Nuclear Safety Review Committee by the Vice-President ~~and Group Executive of~~ Nuclear Operations.

17.2.1.1 Nuclear Operations

The Vice President ~~and Group Executive~~, Nuclear Operations, exercises managerial control over the engineering operation, maintenance and modification of the Virgil C. Summer Nuclear Station through the General Manager, Nuclear Operations, as shown in Figure 13.1-4.

17.2.1.2 Quality Assurance and Quality Control

32 | The Vice President ~~and Group Executive~~ Nuclear Operations, is responsible for insuring an independent quality assuring function exists within SCE&G to comply with 10 CFR 50, Appendix B. He exercises executive control of this activity through the Group Manager, Nuclear Services. Responsibility for quality program administration is delegated to the Manager QA, and the Manager of Nuclear QC, who is responsible for establishing, and assuring implementation of the Operational QA Program in accordance with applicable regulatory requirements.

29 | The Group Manager, Nuclear Services provides administrative control and coordination of the role and mission of the quality assuring organization. He is responsible to evaluate the performance of the QA program to assure adequacy and sufficient resources to perform the role and mission. The Group Manager, Nuclear Services provides a valuable independence between the Quality Assurance Section and Quality control section such that programmatic objectivity is maintained, while functional coordination is enhanced. He is the link to effective group and executive corrective action. He and the Managers of Quality Assurance and Quality Control have the authority to report quality matters to any management level necessary within SCE&G in order to establish timely and effective corrective action. Disputes arising between QA/QC and any other organization will be resolved in the best interest of quality at the lowest possible management level. If this becomes difficult, resolution will be escalated through the layers of management with final responsibility for resolution residing with the signatory of the Operational QA Plan Policy Statement. The Manager of QA and the Manager of Nuclear QC are required to have the qualifications indicated in 17.1.2.3.

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The Group Manager, Nuclear Services is responsible for evaluating the overall effectiveness of the QA Program. The Manager of Quality Assurance is responsible to transmit periodic reports as to the status of the program and degree of implementation.

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The SCE&G QA organization has the responsibility, authority, and organizational freedom to:

1. Identify quality related problems.
2. Initiate, recommend, or provide solutions through designated channels.
3. Verify implementation of solutions.
4. Establish methods to prevent: (a) further processing, (b) delivery, (c) installation or operation (d) use of a nonconforming item or procedure (e) or continuance of a deficient or unsatisfactory condition until proper dispositioning has occurred. This will include the authority to issue stop work orders as defined in approved procedures. This shall not include direct control of plant operations.

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Functions of the SCE&G QA organization for the Operational QA Program include, but are not limited to, the following:

1. Auditing all participating organizations for compliance with the Operational QA Program, and compliance with departmental procedures, administrative control procedures, quality control procedures, regulatory requirements and applicable documents.
2. Issuing audit reports for action to management of the area audited. Forwarding copies or appropriate summaries of audits as required by Section 6 of the Technical Specifications to the NSRC, Group Managers and the Vice President ~~and Group Executive~~, Nuclear Operations.

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The Director of Station QC staff reports to the Manager, Nuclear QC for matters relating to:

1. Salary, personnel and employment administration.
2. Technical guidance and consultation.
3. Training qualification and certification.
4. Stop work consideration.
5. Identification of adverse operations, schedule or cost pressure.

17.2.1.2.5 Modification, Outage and Inservice Inspection

The Director of QC Systems will be added to the staff as necessary to plan, coordinate, develop systems and procedures for major modifications and outages. The DQCS reports to the Manager, Nuclear QC.

17.2.1.3 Engineering Construction and Major Modification

The Vice President and Group Executive, Engineering and Construction is responsible for construction, QC and initial testing up to operating licenses. This is accomplished as described in 17.1.

At the request of the Vice President ~~and Group Executive~~ Nuclear Operations, major modifications may be conducted using all or part of the organization utilized during the construction of the V. C. Summer Nuclear Station. The organization for this activity is described in section 17.1 and the basic structure is shown on Figure 17.1-1.

17.2.1.4 Engineering for the Operating Plant

Engineering activity under the direction of the Group Manager, Nuclear Engineering and Licensing, includes:

- a. Developing and implementing the on-Site Safety Engineering Group program.

Assist in performing evaluation of potential bidders list from Purchasing.

Assist with shop inspections, audits, and vendor or contractor surveillance when required.

- 21 | d. Activities of Nuclear Engineering which may affect the quality of safety-related structures, systems and components shall be accomplished in accordance with written procedures, internal instructions, or directives.

17.2.1.5 Education and Training

29 | Education and training services are provided under the Group Manager, Nuclear Education and training. This organization is responsible for management of all operator licensing training. In addition, the organization provides non-licensed technical training services and coordination to the Nuclear Operations Department as requested by the affected Group/General Manager.

5 | 17.2.1.6 Purchasing

29 | The Vice President and Group Executive, ~~Rates Regulation~~ Purchasing, ~~and Security~~ provides procurement services to support the operation of the Virgil C. Summer Nuclear Station. This activity is directed managerially by the General Manager of Purchasing through the Manager of Production and Construction Purchasing. The Manager of Production and Construction Purchasing supervises the procurement activities for the needs of the Virgil C. Summer Nuclear Station. Services are provided during construction, operation or plant modification. The functions of Purchasing in the Operational QA Program include but are not limited to the following:

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quality related. Each manager is responsible for the timely writing, implementing, controlling and maintaining of procedures for his organizational unit. Quality related procedures contained in parts of Plant Operating Manual volumes on Administration, Maintenance and Modification (special process procedures), and Test and Surveillance, will be reviewed by Quality Assurance prior to implementation as defined in the Operational QA Plan. Concurrence will be documented by QA.

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The SCE&G Manager of QA has been delegated the responsibility for the development, maintenance, assurance of implementation, control and distribution of the Operational QA Plan. He shall annually, or as deemed necessary, have the QA Plan reviewed and revised in accordance with approved procedures. Affected organizations may submit recommended changes as they see fit. QA drafted proposed revisions are submitted to SCE&G groups having responsibilities in the Operational QA Program for comment prior to revision of the plan. Conflicting comments are resolved by the SCE&G Manager of QA with the concerned parties. Conflicts which cannot be resolved at the manager level will be referred to the next higher level of management, with ultimate resolution by the Executive Vice President Operations (the Executive Vice President, ~~Administration~~ ^{Finance} if necessary for purchasing related matters). After resolution has been effected, the revision control sheet is signed by the Manager of QA signifying the documented resolution of comments.

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Activities affecting the performance or quality of safety-related items shall be performed in accordance with written directives, procedures, instructions or drawings throughout the operational life of the Virgil C. Summer Nuclear Station.

The documents which prescribe quality related activities are considered controlled documents and shall be prepared, revised, approved for release and used in accordance with document control procedures. A system of emergency and temporary procedure modifications, when necessary, is available as indicated in Chapter 16. Emergency changes are made prior to QA concurrence when deemed appropriate by responsible personnel to

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During the operating life of the Virgil C. Summer Nuclear Station, SCE&G may delegate the work of executing portions of the Operational QA Program to contractors or consultants as SCE&G QA agents; however, SCE&G shall retain the responsibility for the overall effectiveness of the program.

Organizations which participate in the design, procurement, fabrication, modification, inspection, tests, or maintenance of the safety-related structures, systems or components of the plant, shall be required to establish and implement a QA program consistent with the pertinent provisions of 10 CFR 50, Appendix B, and the SCE&G Operational QA Program pertinent to the activity which they are performing. Certain organizations may work within the SCE&G QA Program and shall receive adequate indoctrination prior to commencing work.

The QA programs of such contractors or consultants will be subject to review, evaluation, and acceptance by the SCE&G QA organization as described in Section 17.2.4.

17.2.2.4 Management Review

A management review to assess the status and adequacy of the Operational QA Plan shall be conducted on an annual basis by senior management of SCE&G. This review will be performed by the Vice President ~~and Group Executive~~ Nuclear Operations based on input such as the periodic QA Management Appraisal Report and QA Plan review report. Elements outside the control of the Vice President ~~and Group Executive~~ Nuclear Operations, which have consistently demonstrated ineffective implementation sufficient to place satisfaction of the QA policy in question, will be identified to the ^{SENIOR} ~~Senior~~ Vice President ~~of~~ Operations and resolution directed. The results of the review and any directed resolution and the results of the corrective action shall be documented.

A Nuclear Safety Review Committee (NSRC) shall be established by preparation of a charter by the ^{SENIOR} Vice President ~~and Group Executive~~.

~~Nuclear~~ Operations concurrent with the initiation of initial core loading of the Virgil C. Summer Nuclear Station, as described in Section 13.4.2.2.

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17.2.2.5 Preoperational Testing to Full Power Operation

A comprehensive preoperational testing program will be conducted by SCE&G under the requirements of the Operational QA Plan to assure that system performance is in accordance with the design requirements. To demonstrate that systems and structures will perform satisfactorily in service, written procedures will be provided which include the acceptance limits and requirements contained in the applicable specifications, system descriptions and other applicable documents. The program will include preoperational tests and actual operational tests of the plant structures and systems. The program will include operations necessary to ensure that initial fuel loading, initial criticality and power operation can be safely undertaken to meet all regulatory requirements including 10CFR50, Appendix B.

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The plant initial fueling, startup, and initial power operations program will be conducted by the Virgil C. Summer Nuclear Station staff, with the assistance of personnel from other SCE&G organization and consultants who have been indoctrinated and trained as described in Section 17.2.2.2.

The Manager, Virgil C. Summer Nuclear Station, is responsible for the preparation of the plans and procedures for conducting these tests and operations. He shall direct the preparation and implementation of the plans and procedures by the Virgil C. Summer Nuclear Station staff, and such consultants and contractors as necessary to prepare the program and conduct the tests and initial operations.

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Preoperational system procedures will include requirements that prerequisite work and installation is acceptable, that the test is properly instrumented, that the necessary data is recorded, that the test is conducted under suitable environmental conditions and that test results are properly documented.

6.0 ADMINISTRATIVE CONTROLS

6.1 RESPONSIBILITY

6.1.1 The Manager, Virgil C. Summer Nuclear Station shall be responsible for overall unit operation and shall delegate in writing the succession to this responsibility during his absence.

6.1.2 The Shift Supervisor shall be responsible for unit operations. A management directive to this effect, signed by the Vice President, ~~and Group Executive~~ Nuclear Operations, shall be reissued to all station personnel on an annual basis.

6.2 ORGANIZATION

OFFSITE

6.2.1 The offsite organization for unit management and technical support shall be as shown on Figure 6.2-1.

UNIT STAFF

6.2.2 The unit organization shall be as shown on Figure 6.2-2 and:

- a. Each on-duty shift shall be composed of at least the minimum shift crew composition shown in Table 6.2-1.
- b. At least one licensed Reactor Operator shall be in the control room when fuel is in the reactor. In addition, while the unit is in MODE 1, 2, 3 or 4, at least one Licensed Senior Reactor Operator shall be in the Control Room.
- c. A health physics technician[#] shall be on site when fuel is in the reactor.
- d. All CORE ALTERATIONS shall be observed and directly supervised by either a licensed Senior Reactor Operator or Senior Reactor Operator Limited to Fuel Handling who has no other concurrent responsibilities during this operation.
- e. A site Fire Brigade of at least 5 members shall be maintained onsite at all times.[#] The Fire Brigade shall not include the Shift Supervisor and the other 2 members of the minimum shift crew necessary for safe shutdown of the unit and any personnel required for other essential functions during a fire emergency.

[#]The health physics technician and Fire Brigade composition may be less than the minimum requirements for a period of time not to exceed 2 hours in order to accommodate unexpected absence provided immediate action is taken to fill the required positions.

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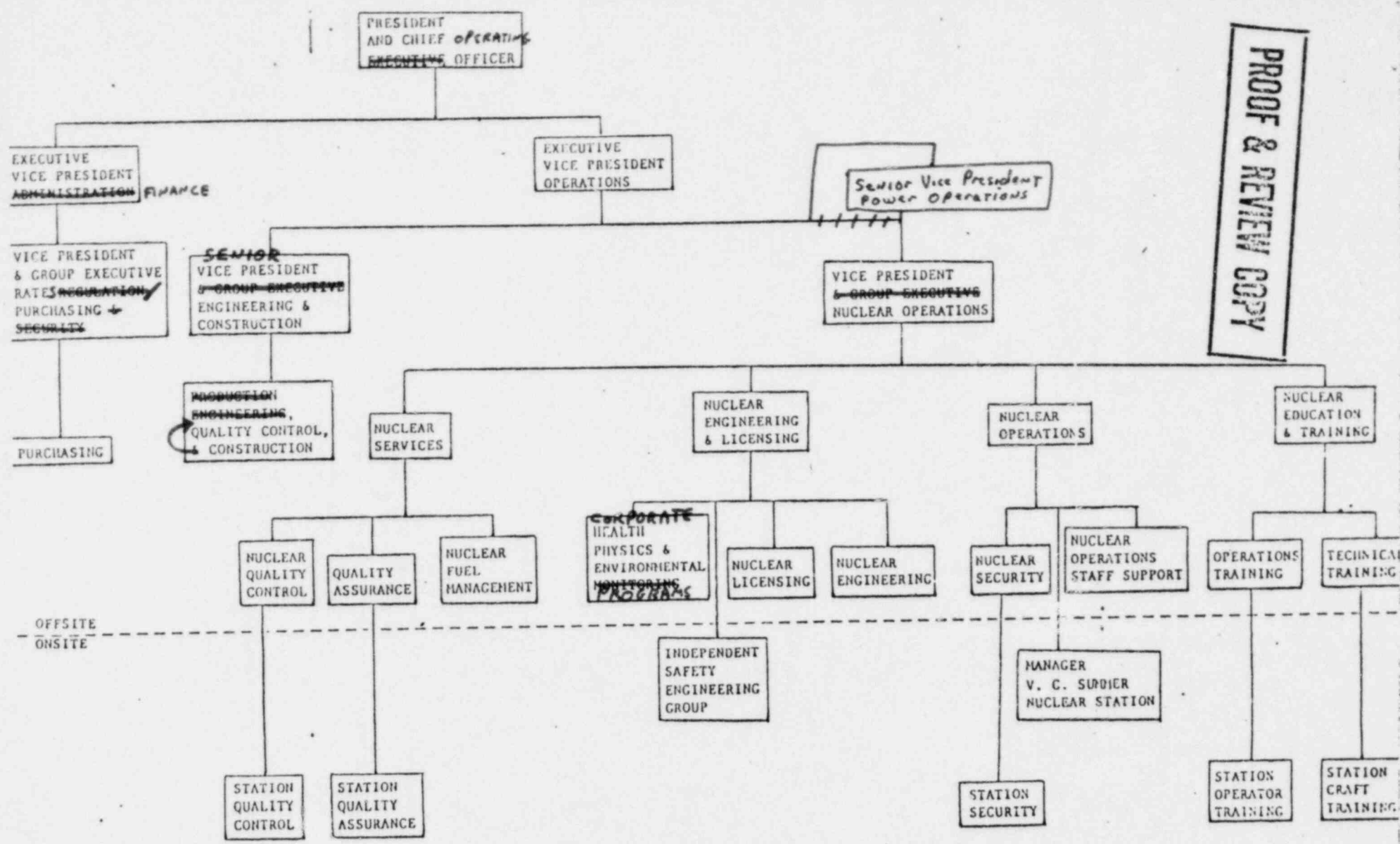


FIGURE 6.2-1
SOUTH CAROLINA ELECTRIC AND GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
OFFSITE ORGANIZATION

Note: This organization may be used for major maintenance and modification.

ADMINISTRATIVE CONTROLS

6.5.2 NUCLEAR SAFETY REVIEW COMMITTEE (NSRC)

FUNCTION

6.5.2.1 The Nuclear Safety Review Committee shall function to provide independent review and audit of designated activities in the areas of:

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

COMPOSITION

6.5.2.2 NSRC shall consist of a Chairman and four or more other members appointed by the Vice President ^{Senior} ~~and Group Executive Nuclear Operations~~. No more than a minority of the members of the NSRC shall have line responsibility for the operation of the unit.

The NSRC members shall hold a Bachelor's degree in an engineering or physical science field or equivalent experience and a minimum of five years of technical experience of which a minimum of three years shall be in one or more of the disciplines of 6.5.2.1a through h. In the aggregate, the membership of the committee shall provide specific practical experience in the majority of the disciplines of 6.5.2.1a through h.

ALTERNATES

6.5.2.3 All alternate members shall be appointed in writing by the Vice President ^{Senior} ~~and Group Executive Nuclear Operations~~; however, no more than two alternates shall participate as voting members in NSRC activities at any one time.

CONSULTANTS

6.5.2.4 Consultants shall be utilized as determined by the NSRC Chairman to provide expert advice to the NSRC.

ADMINISTRATIVE CONTROLS

AUDITS

6.5.2.8 The NSRC shall have cognizance of the audits listed below. Audits may be performed by using established SCE&G groups such as the ISEG and QA or by outside groups as determined by the NSRC. Audit reports or summaries will be the basis for NSRC action:

- a. The conformance of unit operation to provisions contained within the Technical Specifications and applicable license conditions at least once per 12 months.
- b. The performance, training and qualifications of the entire unit staff at least once per 12 months.
- c. The results of actions taken to correct deficiencies occurring in unit equipment, structures, systems or method of operation that affect nuclear safety at least once per 6 months.
- d. The performance of activities required by the Operational Quality Assurance Program to meet the criteria of Appendix "B", 10 CFR 50, at least once per 24 months.
- e. The Emergency Plan and implementing procedures at least once per 24 months.
- f. The Security Plan and implementing procedures at least once per 24 months.
- g. Any other area of unit operation considered appropriate by the NSRC or the ^{senior} Vice President, ~~and Group Executive, Nuclear Operations.~~
- h. The Fire Protection Program and implementing procedures at least once per 24 months.
- i. An independent fire protection and loss prevention inspection and audit shall be performed annually utilizing either qualified offsite licensee personnel or a qualified outside firm.
- j. An inspection and audit of the fire protection and loss prevention program shall be performed by an outside qualified fire consultant at intervals no greater than 3 years.
- k. The radiological environmental monitoring program and the results thereof at least once per 12 months.
- l. The OFFSITE DOSE CALCULATION MANUAL and implementing procedures at least once per 24 months.
- m. The PROCESS CONTROL PROGRAM and implementing procedures for solidification of radioactive wastes at least once per 24 months.
- n. The performance of activities required by the Quality Assurance Program to meet the criteria of Regulatory Guide 4.15, Revision 1, February 1979 at least once per 12 months.

AUTHORITY

6.5.2.9 The NSRC shall report to and advise the ^{senior} Vice President ~~and Group Power Executive, Nuclear Operations~~ on those areas of responsibility specified in Sections 6.5.2.7 and 6.5.2.8.

ADMINISTRATIVE CONTROLS

RECORDS

6.5.2.10 Records of NSRC activities shall be prepared, approved and distributed as indicated below:

- a. Minutes of each NSRC meeting shall be prepared, approved and forwarded to the Vice President ~~and Group Executive, Nuclear Operations~~ within 14 days following each meeting.
- b. Reports of reviews encompassed by Section 6.5.2.7 above, shall be prepared, approved and forwarded to the Vice President ~~and Group Power Executive, Nuclear Operations~~ within 14 days following completion of the review.
- c. Audit summary reports encompassed by Section 6.5.2.8 above, shall be forwarded to the NSRC and to the Vice President ~~and Group Executive, Power Nuclear Operations~~. Full audits shall be forwarded to the management positions responsible for the areas audited within 30 days after completion of the audit by the auditing organization.

6.5.3 TECHNICAL REVIEW AND CONTROL

ACTIVITIES

6.5.3.1 Activities which affect nuclear safety shall be conducted as follows:

- a. Procedures required by Technical Specification 6.8 and other procedures which affect plant nuclear safety, and changes (other than editorial or typographical changes) thereto, shall be prepared, reviewed and approved. Each such procedure or procedure change shall be reviewed by an individual/group other than the individual/group which prepared the procedure or procedure change, but who may be from the same organization as the individual/group which prepared the procedure or procedure change. Procedures other than Administrative Procedures will be approved as delineated in writing by the Station Manager. The Station Manager will approve administrative procedures, security implementing procedures and emergency plan implementing procedures. Temporary approval to procedures which clearly do not change the intent of the approved procedures can be made by two members of the plant management staff, at least one of whom holds a Senior Reactor Operator's License. For changes to procedures which may involve a change in intent of the approved procedures, the person authorized above to approve the procedure shall approve the change.
- b. Proposed changes or modifications to plant nuclear safety-related structures, systems and components shall be reviewed as designated by the Station Manager. Each such modification shall be designed as authorized by Nuclear Engineering and shall be reviewed by an individual/group other than the individual/group which designed the modification, but who may be from the same organization as the individual/group which designed the modifications. Implementation of modifications to plant nuclear safety-related structures, systems and components shall be concurred in by the Station Manager.