

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

DOCKETED  
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

In the Matter of )

CAROLINA POWER & LIGHT COMPANY )

(H. B. Robinson Steam Electric  
Plant, Unit 2) )

Docket No. 50-261-OLA

ASLBP No. 83-484-O3LA

APPLICANT'S ANSWERS TO THE HARTSVILLE GROUP SECOND SET OF  
INTERROGATORIES AND REQUESTS TO PRODUCE

A. INTERROGATORIES RELATING TO  
HARTSVILLE CONTENTION 1 (PARTS A & B)

1-1. For each person identified with respect to Applicant's responses to General Interrogatory 1 (G-1) to "The Hartsville Group First Set of Interrogatories and Requests to Produce," please describe that person's professional qualifications.

ANSWER 1-1.

Ronnie M. Coats

Education & Training

A. B.S. Degree in Chemical Engineering from North Carolina State University - 1967.

B. Graduate School at North Carolina State University, one semester 1968.

Site Lecture Series of Westinghouse Training Program.

Professional Societies

American Institute of Chemical Engineers.

Registered Professional Engineer - State of North Carolina.

Experience

A. June 1965, Research Assistant in Nuclear Engineering Department at North Carolina State University.

September 1967, Graduate Student Laboratory Instructor at North Carolina State University.

B. Carolina Power & Light Company

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January 1968 - Employed as a Chemical Engineer in the Design and Construction Section.

February 1970 - Employed as a Radiochemical Engineer in the Technical Services Section.

July 1971 - Employed as a Senior Chemical Engineer in the Nuclear Design Section of the Power Plant Design and Construction Department.

April 1972 - Employed as a Principal Engineer in the Nuclear Plant Engineering Section of the Power Plant Engineering and Construction Department.

August 1973 - Employed as a Principal Engineer - Projects in the Nuclear Plant Engineering Section of the Power Plant Engineering and Construction Department. Located at the Brunswick Plant.

August 1975 - Employed as Principal Engineer on the staff of the Assistant to Group Executive - Engineering, Construction, and Operating.

October 1976 - Employed as a Principal Engineer in the Staff Services Unit of the System Planning & Coordination Department.

January 1977 - Employed as Manager - Generation Services Section of the Generation Department.

November 1979 - Employed as Manager - Nuclear Operations Administration Section of the Nuclear Operations Department.

February 1981 - Employed as Manager - Nuclear Operations Administration Section of the Technical Services Department.

March 1982 - Employed as Assistant to the Group Executive Power Supply. Power Supply Staff.

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R. L. Mayton, Jr.

Education & Training

A. B.S. Degree in Nuclear Engineering - N.C. State University - 1963.

B. M.S. Degree in Nuclear Engineering - N.C. State University - 1965.

Professional Societies

American Nuclear Society.

Health Physics Society.

Completed Part I of American Board of Health Physics Certification - 1982.

Experience Prior to Joining CP&L

June 1962 - September 1962: Engineering Assistant, L. E. Wooten & Company.

June 1963 - September 1963: Engineer, Nuclear Power Division, Charleston Naval Shipyard.

June 1964 - August 1965: N.C. State University, Teaching nuclear physics laboratory while attending college.

August 1965 - June 1968: Engineer responsible for technical assistance to production department at Savannah River Project.

#### Experience with CP&L

June 1968 - February 1971: Senior Engineer - Raleigh, NC.

February 1971 - November 1971: Principal Nuclear Licensing Engineer, Environmental & Technical Services Section, Generation & System Operations Department, Raleigh, NC.

November 1971 - June 1976: Principal Nuclear Licensing Engineer, Environmental & Technical Services Section, Special Services Department, Raleigh, NC.

June 1976 - December 1976: Manager - Corporate Health Physics, Technical Services Department, Raleigh, NC.

December 1976 - November 1977: Manager - Corporate Health Physics, System Planning & Coordination Department, Raleigh, NC.

November 1977: Director - Corporate Health Physics, System Planning & Coordination Department, Raleigh, NC.

August 1979: Director - Corporate Health Physics, Nuclear Safety & Research Department, Raleigh, NC.

June 1981: Director - Corporate Health Physics Section, Corporate Nuclear Safety & Research Department, Raleigh, NC.

August 1982: Manager - Corporate Health Physics Section, Corporate Nuclear Safety & Research Department, Raleigh, NC.

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Harold R. Banks

#### Education & Training

- A. Graduated from Indiana High School, Indiana, Pennsylvania - 1948.
- B. Class "C" Instructor Training School - U. S. Navy - 1954.
- C. Basic Nuclear Power Engineering School - U. S. Navy - 7/59 - 1/60.
- D. Nuclear Power Training Unit - U. S. Navy - 1/60 - 6/60.
- E. Naval Officer's, Limited Duty, Candidate School - 10/64 to 12/64.

### Professional Societies

- A. Member of American Society of Mechanical Engineers.
- B. Member of American Society of Nondestructive Testing.
- C. Member of North Carolina Society of Engineers.
- D. Member of American Nuclear Society.
- E. ASME Standards Committee on Personnel Qualification and Work Groups for N45.2.12 and N45.2.23.
- F. EEI QA Committee.

### Experience

- A. U. S. Navy
  - 1. June 1948 - June 1959
    - a. Shipboard and shore base assignment in power plant operation, maintenance, instructor and supervision.
- B. Nuclear Power Engineering School and Prototype
  - 1. June 1959 - June 1960
    - a. Student.
- C. Nuclear Submarine Prototype, Idaho Falls, Idaho
  - 1. June 1960 - June 1962
    - a. Nuclear Power Training Unit - qualified EOOW.
- D. USS Andrew Jackson
  - 1. June 1962 - October 1964
    - a. Leading Machinery Division Chief, supervisor in charge of the operation of the nuclear power plant - qualified EOOW.
- E. Naval Officer's Candidate School
  - 1. October 1964 - January 1965
    - a. Student.
- F. San Francisco Bay Naval Shipyard
  - 1. January 1965 - August 1968
    - a. Nuclear Ship Superintendent.



G. Carolina Power & Light Company

1. August 1968 - Present

- a. August 1968 - Employed as a Resident Project Engineer at the H. B. Robinson Plant in Hartsville, SC.
- b. July 1970 - Employed as a Resident Project Engineer in the Plant Design & Construction Department at the Brunswick Plant in Southport, NC.
- c. August 1971 - Employed as Manager - Quality Assurance in the Power Plant Design & Construction Department in Raleigh, NC.
- d. February 1972 - Employed as Manager - Quality Assurance Audit in the Special Services Department in Raleigh, NC.
- e. July 1973 - Employed as Manager - Quality Assurance & Training Audit in the Special Services Department in Raleigh, NC.
- f. August 1975 - Employed as Manager - Corporate Quality Assurance Audit in the Special Services Department in Raleigh, NC.
- g. March 1976 - Employed as Manager - Nuclear Generation in the Generation Department in Raleigh, NC.
- h. November 1979 - Employed as General Manager - Harris in the Nuclear Operations Department in Raleigh, NC.
- i. February 1981 to present - Employed as Manager - Corporate Quality Assurance in the Corporate Quality Assurance Department. Located in the General Office, Raleigh, NC.

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Guy P. Beatty, Jr.

Education & Training

- A. Bachelor of Mechanical Engineering, Clemson University, 1958.

Reactor Safety & Hazards Evaluation Course - 1966. Conducted by HEW, Rockville, Maryland.

Nuclear Power Reactor Safety Course - 1966. Conducted by MIT.

Basic Radiological Health Course - 1967. Conducted by HEW, Cincinnati, Ohio.

Nuclear Fuel Management Course - 1967. Conducted by NUS Corporation, Washington, D.C.

Westinghouse Reactor Operator Training Program. Conducted by Westinghouse, Hartsville, S.C.; Waltz Mill, PA; Saxton, PA; Pittsburgh, PA.

- 1) Completed license requirements for a reactor operator on the Saxton Nuclear Experiment Reactor, August 1969.
- 2) Completed "cold" License Requirements for a Senior Reactor Operator's License, June 1970 (SOP-1932) for H. B. Robinson Unit No. 2.

Reactor Operator Retraining Program conducted by Westinghouse & CP&L - April 1972.

- 1) Re-licensed as Senior Reactor Operator, H. B. Robinson Unit 2, June 1972.

Reactor Operators Training Program conducted by FPC operations personnel at Crystal River Site. Shift Technical Advisor Training, B&W/Simulator, Lynchburg, VA.

#### Work Experience

- |                           |   |
|---------------------------|---|
| June 1958 - February 1960 | - Plant Engineer, H. F. Lee Plant, Carolina Power & Light Company<br>Assignments included design work, water purification system, automation of plant subsystems, training, plant performance, water analysis, fuel analysis.   |
| February 1960 - June 1960 | - Plant Engineer, H. B. Robinson Plant, CP&L - responsible for organization of Fuel and Water Analysis Laboratories, programming instrument controls, etc.  |
| June 1960 - July 1964     | - Plant Maintenance Supervisor, H. B. Robinson Plant, CP&L - responsible for supervision of mechanical, electrical and instrument groups of pulverized coal unit. Established preventive maintenance program; identified, managed and scheduled maintenance work for all the plant systems. |
| July 1964 - February 1966 | - Operation Supervisor, H. F. Lee Plant, Carolina Power & Light Company. Three-unit pulverized coal.  |
| February 1966 - July 1972 | - Plant Manager, H. B. Robinson Station, CP&L - responsible for the continued operation of the pulverized coal unit, pre-operational testing and start up of H. B. Robinson Unit #2 700 MW Electric Westinghouse PWR.   |
| July 1972 - August 1973   | - Nuclear Staff Engineer, Florida Power Corporation - involved with the pre-operational training and licensing for Crystal River Unit 3, 855 MW B & W PWR.  |

- August 1973 - November 1974 - General Plant Manager - responsible for Crystal River Units 1 and 2, Crystal River Unit 3 and two other plants.
- November 1974 - December 1975 - Assistant Project Manager - for the final construction and pre-operational phase on Crystal River Unit 3.
- December 1975 - November 1979 - Plant Manager, Crystal River Unit 3 - responsible for the development of the Operations Manual and for the management of Crystal River Unit 3 during the pre-operational testing, start up and commercial operation phases.
- November 1979 - October 1982 - Functioned as Assistant to the Vice President of Nuclear Operations. Primarily concerned with an overview of the licensing and management techniques.
- Was a member of the B&W Regulatory Response Group, The Engineering Advisory Committee of Nuclear Electric Insurance Ltd. (NEIL), member of the Executive Committee of the E.A.C., NEIL; member of Nuclear General Review Committee (Florida Power Corp.); and member EEI Prime Movers Nuclear Power Operations Subcommittee. Performed as the EOF (Emergency Offsite Facility) Director for Florida Power Corporation.
- Was delegated full signatory authority of my supervisor for personnel, material and contracts. Served as Capital Improvements Project Manager for major improvements including the Technical Support Center.
- October 1982 - Present - Employed as Manager, Special Projects by Carolina Power & Light Company. Primary responsibility is Project Team Manager for the H. B. Robinson Unit 2 Steam Generator Repair Project.

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Robert E. Halliburton

Education & Training

A. B.S. Degree in Mathematics, University of Tennessee, Knoxville, Tennessee, 1970.

B. M.S. Degree in Health Physics, University of Tennessee, Knoxville, Tennessee, 1970.

Professional Societies

Health Physics Society.

Experience

A. August 1970 to March 1971 - Teacher - Clarksville-Montgomery County School System, Clarksville, TN.

March 1971 to December 1972 - Officer - United States Air Force.

July 1974 to August 1976 - Health Physics Technician, Oak Ridge National Laboratory, Oak Ridge, TN.

August 1976 to December 1979, Health Physicist, Oak Ridge National Laboratory, Oak Ridge, TN.

January 1980 to April 1982 - Health Physics Supervisor, Oak Ridge National Laboratory, Oak Ridge, TN.

B. May 1982 to Present - Project Specialist-Health Physics, CP&L. Power Supply Group, Technical Services Department, Radiological and Chemical Support Section, New Hill, NC.

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Sherwood R. Zimmerman

Education & Training

A. B.S. Degree in Engineering - U. S. Naval Academy - 1963.

B. U. S. Naval Officers Advanced Nuclear Power School, Bainbridge, Maryland - July 1963 to December 1963.

C. U. S. Naval Officers Submarine School, New London, Connecticut - August 1964 to February 1965.

D. Fleet Ballistic Missile Submarine POLARIS Weapons Officer School - January 1967 to May 1967.

Professional Societies

Registered Professional Engineer - State of North Carolina, February, 1977.

Experience

December 1963 to December 1969 - Lieutenant - U. S. Navy - Knowledge of all phases of nuclear power plant operations obtained through a 12-month training program culminating in qualification as Supervisor of the land-based prototype reactor, SIC (Combustion Engineering, Inc., Windsor, Connecticut). Subsequent 6-month on-ship reactor supervisor qualification on Westinghouse nuclear reactor, S5W.

December 1969 to June 1972 - Engineer in the Nuclear/Mechanical Group, Engineering Department of the Baltimore Gas and Electric Company. Devote full time to engineering and licensing work in connection with Calvert Cliffs Nuclear Power Plant.

June 1972 to June 1973 - Senior Engineer - Environmental & Technical Services Section - Special Services Department.

June 1973 - Project Engineer - Environmental & Technical Services Section - Special Services Department.

June 1976 - Director - Nuclear Licensing Unit, Licensing & Siting Section, Technical Services Department.

January 1977 - Manager - Licensing & Siting Section, Technical Services Department, CP&L, Raleigh, NC.

December 1979 - Manager - Licensing & Permits Section, Technical Services Department, CP&L - Raleigh, NC.

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Richard E. Lumsden

Thirty (30) years' experience as an officer in the U.S. Navy, retiring as a Captain (O-6). The last 24 years of service were in the Navy Nuclear Propulsion Program with duties requiring the supervision of construction, maintenance, and operation of naval nuclear power plants. He also has one year of CP&L experience as Acting Assistant to the Vice President - Nuclear Operations Department, commencing in 1982.

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J. Henry Oehmann, III

#### Education

A. A.B. Degree in economics from the University of North Carolina at Chapel Hill.

B. M.B.A. Degree from East Carolina University in Greenville, NC.

#### Professional Societies

Accredited Personnel Manager.

Member of the American Society of Personnel Administrators.

#### Experience

Joined CP&L in 1972 as a residential marketing representative in Asheville, NC and also served in commercial marketing. Named senior customer service representative in 1974 and was promoted to assistant personnel representative in 1978. In 1980 - promoted to general office personnel director. In 1983 - promoted to manager of planning and

administrative support at CP&L's General Office in Raleigh, NC.

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James R. Bohannon, Jr.

#### Education

B.S. & M.S. with Honors, Nuclear Engineering, NC State University, 1950-1953.

Diploma, Air Command & Staff School, Air University, 1957.

Diploma, Air War College, Air University, 1965.

#### Professional Societies

Professional Engineers' Registrations in DC and NC.

Quality Assurance Consultant, Southern Mobile Concrete; Carolina Power & Light Company (Safety Committee); Duke Power Company; ISMMC; and Marvin Johnson Association.

Consultant, DOE, Hq. Operational Safety Division (through Dec. 1979).

Consultant, NRC Hq. Reactor Operator Licensing Division (through Dec. 1979).

Member of ANS-15 Standards Committee on Research Reactors.

Previously held NRC Senior Operator License on R-3 and PULSTAR reactors.

Member of American Nuclear Society.

#### Experience

January 1980 to Date - Manager, Nuclear and Fossil Training, Carolina Power & Light Company, Raleigh, NC.

1966 - 1979 - Associate Professor of Nuclear Engineering and Nuclear Operations Administrator - NC State University, Department of Nuclear Engineering, and Nuclear Reactor Program, Raleigh, NC.

1964 - 1966 - Director of Nuclear Engineering Facility, U. S. Air Force, Institute of Technology and Flight Dynamics Laboratory, Wright-Patterson Air Force Base, Ohio.

1961 - 1964 - Nuclear Projects Engineer, U. S. Air Force, Hq. USAF, Directorate of Civil Engineering, Washington, DC.

1954 - 1957 - Project Engineer, U. S. Air Force, Aircraft Nuclear Propulsion Office and Materials Laboratory, Wright-Patterson Air Force Base, Ohio.

1954 - 1954 (six months) - Special Assignment, Oak Ridge National Laboratories, Oak Ridge, Tennessee.

1953 - 1954 - Special Staff Member, NC State University.

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R. B. Starkey, Jr.

See answer to Interrogatory 1-3.

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L. B. Wilson, Jr.

Educational & Training

B.S. Degree in Civil Engineering, Virginia Military Institute, Lexington, Virginia, 1962.

Professional Societies

American Society of Civil Engineers (National and N.C. Section) - Member National Society of Professional Engineers - Member North Carolina Society of Engineers - Member Registered Professional Engineer in North and South Carolina.

Experience

A. Ebasco Services Incorporated

February 1965 - March 1967 - Assistant Engineer, Concrete Hydraulic Design, New York, NY.

October 1966 - March 1967 - Engineering Field Representative, Hartsville, SC.

March 1967 - August 1970 - Office Engineer, responsible to the Resident Engineer, Hartsville, SC.

August 1970 - February 1971 - Field-Office Engineer responsible to the Project Superintendent, Hartsville, SC.

B. Carolina Power & Light Company

February 1971 - employed as a Senior Engineer in the Construction Section of the Power Plant Design & Construction Department.

June 1972 - promoted to Principal Engineer in the Construction Section of the Power Plant Engineering & Construction Department.

February 1977 - promoted to Manager - Construction Engineering Section in the Power Plant Construction Department.

December 1979 - promoted to Manager - Fossil Power Plant Engineering Department.

January 1981 - named Manager - Fossil Plant Engineering & Construction Department.

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W. Parker Tomlinson

Education

B.S. Degree in Nuclear Engineering - North Carolina State University - 1972.

Professional Societies

A. American Nuclear Society.

B. Registered Professional Engineer - North Carolina - February 1977.

Experience

A. Carolina Power & Light Company

1. June 1972 - Employed as a Junior Engineer in the Nuclear Plant Engineering Section of the Power Plant Engineering & Construction Department, General Office, Raleigh, NC.
2. November 1972 - Transferred to Brunswick Steam Electric Plant as a Junior Engineer, Nuclear Plant Engineering Section, Power Plant Engineering Department, Southport, NC.
3. June 2, 1973 - Promoted to Engineer, Nuclear Plant Engineering Section of Power Plant Engineering Department, located in Southport, NC.
4. June 1975 - Promoted to Senior Engineer, Nuclear Plant Engineering Section of Power Plant Engineering Department, Raleigh, NC.
5. January 1977 - Assigned to the Engineering Pool Section of the Power Plant Engineering Department as Senior Engineer at the Brunswick Plant, Southport, NC.
6. April 1, 1977 - Transferred to General Office, Raleigh, as a Senior Engineer, Engineering Pool Section, Power Plant Engineering Department.
7. January 1979 - Promoted to Project Engineer, Engineering Pool Section, Power Plant Engineering Department.
8. December 1, 1979 - Transferred as Project Engineer to the Harris Plant Engineering Section of the Nuclear Power Plant Engineering Department.
9. July 12, 1980 - Promoted to Principal Engineer of the Mechanical Unit of the Harris Plant Engineering Section of the Nuclear Power Plant Engineering Department, New Hill, NC.
10. October 31, 1981 - Transferred as Principal Engineer-Mechanical to the Engineering Support, Nuclear Plants Section, Nuclear Plant Engineering Department, General Office.



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Mike McDowell

Education & Training

B.S. Degree in Chemical Engineering, North Carolina State University - 1970.

Professional Societies

- A. Edison Electrical Institute Power Station Chemistry Committee - Chairman, Editorial Section.
- B. American Nuclear Society.
- C. Registered Professional Engineer in North Carolina (August 1975).

Experience

A. Carolina Power & Light Company

June 1970, Junior Engineer in the Bulk Power Supply Department.

May 1971, Chemical Engineer in the Fossil & Hydro Generation Section of the Bulk Power Supply Department.

July 1975, Senior Engineer in the Fossil & Hydro Generation Section of the Bulk Power Supply Department.

January 1977, Senior Engineer in the Generation Services Section of the Generation Department.

October 1977, Project Engineer - Chemistry in the Generation Services Section of the Generation Department.

May 1979, Project Engineer - Chemistry in the Generation Services - HE&EC Section of the Generation Department.

November 1979, Principal Specialist - Chemistry in the Environmental & Radiation Control Section of the Nuclear Operations Department.

March 1981, Principal Specialist - Chemistry in the Environmental & Radiation Control Section of the Technical Services Department.

February 1982, Principal Specialist - Chemistry in the Radiological & Chemical Support Section of the Technical Services Department.

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B. Mitchell Williams

Education & Training

B.S. Degree in Agricultural Engineering from N.C.S.U. - 1969.

### Professional Societies

North Carolina Society of Engineers - member.

### Experience

#### A. Prior to Joining CP&L:

June 1969 - August 1972 - Engineer - Distribution Engineering -  
Virginia Electric & Power Company -  
Williamston, NC.

August 1972 - August 1973 - Engineer - Transmission Line Engineering -  
Virginia Electric & Power Company -  
Richmond, Virginia.

#### B. Carolina Power & Light Company:

August 1973 Agricultural Development Engineer - Henderson District -  
Nashville Area Office - Northern Division Operations - Nashville,  
NC.

April 1974 Transmission Line Coordinator - Transmission Location Unit -  
Transmission Engineering & Construction Section - System  
Engineering & Construction Department - Raleigh, NC.

January 1977 Engineering & Construction Department - Raleigh, NC. Senior  
Industrial Power Engineer - Sumter District Office - Southern  
Division Operations - Sumter, SC.

January 1977 Senior Industrial Services Engineer - Industrial Services Unit -  
Energy Services Section - Customer Service Operations Support  
Department - Raleigh, NC.

August 1979 Project Staff Services Specialist - Administrative Unit - Staff  
Services Section - System Planning & Coordination Department -  
Raleigh, NC.

July 1981 Principal Engineer - Regulatory Unit - Staff Services Section -  
Planning & Coordination Department - Raleigh, NC.

February 1982- Planning & Coordination Department - Raleigh, NC. Director-  
present Staff Services - Staff Services Section - Planning & Coordination  
Department - Raleigh, NC.

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Manley A. Pope

Twenty-eight (28) years experience with CP&L. Initially worked in various  
accounting positions including Internal Auditor. Five (5) years experience as Head Team

Auditor for Materials & Supplies Auditing which included audit responsibilities for generating plants. Employee Relations experience includes one (1) year as Assistant Personnel Representative - General Office; eight (8) years Division Personnel Representative - Eastern Division which included the Brunswick Nuclear Plant; two (2) years as Manager - Personnel Relations for the Brunswick and Robinson Nuclear Plants, and presently Personnel Relations responsibilities for Brunswick, Robinson and Harris Nuclear Plants. Previously served three (3) terms as Regional Vice President and National Board Member and presently National Board Member At Large for the American Society for Personnel Administration (ASPA).

1-2. Describe in detail the administrative structure of each of the following CP & L departments. The description should include the Table of Organization with the incumbent in each position identified and assignment of responsibilities for ensuring adherence to NRC operating procedures, rules and regulations.

- a) Corporate Quality Assurance
- b) Corporate Nuclear Safety and Research
- c) Nuclear Operations Department
- d) Nuclear Plant Engineering Department
- e) Nuclear Plantr [sic] Construction Department

ANSWER 1-2.

- a) CORPORATE QUALITY ASSURANCE DEPARTMENT  
(Harold R. Banks)

The Corporate Quality Assurance Department has three sections and one unit. The sections are QA/QC Harris Plant Section, QA Services Section, and QA/QC Brunswick and Robinson Plants Section. The unit is the Office Services Unit. The management structure is depicted on an exhibit following this answer.

QA/QC Harris Plant Section  
(Nathaniel J. Chiangi)

The QA/QC Harris Plant Section is responsible for the development and implementation of the engineering, construction, operations and nondestructive testing quality assurance/quality control (QA/QC) programs that will assure nuclear generating facilities and other assigned projects are constructed, operated or modified in accordance with regulatory and Company requirements. This responsibility entails

directing the planning, development and implementation of Nuclear QA; Nonnuclear Balance of Plant (BOP) QA; and ASME N-Stamp QA programs to ensure compliance with applicable codes, standards, specifications, drawings, regulatory requirements, and corporate policies and commitments. The Section consists of three Units: the QA/QC Harris Plant Unit; the Nondestructive Examination Unit; and the QA Engineering Harris Plant Unit.

Quality Assurance Services Section  
(Richard Lumsden - effective 9/3/83)

The Quality Assurance Services Section is responsible for assuring that the Corporate Quality Assurance Program is implemented, that Company policies are administered uniformly, that quality assurance activities are performed in accordance with the Corporate Safety Manual and OSHA requirements, and that a QA Program is maintained which identifies existing and potential problems in the engineering, construction, modification, and operation of nuclear plants. The Section consists of four Units: the QA Engineering Unit; the Vendor Surveillance Unit; the Performance Evaluation Unit; and the Training and Administration Unit.

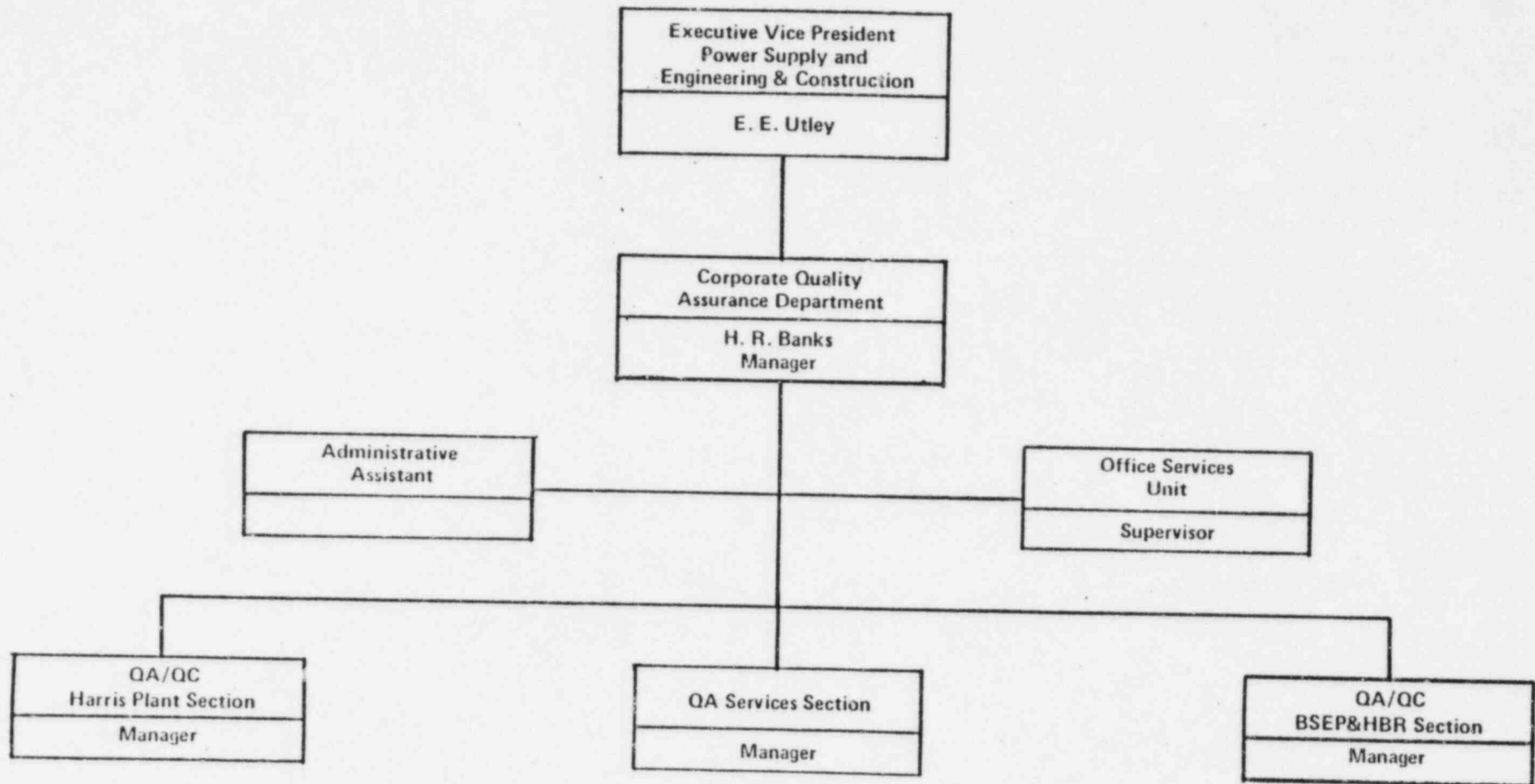
QA/QC Brunswick and Robinson Plants Section  
(C. H. Moseley)

The QA/QC Brunswick and Robinson Plants Section is responsible for implementing a QA/QC program at each operating nuclear plant to ensure that requirements of the Corporate QA Program, ASME QA Program, NRC and other regulatory agencies, and appropriate industry standards and specifications are met. It is responsible for promoting the safe operation of nuclear power plants by developing and implementing an effective plant surveillance program and by providing technical support for quality-related matters. The Section consists of two Units: the QA/QC Brunswick Plant Unit (located at Brunswick Plant) and the QA/QC Robinson Plant Unit (located at Robinson Plant).

Each QA/QC Unit has the responsibility at their respective plant for assuring proper application of quality standards, practices, and procedures associated with nuclear

plant operation, maintenance, and modification to ensure that the appropriate quality requirements of the Nuclear Regulatory Commission, the Corporate Quality Assurance Program, the plant operating license and technical specifications, and industry codes and standards are satisfied in all applicable phases of nuclear plant activity. This responsibility is accomplished by planning and directing the activities of a qualified staff in the implementation of the Corporate QA Program in the electrical, mechanical, structural, material control, and nondestructive examination disciplines; by effective review of maintenance authorizations for inclusion of quality requirements; and conducting QA/QC surveillances of on-going plant activities and reporting results to responsible department and plant management; and evaluating the effectiveness of the plant QA program.

CORPORATE QUALITY ASSURANCE DEPARTMENT



b) CORPORATE NUCLEAR SAFETY & RESEARCH

The administrative structure of the Corporate Nuclear Safety and Research Department is as shown on the exhibit following this answer. The Department is headed by Dr. Thomas S. Elleman, Vice President, and is divided into three functional sections. The sections are: Corporate Nuclear Safety, headed by Dr. J. D. E. Jeffries; Corporate Health Physics, headed by R. L. Mayton, Jr.; and Research, headed by Dr. A. G. Bullard. The objective to the Corporate Nuclear Safety and Research Department is to work through the sections to insure that Company nuclear power plants are as safe as reasonably achievable through independent safety reviews; to keep abreast of research programs and investigations; and to insure that the health physics programs are professional and in compliance with the regulations.

The Corporate Nuclear Safety Section is responsible to corporate management for an independent review and assessment of nuclear safety primarily in the operation phase of the Company's nuclear power plants. Specifically, the Section performs reviews of operating nuclear plant system and procedure changes, licensing actions, unreviewed safety questions, plant operational occurrences, and regulatory violations. The Section maintains cognizance of nuclear industry situations and identifies nuclear safety concerns which might be applicable to CP&L plants.

The Corporate Nuclear Safety Section consists of an On-Site Nuclear Safety Unit at each of the operating nuclear plants, and a Corporate Nuclear Safety Unit located in Raleigh. The On-Site Nuclear Safety Units conduct direct surveillance as well as safety reviews of procedure changes, changes to technical specifications, special tests, plant modifications, and unusual events. The Units provide a safety review capability at the plants which allows for timely review of unusual incidents and events. Findings of the Units are conveyed to Operations for implementation and response. The Units also provide backup technical assistance to operations personnel on safety related questions as needed. The on-site safety review responsibilities are consistent with NRC



requirements for the independent safety evaluation group as specified for nuclear plants licensed by the NRC.

The Corporate Nuclear Safety Section provides specific expertise to plant units for analysis for safety related events. They conduct system analyses at the plants to establish maintenance histories of critical safety systems and identify areas of safety concern. The Section monitors operations experience information developed by INPO, NSAC, and NRC and makes recommendations to Operations for safety considerations derived from this information. The Corporate Nuclear Safety Unit located in Raleigh provides a backup to the On-Site Units and generally conducts those safety reviews which are generic in nature, while the plant units analyze events and documents that relate to specific plant operations.

The Corporate Health Physics Section is responsible for formulation and recommendation of corporate level health physics programs and policies, evaluating existing health physics programs and recommending improvements and modifications, serving as corporate spokesman on health physics and related matters, providing support to the licensing and Corporate Nuclear Safety activities of the Company, and serving as the corporate interface with regulatory agencies on matters of radiological safety.

The Corporate Health Physics Section performs formal assessments of the health physics programs at the operating nuclear plant to assess the effectiveness of the programs and to assist in identification of any areas which might not comply with NRC operating rules and regulations. The assessments are documented and recommendations made to appropriate plant management. The Manager of Corporate Health Physics evaluates the various health physics programs to assess compliance with the requirements of the Corporate Health Physics (CHP) Policy. The CHP policy requires that the health physics programs be structured to maintain radiation exposures of Company personnel, contractor personnel, and the general public at levels which are as low as reasonably achievable (ALARA). The Manager of CHP assures that this policy is properly communicated to all affected organizations.

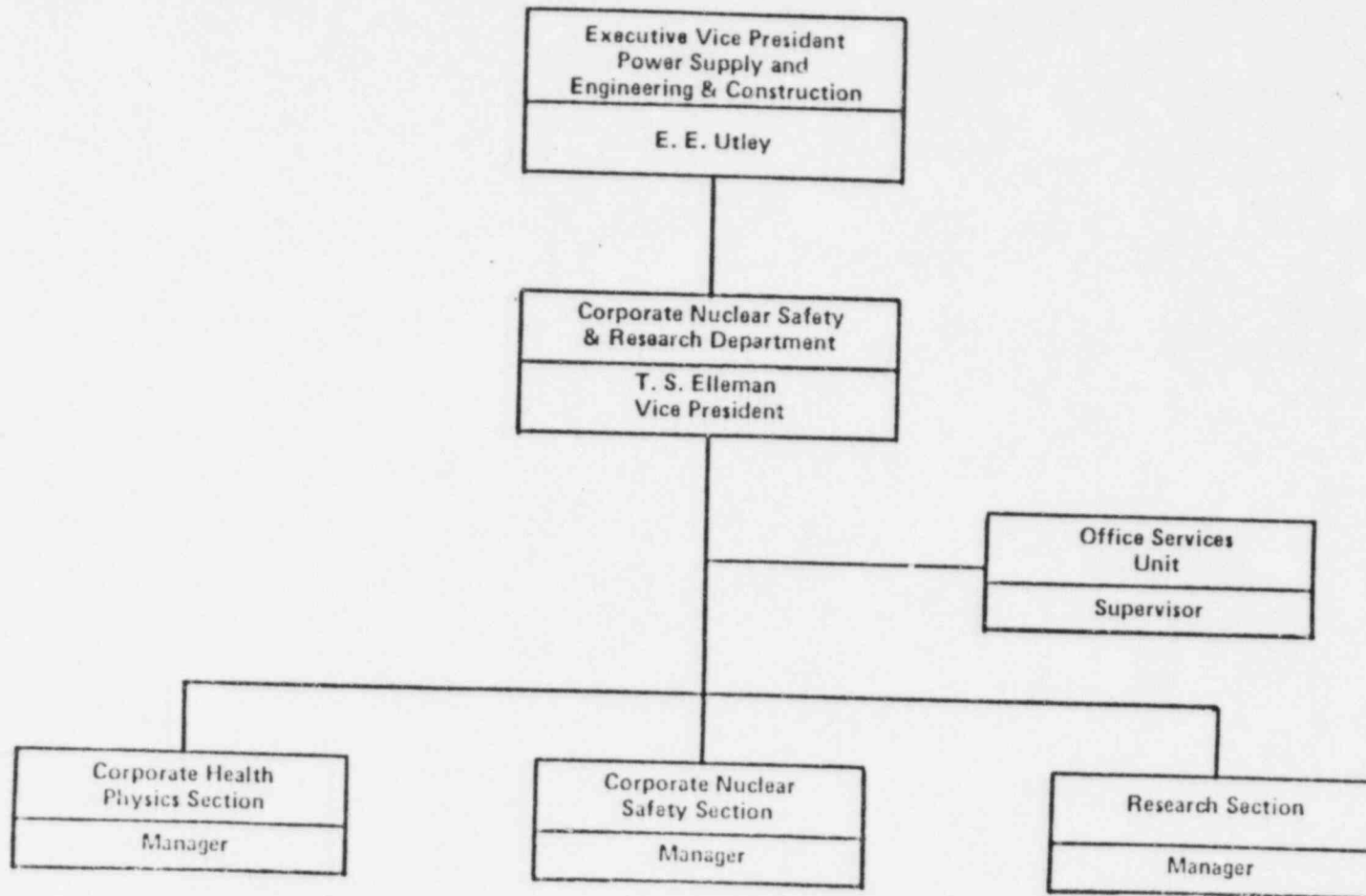


The Corporate Health Physics Section assesses the various ALARA programs which have been developed within the Company to assure that they are effective in minimizing exposure to radiation for people working in our nuclear facilities. The Section provides technical assistance in the areas of health physics to the various departments within the Company as requested. The Section continuously assesses our overall health physics activities to assure that appropriate resources are being committed to the health physics programs and that senior management of the Company is kept informed of the current status of the various health physics programs.

The Research Section is responsible for monitoring and evaluating active and proposed research and development projects related to the electric utility business. Their responsibilities are not related to ensuring adherence to NRC operating procedures, rules, and regulations.

In summary, the Corporate Nuclear Safety Section and the Corporate Health Physics Section primarily support the Vice President of Corporate Nuclear Safety and Research in his overall mission to assure that the Company nuclear power plants are as safe as reasonably achievable. Efforts conducted by members of the department are of assistance in assuring that the Company's nuclear power plants are operated in a safe manner and that the health physics programs established are consistent with the Corporate Health Physics Policy, NRC regulations, and good health physics practices.

CORPORATE NUCLEAR SAFETY & RESEARCH DEPARTMENT



c) NUCLEAR OPERATIONS DEPARTMENT

The Nuclear Operations Department's management structure is depicted and the incumbents are identified on an exhibit following this answer. The structure consists of the Plant General Manager at the Robinson Plant, the Plant General Manager at the Harris Plant, and the Assistant to the Vice President of Nuclear Operations reporting to the Vice President of Nuclear Operations.

The Vice President of Nuclear Operations reports to the Senior Vice President - Power Supply and is responsible for operation and maintenance of the Robinson and Harris Nuclear Plants. He supervises:

1. The Robinson Plant General Manager who is responsible for safe and efficient plant operation of the Robinson Plant in accordance with license, regulatory and Company requirements, and consistent with nuclear safety, environmental, and other considerations.

- Reporting to this position are:

Manager - Environmental and Radiation Control

Director - Planning and Scheduling

Assistant to the General Manager

Manager - Technical Support

Manager - Operations and Maintenance

2. The Harris Plant General Manager who is responsible for ensuring the safe and efficient startup and operation of the Harris Plant in compliance with license, regulatory, and Company requirements, and consistent with nuclear safety, environmental, and other considerations.

- Reporting to this position are:

Manager - Plant Operations

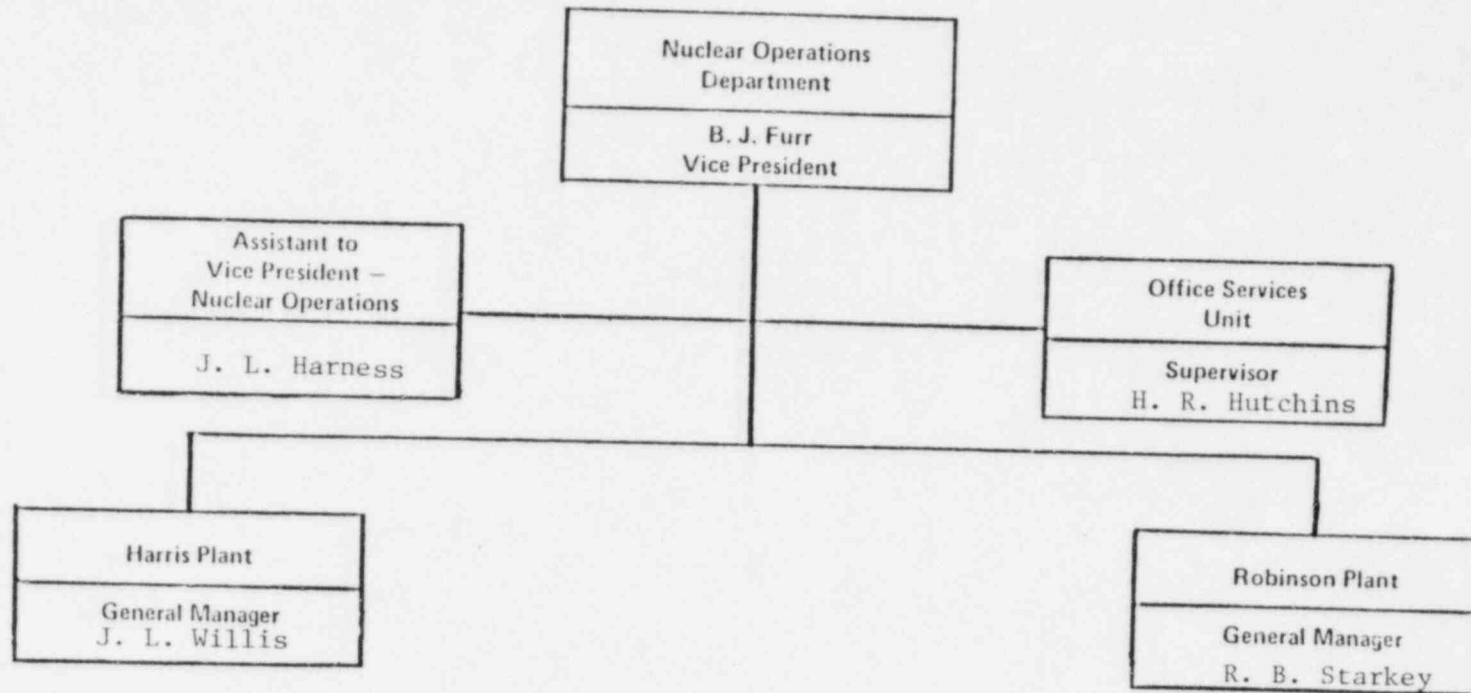
Director - Planning and Scheduling

Assistant to the General Manager

Manager - Technical Support

3. The Assistant to the Vice President of Nuclear Operations who is responsible for providing administrative and technical assistance to the Vice President of Nuclear Operations.
4. The Office Services Supervisor who is responsible for coordinating clerical services.

# NUCLEAR OPERATIONS DEPARTMENT



d) NUCLEAR PLANT ENGINEERING DEPARTMENT

The Nuclear Plant Engineering Department is divided into two major sections: the Harris Plant Engineering Section, and the Engineering Support, Nuclear Plants Section. In addition, the Director - Safety Review, Nuclear Engineering is a part of this Department. There is also an Office Services Unit and a Staff Assistant who provide the Department Manager with staff support. The exhibit following this answer indicates these sections and incumbents therefor. The responsibilities of these are briefly described below.

Harris Plant Engineering Section

The Harris Plant Engineering Section is responsible for providing the design and engineering for the Shearon Harris Nuclear Power Plant project, including engineering support of site activities, and for accomplishing corporate, group, and departmental goals associated with the project. The Section fulfills these responsibilities by managing the contract for architect/engineer services; by providing technical direction for project design; by performing site engineering support to Construction and Operations, including specified design activities; and by managing the procurement of engineered equipment.

The Harris Plant Engineering Section is organized into four Units: Mechanical, Electrical, Civil, and Support. The technical Units are headed by Principal Engineers. The Principal Engineers are responsible for ensuring that project work and decisions which are their responsibility are accomplished in such a manner that the Section's accountabilities are fulfilled.

Engineering Support, Nuclear Plants Section

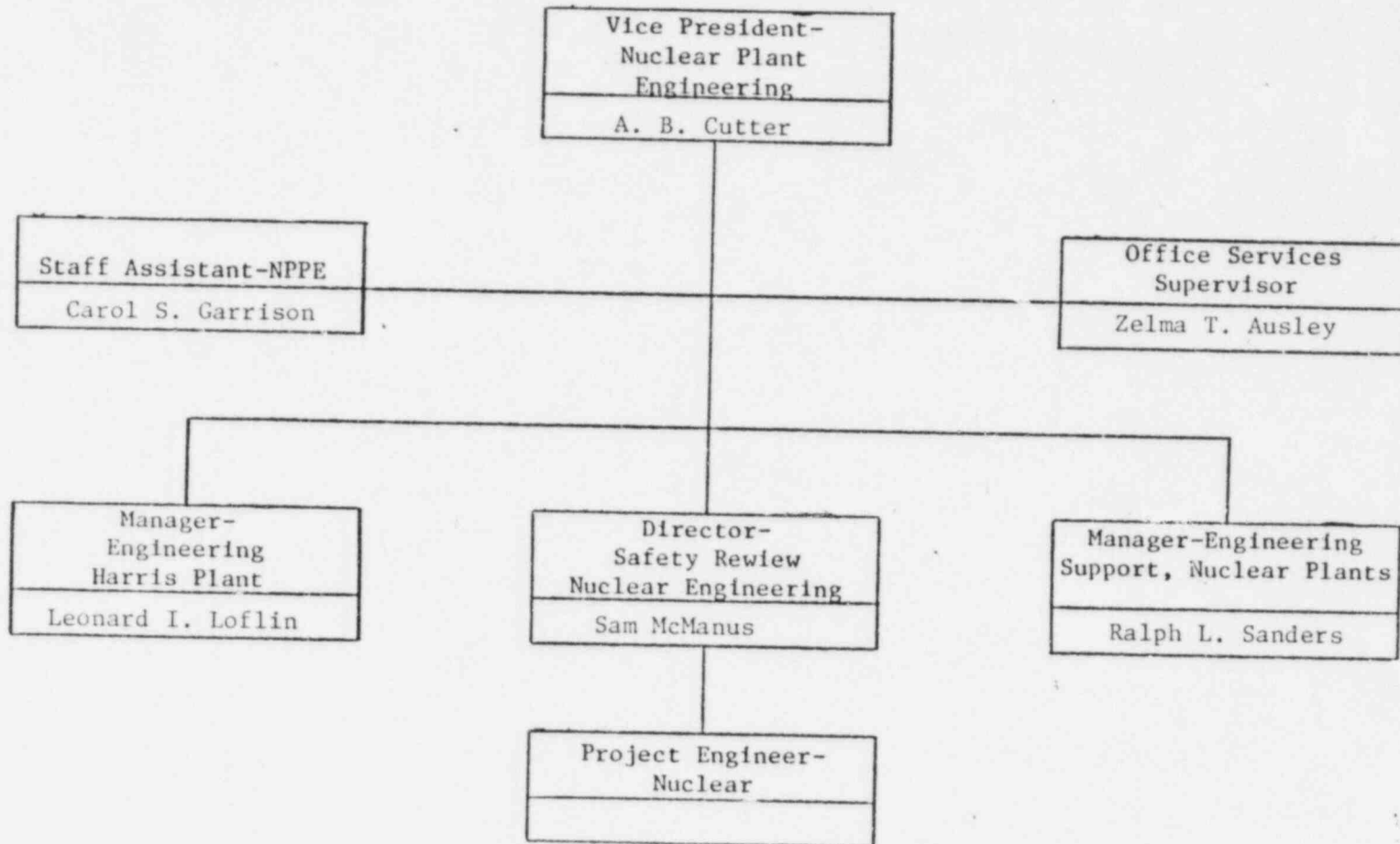
The Engineering Support, Nuclear Plants Section is responsible for providing engineering support for the Company's operating nuclear plants consistent with NRC operating procedures, rules, and regulations and for utilizing feedback received from the operating plants so as to prevent identified problems from recurring. This Section's objective is to provide engineering and procurement of engineered products on schedule

with designs that are economical, safe, efficient, reliable, and compatible with the environment. The Engineering Support, Nuclear Plants Section is organized into three technical Units and an Engineering Administration Staff. The technical Units are Mechanical I (emphasis on major components and analytical support); Mechanical II (emphasis on process systems); and Electrical. The three Units are headed by Principal Engineers.

Director - Safety Review, Nuclear Engineering

The primary responsibilities of the Director - Safety Review, Nuclear Engineering are to review documents generated by the Company's nuclear organization and A/ES to identify problems or potential problems in engineered safeguards systems and plant safety features; to assess activities and trends in the industry regarding design and operation of safety features; to provide feedback to preclude potential nuclear safety problems in ongoing plant designs and design of modifications; and to assure that ALARA concepts for radiation control are considered in engineered designs.

NUCLEAR PLANT ENGINEERING DEPARTMENT





#### e) NUCLEAR PLANT CONSTRUCTION DEPARTMENT

The Nuclear Plant Construction Department consists of the Vice President; two administrative units—Office Services and Administrative Staff; the Robinson Construction Manager; the Project General Manager (Harris); and the Manager, Construction Procurement and Contracting. The Department's objective is to construct the Shearon Harris Nuclear Power Plant and perform additions and modifications to existing facilities at the H. B. Robinson Steam Electric Plant in such a manner as to ensure the Company maximum quality, safety, and economical benefits and to meet scheduled in-service dates.

##### Robinson Construction Management Section

The Robinson Construction Manager has the management responsibility for construction and engineering for the Robinson generating facility as required to complete project assignments in a manner which minimizes impact on plant operations, keeps management informed, and meets all requirements.

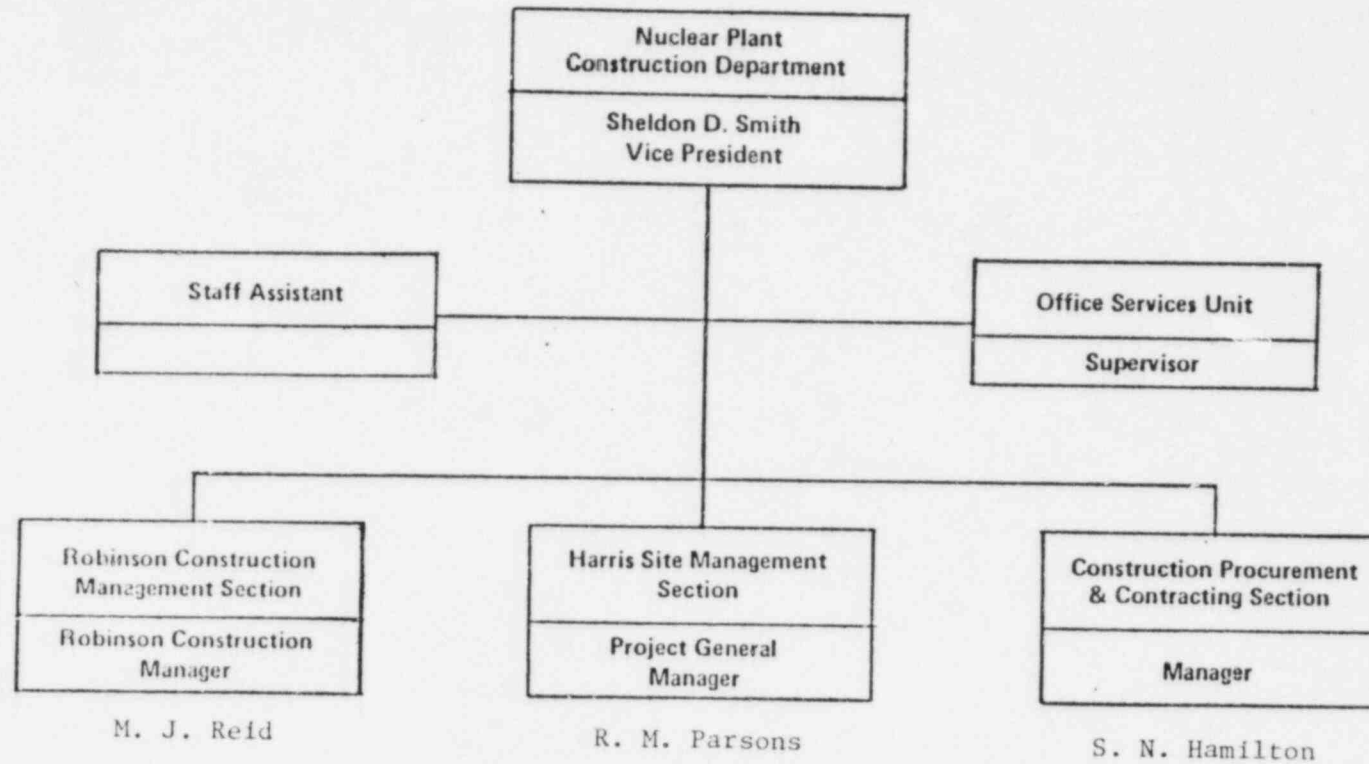
##### Harris Site Management Section

The Harris Site Management Section has the responsibility for construction management of the Shearon Harris Nuclear Power Plant and for control of the constructor and various contractors who work on the site. The Section is headed by the Project General Manager with five subordinate units; Assistant Project General Management, Construction Services, Project Costs and Accounting, Project Analysis, and Electrical Construction.

##### Construction Procurement and Contracting Section

The objective of the Construction Procurement and Contracting Section is to plan, schedule, and control costs of materials and equipment used during construction or modification of nuclear, fossil, hydro, and internal combustion generating facilities for the Company; and to provide contracting services for all assigned construction projects. The Section includes five Units which are responsible for expediting, site procurement, construction equipment, warehousing and material control, and contracting.

NUCLEAR PLANT CONSTRUCTION DEPARTMENT



## RESPONSIBILITY ASSIGNMENTS

All personnel, whether employees of or contractors to CP&L, are responsible for adhering to applicable NRC operating and administrative procedures, rules, and regulations. Specific line management responsible for ensuring adherence to these requirements is delegated to the Plant General Managers. This delegation of authority flows from a chain of command beginning with the Chairman/President and CEO and from there to the Executive Vice President - Power Supply and Engineering and Construction, then to the Senior Vice President - Power Supply, and then to the Vice President - Nuclear Operations Department. In the case of the Brunswick Plant, the delegation of authority flows after said Executive Vice President to the Vice President - Brunswick Nuclear Project. The Plant General Managers of Robinson and Harris Plants report to the Vice President - Nuclear Operations. The Plant General Manager of the Brunswick Plant reports to the Vice-President - Brunswick Nuclear Project.

1-3. For each person who has occupied the position of Plant Manager at Robinson, Brunswick or Harris since January 1, 1978, please provide that person's name, current position and address, and a statement of professional qualifications.

### ANSWER 1-3.

#### Robinson Plant

Mr. R. B. Starkey, Jr.  
Box 790  
Hartsville, SC 29550

Mr. Starkey has occupied the position of Plant Manager (upgraded to Plant General Manager) at the Robinson Plant since 1977.

Mr. Starkey joined CP&L in 1973 after completing nine years of nuclear-related service in the United States Navy. He has ten years of engineering and management experience with CP&L. He has a Bachelor of Science Degree in Physics from Miami University in Oxford, Ohio.

\* \* \* \* \*

Brunswick Plant  
Mr. C. R. Dietz  
Box 10429  
Southport, NC 28461

Mr. Dietz has occupied the position of Plant General Manager at the Brunswick Plant since 1981.

Mr. Dietz has over 20 years of nuclear-related experience. His experience includes 12 years with the General Electric Company where he served as Operations Manager for Start-Up Test Operations on two BWR nuclear plants including the Brunswick Plant. He also served as the Manager of Operator Training Services with the General Electric Company. He has a Bachelor of Science Degree in Chemical Engineering from Montana State College.

Mr. A. C. Tollison, Jr.  
Box 1551  
Raleigh, NC 27602

Mr. Tollison occupied the position of Plant Manager at the Brunswick Plant from December of 1976 through November of 1979. This position was upgraded to Plant General Manager in November of 1979, and Mr. Tollison occupied this position through January of 1981. Mr. Tollison is currently serving CP&L as the Assistant to the Manager of Technical Services.

Mr. Tollison joined CP&L in 1970 after completing six years of nuclear-related service in the United States Navy. He has 13 years of engineering and management experience with CP&L and served as the CP&L Company representative to the Institute of Nuclear Power Operations. He has a Bachelor of Science Degree in Chemical Engineering from the University of South Carolina.

\* \* \* \* \*

Harris Plant  
Mr. J. L. Willis  
Box 165  
New Hill, NC 27562

Mr. Willis has occupied the position of Plant General Manager at the Harris Plant since April of 1982.

Mr. Willis joined CP&L in 1981 after completing 28 years of nuclear-related service in the United States Navy and two years of managerial experience in industry. He has a Bachelor of Science Degree in Electrical Engineering from the United States Naval Academy.

Mr. H. R. Banks  
Box 1551  
Raleigh, NC 27602

Mr. Banks occupied the position of Plant General Manager at the Harris Plant from November of 1979 through January of 1981. Mr. Banks is currently serving CP&L as Manager of the Corporate Quality Assurance Department.

Mr. Banks joined CP&L in 1968 after completing 20 years of service in the United States Navy. See response to 1-1.

The position of Plant General Manager at the Harris Plant was not occupied prior to November of 1979 or in the period between Mr. Bank's tenure and Mr. Willis' assignment.

1-4. Why was the decision made to create a separate Vice Presidential level position to oversee the Brunswick Nuclear Plant?

ANSWER 1-4. The decision to establish a Vice Presidential position at the Brunswick site was made in order to achieve more control and closer coordination of scheduled major projects and plant modifications. Prior to this organizational change in September 1982, a satisfactory structure had been in place at the site to manage power generation operations and to provide the necessary engineering and construction effort to support and improve these operations. Under this arrangement, each of the three major

functions of operations, engineering and construction reported, and were controlled, through separate channels to management located off site. In view of the increasing number, complexity, and interdependence of major engineering and construction projects and plant modifications (retubing the condensers in both units, for example), it became apparent that, to achieve optimum responsiveness, timeliness, and flexibility of effort, the majority of coordination functions and control decisions should be reassigned to the site level. Accordingly, the position of Vice President, Brunswick Nuclear Project, to be located at the site, was established to consolidate all operating and maintenance, engineering, and construction activities at the Brunswick Plant in order to facilitate coordination among these major functions and to expedite the decision-making process.

1-5. Identify any and all correspondence, memoranda, notes or minutes of meetings or any other documents which describe, discuss or otherwise refer to the background to and decision to create the position of Vice President-Brunswick Nuclear Project.

ANSWER 1-5.

Memorandum from Mr. E. E. Utley, Executive Vice President, CP&L, dated July 30, 1982, on the subject: "Brunswick Steam Electric Plant Operations Improvement Program."

CP&L presentation at a meeting between CP&L and NRC (Region II) in Atlanta, Georgia, on August 24, 1982.

Presentation of Mr. E. E. Utley, Executive Vice President, CP&L, to CP&L Board of Directors meeting on September 15, 1982.

Remarks of Mr. John P. Jackson, Group Vice President, Management Analysis Company, for the CP&L Board of Directors meeting on September 15, 1982.

CP&L presentation to the NRC (Region II) in Atlanta, Georgia, on November 10, 1982.

Management Study of Carolina Power & Light Company, conducted by Cresap, McCormick, and Paget, Inc., for the State of North Carolina Utilities Commission (dated December 15, 1982).

Prefiled direct testimony of Mr. L. W. Eury, Senior Vice President, CP&L, before the North Carolina Utilities Commission, Docket No. E-2, Sub 461 (June 1983).

Letter from Mr. E. E. Utley, Executive Vice President, CP&L, to Mr. R. C. DeYoung, Director of the Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, dated May 2, 1983.

1-6. Identify and provide statements of professional qualifications for the Robinson

Steam Generator [sic] Repair Project Team Manager, Project Construction Manager, the Manager-Corporate Quality Assurance and the Senior Engineer noted at page 22 of "Applicant's Answers to The Hartsville Group First Set of Interrogatories and Requests to Produce" (Applicant's Answers).

ANSWER 1-6

Guy P. Beatty, Jr.  
Robinson Steam Generator Repair Project Team Manager  
(see professional qualifications as set forth in ANSWER 1-1)

\* \* \* \* \*

Matthew J. Reid  
Robinson Construction Manager

Education

BS Degree in Mechanical Engineering - University of Rhode Island, 1948.

Experience

A. February 1948 - June 1965

1. ITT Grinnell Corporation

- a. February 1948 - October 1953 - Field Superintendent/Engineer at Hartwell Company, Inc., East Providence, Rhode Island.
- b. October 1953 - February 1956 - Operations Manager at Portsmouth, Ohio, AEC Gaseous Diffusion Project.
- c. February 1956 - November 1959 - Project Manager at T. H. Allen Generation Station, Memphis, Tennessee.
- d. November 1957 - June 1965 - Construction Manager at Industrial Piping Division, Providence, Rhode Island.

B. June 1965 - June 1970

1. Kaminer Construction Corporation, Atlanta, Georgia

- a. Vice President.

C. June 1970 to August 1982

1. ITT Grinnell Corporation

- a. June 1970 - January 1972 - Assistant Division Manager of Industrial Piping Division, Providence, Rhode Island.



- b. January 1972 - January 1973 - President of Hartwell Company, East Providence, Rhode Island.
  - c. January 1973 - August 1982 - Vice President, Director of Construction at Industrial Piping Division in Kernersville, North Carolina.
- D. August 23, 1982 - Present
- 1. Carolina Power & Light Company
    - a. August 23, 1982 - Project Construction Manager (Robinson) in the Brunswick & Robinson Site Management Section of the Nuclear Plant Construction Department. Located at the Robinson site, Hartsville, SC.
    - b. March 5, 1983 - Promoted to Robinson Construction Manager in the Robinson Construction Management Section of the Nuclear Plant Construction Department. Located at the Robinson Plant, Hartsville, SC.

\* \* \* \* \*

Harold R. Banks  
 Manager - Corporate Quality Assurance  
 (see professional qualifications as set forth in ANSWER 1-1)

\* \* \* \* \*

Richard L. Miller  
 "Senior Engineer", now Project Engineer - Mechanical

Education

BS Degree in Mechanical Engineering from North Carolina State University - 1977

Experience

A. May 1977 - November 1977

- 1. Goodyear Tire and Rubber Company, Akron, Ohio
  - a. Design engineer.

B. November 1977 - November 1979

- 1. Westinghouse Electric Corporation, Charlotte, North Carolina
  - a. Field service engineer, supervised and directed inspection of turbine



generators, boiler feed pump turbines, and reactor coolant pump motors.

C. December 17, 1979 - Present

1. Carolina Power & Light Company

- a. December 17, 1979 - Employed as Engineer in the Harris Site Management Section of the Power Plant Construction Department. Located at Harris Site, New Hill, North Carolina.
- b. March 7, 1981 - Transferred to the Brunswick & Robinson Site Management Section of the Nuclear Plant Construction Department. Located at the Robinson Site, Hartsville, SC.
- c. December 26, 1981 - Promoted to Senior Engineer in the Brunswick & Robinson Site Management Section of the Nuclear Plant Construction Department. Located at the H. B. Robinson site, Hartsville, SC.
- d. September 1982 to March 1983 - Loaned to FP&L, Turkey Point, to perform as a "Hands on" Area Supervisor for the Turkey Point Unit No. 4 Steam Generator Repair.
- e. July 7, 1983 - Promoted to Project Engineer in the Robinson Construction Management Section of the Nuclear Plant Construction Department. Located at the H. B. Robinson site, Hartsville, SC.

1-7. Describe in detail the procedure for the Corporate Health Physics assessments of the health physics programs identified in response to Interrogatory 1-11 of the prior set of Intervenor's Interrogatories (Applicant's Answers, p. 25).

ANSWER 1-7. A Corporate Nuclear Safety & Research Department Procedure has been developed to detail the activities associated with Corporate Health Physics assessments of the health physics programs at the operating nuclear plants. The procedure, entitled "Procedure for Corporate Health Physics Section Assessments of Health Physics Programs," describes the methods for performing assessments of nuclear plant health physics programs and special assessments of health physics related activities. Periodic assessments are made of the various aspects of the operating nuclear

plant health physics programs to assure the effectiveness of the programs in meeting NRC rules and regulations and good health physics practices.

The assessments of the operating nuclear plants health physics programs are conducted periodically throughout the year based on a topical breakdown of key areas of the health physics programs. The primary thrust of this effort is to assure the effectiveness of the health physics programs and to utilize information obtained in the assessments to make recommendations for improvements in the health physics programs.

1-8. Please provide a copy of the procedure referenced in Interrogatory 1-7, above.

ANSWER 1-8. A copy of the Corporate Health Physics assessment procedure is available for inspection and copying by the Hartsville Group at CP&L's General Office in Raleigh, N.C.

1-9. Please provide to Intervenor or make available for copying a copy of the Corporate Quality Assurance Program Manual, Revision 4 (Blue Book) or any more recent revision thereof.

ANSWER 1-9. Applicant will make said manual available to the Hartsville Group for copying at CP&L's General Office in Raleigh, N.C.

1-10. Describe in detail the General Employee Training program.

ANSWER 1-10. Currently in operation at the H.B. Robinson Plant is a general employee training (badging) course. This course is designed to provide each CP&L employee, contract employee, and visitor with the basic knowledge of safety, security, radiation protection, and appropriate emergency actions that each individual is expected to perform at CP&L's nuclear facilities. This course consists of 11 instructional modules and takes about 10 hours to complete. The instructional modules for this course are:

1. Introduction to General Employee Training
2. Types and Sources of Radiation
3. Biological Effects of Radiation
4. Radiation Dose Limits and Protection
5. Personal Radiation Protection

6. Workers' Rights
7. Plant Security and Emergency Actions
8. Fire Protection, Clearance Tags, Independent Verification, Quality Performance, and Good Housekeeping
9. Plant Communications Systems
10. Radiation Areas Contamination and RWPs
11. Protective Clothing and Radiation Monitoring

Efforts are currently underway to restructure the current general employee training (badging) course and implement a General Employee Training Level I - Plant Indoctrination Course and a General Employee Training Level II - Radiation Protection Course. The restructured General Employee Training Level I Course will be designed to provide basic knowledge of the nonradiation protection subjects such as plant description, industrial safety, quality assurance, quality control, and plant security. The General Employee Training Level II - Radiation Protection Course will be designed to provide basic knowledge and skills in the areas of radiation protection such as types and sources of radiation, biological effects of radiation, radiation dose limits/dosimetry, radiation protection, workers' rights, portable radiation detection instruments, radiation and contamination areas, radiation work permit, respiratory protection, emergency actions, protective clothing, and personnel monitoring. The General Employee Training Level II - Radiation Protection Course is being structured to coincide with the Institute of Nuclear Power Operation's guidelines for general employee training. This restructure of General Employee Training is targeted to be completed in 1983.

A General Employee Training Level III - Radiation Protection Application Course is being taught at the H.B. Robinson Plant. This course, which exceeds regulatory requirements, is designed to provide additional knowledge of biological effects, radiation exposure, radiation dose limits and rules, radiation exposure control, radiation detection theory, radiation monitoring, survey and records requirements, radioactive waste disposal, respiratory protection, and basic nuclear power plant systems, emphasizing

radiation protection. This course was implemented at the H.B. Robinson in July 1983 and is being offered to personnel in supervisory and key-lead roles.

Efforts are continuing to be made to revise and upgrade general employee training at our nuclear plants to meet new regulatory requirements and the needs of personnel working at our nuclear facilities.

1-11. What is the documentary basis for your response to Interrogatory 1-10?

ANSWER 1-11.

- A. Carolina Power & Light Company, Nuclear Training Section, General Employee Training Manual Level I - Badging, Revision 3, April 27, 1983.
- B. Memorandum to Mr. B. J. Furr and Mr. P. W. Howe from Mr. J. R. Bohannon, Jr. Serial: NO-83-H924. File: NTS-4204(I). Subject: Concurrence on Restructured General Employee Training Levels.
- C. Memorandum to Mr. L. W. Eury from Mr. B. J. Furr dated July 13, 1983. Subject: GET Level III Training.

1-12. Please provide to Intervenors or make available for copying the Nuclear Training Section General Employee Training Manual, lesson plans, textbooks, and any other materials employed in the General Employee Training program.

ANSWER 1-12. The General Employee Training materials are available for inspection and copying at CP&L's General Office in Raleigh, NC.

1-13. Describe in detail the difference in job functions and qualifications of a Quality Assurance Technician and a Quality Assurance Specialist.

ANSWER 1-13. The QA/QC Specialist is a professional or exempt classification. The Specialist is a knowledgeable and experienced individual who performs a specific quality assurance function such as surveillance, inspection and documentation. The Specialist, by virtue of professional classification, may be required to assist in resolution of highly technical or unique plant problems. This function requires frequent interfacing with personnel in other plant organizations.

The QA/QC Technician is a non-professional or non-exempt classification. The QA/QC Technician is a qualified inspector, by virtue of training and testing, in one or more of the following inspection disciplines: civil, mechanical, welding, nondestructive testing, electrical, material receiving, or documentation. The technician receives

inspection assignments from, and is monitored by, the QA/QC Specialist. The inspection work is performed according to prescribed codes and standards.

1-14. What records does CP & L maintain at a) the Corporate level and b) at the site level with respect to disciplinary actions taken wispect [sic] to CP & L employees or contractor or subcontractor employees with regards to non-compliance with NRC operating and adinistrative rules, regulations and procedures?

ANSWER 1-14. a) Records are not maintained at the corporate level relative for all disciplinary actions. b) Documentation of disciplinary actions involving significant NRC non-compliances is normally maintained in personnel files on site for CP&L employees.

1-15. Identify by name and provide the professional qualifications of the following persons:

- a) Site Personnel Director - Robinson
- b) Site Director of Quality Assurance - Robinson
- c) the "representative of the Manager of Construction" referenced at p. 34, Applicant's Answers
- d) Site Personnel Director - Harris
- e) Site Manager of Quality Assurance and Quality Control - Harris
- f) Construction Site General Manager - Harris
- g) Site Persionnel [sic] Director - Brunswick
- h) Site Director of Quality Assurance and Quality Control - Brunswick.

ANSWER 1-15.

- a) Magie E. Fishburne  
Director Personnel Relations H. B. Robinson Nuclear Plant

Eleven (11) years experience in the educational field, which included positions as Field Representative, English Teacher, Assistant Director of Admissions, and Director of Admissions. Ten (10) years experience with CP&L which includes four (4) years as Recruitment Representative, four (4) years as an Assistant Personnel Representative - Northern Division, and two (2) years experience as Director - Personnel Relations, Robinson Nuclear Plant. B/S English and Masters Education Administration.

\* \* \* \* \*

- b) Harry Joseph Young  
Director - QA/QC - Robinson Plant

Education & Training

A. University of South Carolina - One Year - 1964.

B. Nondestructive Testing Qualifications held:

1. Liquid Penetrant - Level II
2. Magnetic Particle - Level II
3. Radiography - Level II

Experience

A. E. I. DuPont, Aiken, SC.

1. February 1955 - March 1967
  - a. Laboratory Technician/Chemist Assistant.

B. Walker Laboratories - Columbia, SC.

1. May 1967 - September 1967
  - a. Testing/Inspecting Engineer.

C. Duke Power Company - Seneca, SC.

1. September 1967 - July 1968
  - a. "A" Inspector.

D. Grinnell Company, Inc. - Providence, R.I.

1. August 1968 - September 1969
  - a. Radiographer/Quality Assurance Technician.

E. B. F. Shaw Company - Laurens, SC.

1. October 1969 - October 1971
  - a. Chief Radiographer/NDT Lab Supervisor.

F. Daniel Construction Company - Barnwell, SC.

1. November 1971 - March 1973
  - a. Lead Quality Control Welding Inspector.

G. Carolina Power & Light Company

1. March 1973 employed as a Senior Quality Control Specialist-Construction in the Quality Assurance Section of the Power Plant Engineering & Construction Department, located at the Shearon Harris Nuclear Power Plant, New Hill, NC.
  - a. October 1973-transferred from Power Plant Engineering & Construction Department to Power Plant Construction Department, Quality Assurance Section, located at the Harris Plant.

- b. November 1976-transferred to the Technical Services Department, Senior Quality Control Specialist, Engineering & Construction Quality Assurance Section, located at the Harris Plant.
- c. November 1978-promoted to Project QA Specialist in the Engineering & Construction QA Section, Technical Services Department, Mayo/Roxboro Construction QA, located at Person County, NC.
- d. March 1981-promoted to Director-Quality Assurance/Quality Control-Operating Nuclear Plants at the H. B. Robinson Steam Electric Plant in the Operations Quality Assurance Quality Control Section of the Corporate Quality Assurance Department at Hartsville, SC.
- e. March 1983-title changed to Director - QA/QC - Robinson Plant in the QA/QC - Brunswick and Robinson Plants Section of the Corporate Quality Assurance Department located at the Robinson Plant, Hartsville, SC.

\* \* \* \* \*

- c) Deborah W. Martin  
Senior Clerk

Approximately twelve (12) years office experience. One and one-half (1-1/2) years clerical experience with construction company working on-site at the H. B. Robinson Nuclear Plant. One and one-half (1-1/2) years experience with CP&L. Duties consist of clerical responsibilities in the Office of Manager - Construction, H. B. Robinson Nuclear Plant.

\* \* \* \* \*

- d) John D. Ferguson  
Director Personnel Relations Harris Nuclear Plant

Five (5) years military experience (U. S. Army-Captain). Approximately six (6) years experience with CP&L which includes four (4) years as a Technical Recruiter, two (2) years as Assistant Personnel Representative for the Central Division which included the Harris Nuclear Plant Site. B/S Degree in Engineering.

\* \* \* \* \*

- e) Nathaniel J. Chiangi  
Manager - Quality Assurance/Quality Control Harris Plant

#### Education & Training

- A. Graduate of Norwich Free Academy, Norwich, Connecticut.



- B. Special Schools: Nuclear Submarine Systems, Navyships 250-1500-1, Mil Std 271 D - 271A, Navyships 250-693-3 (Structural), Health Physics Monitoring, Management Schools-Electric Boat Company, Electronics School-U.S. Navy, Welding School-EBC, Radiography School, Magnetic Particle Testing School-EBC, Liquid Penetrant Test School-EBC, Ultra Sonic Testing Classes-EBC, Eastman Kodak School for Automatic Film Processing Equipment, Job Cost Estimating-EBC.
- C. Qualified: AEC Licensed Radiographer and Radiographer Supervisor.

Professional Societies

- A. ASNT - ASME.
- B. Qualified ANST - Level III - 2/4/77  
Radiographic - Magnetic Particle - Liquid Penetrant.
- C. Professional Engineer - State of California - January 1977.

Experience

- A. U. S. Navy
  - 1. 1947 - 1952
    - a. Sonar Man - Radar Man.
- B. Electric Boat Company, Groton, CT
  - 1. 1952 - 1967
    - a. Welding-Field Work-Piping-Structural.
    - b. 1954-1967 - Lead Supervisor - Radiography Department.
- C. Ebasco Services, Inc., New York, NY
  - 1. 1967 - 1973
    - a. Quality Compliance-Quality Control Supervisor.
    - b. 1970-1972 - Site Quality Compliance Supervisor.
    - c. 1972 - October 1973 - Senior Quality Compliance Engineer.
- D. Carolina Power & Light Company
  - 1. October 1973 to Present
    - a. October 1973 - Employed as Quality Assurance Manager- Construction in the Quality Assurance Section of the Power Plant Construction Department. Located in the General Office.
    - b. November 1976 - Transferred and promoted to Manager- Engineering & Construction Quality Assurance Section of the Technical Services

Department. Located in the General Office.

- c. March 1981 - Transferred and reclassified as Manager Engineering & Construction Quality Assurance/Quality Control in the Engineering & Construction Quality Assurance/Quality Control Section of the Corporate Quality Assurance Department. Located in the General Office.
- d. March 1983 - Transferred as Manager - Quality Assurance Quality Control Harris Plant Section of the Corporate Quality Assurance Department located at the Harris site, New Hill, NC.

\* \* \* \* \*

- f) Roland M. Parsons  
Project General Manager - Harris

#### Education

BS Degree in Civil Engineering from Fresno State College, 1959.

#### Professional Societies

- A. American Society of Civil Engineers.
- B. Registered Professional Engineer in North Carolina - January 20, 1977.

#### Experience

- A. August 1964 to November 1966
  - 1. U. S. Forest Service, Nevada City, California
    - a. Forest service representative on hydroelectric developments built on forest service land by others.
- B. November 1966 to September 1973
  - 1. Ebasco Services, Inc., Hartsville, South Carolina; and Jensen Beach, Florida
    - a. November 1966 - Field Engineer on construction of H. B. Robinson Unit No. 2.
    - b. November 1967 - Resident Engineer responsible for site engineering and quality control for construction of H. B. Robinson Unit 2.
    - c. April 1971 - Senior Resident Engineer responsible for all site engineering for construction of St. Lucie Unit No. 1. (810 MW combustion engineering PWR nuclear power plant).
- C. September 1973 to May 1974
  - 1. Daniel Construction, Jenkinsville, SC.

- a. Site Manager of Engineering responsible for all site engineering for construction of V. G. Summer Nuclear Power Plant.

D. June 1974 to September 1976

1. Ebasco Services, Elma, Washington

- a. Senior Resident Engineer responsible for all site engineering on 1300 MW PWR nuclear power plant.

E. September 20, 1976 to Present

1. Carolina Power & Light Company

- a. September 20, 1976 - Employed as Site Manager in the Nuclear Construction Section of the Power Plant Construction Department. Located at the Harris site, New Hill, NC.
- b. April 27, 1979 - Reclassified as Site Manager (Harris) in the Harris Site Management Section of the Power Plant Construction Department.
- c. May 3, 1980 - Reclassified as Site Manager - Harris Plant Construction in the Harris Site Management Section of the Power Plant Construction Department.
- d. January 31, 1981 - Reorganization - Site Manager - Harris Plant in the Harris Site Management Section of the Nuclear Plant Construction Department.
- e. March 22, 1982 - Title changed to Project General Manager.

\* \* \* \* \*

- g) Marlie Steve Choplin  
Director Personnel Relations Brunswick Nuclear Plant

Seven (7) years experience with CP&L, which includes three (3) years in office supervision, two (2) years Assistant Personnel Representative for the Eastern Division, and two (2) years as Personnel Representative for the Brunswick Nuclear Plant. B/A Degree in Accounting.

\* \* \* \* \*

- h) Larry Edward Jones  
Director - QA/QC - Brunswick Plant

Education & Training

BS Degree in Metallurgical Engineering from University of Missouri at Rolla, 1967.

### Professional Societies

- A. American Society for Nondestructive Testing (ASNT).
- B. Licensed Professional Engineer, State of California, August 1978.

### Experience

- A. ITT Telecommunications
  - 1. 1966 (summer)
    - a. Quality Control Lab Technician.
- B. Newport News Shipbuilding and Drydock Company
  - 1. 1967 to 1972
    - a. Quality Control Engineer.
- C. Carolina Power & Light Company
  - 1. July 31, 1972 to present
    - a. Employed as a Quality Surveillance Specialist - Engineering in the Quality Assurance Section of the Power Plant Engineering Department located in the General Office.
    - b. February 2, 1974 - Promoted to Senior Quality Assurance Engineer in the QA Section of the Power Plant Engineering Department located in the General Office.
    - c. October 25, 1975 - Promoted to Project Quality Assurance Engineer in the Quality Assurance Section of the Power Plant Engineering Department located in the General Office.
    - d. November 1976 - Transferred as a Project Quality Assurance Engineer in the Engineering & Construction Quality Assurance Section of the Technical Services Department located in the General Office.
    - e. February 4, 1977 - Promoted to Principal QA Engineer in the Engineering & Construction QA Section of the Technical Services Department located in the General Office.
    - f. March 7, 1981 - Transferred as a Principal QA Engineer in the Engineering & Construction Quality Assurance/Quality Control Section of the Corporate Quality Assurance Department located in the General Office.
    - g. March 5, 1983 - Transferred and promoted to Director-Quality Assurance/Quality Control - Brunswick Plant in the QA/QC - Brunswick and Robinson Plants Section of the Corporate Quality Assurance Department located at the Brunswick Plant, Southport, NC.

\* \* \* \* \*

B. INTERROGATORIES RELATING TO  
HARTSVILLE CONTENTION 3

3-1. How many Westinghouse Model 44 steam generators have experienced significant degradation of tubes resulting in tube leaks?

ANSWER 3-1. Steam generator leaks exceeding Tech Spec limits which necessitated a plant shutdown are listed in the NRC Grey Book statistics.

3-2. Identify each reactor employing Westinghouse Model 44 steam generators which has experienced tube leaks.

ANSWER 3-2.

Ginna

Point Beach 1 and 2

Turkey Point 3 and 4

Indian Point 2 and 3

H. B. Robinson

3-3. What data do you possess on the frequency and severity of tube leaks in reactors equipped with Westinghouse Model 44 steam generators?

ANSWER 3-3. None, other than that which CP&L possesses for H. B. Robinson 2 as shown in response to Interrogatory 3-10 of this set. See NRC Grey Book statistics and NUREG-0886 for further data on Model 44 steam generators.

3-4. What are the bases for your responses to Interrogatories 3-1 through 3-3?

ANSWER 3-4.

NUREG-0886 "Steam Generator Tube Experience"

NRC Grey Book Statistics thru November 1981 (NUREG-0020)

3-5. How many tube ruptures have occurred [sic] at reactors employing Westinghouse Model 44 steam generators?

ANSWER 3-5. See NUREGs 0651 and 0909.

3-6. At which reactors employing Westinghouse Model 44 steam generators, have:

a) steam generator tubes been plugged;

- b) steam generator tubes been sleeved; or,
- c) lower steam generator assemblies been replaced?

ANSWER 3-6. See NUREG-0886.

3-7. Identify any additional reactors employing Westinghouse Model 44 steam generators where the operators or owners anticipate:

- a) plugging steam generator tubes;
- b) sleeving steam generator tubes; or,
- c) replacing the lower steam generator assemblies.

ANSWER 3-7.

- a) All.
- b) Unknown.
- c) H. B. Robinson.

Point Beach 1.

3-8. What are the bases for your responses to Interrogatories 3-5 through 3-7?

ANSWER 3-8.

NUREG-0886

NUREG-0651

NUREG-0909

Steam Generator Sleeve Test Program, R. E. Ginna Nuclear Power Plant (Non-proprietary Report) prepared by Babcock and Wilcox.

3-9. How many leaks have been experienced in the steam generator tubes in Robinson 2?

ANSWER 3-9. 22.

3-10. For each instance of leaking steam generator tubes at Robinson 2, identify the date of the occurrence [sic], the leakage rate, and the cause of the leakage.

ANSWER 3-10.

<u>Date</u>	<u>Leak Rate</u>	<u>No. of Leaking Tubes</u>
5/14/72	12.00 GPM	1
11/22/73	4.18 GPM	1
9/21/78	0.62 GPM	2
4/11/79	0.38 GPM	6
6/11/79	Assumed > 0.35 GPM	1
3/14/80	0.15 GPM	3
4/13/80	0.50 GPM	1
7/7/80	0.32 GPM	1
7/30/81	0.30 GPM	3
11/20/81	1.50 GPM	1
4/83	0.31 GPM	2

All steam generator tube leaks are believed to be a result of corrosion related phenomena. A specific cause for each leakage instance cannot be determined without a metallographic examination of each affected tube.

3-11. Is Applicant aware of any litigation in which its supplier Westinghouse is involved in which it has been alleged that there have been defects or deficiencies in the design, manufacture or operation of Westinghouse steam generators?

ANSWER 3-11. Yes.

3-12. If the answer to Interrogatory 3-11 is affirmative, identify each such litigation, the parties involved, and the allegations made.

ANSWER 3-12. The only litigation that Applicant is aware of is an action filed in the U. S. District Court (Southern District of Florida). Case No.: 78-1896-Civ-CA entitled "Florida Power & Light Company v. Westinghouse Electric Corporation." The complaint sets forth the allegations made.

3-13. What are the bases for your responses to Interrogatories 3-11 and 3-12? Identify all documents, testimony or oral statements by any person upon which you rely in support of your position.

ANSWER 3-13. A copy of the Complaint for Damages filed in the litigation referred to in response 3-12 above.

3-14. Has CP & L made any written or verbal complaints to Westinghouse regarding the adequacy of the design, manufacture or operation of any steam generators provided to or currently on order by CP & L from Westinghouse?

ANSWER 3-14. Yes.

3-15. If the answer to Interrogatory 3-14 is affirmative, describe in detail each such complaint.



- ANSWER 3-15. (1) Nonconformance report for not following procedures and errors on mill test report.
- (2) Nonconformance report on errors in weld procedure.
  - (3) Nonconformance report for not following specific procedure and dropping tubesheet.
  - (4) Nonconformance report on steam generator tubing.
  - (5) Nonconformance report on mill test reports.
  - (6) Nonconformance report on UT machine out of calibration.

NOTE: The SHNPP steam generators are Model D4, one of three Westinghouse "counterflow" steam generator models. Since February 1982, CP&L management and engineering personnel have worked closely with Westinghouse during the resolution of flow induced tube vibration problems identified first in "split flow" and later in "counterflow" steam generators. CP&L's activities have included:

- Participation in Westinghouse's Customer Working Group Meetings.
- Participation with five other utilities, in the counterflow Steam Generator Owners Review Group in an independent evaluation of Westinghouse's proposed modifications to counterflow steam generators.
- Review of technical issues through presentations by Westinghouse to CP&L management and engineering personnel.

CP&L requested Westinghouse's formal recommendation for proposed modifications to the SHNPP steam generators in May 1983; received the recommendation in June 1983; endorsed the Owners Review Group evaluation of the proposed modifications presented to the NRC in July 1983 and formally accepted the proposed modification in August 1983.

3-16. What are the bases for your responses to Interrogatories 3-15 and 3-16? Identify all documents, testimony or oral statements by any person upon which you rely in support of your position.

ANSWER 3-16. Letters from CP&L to Westinghouse

- (1) CP&L letter EO-00892 dated 2/7/83
- (2) CP&L letter EO-01183 dated 4/25/83

- (3) CP&L letter EW-3 dated 5/4/83
- (4) CP&L letter EW-9 dated 5/23/83
- (5) CP&L letter EW-25 dated 7/26/83
- (6) CP&L letter EW-28 dated 8/5/83

3-17. Has CP & L filed suit against Westinghouse with respect to the operation, non-operation, or recovery of costs for defects, deficiencies, or failures of Westinghouse steam generators?

ANSWER 3-17. No.

3-18. Does CP & L contemplate suing Westinghouse with respect to any matter related to steam generators?

ANSWER 3-18. Not at this time.

3-19. What are the bases for your responses to Interrogatories 3-17 and 3-18?

ANSWER 3-19. No answer required.

3-20. Please provide a copy of the "estimated/cash flow" referred to in response to Interrogatory 3-95 of Intervenor's first set of interrogatories.

ANSWER 3-20. The budget documents from which the "estimate/cash flow" referred to in response to Interrogatory 3-95 of the first set of interrogatories was taken are a part of the Company's work papers requested in this second set of interrogatories. These work papers will be made available to the Hartsville Group for inspection and copying in CP&L's General Office in Raleigh, NC. The data provided on these budget documents are reflected on Attachment 3-89 of the first set.

3-21. Please provide a copy of the 1983 construction budget, as approved, referred to in Applicant's Answer to Interrogatory 3-95.

ANSWER 3-21. As stated in response to the preceding Interrogatory (3-20) of the second set, CP&L's 1983 construction budget documents regarding the Robinson 2 steam generator replacement, as referred to in CP&L's response to Interrogatory 3-95 of the first set, are part of the work papers which will be made available to the Hartsville Group for inspection and copying.

The following questions refer to Applicant Responses to NRC staff requests 1-10, supplied by S. R. Zimmerman under a cover letter dated July 14, 1983.

3-22. With respect to Staff Request 1, the cost of replacing the Robinson 2 steam generator lower assemblies (SLGA's) is estimated as follows:

Labor	\$	37,485,000
Equipment		37,161,000
Other		<u>31,027,000</u>
Total	\$	105,673,000

It is also stated that because of (a) contractual agreements and (b) support modifications already performed, "a commitment has already been made for approximately \$67 million of the \$105,673,000 total cost."

a) Please disaggregate the estimate of "other costs" into overheads, contingency funds, AFUDC, and miscellaneous.

b) Please disaggregate the \$105,673,000 according to the following table:

	Contractually Committed	Performed Modifications	Not Committed	Total
Labor	\$ x	\$ x	\$ x	\$ x
Equipment	x	x	x	x
Overheads	x	x	x	x
Contingency	x	x	x	x
AFUDC	x	x	x	x
Miscellaneous	x	x	x	x
Total	\$ x	\$ x	\$ x	\$105,673,000

If the table cannot be accurately completed, please provide best current estimates and indicate which entries are so estimated.

ANSWER 3-22. Standard definitions for all of the breakdown categories requested do not exist and CP&L does not use all of these categories. However, for purposes of responding to this interrogatory, CP&L has made the following breakdowns of the cost estimates.

a) The following table provides the breakdown of "other costs" into overheads, contingency funds, AFUDC, and miscellaneous costs:

	Cost (\$)
Overhead	12,681,000
Contingency Fund	8,932,000
AFUDC	9,010,000
Miscellaneous	<u>404,000</u>
Total	31,027,000

b) The following table provides a breakdown of the \$105,673,000 cost

estimate. The assumed decision date for determining whether to proceed with the proposed replacement plan or to retire the unit at the end of 1984 was January 1, 1984. Therefore, the following breakdown is provided with respect to that date.

ESTIMATED BREAKDOWN AS OF 1/1/84<sup>(1)</sup>

(BASED ON 1983 CONSTRUCTION BUDGET)

(C00's \$)

	Performed Modifications Thru 1/1/84	Contractually Committed As Of 1/1/84	Not Committed As Of 1/1/84 <sup>(2)</sup>	Total
Labor	15,229	1,954	20,302	37,485
Equipment	34,676	2,100	385	37,161
Overheads	4,640		8,041	12,681
Contingency	4,735		4,197	8,932
AFUDC	3,116		5,894	9,010
Miscellaneous	404			404
Total	62,800	4,054	38,819	105,673

(1) All of the above expenditures are projected estimates as of January 1, 1984.

(2) If work is stopped January 1, 1984, a portion of this noncommitted cost will be incurred in the demobilization of the jobsite.

3-23. With respect to Staff Request 1, please supply all workpapers, including bbut [sic] not limited to the inputs and outputs of production costing models, used in developing the \$41 million estimate of replacement power costs.

ANSWER 3-23. The workpapers used as the basis for calculating the \$41 million estimate of replacement power costs will be made available to the Hartsville Group for inspection and copying at the CP&L General Office in Raleigh, NC.

3-24. With respect to Staff Request 2, the cost comparison of sleeving and the proposed plan appears to consider only capital costs.

a) Is this true?

b) Is it accurate to assume that any non-capital costs savings under the sleeving plan would not be sufficient to offset the greater replacement power costs?

c) Please provide workpapers showing the development of both the nominal and present value cost comparison.

ANSWER 3-24. See objections of counsel.

3-25. With respect to Staff Request 3, explain why a fifteen year study period (1984 through 1998) was chosen.

ANSWER 3-25. The 15-year study period (1984 through 1998) was chosen for two basic reasons: 1) that time period was considered long enough to reflect the effect of the steam generator repairs and payback period and to show the effects of retiring Robinson 2 on December 31, 1984, and 2) the use of any longer period would require increasingly speculative assumptions regarding costs and other data necessary for such calculations. It is not anticipated that the cost trends or conclusions resulting from the 15-year study would change if a longer study period were used.

3-26. With respect to Staff Request 3, is Robinson 2 to be retired in 1998?

ANSWER 3-26. No. CP&L currently has no plans to retire Robinson 2. The current operating license does not expire until 2007, and it is anticipated that the unit will operate at least until that time.

3-27. If the answer to Interrogatory 3-26 is negative, please provide estimates of the following plant-related costs from 1998 to retirement:

- a) Fuel
- b) Spent fuel disposal
- c) Operation and Maintenance
- d) Additional capital costs
- e) Decommissioning cost
- f) Nuclear insurance cost
- g) Property taxes
- h) Other costs (explain)

ANSWER 3-27. No estimates have been made of the data requested for the period 1998 to retirement. As stated in response to the proceeding Interrogatory (3-26) of this set, CP&L currently has no plans to retire the Unit.

3-28. With respect to Staff Request 3, please provide outputs of the production cost simulations for Alternatives (1) and (2) on an annual basis.

ANSWER 3-28. In response to Interrogatory 3-127 of the first set, CP&L provided annual outputs of the production cost simulation for Alternative (1). Attached hereto is Attachment 3-28 of this set which provides similar outputs for Alternative (2).

3-29. With respect to Staff Request 3, please provide copies of all input assumptions for the simulations referred to in Interrogatory 3-28 above.

ANSWER 3-29. In response to Interrogatories 3-126 and 3-127 of the first set, CP&L provided basic input information to the production cost simulation model for Alternative (1). Most of the inputs for Alternatives (1) and (2) are essentially the same except for the status of Robinson 2 in Alternative (2). Changes in the input information as necessary for Alternate (2) are provided in the attached Attachment 3-29 of this set.

Some types of input assumptions (such as maintenance schedules and capacity factors) can be found on the output reports, as provided in CP&L's response to Interrogatories 3-127 of the first set and 3-28 of this set.

3-30. With respect to Staff Request 3, please provide operating capacity factor, scheduled outage periods, actual capacity factor, and energy generation for Robinson Unit 2:

a) Annually, based on historic experience from commercial operation through 1982;

b) Annually, based on projections, from 1984 until decommissioning.

ANSWER 3-30.

a) Data for the above request is provided in the following table. Robinson Unit 2 was declared commercial on March 7, 1971. Scheduled outage periods for 1971-1975 are not readily available; therefore, we have included only those from 1976-1982. Also, operating capacity factors reflect forced outages only and do not include the effect of scheduled outages. CP&L uses operating capacity factors primarily as a planning tool and, therefore, such numbers are not calculated on a historical basis.



# HISTORICAL OPERATING DATA FOR ROBINSON 2

<u>Year</u>	<u>Scheduled Outages</u>		<u>Duration (Hours:Minutes)</u>	<u>Annual Capacity Factor (percent)</u>	<u>Energy Generation (GWH)</u>
	<u>Dates</u>				
1971	-	-	-	46.9%*	2,233.5**
1972	-	-	-	80.2%	4,828.6
1973	-	-	-	60.1%	3,763.6
1974	-	-	-	82.6%	4,813.2
1975	-	-	-	71.5%	4,167.5
1976	7/9 - 7/12		49:02	83.4%	4,871.6
	8/7 - 8/7		08:04		
	10/2 - 10/2		14:25		
	10/30 - 12/12		1039:49		
	12/18 - 12/19		22.23		
1977	3/25 - 3/27		26:03	72.6%	4,230.4
	6/17 - 6/18		21:16		
	9/29 - 9/30		09:54		
1978	2/1 - 4/23		1941:24	68.2%	3,973.7
1979	4/18 - 7/21		2277:21	68.5%	3,992.4
	9/4 - 9/5		23:48		
	11/2 - 11/3		11:47		
1980	3/14 - 3/28		321:32	54.6%	3,191.1
	8/8 - 10/25		1850:42		
	10/25 - 10/25		02:19		
	11/15 - 11/16		18:33		
1981	5/16 - 6/11		641:01	60.1%	3,503.8
	9/28 - 9/28		02:28		
	11/16 - 11/19		309:47		
	12/6 - 12/6		11:01		
1982	2/26 - 8/15		4070:42	38.7%	2,251.8
	8/22 - 8/24		32:16		
	8/25 - 8/25		00:14		
	10/22 - 10/24		30:08		

\*1971 Capacity factor was calculated from a figure based on net generation since date of commercial operation. Test generation is not included.

\*\*The 1971 generation figure includes net generation since actual date of commercial operation (March 7, 1971). Test generation is not included.

b) This information is taken from the computer output made for Alternative (1) as provided in CP&L's response to Interrogatory 3-127 of the first set. This information is not available through decommissioning for reasons stated in response to Interrogatory 3-26 of this second set.

PROJECTED DATA FOR ROBINSON 2 BASED ON PROPOSED REPLACEMENT PLAN

<u>Year</u>	<u>Operating* Capacity Factor (Percent)</u>	<u>Scheduled Outages</u>	<u>Annual** Capacity Factor (Percent)</u>	<u>Energy Generation (GWH)</u>
1984	85	1/21 - 11/16	15	878.7
1985	85	10/19 - 12/31	69	4045.0
1986	85	1/1 - 1/31	80	4660.0
1987	85	1/31 - 5/15	62	3611.4
1988	85	7/16 - 10/28	63	3671.7
1989	85	-	88	5103.3
1990	85	1/1 - 4/1	65	3804.5
1991	85	6/3 - 9/1	66	3866.3
1992	85	11/2 - 12/31	73	4259.9
1993	85	1/1 - 1/31	80	4660.6
1994	85	4/4 - 7/7	66	3850.4
1995	85	9/4 - 12/3	66	3824.4
1996	85	-	88	5117.6
1997	85	2/3 - 5/4	65	3806.7
1998	85	7/6 - 10/4	66	3867.0

\*Operating capacity factor reflects forced outages only, not scheduled outages. These capacity factors are based on a 665 MW summer and a 700 MW winter rating for Robinson 2.

\*\*Based on a 665 MW rating for Robinson 2 and projected annual energy generation.

3-31. With reference to Staff Request 3, please provide the following information concerning Alternate (1), Replacement of Steam Generator Lower Assemblies in 1984.

a) Please define the first column shown on page 8, i.e. total annual revenue requirements under alternative (1).

b) For capital costs included under alternative 1, please provide annual capital expenditures, the impact of those expenditures on annual revenue requirements, and any and all workpapers and/or computer printouts used to translate investments into revenue requirements.

c) Please provide all data and assumptions used to make the above-cited translation. This should include assumptions concerning cost of capital (by component) capital structure, investment tax credits, deferred income taxes, depreciation for tax and book purposes, calculation of the rate base contribution of the investment, federal income tax, state income tax, revenue tax, amortization of different taxes and investment tax credits, property tax, other tax, other tax [sic], and any other items not specifically mentioned above.

d) Please indicate whether capital costs other than those of SGLA's are included in the analysis. If so, please indicate those separately, show their impact on annual revenue requirements in each year, and discuss any differences in the fixed charge factor used here and those used for the SGLA's costs.

e) Please indicate what costs, if any, are assumed under Alternate A to correct Pressurized Thermal Shock (embrittlement) at the Robinson 2 unit. If such costs were assumed, please provide estimates of costs and down-time associated with assessing and correcting the problem.

Interrogatories 3-32 through 3-46 all have reference to Applicant's responses to Staff Request 3.

ANSWER 3-31. a) As stated on page 8 of CP&L's July 14, 1983 submittal to the NRC, the estimated annual charges as shown in the first column include "capital, production, decommissioning, nuclear insurance, and replacement power costs." The capital costs include the revenue requirements related to capital expenditures at Robinson 2 and the cost of the fuel inventory through the study period. The production cost includes system fuel cost, Robinson 2 O&M cost and purchase power cost. The decommissioning cost reflects the method for collecting this cost, as approved by the North Carolina Utilities Commission and the South Carolina Public Service Commission. The nuclear liability insurance cost reflects our most recent estimate. Replacement power costs apply only to Alternative 2 (shown in the second column) and are the additional production costs (including purchased power costs) necessary because of the assumed retirement of Robinson 2.

- b) See Applicant's response to Interrogatory 3-35.
- c) The annual revenue requirement factors were computed separately for each vintage (annual capital expenditure) with the following assumptions:

1) Capital Structure and Cost of Capital:

49.5% Debt at 9.59%

12.5% Preferred Stock at 8.96%

38.0% Common Equity at 15.5%

2) Investment Tax Credits (ITC)

a) The following ITC rates were assumed:

Nuclear Production

Vintages 1971-1974 4%

Vintages 1975-1998 10%

Nuclear Fuel

All Vintages 10%

b) All ITC is normalized with amortization on a straight line basis over the book life of the asset.

3) Deferred Income Taxes

Differences between book and tax depreciation due to depreciation method and life were normalized. Basis differences fell into one of two categories, either AFUDC or Other Basis Difference. AFUDC was calculated using a net of tax rate which is self normalizing. Other Basis Differences for post 1975 expenditures were normalized. Other Basis Differences for 1975 and prior expenditures were flowed through.

4) Depreciation for Tax and Book Purposes

a) The book depreciation rate used was 4.014% for nuclear production plant and 25% per year for nuclear fuel. Book depreciation was not included in the revenue requirements factors for nuclear fuel but was used in determining deferred income taxes.

- b) Tax depreciation was computed using the following assumptions:

Tax Life

Nuclear Production Vintages 1971-1980	16 years
Nuclear Production Vintages 1981-1998	10 years
Nuclear Fuel	5 years

Tax Depreciation Method

Nuclear Production Vintages 1971-1972	Sum of the years digits
Nuclear Production Vintages 1973-1980	Double declining balance for the first two years changing to sum of the years digits in the third year
Nuclear Production Vintage 1981	ERTA rates
Nuclear Production Vintages 1982-1998	TEFRA rates
Nuclear Fuel	TEFRA rates

Tax Basis for 1982-1998 vintages was reduced by 50% of the ITC taken.

- c) For conservatism in this alternative, it was assumed that all prior years additions would continue to depreciate as if they remained in use.
- 5) Calculation of the Rate Base Contribution of the Investment  
The revenue requirements for the cost of capital were determined from the cost of capital rates and the net investment. Net investment was original cost less accumulated depreciation and accumulated deferred taxes.
  - 6) Federal Income Tax:  
Federal income tax was determined using a 46% tax rate.
  - 7) State Income Tax:  
State income tax was determined using a 6% tax rate.
  - 8) Revenue Tax:  
No revenue tax was included in the revenue requirements factors.
  - 9) Amortization of Different Taxes and Investment Tax Credits  
This is explained above in items 2 and 3.

- 10) Property Tax:  
A property tax rate of .629% was assumed.
- 11) Other Tax:  
No other tax was included
- 12) Any Other Items not Specifically Mentioned Above
  - a) A property insurance rate of .363% was assumed.
  - b) An administrative and general expense rate of 2.327% was assumed.

d) Capital costs other than those for replacement of the SGLA's were included in the analysis. These costs were provided in CP&L's response to Interrogatory 3-107 of the first set. These costs were not considered separately, but were included in the total costs which were used to determine the revenue requirements. However, their impact on annual revenue requirements can be determined from the information provided in the Company's response to Interrogatory 3-35 of this set. It should be noted, as discussed in the response to Interrogatory 3-45 of this set, that CP&L's analysis for Alternative 2 did not include the capital cost of accelerating proposed new generating units.

e) CP&L has modified certain fuel bundles to be used in Robinson 2 to reduce the potential for PTS. The modified fuel bundles will be placed in the core beginning with the next refueling. The following table provides the estimated additional cost over normal fuel prices for the modifications.



ESTIMATED ADDITIONAL COSTS  
OVER NORMAL FUEL COSTS FOR PTS MODIFIED FUEL BUNDLES  
(000'S \$, NOMINAL)

<u>YEAR</u>	<u>U<sub>3</sub>O<sub>8</sub> + CONVERSION</u>	<u>ENRICHMENT</u>	<u>FABRICATION</u>	<u>ANALYSIS</u>	<u>TOTAL COST</u>
1982	237	-	-	-	237
1983	-	256	2000	880	3138
1984	-52	-	-	-	-52
1985	-	-223	-	-	-223
1986	-67	-239	-	-	-306
1987	499	-	-	-	499
1988	-	385	3050	-	3435
1989	-137	-292	-	-	-429
1990	-175	-	-	-	-175
1991	-	-333	-	-	-333
1992	1505	472	-	-	1977
1993	-259	-	4620	-	4361
1994	-	-381	-	-	-381
1995	-288	-432	-	-	-720
1996	1985	-	-	-	1985
1997	-335	691	6450	-	6806
1998	-	-518	-	-	-518

The negative cost values indicate estimated fuel savings which are anticipated to result from the modifications.

3-32. Please supply a complete list of all differences between Alternatives A and B.

ANSWER 3-32. Note: In our responses to Interrogatory 3-32 through Interrogatory 3-46, CP&L assumes Alternatives A and B correspond to Alternatives (1) and (2) respectively.

Alternative (1) reflects the proposed plan of replacing the steam generator lower assemblies (SGLA's) in a 43 week outage in 1984. Upon completion of that outage, the unit would return to service and operate at an 85% operating capacity factor, with a 15 week refueling and maintenance outage every 12 effective full power months (EFPM). Alternative (2) reflects early retirement of Robinson 2 on December 31, 1984. In this case Robinson 2 would be refueled in a 6 week outage and would operate during 1984 at a 70% operating capacity factor with a steam generator inspection outage every 3 EFPM's.

Alternative (1), as stated in our response to Interrogatory 3-31a), includes capital, production, decommissioning, and nuclear liability insurance costs. As appropriate, Alternative (2) includes these same costs, plus the write-off of uncollected costs resulting from early retirement. The following table shows the types of costs included in each alternative.

<u>Data Items</u>	<u>Alternative (1)</u>	<u>Alternative (2)</u>
Revenue Requirement Related to Capital Expenditures*	yes	yes (through 1984)
Revenue Requirement Related to Fuel Inventory	yes	yes (through 1984)
Write-off Related to Fuel*	no	yes
Write-off Related to* Capital Investment	no	yes
Decommissioning Revenue*	yes (through 1997)	yes (through 1984)
Nuclear Liability Insurance	yes	yes
Difference in System O&M Costs	yes	yes
Purchased Power Cost	yes	yes
CP&L System Fuel Cost	yes	yes

\*For Robinson 2 only.

3-33. Please indicate every data item which differs between Alternatives A and B.

ANSWER 3-33. Because of the significant differences between the two alternatives, all data items listed in the table in CP&L's response to Interrogatory 3-32 of this set differ between Alternatives (1) and (2).

3-34. Please provide copies of all workpapers and other supporting documentation employed in estimating costs under alternatives A and B.

ANSWER 3-34. CP&L's workpapers used in estimating costs for Alternatives (1) and (2) will be made available to the Hartsville Group for review at CP&L's General Office in Raleigh, NC.

3-35. Please provide all fixed charge factors employed in the analysis, indicate for what years and capital costs each factor applies, and provide worksheets which show the development of each fixed charge factor.

ANSWER 3-35. The capital costs, the fuel inventory costs and their associated fixed charge rates used in CP&L's analysis are provided on Attachment 3-35 of this set. Also, the results of applying the fixed charge rates to the capital costs, as requested in Interrogatory 3-31b) and d) of this set, are included in the attached Attachment 3-35. The workpapers associated with these components will be made available for inspection at CP&L's General Office in Raleigh, NC.

3-36. Please provide the rationale for employing a discount rate of 9.42 percent.

ANSWER 3-36. The calculation from which the discount rate is derived is as follows:

	<u>Ratio</u> (%)	<u>Cost</u> (%)	<u>Tax Effect</u>	<u>Weighted Cost</u> (%)
Long Term Debt	49.5	9.59	(1-0.4924)	2.41
Preferred Stock	12.5	8.96		1.12
Common Equity	38.0	15.50		<u>5.89</u>
			Discount Rate	9.42

Tax Rate 49.24%

The above capital structure and cost of capital were used because they reflect CP&L's request in the 1983 North Carolina retail rate case, and are considered appropriate for the study.

3-37. Please provide any workpapers or calculations used in developing the 9.42 percent discount figure.

ANSWER 3-37. See Applicant's response to Interrogatory 3-36 of this second set.

3-38. Please supply all escalation rates employed.

ANSWER 3-38. The following is a description of the escalation rates used in the study:

Capital - 9 percent per year

Fuel - Existing coal and nuclear fuel contracts are escalated individually based upon indices stated in the contract, for base-escalated type contracts. The source of the forecasts for appropriate indices is Data Resources, Incorporated (DRI). CP&L subscribes to DRI's Macroeconomic, Coal, and Costs Forecasting Services. A common source of forecasted indices for both fossil and nuclear costs assures that relative price forecasts are as accurate as possible.

In forecasting prices for periods beyond our existing contracts, a forecasted market price is used. The forecasted market price is also used when a specific contract price is related to a market price. The

market forecasts for coal are generated from DRI's Coal Mode. Uranium forecasts are generated from the Eureka model developed by Colorado Nuclear Corporation. Market price projections for  $U_3O_8$  conversion and nuclear fuel fabrication are obtained from the nuclear consulting firm of Pickard, Lowe, and Garrick. Oil price projections are provided by DRI.

Backend nuclear fuel costs are set by the Department of Energy at 1.0 mil/kwh in 1983. These costs are assumed to escalate with inflation. DRI's forecasted GNP deflator is used as an estimate for general inflation.

O&M - The basic rate for O&M costs is 7.7 percent per year.

Decommissioning - 9 percent per year through 1990 and 6 percent per year after was used.

Nuclear Insurance - 5 percent per year.

3-39. Please supply annual estimates of Robinson 2 fuel costs. In each year, please indicate what amount, if any, is included for spent fuel disposal.

ANSWER 3-39. The following table provides the annual estimates of Robinson 2 fuel and spent fuel disposal costs, as used for Alternative (1).

<u>Years</u>	<u>Total* Fuel Cost (\$/MWH)</u>	<u>Spent Fuel Disposal Cost (\$/MWH)</u>
1984	4.7	1.1
1985	5.0	1.2
1986	6.5	1.3
1987	7.1	1.4
1988	7.5	1.5
1989	8.3	1.6
1990	9.2	1.7
1991	10.0	1.8
1992	11.0	1.9
1993	12.7	2.0
1994	13.7	2.1
1995	14.4	2.2
1996	15.6	2.3
1997	16.9	2.5
1998	17.7	2.7

\* Includes spent fuel disposal costs.

3-40. Please explain why purchase power costs increase during the study period by over 300% (page 9) while replacement power increases by about 90% (page 10).

ANSWER 3-40. Purchase power and replacement power are different items. Purchase power is comprised of purchased energy and capacity; whereas, replacement power reflects a mix of increased generation from other, more expensive generating sources on CP&L's system plus purchase power.

As noted in Applicant's response to Staff Request #3, the purchased power cost ranges from \$30/MWH to \$130/MWH with an average of \$59/MWH. The \$130/MWH purchased power cost occurs in 1989 and is primarily a function of two factors: 1) increasing purchase capacity charges, and 2) a large capacity shortage in 1989. Regarding the purchase capacity charges, applicants expect most of the capacity now available for purchase to be unavailable in the late 1980s. Thus, the purchase capacity charge in 1989, and thereafter, reflects the costs of newly constructed coal capacity, which are significantly higher than those of existing coal capacity. Also, 1989 is the year just prior to the in-service of Harris Unit 2. Without Robinson 2, a large amount of purchase capacity is needed to maintain reliability.

The increase in replacement power costs is generally a function of increasing substitution fuel costs and purchase power costs. With more of the replacement power generally being provided from other units on the system than from purchase power, the lesser increase of the substitution fuel cost outweighs the higher cost of purchase power and, therefore, reflects a lower overall increase for replacement power than for purchase power.

3-41. Please define and explain the difference between the costs referenced in Interrogatory 3-40 above.

ANSWER 3-41. See Applicant's response to Interrogatory 3-40.

3-42. Please provide actual historic O & M costs for Robinson for each year of its life.

ANSWER 3-42. The following is a list of the yearly historical O&M costs for Robinson Unit 2.

<u>Year</u>	Robinson O&M Cost <sup>(1)</sup> <u>(\$)</u>
1971	1,918,000
1972	1,780,000
1973	4,609,121
1974	4,780,000
1975	6,361,000
1976	5,902,728
1977	6,859,964
1978	14,354,990
1979	15,142,000
1980	22,142,000
1981	21,788,972
1982	47,293,853

(1) The O&M costs do not include fuel cost.

3-43. Please provide annual estimates of decommissioning costs under each alternative. Include workpapers showing the development of each alternative.

ANSWER 3-43. It is assumed that the "decommissioning costs" requested are the annual revenue requirements to be collected over the study period, the necessary funds for decommissioning the unit at the assumed time. The decommissioning revenue requirements for Alternatives (1) and (2) are as follows:



Robinson 2 Decommissioning Revenue Requirements  
(000's \$)

<u>Year</u>	<u>Alternative (1)</u>	<u>Alternative (2)</u>
1984	4,827	38,114
1985	5,268	0
1986	5,750	0
1987	6,275	0
1988	6,849	0
1989	7,475	0
1990	8,158	0
1991	8,904	0
1992	9,717	0
1993	10,606	0
1994	11,575	0
1995	12,633	0
1996	13,788	0
1997	4,110	0
1998	0	0

The workpapers used in deriving these estimates will be made available to the Hartsville Group for review at the CP&L General Office in Raleigh, NC.

3-44. Please indicate what extra decommissioning costs, if any, would be incurred under Alternate A due to the higher level of radioactivity at the Robinson 2 unit.

ANSWER 3-44. The same base decommissioning cost estimates were used for estimating the revenue requirements under each Alternative.

3-45. Please provide estimates and workpapers showing the cost and in-service dates for newly constructed units under Alternate B.

ANSWER 3-45. The following table provides the estimated cost and in-service dates for units for which construction schedules were accelerated because of inadequate reserves under Alternative (2).

<u>Unit</u>	<u>Assumed Accelerated In-Service Date</u>	<u>Estimated Accelerated Construction Cost (000's \$)</u>
Mayo 2	1991	800,692
Undesignated 1*	1994	2,014,925
Undesignated 2*	1996	1,482,591
Undesignated 3*	1998	1,961,443

\* the term "Undesignated" is used because CP&L has not made commitments to a particular design, unit size, or location. This capacity is shown strictly for long-range planning purposes to indicate that additional capacity will be needed in this time frame (based on minimum 20% reserves) should loads develop as indicated.

It should be noted that for production cost calculation, the above units were included on their accelerated schedule. However, the capital cost of these units and the impact they would have on CP&L's financial position were not considered in the analysis.

3-46. Please provide Load and Resource Tables for Alternatives A and B. This should include annual peak loads, required reserves, capacity sales and purchases, and new and existing capacity.

ANSWER 3-46. Load and Resource Tables for Alternatives (1) and (2) follow:

ALTERNATIVE 1

<u>Year</u>	<u>Previous Year's Capacity (MW)</u>	<u>Firm Purchases (MW)</u>	<u>New Capacity (MW)</u>	<u>Total Resources (MW)</u>	<u>Peak Load (MW)</u>	<u>Reserves (MW)</u>	<u>Percent* Reserves</u>
1984	8725	75		8800	7043	1757	24.9
1985	8725	75		8800	7346	1454	19.8
1986	8725	75	900	9700	7557	2143	28.4
1987	9625	75		9700	7674	2026	26.4
1988	9625	75		9700	7852	1848	23.5
1989	9625	75		9700	8043	1657	20.6
1990	9625	75	900	10600	8224	2376	28.9
1991	10525	75		10600	8461	2139	25.3
1992	10525	75	720	11320	8605	2715	31.6
1993	11245	75		11320	8854	2466	27.9
1994	11245	75		11320	9094	2226	24.5
1995	11245	75		11320	9386	1934	20.6
1996	11245	75	690	12010	9696	2314	23.9
1997	11935	75		12010	9998	2012	20.1
1998	11935	75	690	12700	10300	2400	23.3

\*CP&L's planning criteria is to maintain a minimum 20% reserve margin.

ALTERNATIVE 2

<u>Year</u>	<u>Previous Year's Capacity (MW)</u>	<u>Firm Purchases (MW)</u>	<u>New Capacity (MW)</u>	<u>Total Resources (MW)</u>	<u>Peak Load (MW)</u>	<u>Reserves (MW)</u>	<u>Percent* Reserves</u>
1984	8725	75		8800	7043	1757	24.9
1985	8060	740		8800	7346	1454	19.8
1986	8060	93	900	9053	7557	1496	19.8
1987	8960	234		9194	7674	1520	19.8
1988	8960	447		9407	7852	1555	19.8
1989	8960	677		9637	8043	1594	19.8
1990	8960	75	900	9935	8224	1711	20.8
1991	9860	75	720	10655	8461	2194	25.9
1992	10580	75		10655	8605	2050	23.8
1993	10580	75		10655	8854	1801	20.3
1994	10580	75	690	11345	9094	2251	24.8
1995	11270	75		11345	9386	1959	20.9
1996	11270	75	690	12035	9696	2339	24.1
1997	11960	75		12035	9998	2037	20.4
1998	11960	75	690	12725	10300	2425	23.5

\*CP&L's planning criteria is to maintain a minimum 20% reserve margin.

3-47. Please provide estimates of the annual costs of analyzing and correcting Pressurized Thermal Shock (embrittlement) problems at Robinson 2.

ANSWER 3-47. See Applicant's response to Interrogatory 3-31e) of this set.

3-48. Please indicate whether the costs referred to in Interrogatory 3-47 are included in the estimate of "Net Construction Cost" supplied in response to Hartsville Interrogatory 3-107 in its first set of interrogatories.

ANSWER 3-48. The additional capital expenditures provided in CP&L's response to Interrogatory 3-107 of the first set do not include estimates of the annual costs of addressing the Pressurized Thermal Shock problem. CP&L is modifying certain fuel

bundles to reduce the potential for embrittlement problems. The cost of the fuel bundle modifications as provided in the Company's response to Interrogatory 3-31e) of this set are reflected in the fuel costs used in the study, with the exception of the \$880,000 analysis cost in 1983.

3-49. Please supply all documentation and support for your response to Hartsville Interrogatory 3-107 in its first set of interrogatories.

ANSWER 3-49. The workpapers and support for the additional capital expenditures listed under Interrogatory 3-107 of the first set of interrogatories will be made available to the Hartsville Group for inspection and copying at CP&L's General Office in Raleigh, NC.

3-50. Has the Company investigated a conservation program as an alternative to construction of generating facilities?

ANSWER 3-50. Yes. A corporate Conservation and Load Management (CLM) Policy Committee directed a comprehensive six-month study in 1981 to analyze each customer sector to identify the major CLM opportunities available. Once feasible program ideas were identified, their load and energy impacts, cost and benefits, and customer acceptance levels were analyzed. To select programs that would receive broad customer support, significant market research was conducted. Based on this comprehensive study, a strategy consisting of 37 programs was developed, resulting in a goal of reducing the forecasted 1995 peak demand by 1750 MW below what would otherwise be.

3-51. If the answer to Interrogatory 3-50 is affirmative, please provide any studies or documents which analyzes [sic] this alternative.

ANSWER 3-51. A study entitled Conservation and Load Management Strategy for Ensuring Reliable Electric Supply in the 1990's was the basis of CP&L's decision to pursue cost effective conservation and load management alternatives. This study will be made available to the Hartsville Group for inspection and copying at CP&L's General Office in Raleigh, NC.

3-52. Please provide a copy of the Applicant's most recent load forecast.

ANSWER 3-52. As previously requested, a copy of CP&L's most recent load forecast was provided as an Attachment to CP&L's response to Interrogatory 3-124 of the first set of interrogatories.

3-53. For each Company forecast beginning in 1973, please provide the forecast 1990 peak load.

ANSWER 3-53. The following is a list of the forecasted 1990 peak and the date the forecast was made.

<u>Forecast Date</u>	<u>Forecasted 1990 Peak Load</u>
5-73	19784
6-74	18177
10-75	14811
11-77	11549
11-78	10859
2-79	10715
4-79	10427
11-79	9543
12-80	8727
12-81	8228
12-82	8224

ATTACHMENT 3-28  
ROBINSON 2 RETIREMENT SCENARIO  
OUTPUT FROM 1984-1998 PROJECTIONS



		GWH	FUEL (K\$)	BACK-END FUEL(K\$)	TOTAL* FUEL (K\$)	FUEL \$/MWH	TOTAL* \$/MWH	CAP FAC	HEAT RATE	PLANNED OUTAGES**
INPUT FOR CP&L LOAD		35985								
PEAK FOR CP&L LOAD		7043MW								
SEPA WHEELING		128.0			481.4					
FIRM PURCHASES		128.0	-	-	481.4	-	3.8	-	-	
NON-FIRM PURCHASES		332.0	-	-	16255.9	-	49.0	-	-	
TOTAL PURCHASED POWER		460.0	-	-	16737.3	-	36.4	-	-	
CP&L SYSTEM HYDRO		720.1	-	-	-	-	-	38	-	
ASHEVILLE	1	1347.7	25988.2	-	25988.2	19.3	19.3	77	9988.1	0423-0506
	2	912.6	18677.0	-	18677.0	20.5	20.5	54	10544.8	1015-1125
CAPE FEAR	5	318.2	8167.7	-	8167.7	25.7	25.7	25	10131.0	0416-0527
	6	604.4	14882.4	-	14882.4	24.6	24.6	40	9731.4	0326-0408
LEE	1	75.3	2309.5	-	2309.5	30.7	30.7	11	11945.0	0402-0513
	2	84.9	2599.6	-	2599.6	30.6	30.6	13	11870.3	0319-0401
	3	677.4	17242.0	-	17242.0	25.5	25.5	31	10012.8	1112-1125
MAYO	1	4385.2	99091.7	-	99091.7	22.6	22.6	71	10040.6	0326-0422
	2	-	-	-	-	-	-	-	-	
ROBINSON	1	333.7	8712.1	-	8712.1	26.1	26.1	22	10291.9	1001-1014
LYBORO	1	2307.3	48893.5	-	48893.5	21.2	21.2	68	10374.8	0507-0507
	2	3520.2	75664.0	-	75664.0	21.5	21.5	60	10469.5	1008-1028
	3	4047.7	85570.4	-	85570.4	21.1	21.1	65	10356.2	0402-0429
	4	4046.7	95228.9	-	95228.9	23.5	23.5	66	9969.6	0910-1007
SUTTON	1	124.2	3661.7	-	3661.7	29.5	29.5	15	11539.7	0227-0318
	2	167.4	4652.7	-	4652.7	27.8	27.8	18	10987.2	1105-1125
	3	1130.1	27792.1	-	27792.1	24.6	24.6	33	9712.2	0319-0513
UNDESIGNATED FOSSIL	1	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	
WEATHERSPOON	1	42.3	1379.3	-	1379.3	32.6	32.6	10	12897.3	0326-0429
	2	40.3	1326.4	-	1326.4	32.9	32.9	9	13005.9	0521-0527
	3	114.1	3199.9	-	3199.9	28.0	28.0	17	11055.5	1029-1202
TOTAL FOSSIL STEAM		24280	545036.7	-	545037	22.4	22.4	53	10213.4	
IC TURBINES		154.3	13857.3	-	13857.3	89.8	89.8	2	15635.4	
TOTAL FOSSIL		24434	558894.1	-	558894	22.9	22.9	44	10247.6	
BRUNSWICK	1	3613.1	13832.2	4082.9	17915.0	3.8	5.0	52	10448.7	0225-0302 0728-1109
	2	3682.5	13851.6	4161.2	18012.8	3.8	4.9	53	10448.7	0101-0316 1201-1231
HARRIS	1	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	
ROBINSON	2	3077.1	11457.1	3477.1	14934.1	3.7	4.9	53	10803.7	0121-0302 0604-10E7
TOTAL NUCLEAR		10373	39140.9	11721.1	50862.0	3.8	4.9	53	10554.0	
TOTAL CP&L GENERATION		35527	598035.0	11721.1	609756	16.8	17.2	46	10061.5	
TOTAL INPUT		35987	-	-	626493	-	17.4	-	-	

\* O&amp;M COSTS ARE INCLUDED IN ANOTHER SCHEDULE.

\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.

## CAROLINA POWER &amp; LIGHT COMPANY GENERATION REPORT FOR 1985

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RUN DATE: 08/10/83

PLANNED OUTAGES\*\*

	GWHL	FUEL (K\$)	BACK-END FUEL (K\$)	TOTAL* FUEL (K\$)	FUEL \$/MWH	TOTAL* \$/MWH	CAP FAC	HEAT RATE	
INPUT FOR CP&L LOAD	37303								
PEAK FOR CP&L LOAD	7346MW								
SEPA WHEELING	128.0			480.0					
FIRM PURCHASES	128.0	-	-	480.0	-	3.7	-	-	
NON-FIRM PURCHASES	174.0	-	-	9407.3	-	54.1	-	-	
TOTAL PURCHASED POWER	302.1	-	-	9887.2	-	32.7	-	-	
CP&L SYSTEM HYDRO	720.1	-	-	-	-	-	38	-	
ASHEVILLE	1 1428.9	30521.9	-	30521.9	21.4	21.4	82	9980.9	0401-0414
	2 1108.5	25018.8	-	25018.8	22.6	22.6	65	10517.3	1014-1027
CAPE FEAR	5 394.8	11204.4	-	11204.4	28.4	28.4	32	10127.1	0401-0414
	6 670.2	18259.8	-	18259.8	27.2	27.2	44	9729.4	0318-0331
LEE	1 108.8	3698.0	-	3698.0	34.0	34.0	16	11959.8	0318-0331
	2 117.8	3966.4	-	3966.4	33.7	33.7	18	11841.1	0415-0526
	3 828.1	23216.6	-	23216.6	28.0	28.0	38	9995.0	1014-1027
MAYO	1 4460.7	118128.3	-	118128.3	26.5	26.5	72	10030.5	0401-0428
	2 -	-	-	-	-	-	-	-	-
ROBINSON	1 443.2	12780.3	-	12780.3	28.8	28.8	29	10287.8	1028-1110
ROXBORO	1 2394.0	57671.3	-	57671.3	24.1	24.1	71	10375.1	0506-0506
	2 3994.6	96914.0	-	96914.0	24.3	24.3	68	10137.2	1007-1027
	3 4027.8	96818.7	-	96818.7	24.0	24.0	65	10355.3	0401-0428
	4 3616.9	90873.9	-	90873.9	25.1	25.1	59	9968.8	0805-1013
SUTTON	1 161.9	5272.3	-	5272.3	32.6	32.6	19	11536.9	0304-0414
	2 220.2	6780.6	-	6780.6	30.8	30.8	24	10995.3	0930-1020
	3 1338.7	36443.1	-	36443.1	27.2	27.2	40	9713.2	0415-0505
UNDESIGNATED FOSSIL	1 -	-	-	-	-	-	-	-	-
	2 -	-	-	-	-	-	-	-	-
	3 -	-	-	-	-	-	-	-	-
WEATHERSDOON	1 63.2	2285.7	-	2285.7	36.2	36.2	15	12902.2	0429-0505
	2 57.9	2110.9	-	2110.9	35.5	35.5	13	13007.9	0520-0526
	3 158.6	4919.5	-	4919.5	31.0	31.0	23	11051.8	0930-1006
TOTAL FOSSIL STEAM	25595	646882.2	-	646882.2	25.3	25.3	56	10221.8	
TC TURBINES	81.9	8405.4	-	8405.4	102.7	102.7	1	15710.8	
TOTAL FOSSIL	25677	655287.6	-	655288	25.5	25.5	47	10239.3	
BRUNSWICK	1 5192.5	23329.6	6272.5	29602.1	4.5	5.7	75	10448.8	
	2 4138.1	20321.6	4998.8	25320.4	4.9	6.1	60	10148.7	0101-0315
HARRIS	1 706.2	6321.6	853.1	7174.7	9.0	10.2	9	14209.0	
	2 -	-	-	-	-	-	-	-	
ROBINSON	2 -	-	-	-	-	-	-	-	
TOTAL NUCLEAR	10037	49972.9	12124.4	62097.2	5.0	6.2	46	10713.3	
TOTAL CP&L GENERATION	36433	705260.5	12124.4	717385	19.4	19.7	46	10132.2	
TOTAL INPUT	36735	-	-	727272	-	19.8	-	-	

\* O&amp;M COSTS ARE INCLUDED IN ANOTHER SCHEDULE.

\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.

PLANNED OUTAGES\*\*

	GWK	FUEL (K\$)	BACK-END FUEL (K\$)	TOTAL* FUEL (K\$)	FUEL \$/MWH	TOTAL* \$/MWH	CAP FAC	HEAT RATE	
INPUT FOR CP&L LOAD	38475			480.0					
PEAK FOR CP&L LOAD	7557MW								
SEPA WHEELING	128.0								
FIRM PURCHASES	128.0			480.0		3.7			
NON-FIRM PURCHASES	636.4			50740.6		79.7			
TOTAL PURCHASED POWER	764.4			51220.6		67.0			
CP&L SYSTEM HYDRO	720.1						38		
ASHEVILLE	1 1440.9	33926.3		33926.3	23.5	23.5	83	9976.9	0331-0413
	2 1211.3	30034.7		30034.7	24.8	24.8	71	10493.7	0929-1012
CAPE FEAR	5 383.1	11851.0		11851.0	30.9	30.9	31	10128.0	0414-0427
	6 624.3	18555.6		18555.6	29.7	29.7	41	9737.4	0331-0413
LEE	1 119.3	4364.8		4364.8	36.6	36.6	17	11887.4	0303-0316
	2 132.9	4836.6		4836.6	36.4	35.4	20	11796.8	0414-0427
	3 732.2	22387.3		22387.3	30.6	30.6	33	10004.2	1006-1130
MAYO	1 4439.8	130611.8		130612	29.4	29.4	72	10039.7	0331-0427
	2								
ROBINSON	1 391.2	12295.1		12295.1	31.4	31.4	26	10283.9	1013-1207
ROXBORO	1 2282.7	60813.4		60813.4	26.7	26.7	68	10387.4	0505-0505
	2 3485.6	94312.4		94312.4	27.1	27.1	59	10484.7	1006-1026
	3 3535.0	93755.6		93755.6	26.5	26.5	57	10354.8	0224-0504
SUTTON	4 4067.6	113173.5		113174	27.8	27.8	66	9971.7	0908-1005
	1 182.0	6434.5		6434.5	35.4	35.4	21	11525.1	0317-0406
	2 219.9	7386.8		7386.8	33.6	33.6	24	11002.6	1110-1221
	3 1278.0	37935.5		37935.5	29.7	29.7	38	9720.1	0407-0427
UNDESIGNATED FOSSIL	1								
	2								
	3								
WEATHERSPOON	1 69.0	2716.1		2716.1	39.4	39.4	16	12898.9	0331-0406
	2 60.8	2416.5		2416.5	39.7	39.7	14	13007.3	0414-0518
	3 164.8	5559.6		5559.6	33.7	33.7	24	11041.3	0929-1005
TOTAL FOSSIL STEAM	24820	693394.9		693395	27.9	27.9	54	10226.1	
IC TURBINES	429.0	52724.9		52724.9	122.9	122.9	5	15980.3	
TOTAL FOSSIL	25249	746119.8		746120	29.6	29.6	46	10323.9	
BRUNSWICK	1 3396.5	16222.6	4388.3	20610.9	4.8	6.1	49	10448.7	0705-1107
	2 3697.1	20205.5	4776.6	24982.1	5.5	6.8	53	10448.7	0503-0815
HARRIS	1 4623.6	32215.5	5973.6	38189.1	7.0	8.3	59	11059.8	
	2								
ROBINSON	2								
TOTAL NUCLEAR	11717	68643.6	15138.5	83782.1	5.9	7.2	51	10689.9	
TOTAL CP&L GENERATION	37687	814763.3	15138.5	829902	21.6	22.0	48	10058.5	
TOTAL INPUT	38451			881123		22.9			

\* O&amp;M COSTS ARE INCLUDED IN ANOTHER SCHEDULE.

\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.

CAROLINA POWER & LIGHT COMPANY GENERATION REPORT FOR 1987

PLANNED OUTAGES\*\*

INPUT FOR CP&L LOAD 39460  
PEAK FOR CP&L LOAD 7674MW  
SEPA WHFELING 128.0 480.0

FIRM PURCHASES 128.0  
NON-FIRM PURCHASES 345.0 480.0

TOTAL PURCHASED POWER 473.0 51.2

CP&L SYSTEM HYDRO 720.1 38

ASHEVILLE 1 1313.6 34225.6 26.1 26.1 76 9981.9 0330-0510

2 1174.9 32311.5 27.5 27.5 69 10509.6 0928-1011

CAPE FEAR 5 357.4 12025.1 33.6 33.6 29 10128.1 0427-0510

6 577.4 18646.4 32.3 32.3 38 9723.8 0223-0405

LEE 1 95.2 3836.2 40.3 40.3 14 11949.0 0223-0308

2 99.7 4006.7 40.2 40.2 15 11858.0 0330-0412

3 732.5 24502.0 33.4 33.4 33 10019.5 1012-1025

MAYO 1 3824.4 126207.1 33.0 33.0 62 10060.4 0323-0531

2 13353.2 34.2 34.2 26 10282.7 0928-1011

ROBINSON 1 390.1 13353.2 29.4 29.4 64 10403.9 0511-0511

ROXBORO 1 2174.9 63991.8 29.5 29.5 58 10416.8 0928-1206

2 3422.4 100985.7 29.3 29.3 63 10370.2 0330-0426

3 3889.6 113873.1 30.0 30.0 66 9980.6 0831-0927

4 4073.4 122380.6 38.7 38.7 18 11534.8 0223-0315

SUTTON 1 149.0 5764.7 36.4 36.4 21 10993.1 1005-1025

2 196.3 7155.9 32.4 32.4 36 9743.7 0406-0426

3 1220.6 39514.0 42.8 42.8 13 12899.3 0302-0308

UNDESIGNATED FOSSIL 1 56.0 2394.6 43.2 43.2 11 13012.6 0413-0419

2 49.2 2122.0 36.7 36.7 21 11053.5 1019-1025

3 141.1 5185.9 30.6 30.6 52 10230.9

WEATHERSPOON 1 170.1 23393.6 137.5 137.5 2 15680.8

2 24108 755873.3 31.4 31.4 44 10269.3

TOTAL FOSSIL STEAM 23938 732479.6 5.7 7.1 75 10448.7

IC TURBINES 170.1 23393.6 6.0 7.3 74 10448.7

TOTAL FOSSIL 24108 755873.3 6.9 8.3 47 10950.3

BRUNSWICK 1 5192.3 29838.9 7165.3 37004.3 1226-1231

2 5105.2 30405.1 7045.1 37450.2 0309-0621

HARRIS 1 3697.9 25510.7 5103.1 30613.8

2 2 2

ROBINSON 13995 85751.8 19313.5 105068 6.1 7.5 64 10581.2

TOTAL NUCLEAR 38823 841628.1 19313.5 860942 21.7 22.2 49 10122.6

TOTAL CP&L GENERATION 39296 885150

TOTAL INPUT 22.5

\* O&M COSTS ARE INCLUDED IN ANOTHER SCHEDULE.  
\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.

## CAROLINA POWER &amp; LIGHT COMPANY GENERATION REPORT FOR 1988

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RUN DATE: 08/10/83

PLANNED OUTAGES\*\*

		GW	FUEL (K\$)	BACK-END FUEL (K\$)	TOTAL* FUEL (K\$)	FUEL \$/MWH	TOTAL* CAP	HEAT RATE	
INPUT FOR CP&L LOAD	40705								
PEAK FOR CP&L LOAD	7852MW								
SEPA WHEELING	128.0				481.4				
FIRM PURCHASES	128.0				481.4		3.8		
NON-FIRM PURCHASES	388.7				28781.8		74.1		
TOTAL PURCHASED POWER	516.7				29265.3		56.6		
CP&L SYSTEM HYDRO	720.1								38
ASHEVILLE	1	1491.1	42708.0		42708.0	28.6	28.6	9980.0	0229-0313
	2	1302.7	39227.1		39227.1	30.1	30.1	10485.0	1017-1030
CAPE FEAR	5	494.6	17963.8		17963.8	36.3	36.3	10137.0	0509-0522
	6	800.9	27844.5		27844.5	34.8	34.8	9729.7	0229-0313
LEE	1	134.6	5865.1		5865.1	43.6	43.6	11958.0	0307-0320
	2	151.4	6584.4		6584.4	43.5	43.5	11867.4	0516-0529
MAYO	3	974.1	34946.2		34946.2	35.9	35.9	10000.1	0926-1009
	1	4522.7	158351.2		158351.2	35.0	35.0	10030.4	0328-0424
ROBINSON	2								
ROXBORO	1	519.5	19184.7		19184.7	36.9	36.9	10283.2	1010-1023
	1	2100.7	64368.6		64368.6	30.6	30.6	10377.4	0425-0425
	2	4144.8	127846.2		127846.2	30.8	30.8	10437.8	1010-1030
	3	4180.6	127801.8		127801.8	30.6	30.6	10356.8	0328-0424
	4	4180.7	135651.2		135651.2	32.4	32.4	9981.5	0912-1009
SUTTON	1	208.0	8597.9		8597.9	41.8	41.8	11539.0	0229-0320
	2	261.6	10296.9		10296.9	39.4	39.4	11000.6	0926-1016
	3	1577.3	54731.0		54731.0	34.7	34.7	9706.6	0411-0501
UNDESIGNATED FOSSIL	1								
	2								
WEATHERSPOON	1	80.3	3707.9		3707.9	46.2	46.2	12906.0	0418-0424
	2	74.0	3451.1		3451.1	46.5	46.5	13025.6	0502-0508
	3	193.8	7690.8		7690.8	39.7	39.7	11058.1	1024-1030
TOTAL FOSSIL STEAM	27393	896915.9		896916	32.7	32.7	60	10222.2	
IC TURBINES	196.8	30207.2		30207.2	153.5	153.5	2	15679.3	
TOTAL FOSSIL	27590	927123.1		927123	33.6	33.6	50	10261.1	
BURNSWICK	1	3709.1	24033.2	5459.8	29492.9	6.5	8.0	53	10448.7
	2	3795.9	26176.9	5587.5	31764.5	6.9	8.4	55	10448.8
HARRIS	1	3873.4	27019.9	5701.6	32721.6	7.0	8.4	49	10948.6
ROBINSON	2								
TOTAL NUCLEAR	11378	77230.1	16748.9	93979.0	6.8	8.3	52	10618.9	
TOTAL CP&L GENERATION	39688	1004353.0	16748.9	1021102	25.3	25.7	51	10099.8	
TOTAL INPUT	40205			1050368		26.1			

\* O&M COSTS ARE INCLUDED IN ANOTHER SCHEDULE.  
 \*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.

## CAROLINA POWER &amp; LIGHT COMPANY GENERATION REPORT FOR 1989

PAGE 8  
RUN DATE: 08/10/83

PLANNED OUTAGES\*\*

	GWK	FUEL (K\$)	BACK-END FUEL (K\$)	TOTAL* FUEL (K\$)	FUEL \$/MWH	TOTAL* \$/MWH	CAP FAC	HEAT RATE	
INPUT FOR CP&L LOAD	41978								
PEAK FOR CP&L LOAD	8043/MW								
SEFA WHEELING	128.0			480.0					
FIRM PURCHASES	128.0			480.0		3.7			
NON-FIRM PURCHASES	214.7			16345.0		76.1			
TOTAL PURCHASED POWER	342.8			16825.0		49.1			
CP&L SYSTEM HYDRO	720.1						38		
ASHEVILLE	1 1445.3	45157.9		45157.9	31.2	31.2	83	9981.5	0227-0312
	2 1120.9	36883.3		36883.3	32.9	32.9	66	10498.5	0925-1105
CAPE FEAR	5 373.5	14954.4		14954.4	40.0	40.0	30	10139.2	0417-0528
	6 655.4	25170.0		25170.0	38.4	38.4	43	9740.2	0327-0409
LEE	1 102.0	4897.1		4897.1	48.0	48.0	15	11953.8	0306-0416
	2 118.7	5682.2		5682.2	47.9	47.9	18	11862.7	0424-0507
MAYO	3 747.0	29673.8		29673.8	39.7	39.7	34	10018.0	0925-1008
	1 4441.0	174064.6		174065	39.2	39.2	72	10047.6	0327-0423
ROBINSON	2								
ROYBORO	1 415.7	16890.6		16890.6	40.6	40.6	27	10291.0	1016-1029
	1 2231.2	76343.3		76343.3	34.2	34.2	66	10395.9	0508-0508
	2 3737.8	128773.2		128773.2	34.5	34.5	64	10461.7	1009-1029
	3 3935.3	134299.5		134300	34.0	34.0	64	10369.1	0403-0430
SUTTON	4 4042.7	141273.1		141273	34.9	34.9	66	9982.0	0911-1008
	1 171.0	7850.6		7850.6	45.9	45.9	20	11538.9	0220-0312
	2 207.4	8995.6		8995.6	43.4	43.4	22	11007.2	1009-1029
	3 1231.1	47142.0		47142.0	38.3	38.3	37	9721.4	0313-0507
UNDESIGNATED FOSSIL	1								
	2								
	3								
WEATHERSPOON	1 63.1	3211.6		3211.6	50.9	50.9	15	12913.1	0424-0528
	2 58.4	2999.2		2999.2	51.3	51.3	14	13019.1	0327-0402
	3 139.1	6082.0		6082.0	43.7	43.7	20	11060.8	0925-1029
TOTAL FOSSIL STEAM	25250	910341.3		910341	36.1	36.1	55	10230.1	
IC TURBINES	109.0	18724.2		18724.2	171.8	171.8	1	15779.7	
TOTAL FOSSIL	25359	929065.5		929066	36.6	36.6	46	10254.0	
BRUNSWICK	1 4496.1	30536.3	7040.9	37577.3	6.8	8.4	65	10418.7	1113-1231
	2 3897.7	27689.4	6103.9	33793.3	7.1	8.7	56	10448.7	0821-1119
HARRIS	1 5897.4	49019.2	9235.3	58254.5	8.3	9.9	75	10936.8	
	2 706.2	8428.9	1105.9	9534.8	11.9	13.5	9	14209.0	
ROBINSON	2								
TOTAL NUCLEAR	14997	115673.6	23486.0	139160	7.7	9.3	51	10817.7	
TOTAL CP&L GENERATION	41076	1044739.0	23486.0	1068225	25.4	26.0	48	10238.2	
TOTAL INPUT	41419			1085050		26.2			

\* O&amp;M COSTS ARE INCLUDED IN ANOTHER SCHEDULE.

\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.



CAROLINA POWER & LIGHT COMPANY GENERATION REPORT FOR 1990

PLANNED OUTAGES\*\*

	GW	FUEL (K\$)	BACK-END FUEL (K\$)	TOTAL* FUEL (K\$)	FUEL \$/MWH	TOTAL* \$/MWH	CAP FAC	HEAT RATE	
INPUT FOR CP&L LOAD	43232			480.0					
PEAK FOR CP&L LOAD	8224MW								
SEPA WHEELING	128.0								
FIRM PURCHASES	128.0	-	-	480.0	-	3.7	-	-	
NON-FIRM PURCHASES	505.1	-	-	5282.6	-	103.5	-	-	
TOTAL PURCHASED POWER	633.1	-	-	52762.6	-	83.3	-	-	
CP&L SYSTEM HYDRO	720.1	-	-	-	-	-	38	-	
ASHEVILLE	1 1386.9	47531.7	-	47531.7	34.3	31.3	80	9988.8	3305-0318
	2 1241.5	44795.0	-	44795.0	36.1	36.1	73	10502.6	1015-1028
CAPE FEAR	5 314.7	13620.5	-	13620.5	43.3	43.3	25	10136.0	0326-0408
	6 530.3	22020.8	-	22020.8	41.5	41.5	35	9741.3	0226-0311
LEE	1 89.3	4622.4	-	4622.4	51.8	51.8	13	11935.0	0226-0311
	2 91.7	4753.5	-	4753.5	51.8	51.8	14	11855.4	0319-0429
MAYO	3 653.0	27968.9	-	27968.9	42.8	42.8	30	10022.2	1001-1014
	1 4259.6	184266.5	-	184266.5	43.3	43.3	69	10077.1	0326-0422
	2 127.4	5165.0	-	5165.0	40.5	40.5	2	10693.7	
ROBINSON	1 350.3	15398.0	-	15398.0	44.0	44.0	23	10295.1	1015-1028
ROXBORD	1 1960.4	74766.3	-	74766.3	38.1	38.1	58	10421.8	0423-0423
	2 3069.6	119261.5	-	119261.5	38.9	38.9	52	10524.8	1008-1028
	3 3628.7	137800.1	-	137800.1	38.0	38.0	59	10395.4	0326-0422
	4 3424.7	129626.5	-	129626.5	37.9	37.9	56	9984.9	0730-1007
SUTTON	1 132.0	6571.7	-	6571.7	49.8	49.8	16	11526.2	0409-0520
	2 180.0	8439.4	-	8439.4	46.9	46.9	19	11000.4	1105-1125
	3 1059.5	44045.9	-	44045.9	41.6	41.6	31	9735.0	0319-0408
UNDESIGNATED FOSSIL	1	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	
WEATHERSPOON	1 53.9	2965.6	-	2965.6	55.0	55.0	13	12901.3	0423-0429
	2 49.3	2738.2	-	2738.2	55.5	55.5	11	13017.5	0521-0527
	3 128.3	6060.6	-	6060.6	47.3	47.3	19	11055.3	1001-1007
TOTAL FOSSIL STEAM	22731	902415.0	-	902415	39.7	39.7	44	10253.2	
IC TURBINES	324.2	62932.2	-	62932.2	194.1	194.1	4	15897.6	
TOTAL FOSSIL	23055	965347.3	-	965347	41.9	41.9	38	10332.5	
BRUNSWICK	1 4584.7	38802.2	7642.7	46444.9	8.5	10.1	66	10448.6	0101-0211
	2 5185.8	42805.3	8644.7	51450.0	8.3	9.9	75	10448.6	
HARRIS	1 4453.0	41054.8	7423.2	48478.0	9.2	10.9	56	10949.9	0409-0708
	2 4602.1	46213.7	7671.7	53885.4	10.0	11.7	58	11061.8	
ROBINSON	2	-	-	-	-	-	-	-	
TOTAL NUCLEAR	18826	168875.9	31382.3	200258	9.0	10.6	64	10717.1	
TOTAL CP&L GENERATION	42601	1134223.0	31382.3	1165605	26.6	27.4	46	10206.8	
TOTAL INPUT	43234	-	-	1218368	-	28.2	-	-	

\* GEM COSTS ARE INCLUDED IN ANOTHER SCHEDULE.  
\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.



CAROLINA POWER & LIGHT COMPANY GENERATION REPORT FOR 1991

PLANNED OUTAGES\*\*

		GW	FUEL (K\$)	BACK-END FUEL (K\$)	TOTAL* FUEL (K\$)	FUEL \$/MWH	TOTAL* CAP	HEAT RATE	
INPUT FOR CP&L LOAD	44654								
PEAK FOR CP&L LOAD	8461MW								
SEPA WHEELING	128.0				480.0				
FIRM PURCHASES	128.0				480.0		3.7		
NON-FIRM PURCHASES	476.4				44176.4		92.7		
TOTAL PURCHASED POWER	604.5				44656.4		7.9		
CP&L SYSTEM HYDRO	720.1								38
ASHEVILLE	1 1405.9	52510.6			52510.6	37.4	37.4	9984.9	0225-0310
	2 1207.7	47494.1			47494.1	39.3	39.3	10496.5	0930-1013
CAPE FEAR	5 303.7	17544.9			17544.9	57.8	57.8	10131.7	0311-0324
	6 509.7	28299.8			28299.8	55.5	55.5	9732.8	0225-0310
LEE	1 81.7	5618.0			5618.0	68.8	68.8	11917.3	0225-0310
	2 92.2	6344.8			6344.8	68.8	68.8	11860.2	0513-0526
	3 583.9	33491.5			33491.5	57.4	57.4	10020.6	0930-1124
MAYO	1 4282.0	201630.0			201630.0	47.1	47.1	10013.4	0325-0421
	2 4121.9	181449.2			181449.2	44.0	44.0	9737.7	
ROBINSON	1 313.0	18380.5			18380.5	58.7	58.7	10280.1	0930-1124
ROXBORO	1 1955.9	83032.3			83032.3	42.5	42.5	10418.6	0506-0506
	2 3389.1	145028.8			145029.0	42.8	42.8	10484.6	1007-1027
	3 3004.8	127445.1			127445.1	42.4	42.4	10402.6	0225-0505
SUTTON	4 3897.5	158840.0			158840.0	40.8	40.8	9987.1	0909-1006
	1 128.5	8520.3			8520.3	66.3	66.3	11532.7	0225-0317
	2 165.8	10376.4			10376.4	62.6	62.6	10991.9	0930-1110
UNDESIGNATED FOSSIL	3 1004.0	55920.1			55920.1	55.7	55.7	9756.9	0408-0428
	1 -	-			-	-	-	-	-
	2 -	-			-	-	-	-	-
WEATHER-SPOOR	1 29.2	2138.7			2138.7	73.2	73.2	12872.0	0422-0428
	2 24.1	1781.0			1781.0	73.8	73.8	12962.2	0318-0421
	3 122.0	7696.9			7696.9	63.1	63.1	11055.1	1021-1027
TOTAL FOSSIL STEAM	26623	1193539.0			1193539	44.8	44.8	10146.8	
IC TURBINES	259.3	55527.0			55527.0	214.2	214.2	15787.8	
TOTAL FOSSIL	26882	1249066.0			1249066	46.5	46.5	10201.2	
BRUNSWICK	1 3893.0	34877.0			34877.0	9.0	9.0	10448.7	0624-0922
	2 3893.1	35958.9			35958.9	9.2	9.2	10448.7	0401-0630
HARRIS	1 4966.6	48373.6			48373.6	9.7	9.7	10943.5	1028-1231
	2 3696.9	35501.1			35501.1	9.6	9.6	10949.7	0311-0623
ROBINSON	2	-			-	-	-	-	-
TOTAL NUCLEAR	16450	154710.6			154710.6	9.4	9.4	10710.7	
TOTAL CP&L GENERATION	44052	1403777.0			1403777.0	31.9	31.9	10131.8	
TOTAL INPUT	44656				1477582		33.1		

\* O&M COSTS ARE INCLUDED IN ANOTHER SCHEDULE.  
\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.

PLANNED OUTAGES\*\*

	GW	FUEL (K\$)	BACK-END FUEL(K\$)	TOTAL* FUEL (K\$)	FUEL \$/MWH	TOTAL* CAP	HEAT RATE	
INPUT FOR CP&L LOAD	4606.1			481.4				
PEAK FOR CP&L LOAD	8605MW							
SEPA WHIFFLING	128.0							
FIRM PURCHASES	128.0			481.4		3.8		
NON-FIRM PURCHASES	525.9			45130.5		85.8		
TOTAL PURCHASED POWER	653.9			45611.9		69.6		
CP&L SYSTEM HYDRO	720.1							
ASHEVILLE	1 1291.2	51974.0		51974.0	40.3	40.3	9986.1	0330-0510
	2 1191.3	50565.1		50565.1	42.4	42.4	10504.4	0928-1011
CAPE FEAR	5 207.1	18342.2		18342.2	61.7	61.7	10129.4	0504-0517
	6 483.5	28701.9		28701.9	53.4	59.4	9733.5	0323-0503
LEE	1 44.2	3248.3		3248.3	73.5	73.5	11914.1	0309-0322
	2 49.2	3607.0		3607.0	73.3	73.3	11837.4	0518-0531
MAYO	3 564.0	34680.3		34680.3	61.5	61.5	10025.6	1012-1025
	1 3743.5	166619.5		166650	44.5	44.5	9751.7	0120-0329
ROBINSON	2 4221.5	179599.1		179599	42.5	42.5	9753.5	0330-0426
ROXBORO	1 308.1	19342.4		19342.4	62.8	62.8	10279.1	0928-1011
	1 1907.0	87870.5		87870.5	46.1	46.1	10431.8	0511-0511
	2 2518.8	117751.8		117752	46.8	46.8	10521.9	0921-1129
	3 3471.6	159427.3		159427	45.9	45.9	10405.2	0330-0426
SUTTON	4 3755.1	166354.3		166354	44.3	44.3	10017.3	0824-0920
	1 120.8	8551.8		8551.8	70.8	70.8	11519.4	0330-0419
	2 149.4	9939.1		9939.1	66.5	66.5	10933.0	1005-1025
UNDESIGNATED FOSSIL	3 1027.2	61016.1		61016.1	59.4	59.4	9742.8	0420-0510
	1 -	-		-	-	-	-	-
	2 -	-		-	-	-	-	-
	3 -	-		-	-	-	-	-
WEATHERSPOON	1 22.2	1738.1		1738.1	78.2	78.2	12862.0	0413-0419
	2 19.8	1561.0		1561.0	78.8	78.8	12965.0	0525-0531
	3 113.3	7638.8		7638.8	67.4	67.4	11052.3	1019-1025
TOTAL FOSSIL STEAM	25299	1178555.0		1178555	46.6	46.6	10107.1	
IC TURBINES	226.1	53193.3		53193.3	235.2	235.2	15644.0	
TOTAL FOSSIL	25525	1231748.0		1231748	48.3	48.3	10156.1	
BRUNSWICK	1 5194.8	51022.5	9766.3	60788.8	9.8	11.7	10448.7	
	2 4444.1	43184.3	8351.9	51539.2	9.7	11.6	10448.6	1109-1231
HARRIS	1 5662.4	63820.8	10645.3	74466.2	11.3	13.2	10942.6	0101-0126
	2 3866.1	38180.5	7268.3	45448.8	9.9	11.8	10948.8	0907-1220
ROBINSON	2 -	-	-	-	-	-	-	-
TOTAL NUCLEAR	19168	196208.0	36034.9	232243	10.2	12.1	10695.5	
TOTAL CP&L GENERATION	45412	1427957.0	36034.9	1463991	31.4	32.2	10144.8	
TOTAL INPUT	46066	-	-	1509503	-	32.8	-	

\* O&M COSTS ARE INCLUDED IN ANOTHER SCHEDULE.  
\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.

## CAROLINA POWER &amp; LIGHT COMPANY GENERATION REPORT FOR 1993

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RUN DATE: 08/10/83

		GW	FUEL (K\$)	BACK-END FUEL(K\$)	TOTAL* FUEL (K\$)	FUEL \$/MWH	TOTAL* \$/MWH	CAP FAC	HEAT RATE	PLANNED OUTAGES**
INPUT FOR CP&L LOAD	47427									
PEAK FOR CP&L LOAD	8854MW									
SEPA WHEELING	128.0				480.0					
FIRM PURCHASES	128.0	-	-	480.0	-	3.7	-	-	-	
NON-FIRM PURCHASES	757.0	-	-	74221.5	-	98.0	-	-	-	
TOTAL PURCHASED POWER	885.0	-	-	74701.5	-	84.4	-	-	-	
CP&L SYSTEM HYDRO	720.1	-	-	-	-	-	38	-	-	
ASHEVILLE	1 1373.1	59546.4	-	59546.4	43.4	43.4	79	9988.4	0329-0411	
	2 1230.4	56130.8	-	56130.8	45.6	45.6	72	10496.5	1018-1031	
CAPE FEAR	5 316.7	20883.8	-	20883.8	65.9	65.9	25	10127.7	0503-0516	
	6 523.8	33183.0	-	33183.0	63.4	63.4	35	9742.8	0322-0404	
LEE	1 49.3	3871.6	-	3871.6	78.6	78.6	7	11923.8	0308-0321	
	2 54.4	4272.6	-	4272.6	78.5	78.5	8	11816.4	0503-0516	
	3 630.7	41271.7	-	41271.7	65.4	65.4	29	10023.7	0927-1010	
MAYO	1 4324.5	205221.4	-	205221.4	47.5	47.5	70	9741.2	0301-0328	
	2 4262.4	195832.8	-	195833	45.9	45.9	68	9751.2	0329-0425	
ROBINSON	1 340.9	22846.1	-	22846.1	67.0	67.0	22	10274.9	1011-1024	
ROXBORO	1 1640.4	80613.5	-	80613.5	49.1	49.1	49	10420.9	0426-0426	
	2 2966.9	148446.8	-	148447	50.0	50.0	51	10519.6	1011-1031	
	3 3386.5	166409.8	-	166410	49.1	49.1	55	10410.5	0329-0425	
	4 3801.7	176286.1	-	176286	46.4	46.4	62	10008.3	0913-1010	
SUTTON	1 76.2	5753.8	-	5753.8	75.5	75.5	9	11510.6	0301-0321	
	2 165.5	11762.3	-	11762.3	71.1	71.1	18	10933.6	0927-1017	
	3 1043.3	66111.9	-	66111.9	63.4	63.4	31	9738.7	0405-0425	
UNDESIGNATED FOSSIL	1 92.4	-	-	-	-	-	2	11283.2		
	2 -	-	-	-	-	-	-	-		
	3 -	-	-	-	-	-	-	-		
WEATHERSPOON	1 29.5	2469.9	-	2469.9	83.6	83.6	7	12877.3	0419-0425	
	2 26.6	2243.9	-	2243.9	84.4	84.4	-	12934.6	0510-0516	
	3 92.0	6619.4	-	6619.4	71.9	71.9	13	11043.7	1011-1017	
TOTAL FOSSIL STEAM	26427	1309774.0	-	1309774	49.6	49.6	46	10100.5		
IC TURBINES	328.2	85033.9	-	85033.9	259.1	259.1	4	15808.7		
TOTAL FOSSIL	26755	1394808.0	-	1394808	52.1	52.1	40	10170.5		
BRUNSWICK	1 3896.1	45486.4	7761.1	53247.5	11.7	13.7	56	10448.5	0201-0502	
	2 4644.8	55325.4	9252.4	64577.8	11.9	13.9	67	10448.5	0101-0207	
HARRIS	1 4631.5	56881.7	9225.9	66107.6	12.3	14.3	59	10928.0	0517-0815	
	2 5896.2	74157.5	11745.3	85902.8	12.6	14.6	75	10936.6		
ROBINSON	2 -	-	-	-	-	-	-	-		
TOTAL NUCLEAR	19069	231851.0	37984.6	269836	12.2	14.2	64	10715.9		
TOTAL CP&L GENERATION	47544	1626659.0	37984.6	1664644	34.9	35.8	47	10125.1		
TOTAL INPUT	47429	-	-	1739345	-	35.7	-	-		

\* 3&amp;M COSTS ARE INCLUDED IN ANOTHER SCHEDULE.

\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.

CAROLINA POWER & LIGHT COMPANY GENERATION REPORT FOR 1984

PLANNED OUTAGES\*\*

	GW	FUEL (K\$)	BACK-END FUEL (K\$)	TOTAL* FUEL (K\$)	FUEL \$/MWH	TOTAL* \$/MWH	CAP FAC	HEAT RATE	
INPUT FOR CP&L LOAD	48798								
PEAK FOR CP&L LOAD	9094MW								
SEPA WHEELING	128.0			480.0					
FIRM PURCHASES	128.0			480.0		3.7			
NON-FIRM PURCHASES	736.8			72024.3		97.8			
TOTAL PURCHASED POWER	864.8			72504.2		83.8			
CP&L SYSTEM HYDRO	720.1						38		
ASHEVILLE	1 1432.9	66807.1		66807.1	46.6	46.6	83	9983.2	0228-0313
	2 1177.4	57708.5		57708.5	49.0	49.0	69	10488.0	0926-1106
CAPE FEAR	5 257.3	18090.8		18090.8	70.3	70.3	21	10125.5	0418-0529
	6 604.3	40839.9		40839.9	67.6	67.6	40	9740.2	0228-0313
LEE	1 39.7	3327.0		3327.0	83.8	83.8	6	11921.9	0314-0424
	2 44.5	3715.6		3715.6	83.6	83.6	7	11834.6	0425-0508
	3 693.3	48202.3		48202.3	69.7	69.7	31	10006.1	0926-1009
MAYO	1 4420.6	220573.0		220573.0	49.9	49.9	72	9725.6	0228-0327
	2 4355.7	218448.0		218448.0	50.2	50.2	69	9735.8	0328-0424
ROBINSON	1 288.3	20609.3		20609.3	71.5	71.5	19	10276.1	1017-1030
ROXBORO	1 2125.4	110322.4		110322.4	51.9	51.9	63	10407.9	0509-0503
	2 3377.1	178152.8		178152.8	52.8	52.8	58	10504.2	1010-1030
	3 3752.3	194034.5		194034.5	51.7	51.7	61	10384.0	0328-0424
SUTTON	4 3923.0	193110.6		193110.6	49.2	49.2	64	10002.2	0912-1009
	1 63.7	5131.4		5131.4	80.6	80.6	7	11513.5	0221-0313
	2 84.3	6114.0		6114.0	76.1	76.1	9	10981.6	1010-1030
	3 1073.6	72403.4		72403.4	67.4	67.4	32	9716.0	0314-0508
UNDESIGNATED FOSSIL	1 1206.6	72928.8		72928.8	60.4	60.4	20	10497.2	
	2								
	3								
WEATHERSPOON	1 23.5	2094.8		2094.8	89.2	89.2	5	12872.3	0314-0417
	2 21.8	1960.0		1960.0	89.9	89.9	5	12972.2	0425-0501
	3 57.0	4370.7		4370.7	76.6	76.6	8	11035.4	0926-1030
TOTAL FOSSIL STEAM	29022	1539341.0		1539341.0	53.0	53.0	50	10102.9	
IC TURBINES	268.6	75528.9		75528.9	281.2	281.2	3	15857.0	
TOTAL FOSSIL	29291	1614870.0		1614870.0	55.1	55.1	44	10155.7	
BRUNSWICK	1 3898.3	47029.0	8205.9	55234.9	12.1	14.2	56	10448.7	0912-1211
	2 3895.9	49648.9	8201.0	57849.9	12.7	14.8	56	10448.7	0620-0918
HARRIS	1 5658.5	75515.4	11911.2	87426.6	13.3	15.5	72	10938.8	1205-1231
	2 4471.9	62776.7	9413.4	72190.1	14.0	16.1	57	10946.8	0328-0626
ROBINSON	2								
TOTAL NUCLEAR	17925	234970.1	37731.4	272702	13.1	15.2	61	10727.7	
TOTAL CP&L GENERATION	47935	1849840.0	37731.4	1887571	38.1	39.4	49	10428.2	
TOTAL INPUT	48800			1960076		40.2			

\* OSM COSTS ARE INCLUDED IN ANOTHER SCHEDULE.  
\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.

## CAROLINA POWER &amp; LIGHT COMPANY GENERATION REPORT FOR 1995

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RUN DATE: 08/10/83

		GWH	FUEL (K\$)	BACK-END FUEL (K\$)	TOTAL* FUEL (K\$)	FUEL \$/MWH	TOTAL* \$/MWH	CAP FAC	HEAT RATE	PLANNED OUTAGES**
INPUT FOR CP&L LOAD		50290								
PEAK FOR CP&L LOAD		9386MW								
SEPA WHEELING		128.0			480.0					
FIRM PURCHASES		128.0	-	-	480.0	-	3.7	-	-	
NON-FIRM PURCHASES		1844.4	-	-	151631	-	82.2	-	-	
TOTAL PURCHASED POWER		1972.4	-	-	152111	-	77.1	-	-	
CP&L SYSTEM HYDRO		720.1	-	-	-	-	-	38	-	
ASHEVILLE	1	1423.4	71092.6	-	71092.6	49.9	49.9	82	9987.3	0417-0430
	2	1296.7	68113.9	-	68113.9	52.5	52.5	76	10496.9	1016-1029
CAPE FEAR	5	163.4	12223.3	-	12223.3	74.8	74.8	13	10126.6	0424-0507
	6	526.5	37720.3	-	37720.8	71.7	71.7	35	9722.1	0320-0402
LEE	1	43.8	3903.0	-	3903.0	89.2	89.2	6	11922.7	0306-0319
	2	46.0	4095.3	-	4095.3	89.1	89.1	7	11839.6	0327-0507
	3	344.4	25548.9	-	25548.9	74.2	74.2	16	10011.6	1002-1015
MAYO	1	4341.3	230593.5	-	230594	53.1	53.1	70	9743.5	0220-0319
	2	3796.0	198744.6	-	198745	52.4	52.4	60	9744.6	0320-0528
ROBINSON	1	173.6	13204.1	-	13204.1	76.1	76.1	11	10277.2	1002-1015
ROXBORO	1	2108.7	118941.1	-	118941	56.4	56.4	63	10409.1	0508-0508
	2	3430.2	196073.2	-	196073	57.2	57.2	58	10491.6	0925-1015
	3	3703.1	208218.8	-	208219	56.2	56.2	60	10385.3	0403-0430
	4	3376.9	176914.0	-	176914	52.4	52.4	55	10014.6	0724-1001
SUTTON	1	62.0	5312.8	-	5312.8	85.7	85.7	7	11513.0	0213-0326
	2	88.8	7192.7	-	7192.7	81.0	81.0	10	10987.8	1009-1029
	3	1082.4	77530.2	-	77530.2	71.6	71.6	32	9705.0	0327-0416
UNDESIGNATED FOSSIL	1	942.9	60890.6	-	60890.6	64.6	64.6	16	10516.3	0327-0423
	2	92.4	6247.0	-	6247.0	67.6	67.6	2	11283.2	
	3	-	-	-	-	-	-	-	-	
WEATHERSDOON	1	26.1	2478.1	-	2478.1	94.8	94.8	6	12864.1	0327-0402
	2	23.5	2241.7	-	2241.7	95.6	95.6	5	12970.1	0424-0430
	3	62.8	5118.9	-	5118.9	81.6	81.6	9	11037.4	1016-1022
TOTAL FOSSIL STEAM		27155	1532396.0	-	1532396	56.4	56.4	42	10173.0	
IC TURBINES		306.9	93455.1	-	93455.1	304.5	304.5	3	15766.7	
TOTAL FOSSIL		27462	1625851.0	-	1625851	59.2	59.2	37	10186.1	
BRUNSWICK	1	5187.1	72625.5	11531.0	84156.5	14.0	16.2	75	10448.6	
	2	5185.3	73141.1	11526.8	84667.9	14.1	16.3	75	10448.6	
HARRIS	1	5008.2	78379.3	11133.2	89512.4	15.7	17.9	64	10944.2	0101-0305
	2	4757.6	70295.6	10576.1	80871.6	14.8	17.0	60	10944.8	1016-1231
ROBINSON	2	-	-	-	-	-	-	-	-	
TOTAL NUCLEAR		20138	291441.4	44767.1	339209	14.6	16.8	68	10689.1	
TOTAL CP&L GENERATION		48320	1920292.0	44767.1	1965059	39.7	40.7	46	10143.8	
TOTAL INPUT		50292	-	-	2117170	-	42.1	-	-	

\* O&amp;M COSTS ARE INCLUDED IN ANOTHER SCHEDULE.

\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.

## CAROLINA POWER &amp; LIGHT COMPANY GENERATION REPORT FOR 1996

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RUN DATE: 08/10/83

		GW	FUEL (K\$)	BACK-END FUEL(K\$)	TOTAL* FUEL (K\$)	FUEL \$/MWH	TOTAL* \$/MWH	CAP FAC	HEAT RATE	PLANNED OUTAGES**
INPUT FOR CP&L LOAD		51868								
PEAK FOR CP&L LOAD		9696MW								
SEPA WHEELING		128.0			481.4					
FIRM PURCHASES		128.0	-	-	481.4	-	3.8	-	-	
NON-FIRM PURCHASES		2709.0	-	-	208252	-	76.9	-	-	
TOTAL PURCHASED POWER		2837.1	-	-	208733	-	73.6	-	-	
CP&L SYSTEM HYDRO		720.1	-	-	-	-	-	38	-	
ASHEVILLE	1	1457.2	78123.9	-	78123.9	53.6	53.6	84	9982.9	0408-0421
	2	1331.6	74958.4	-	74958.4	56.3	56.3	78	10477.9	0930-1013
CAPE FEAR	5	162.4	13011.3	-	13011.3	80.1	80.1	13	10123.7	0401-0414
	6	506.6	39015.2	-	39015.2	77.0	77.0	33	9741.9	0304-0317
LEE	1	43.9	4192.4	-	4192.4	95.6	95.6	6	11922.8	0226-0310
	2	48.4	4618.7	-	4618.7	95.4	95.4	7	11836.3	0513-0526
	3	321.5	25663.6	-	25663.6	79.8	79.8	15	10021.1	0930-1124
MAYO	1	4453.4	249969.7	-	249970	56.1	56.1	72	9724.4	0226-0324
	2	4416.3	253146.1	-	253146	57.3	57.3	70	9730.1	0325-0421
ROBINSON	1	173.3	14116.0	-	14116.0	81.5	81.5	11	10276.7	0930-1124
ROXBORO	1	2158.4	130045.8	-	130046	60.3	60.3	64	10386.2	0527-0527
	2	3612.4	219368.6	-	219369	60.7	60.7	61	10452.7	1007-1027
	3	3345.5	201230.8	-	201231	60.2	60.2	54	10372.2	0318-0526
	4	3933.4	219174.1	-	219174	55.7	55.7	64	9983.8	0909-1006
SUTTON	1	67.9	6238.9	-	6238.9	91.9	91.9	8	11514.6	0401-0421
	2	90.2	7820.9	-	7820.9	86.7	86.7	10	10986.4	0930-1110
	3	1049.5	80283.4	-	80283.4	76.5	76.5	31	9693.9	0422-0512
UNDESIGNATED FOSSIL	1	1076.3	73615.6	-	73615.6	68.4	68.4	18	10481.0	0401-0428
	2	1171.5	80235.8	-	80235.8	68.5	68.5	19	10470.2	
	3	-	-	-	-	-	-	-	-	
WEATHERSPOON	1	26.5	2694.2	-	2694.2	101.9	101.9	6	12896.8	0415-0421
	2	23.4	2398.7	-	2398.7	102.6	102.6	5	12990.4	0422-0526
	3	64.4	5626.1	-	5626.1	87.4	87.4	9	11042.9	1014-1020
TOTAL FOSSIL STEAM		29534	1785546.0	-	1785546	60.5	60.5	46	10105.4	
IC TURBINES		307.7	101543.8	-	101544	330.0	330.0	3	15846.9	
TOTAL FOSSIL		29841	1887090.0	-	1887090	63.2	63.2	41	10164.6	
BRUNSWICK	1	3910.7	59112.1	9182.3	68294.3	15.1	17.5	56	10448.7	0422-0721
	2	3911.1	62874.8	9183.3	72058.1	16.1	18.4	56	10448.7	0129-0428
HARRIS	1	4748.6	77451.1	11149.8	88600.9	16.3	18.7	60	10906.8	0624-0922
	2	5901.5	99402.1	13856.8	113259	16.8	19.2	75	10937.3	0101-0114
ROBINSON	2	-	-	-	-	-	-	-	-	
TOTAL NUCLEAR		18472	298840.0	43372.1	342212	16.2	18.5	62	10722.5	
TOTAL CP&L GENERATION		49033	2185930.0	43372.1	2229302	44.6	45.5	47	10126.0	
TOTAL INPUT		51870	-	-	2438035	-	47.0	-	-	

\* O&amp;M COSTS ARE INCLUDED IN ANOTHER SCHEDULE.

\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.



CAROLINA POWER & LIGHT COMPANY GENERATION REPORT FOR 1997

PLANNED OUTAGES\*\*

INPUT FOR CP&L LOAD  
PEAK FOR CP&L LOAD  
SEPA WHEELING

FIRM PURCHASES  
NON-FIRM PURCHASES

TOTAL PURCHASED POWER

CP&L SYSTEM HYDRO

ASHEVILLE

CAPE FEAR

LEE

MAYO

ROBINSON

ROXBORO

SUTTON

UNDESIGNATED FOSSIL

WEATHERSPOON

TOTAL FOSSIL STEAM

IC TURBINES

TOTAL FOSSIL

BRUNSWICK

HARRIS

ROBINSON

TOTAL NUCLEAR

TOTAL CP&L GENERATION

TOTAL INPUT

HEAT RATE

CAP FAC

FUEL \$/MWH

TOTAL\* \$/MWH

BACK-END FUEL (K\$)

TOTAL\* FUEL (K\$)

GWHL

FUEL (K\$)

BACK-END FUEL (K\$)

TOTAL\* FUEL (K\$)

GWHL

FUEL (K\$)

BACK-END FUEL (K\$)

TOTAL\* FUEL (K\$)

GWHL

FUEL (K\$)

BACK-END FUEL (K\$)

TOTAL\* FUEL (K\$)

GWHL

FUEL (K\$)

BACK-END FUEL (K\$)

TOTAL\* FUEL (K\$)

GWHL

FUEL (K\$)

BACK-END FUEL (K\$)

TOTAL\* FUEL (K\$)

GWHL

FUEL (K\$)

BACK-END FUEL (K\$)

TOTAL\* FUEL (K\$)

GWHL

FUEL (K\$)

\* O&M COSTS ARE INCLUDED IN ANOTHER SCHEDULE.  
\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.



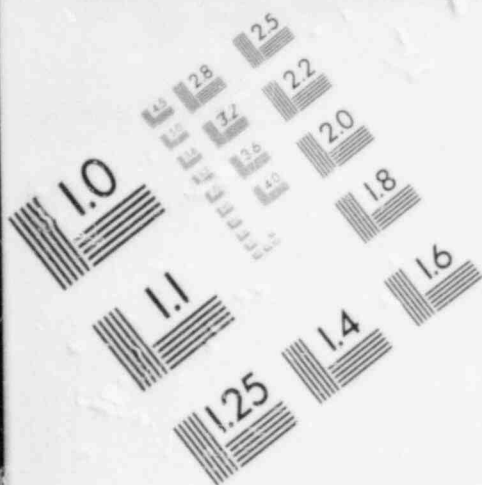
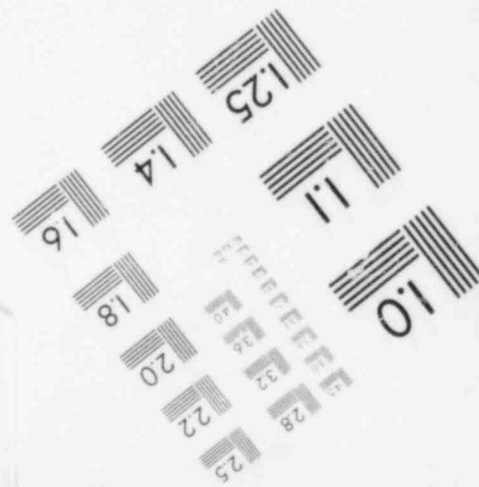
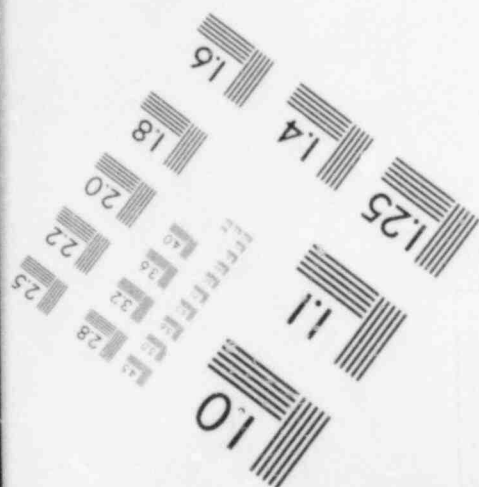
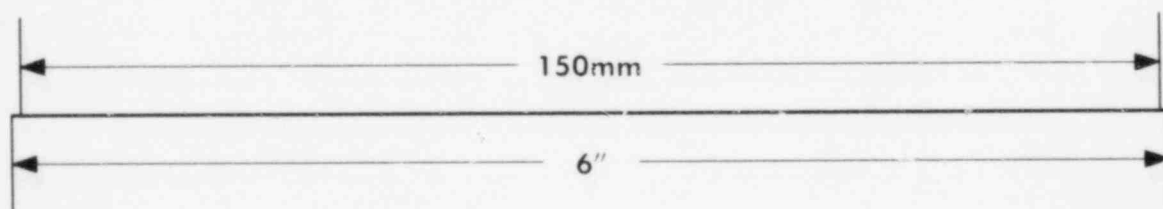
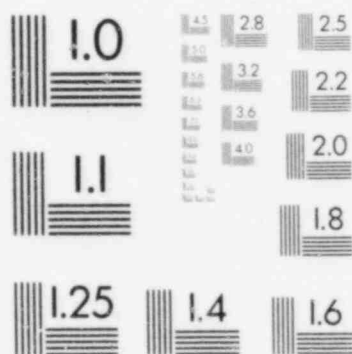
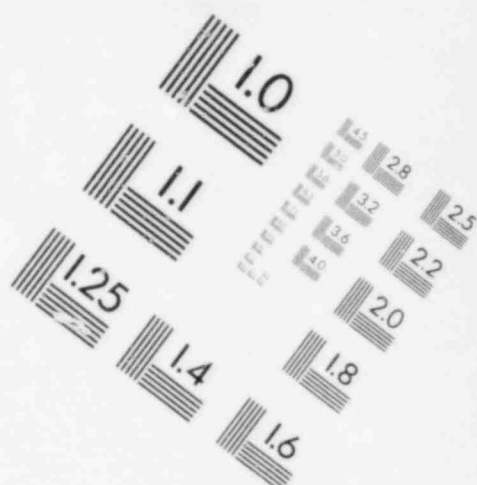


IMAGE EVALUATION  
TEST TARGET (MT-3)



RUN DATE: 09/10/83

PLANNED OUTAGES\*\*

INPUT FOR CP&L LOAD	55171			480.0						
PEAK FOR CP&L LOAD	10300MW									
SEPA WHEELING	128.0									
FIRM PURCHASES	128.0			480.0		3.7				
NON-FIRM PURCHASES	4221.8			312817		74.1				
TOTAL PURCHASED POWER	4349.8			313297		72.0				
CP&L SYSTEM HYDRO	720.1						38			
ASHEVILLE	1	1414.6	87721.9	87721.9	62.0	62.0	82	9983.9	0413-0426	
	2	1288.5	81027.9	84027.9	65.2	65.2	76	10487.6	1012-1025	
CAPE FEAR	5	174.6	15934.1	15934.1	91.6	91.6	14	10126.5	0420-0503	
	6	360.9	31805.9	31805.9	88.1	88.1	24	9731.7	0316-0329	
LEE	1	47.4	5201.9	5201.9	109.8	109.8	7	11950.0	0302-0315	
	2	53.7	5885.1	5885.1	109.6	109.6	8	11853.7	0511-0524	
	3	356.6	32362.0	32362.0	90.7	90.7	16	10003.3	0928-1011	
MAYO	1	4399.4	283035.3	283035	64.3	64.3	71	9730.0	0223-0322	
	2	4378.5	270704.1	270704	61.8	61.8	69	9734.4	0323-0419	
ROBINSON	1	191.6	17860.5	17860.5	93.2	93.2	13	10285.3	1012-1025	
ROXBORO	1	1792.7	124728.5	124729	69.6	69.6	53	10401.9	0427-0427	
	2	3276.4	231870.8	231871	70.8	70.8	56	10496.1	1005-1025	
	3	3609.8	250910.5	250811	69.5	69.5	58	10379.3	0330-0426	
	4	3925.3	264470.8	264471	67.4	67.4	61	9995.4	0907-1004	
SUTTON	1	79.3	8351.3	8351.3	105.3	105.3	9	11551.7	0330-0419	
	2	98.8	9802.9	9802.9	99.2	99.2	11	10986.9	0928-1018	
	3	868.3	76543.8	76543.8	88.2	88.2	26	9717.8	0420-0510	
UNDESIGNATED FOSSIL	1	1344.8	103586.1	103586	77.0	77.0	22	10438.9	0119-0329	
	2	1465.0	113584.3	113584	77.5	77.5	24	10428.4	0330-0426	
	3	959.9	75615.9	75615.9	78.8	78.8	16	10504.2		
WEATHERSPOON	1	28.9	3366.9	3366.9	116.5	116.5	7	12880.2	0413-0419	
	2	26.1	3074.3	3074.3	117.6	117.6	6	12996.9	0518-0524	
	3	70.6	7041.1	7041.1	99.8	99.8	10	11026.6	0928-1004	
TOTAL FOSSIL STEAM	30212	2107443.0		2107443	69.8	69.8	43	10133.6		
IC TURBINES	366.6	140367.3		140367	382.9	382.9	4	15418.6		
TOTAL FOSSIL	30578	2247810.0		2247810	73.5	73.5	39	10195.9		
BRUNSWICK	1	4336.3	77023.8	11369.7	88393.5	17.8	20.4	63	10448.6	0101-0301
	2	5187.3	94849.9	13601.0	108451	18.3	20.9	75	10418.6	
HARRIS	1	4549.8	87825.8	11929.6	99755.4	19.3	21.9	58	10946.9	0112-0412
	2	5451.9	102586.0	14294.8	116881	18.8	21.4	69	10939.9	1123-1231
ROBINSON	2									
TOTAL NUCLEAR	19525	362285.5	51195.0	413481	18.6	21.2	66	10701.9		
TOTAL CP&L GENERATION	50824	2610096.0	51195.0	2664291	51.4	52.4	46	10135.3		
TOTAL INPUT	55173			2974588		53.9				

\* O&amp;M COSTS ARE INCLUDED IN ANOTHER SCHEDULE.

\*\* OUTAGE SCHEDULES ARE SUBJECT TO CHANGE.

ATTACHMENT 3-29  
CHANGES IN PRODUCTION COST INPUT  
INFORMATION FOR ALTERNATE (2)

CAROLINA POWER & LIGHT COMPANY  
PROJECTED O&M COSTS<sup>(1)</sup>  
(000's \$)

Year	Other <sup>(2)</sup> Fossil Steam	Other <sup>(3)</sup> Nuclear	Total IC Turbines	Total Hydro	Brunswick #1	Brunswick #2	Roxboro #4	Mayo #1	Mayo #2	Harris #1	Harris #2
1984	63,632	37,769	8,701	2,870	50,448	48,882	6,244	5,609			
1985	68,584		9,074	3,086	33,724	39,879	6,725	6,041			
1986	73,920		9,475	3,319	45,520	43,720	7,243	6,506		28,847	
1987	79,671		9,907	3,570	37,228	37,872	7,801	7,007		46,635	
1988	85,869		10,373	3,840	47,718	47,028	8,401	7,547		50,820	
1989	92,552		10,875	4,131	45,241	49,677	9,048	8,128		42,653	
1990	99,751		11,415	4,444	47,697	42,943	9,745	8,753		50,302	32,382
1991	107,769		11,997	4,781	57,072	57,072	10,496	9,427	6,677	44,223	55,241
1992	116,430		12,624	5,144	49,357	55,732	11,304	8,884	8,630	46,483	59,232
1993	125,787		13,299	5,535	65,581	58,749	12,174	9,295	9,295	60,549	47,862
1994	181,656		14,026	5,956	70,326	70,326	13,111	10,010	10,010	62,837	64,930
1995	205,916		14,809	6,410	60,785	60,785	14,121	10,781	10,781	57,246	67,340
1996	257,739		15,652	6,899	80,798	80,798	15,208	11,611	11,611	74,598	61,372
1997	292,061		16,560	7,425	75,021	86,623	16,379	12,505	12,505	78,687	79,976
1998	343,700		17,538	7,992	87,314	74,880	17,641	13,468	13,468	69,138	82,954

NOTES:

- (1) These projected O&M costs do not include fuel costs.
- (2) "Other Fossil Steam" includes the following plants: Asheville; Cape Fear; Lee; Robinson Unit 1; Roxboro Units 1,2&3; Sutton, Weatherspoon, and Undesignated Units 1, 2, and 3.
- (3) "Other Nuclear" includes Robinson Unit 2.

FOSSIL STEAM DISPATCH FUEL PRICES  
All Data Are Cents/MBTU

<u>Plant</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>
Asheville	193	212	234	258	285	313	343	374	403	434	467	500	537	578	621
Cape Fear	227	253	281	311	347	382	422	466	502	541	582	625	672	725	783
Lee	227	253	281	311	347	382	422	466	502	541	582	625	672	725	783
Mayo 1	193	213	237	262	292	321	354	389	420	453	488	524	564	605	652
Mayo 2	-	-	-	-	-	-	354	389	420	453	488	524	564	605	652
Robinson 1	228	252	280	310	346	381	421	466	502	541	582	625	672	725	783
Roxboro 1-3	193	213	237	262	291	321	354	388	418	451	486	522	561	605	652
Roxboro 4	193	213	237	262	292	321	354	389	420	453	488	524	564	605	652
Sutton	227	253	281	311	347	382	422	466	502	541	582	625	672	725	783
Weatherspoon	227	253	281	311	347	382	422	466	502	541	582	625	672	725	783
Undesignated	-	-	-	-	-	-	-	-	-	-	563	599	641	685	732

8/12/82

ATTACHMENT 3-35  
WORKSHEETS USED TO DEVELOP  
REVENUE REQUIREMENTS  
RELATED TO CAPITAL AND  
FUEL COSTS

Robinson # 2

# Estimated Revenue Requirements Percentages - Nuclear Fuel

Year	Batch #	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1985	12	5068	12,024	18	18,020																
1986		859	8396		13,782																
1987			1,914		4,424																
1988			1,066		3,491																
1989					4,620																
Subsequent Years Rev. Requirements for Batches 14, 15 and 16 on...																					
Year 1	20,805																				
" 2	16,720																				
" 3	12,648																				
" 4	8,223																				
" 5	1,651																				

## Notes

- These factors should be applied to original cost
- Factors include all costs except book depreciation
- ACCOUNTING DATA - ROBINSON - RECEIVING DEPT. (FUEL COSTS FROM RECEIVING DEPT.)
- COMPUTER RUNS - COMPARISON OF REV. REQ'S. FUEL COSTS FROM RECEIVING DEPT.

SOURCE

# ROBINSON 2

## TRANSFERS to REACTOR

### Repayment

<u>YR</u>	<u>\$000</u>
1984	<del>20,755</del> use \$28,155,444
1986	36,658
1987	38,490
1988	48,517
1990	54,813
1991	67,071
1993	79,584
1994	81,151
1995	91,801
1997	104,135
1998	106,124

### CASE 1

#### REVENUE REQUIREMENTS RELATED TO FUEL (000's \$)

<u>YEAR</u>			
1984		1995	43825
1985	7931	1996	31859
1986	12880	1997	41096
1987	17088	1998	48196
1988	22137		
1989	16149		
1990	21352		
1991	27871		
1992	19049		
1993	29481		
1994	36775		

6/24/83



# CAPITAL

CALCULATED FROM 1971-1973 CASH FLOW

## ESTIMATED REVENUE REQUIREMENTS PERCENTAGES

REPLACEMENT OF STEAM GENERATOR - BEGINNING 1972

Page 1 of 3

Project No.	23
Approved By	
Date	6/23

VINTAGE	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
POW COST (000's)	111371	4154	106	1035	1893	305	132	3812	9873	8803
Rev. Re. Percentage										
1974	13.072	12.379	13.278	12.434	11.053	11.854	11.212	11.217	11.600	11.185
85	12.495	11.735	12.566	11.650	15.227	10.889	18.354	16.354	17.510	17.618
86	11.147	11.159	11.922	10.745	14.478	10.072	12.526	15.315	16.485	17.607
87	11.461	10.652	11.544	10.320	12.817	9.212	16.756	14.500	15.523	16.582
88	11.030	10.213	10.832	11.075	13.112	8.578	16.015	13.664	14.625	15.621
89	10.599	9.844	10.388	10.310	12.519	7.716	15.211	12.903	13.771	14.722
90	10.168	9.474	10.010	9.724	11.753	6.978	14.646	12.300	12.021	12.886
91	9.738	9.105	9.631	9.617	11.455	6.773	14.019	11.561	12.319	13.115
92	9.307	8.735	9.253	8.311	11.007	6.671	13.430	10.787	11.692	12.406
93	8.876	8.266	8.855	8.005	10.557	6.443	12.870	10.476	11.073	11.761
94	8.445	7.716	8.477	7.678	10.110	6.215	12.362	10.029	10.508	11.180
95	8.006	7.279	8.119	7.272	9.642	5.987	11.854	9.649	10.177	10.662
96	-	7.605	7.941	7.036	9.214	5.759	11.341	9.265	9.710	10.207
97	-	-	7.703	6.780	8.766	5.530	10.828	8.892	9.353	9.816
98	-	-	-	6.474	8.318	5.302	10.316	8.500	8.765	9.125

## REPLACEMENT OF STEAM GENERATOR - ROBINSON #2

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## CAROLINA TOOL &amp; LIGHT COMPANY

ESTIMATED REVENUE REQUIREMENTS PERCENTAGES

REPLACEMENT OF STEAM GENERATOR - ROBINSON #2

Pg. 3082

Approved by _____	Initials _____	Date _____
_____	_____	_____

VINTAGE	Per Cent (no's)	REV PER. PERCENTAGE
1924	98	5633
25	97	5168
26	96	4742
27	95	4354
28	94	3912
29	93	3528
30	92	3144
31	91	2745
32	90	2347
33	89	1940
34	88	1540
35	87	1140
36	86	746
37	85	345
38	84	282
39	83	285
40	82	281

# CAPITAL

## REVENUE REQUIREMENT COMPONENTS BY YEAR (\$00'S \$)

YEAR	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1971	9348.17	8917.81	8528.12	8179.83	7872.22	7564.61	7257.80	6950.11	6642.50	6334.89	6027.28	5928.88	0	0	0
1972	514.471	487.787	463.768	442.697	424.452	409.117	393.739	378.404	363.827	347.691	332.314	316.978	316.864	0	0
1973	14.8747	13.3288	12.6373	12.8246	11.4819	11.8113	10.6186	10.2889	9.88818	9.4875	9.88682	8.68614	8.28546	8.16518	0
1974	134.989	126.483	118.753	111.972	106.859	101.814	96.8254	93.4945	90.1744	86.8543	83.5233	80.2832	76.8831	73.563	74.6372
1975	303.883	288.474	274.869	260.647	248.218	236.776	226.388	216.843	208.363	199.892	191.382	182.902	174.421	165.940	157.468
1976	36.1788	33.1962	30.5861	28.8997	25.9799	24.1438	22.5944	21.3287	20.3466	19.6512	18.9558	18.2684	17.5658	16.8665	16.1711
1977	25.3572	24.2273	23.1475	22.1179	21.1398	20.2185	19.3327	18.5851	17.7276	17.8883	16.3231	15.6473	14.9781	14.2938	13.6171
1978	667.624	628.321	591.476	557.89	525.163	495.733	468.724	444.174	422.121	402.488	385.314	378.628	355.961	341.246	326.57
1979	1468.18	1382.86	1301.16	1225.23	1154.35	1088.52	1027.75	971.944	921.271	875.578	834.922	799.324	768.778	738.232	707.687
1980	1747.48	1645.98	1558.12	1459.88	1375.12	1295.98	1222.38	1158.888	1092.18	1035.32	984.175	938.576	898.522	864.182	829.683
1981	885.944	759.899	712.255	665.448	621.758	578.851	534.39	490.691	475.266	459.879	444.453	429.828	413.641	398.215	382.828
1982	2752.67	2584.99	2436.98	2288.81	2148.72	2002.42	1864.12	1725.83	1587.53	1537.48	1487.55	1437.62	1387.78	1337.65	1287.72
1983	1857.96	1748.57	1635.42	1542.53	1449.63	1356.65	1269.92	1183.18	1096.29	1009.48	977.819	946.882	914.423	882.587	850.958
1984	38788.9	29537.2	27734.6	26115.2	24688.2	23244.1	21889.1	20464.5	19121.1	17777.7	16433.1	15916.6	15398.7	14888.9	14363.1
1985	0	6137.97	5886.87	5524.38	5199.97	4918.62	4622.53	4334.19	4064.71	3794.99	3525.51	3255.78	3153.63	3051.23	3014.97
1986	0	0	8898.38	8548.61	8045.58	7598.98	7201.14	6802.94	6405.18	6031.47	5657.48	5283.85	4918.22	4754.88	4599.38
1987	0	0	0	549.652	527.188	494.528	465.279	439.387	413.495	387.682	363.384	339.166	314.947	298.729	281.576
1988	0	0	0	0	681.881	576.351	548.728	588.749	488.439	452.129	423.819	397.316	378.836	344.356	317.976
1989	0	0	0	0	0	653.339	626.542	587.888	553.854	522.278	491.583	468.781	431.916	403.138	374.344
1990	0	0	0	0	0	0	715.284	685.948	643.541	605.491	571.797	538.876	504.382	472.867	441.352
1991	0	0	0	0	0	0	0	777.422	745.534	699.489	658.85	621.427	584.884	548.188	513.894
1992	0	0	0	0	0	0	0	0	849.189	814.356	764.885	718.826	678.828	638.315	598.889
1993	0	0	0	0	0	0	0	0	0	924.346	886.434	831.638	782.457	738.914	695.335
1994	0	0	0	0	0	0	0	0	0	0	1889.22	967.828	987.988	854.288	886.743
1995	0	0	0	0	0	0	0	0	0	0	0	1188.82	1055.67	998.484	931.843
1996	0	0	0	0	0	0	0	0	0	0	0	0	1198.87	1149.78	1078.62
1997	0	0	0	0	0	0	0	0	0	0	0	0	0	1386.57	1252.98
1998	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1424.88
TOTALS	58466	54387	68198	57526	55829	52662	58394	47186	46223	44345	42577	41984	35648	35266	35342


UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket No. 50-261-OLA
	)	
(H. B. Robinson Steam Electric	)	ASLBP No. 83-484-03LA
Plant, Unit 2)	)	


AFFIDAVIT OF HAROLD R. BANKS

WAKE COUNTY       )  
                          )  
NORTH CAROLINA    )

Harold R. Banks, being duly sworn according to law, deposes and says that he is Manager-Corporate Quality Assurance with Carolina Power & Light Company; that Answer to Interrogatories 1-1(Banks), 1-2a), 1-9, 1-13 and 1-15b),e) and h) in Applicant's Answers to The Hartsville Group Second Set of Interrogatories to Applicant, Carolina Power & Light Company, are true and correct to the best of his knowledge, information and belief, and that the sources of his information are officers, employees, agents and contractors of Carolina Power & Light Company.

  
\_\_\_\_\_  
Harold R. Banks

Sworn to and subscribed before  
me this 18th day of August, 1983.

 Marilyn C. Lee  
Notary Public  
commission expires: 11-15-89



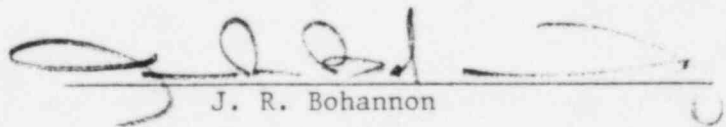
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket No. 50-261-OLA
	)	
(H. B. Robinson Steam Electric	)	ASLBP No. 83-484-03LA
Plant, Unit 2)	)	

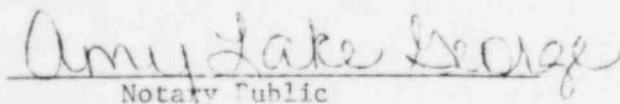
AFFIDAVIT OF J. R. BOHANNON

WAKE COUNTY       )  
                          )  
NORTH CAROLINA    )

J. R. Bohannon, being duly sworn according to law, deposes and says that he is Manager-Nuclear Training Section with Carolina Power & Light Company; that the Answers to Interrogatories 1-1(Bohannon), 1-10, 1-11 and 1-12 in Applicant's Answers to The Hartsville Group Second Set of Interrogatories to Applicant, Carolina Power & Light Company, are true and correct to the best of his knowledge, information and belief, and that the sources of his information are officers, employees, agents and contractors of Carolina Power & Light Company.

  
J. R. Bohannon

Sworn to and subscribed before  
me this 17 day of August, 1983.

  
Notary Public

My commission expires: \_\_\_\_\_

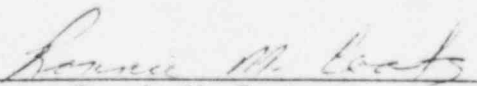
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket No. 50-261-OLA
	)	
(H. B. Robinson Steam Electric	)	ASLBP No. 83-484-03LA
Plant, Unit 2)	)	

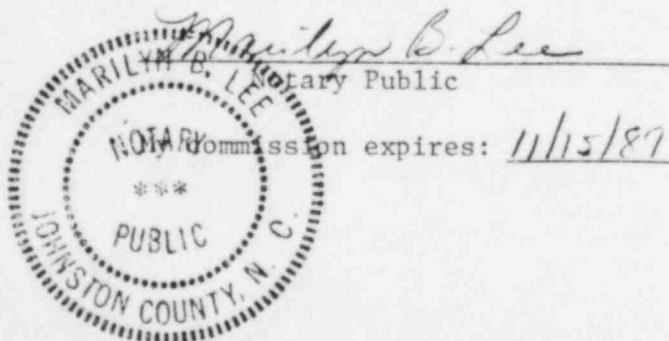
AFFIDAVIT OF RONNIE M. COATS

WAKE COUNTY       )  
                          )  
NORTH CAROLINA    )

Ronnie M. Coats, being duly sworn according to law, deposes and says that he is Assistant to Group Executive with Carolina Power & Light Company; that the Answers to Interrogatories 1-1(Coats), 1-4 and 1-5 contained in Applicant's Answers to The Hartsville Group Second Set of Interrogatories to Applicant, Carolina Power & Light Company, are true and correct to the best of his knowledge, information and belief, and that the sources of his information are officers, employees, agents and contractors of Carolina Power & Light Company.

  
\_\_\_\_\_  
Ronnie M. Coats

Sworn to and subscribed before  
me this 17th day of August, 1983.



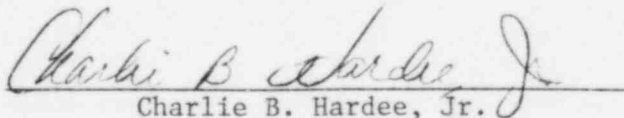
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
 )  
CAROLINA POWER & LIGHT COMPANY ) Docket No. 50-261-OLA  
 )  
(H. B. Robinson Steam Electric ) ASLBP No. 83-484-03LA  
Plant, Unit 2) )

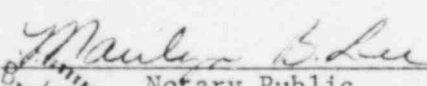
AFFIDAVIT OF CHARLIE B. HARDEE, JR.

WAKE COUNTY )  
 )  
NORTH CAROLINA )

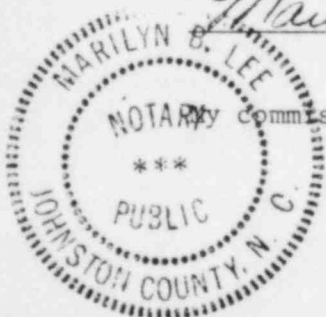
Charlie B. Hardee, Jr., being duly sworn according to law, deposes and says that he is Project Engineer-Nuclear Operations with Carolina Power & Light Company; that Answers to Interrogatories 3-11 through 3-19 contained in Applicant's Answers to The Hartsville Group Second Set of Interrogatories to Applicant, Carolina Power & Light Company, are true and correct to the best of his knowledge, information and belief, and that the sources of his information are officers, employees, agents and contractors of Carolina Power & Light Company.

  
Charlie B. Hardee, Jr.

Sworn to and subscribed before  
me this 15th day of August, 1983.

  
Notary Public

Commission expires: 11-15-87





UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket No. 50-261-OLA
	)	
(H. B. Robinson Steam Electric	)	ASLBP No. 83-484-03LA
Plant, Unit 2)	)	

AFFIDAVIT OF RICHARD E. LUMSDEN

WAKE COUNTY       )  
                          )  
NORTH CAROLINA    )

Richard E. Lumsden, being duly sworn according to law, deposes and says that he is Acting Assistant to Vice President-Nuclear Operations with Carolina Power & Light Company; that Answers to Interrogatories 1-1(Lumsden), 1-2c) and 1-3 contained in Applicant's Answers to The Hartsville Group Second Set of Interrogatories to Applicant, Carolina Power & Light Company, are true and correct to the best of his knowledge, information and belief, and that the sources of his information are officers, employees, agents and contractors of Carolina Power & Light Company.

*Richard E. Lumsden*

Richard E. Lumsden

Sworn to and subscribed before  
me this 17th day of August, 1983.

*Marilyn B. Lee*

Notary Public

My commission expires: 11/15/87



UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )

CAROLINA POWER & LIGHT COMPANY )

Docket No. 50-261-OLA

(H. B. Robinson Steam Electric )  
Plant, Unit 2) )

ASLBP No. 83-484-03LA

AFFIDAVIT OF R. L. MAYTON, JR.

WAKE COUNTY )  
NORTH CAROLINA )

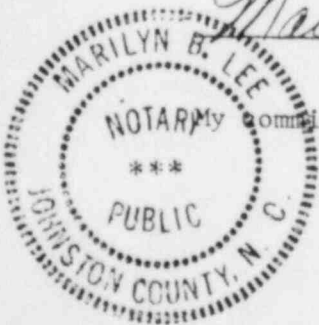
R. L. Mayton, Jr., being duly sworn according to law, deposes and says that he is Manager-Corporate Health Physics with Carolina Power & Light Company; that the Answers to Interrogatories 1-1(Mayton), 1-2b), 1-7 and 1-8 contained in Applicant's Answers to The Hartsville Group Second Set of Interrogatories to Applicant, Carolina Power & Light Company, are true and correct to the best of his knowledge, information and belief, and that the sources of his information are officers, employees, agents and contractors of Carolina Power & Light Company.

R. L. Mayton Jr.  
R. L. Mayton, Jr.

Sworn to and subscribed before  
me this 17th day of August, 1983.

Marilyn B. Lee  
Notary Public

My commission expires: 11/15/87



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
 )  
CAROLINA POWER & LIGHT COMPANY ) Docket No. 50-261-OLA  
 )  
(H. B. Robinson Steam Electric ) ASLBP No. 83-484-03LA  
Plant, Unit 2) )

AFFIDAVIT OF MIKE McDOWELL

WAKE COUNTY )  
 )  
NORTH CAROLINA )

Mike McDowell, being duly sworn according to law, deposes and says that he is Principal Specialist-Chemistry with Carolina Power & Light Company; that the Answer to Interrogatory 1-1(McDowell) contained in Applicant's Answers to The Hartsville Group Second Set of Interrogatories to Applicant, Carolina Power & Light Company, are true and correct to the best of his knowledge, information and belief.

Mike McDowell 8-17-83  
Mike McDowell

Sworn to and subscribed before  
me this 17 Day of August, 1983.

Amy Lake Scarg  
Notary Public

My commission expires: My Commission Expires October 16, 1983

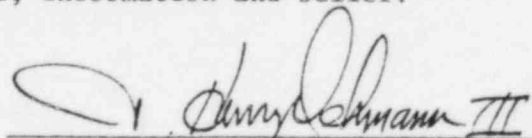
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
 )  
CAROLINA POWER & LIGHT COMPANY ) Docket No. 50-261-OLA  
 )  
(H. B. Robinson Steam Electric ) ASLBP No. 83-484-03LA  
Plant, Unit 2) )

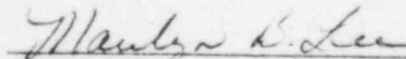
AFFIDAVIT OF J. HENRY OEHMANN, III

WAKE COUNTY )  
 )  
NORTH CAROLINA )

J. Henry Oehmann, III, being duly sworn according to law, deposes and says that he is Manager of Planning and Administrative Support with Carolina Power & Light Company; that the Answer to Interrogatory 1-1(Oehmann) contained in Applicant's Answers to The Hartsville Group Second Set of Interrogatories to Applicant, Carolina Power & Light Company, are true and correct to the best of his knowledge, information and belief.

  
\_\_\_\_\_  
J. Henry Oehmann, III

Sworn to and subscribed before  
me this 17th day of August, 1983.

  
\_\_\_\_\_  
Notary Public

My commission expires: 11/15/87



UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

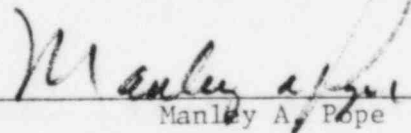
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket No. 50-261-OLA
	)	
(H. B. Robinson Steam Electric	)	ASLBP No. 83-484-03LA
Plant, Unit 2)	)	

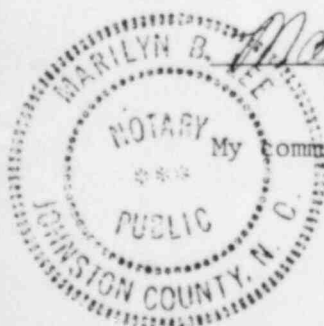
AFFIDAVIT OF MANLEY A. POPE

WAKE COUNTY     )  
                              )  
NORTH CAROLINA    )

Manley A. Pope, being duly sworn according to law, deposes and says that he is Manager-Personnel Relations-Nuclear Plants with Carolina Power & Light Company; that the Answers to Interrogatories 1-1(Pope), 1-14 and 1-15a),c),d), and g) contained in Applicant's Answers to The Hartsville Group Second Set of Interrogatories to Applicant, Carolina Power & Light Company, are true and correct to the best of his knowledge, information and belief, and that the sources of his information are officers, employees, agents and contractors of Carolina Power & Light Company.

  
Manley A. Pope

Sworn to and subscribed before  
me this 18<sup>th</sup> day of August, 1983.

  
Marilyn B. Lee  
Notary Public  
My commission expires: 11-15-87

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

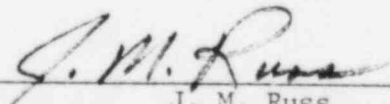
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket No. 50-261-OLA
	)	
(H. B. Robinson Steam Electric	)	ASLBP No. 83-484-03LA
Plant, Unit 2)	)	

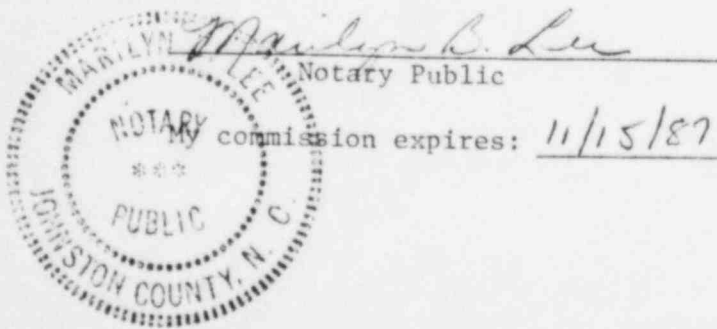
AFFIDAVIT OF J. M. RUSS

WAKE COUNTY )  
                  )  
NORTH CAROLINA )

J. M. Russ, being duly sworn according to law, deposes and says that he is Staff Assistant-Nuclear Plant Construction with Carolina Power & Light Company; that the Answers to Interrogatories 1-2e) and 1-15f) contained in Applicant's Answers to The Hartsville Group Second Set of Interrogatories to Applicant, Carolina Power & Light Company, are true and correct to the best of his knowledge, information and belief, and that the sources of his information are officers, employees, agents and contractors of Carolina Power & Light Company.

  
\_\_\_\_\_  
J. M. Russ

Sworn to and subscribed before  
me this 17th day of August, 1983.



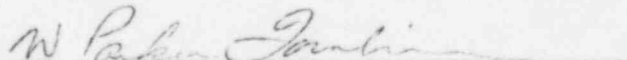
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket No. 50-261-OLA
	)	
(H. B. Robinson Steam Electric	)	ASLBP No. 83-484-03LA
Plant, Unit 2)	)	

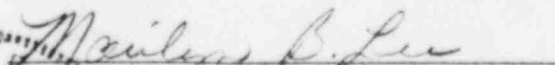
AFFIDAVIT OF W. PARKER TOMLINSON

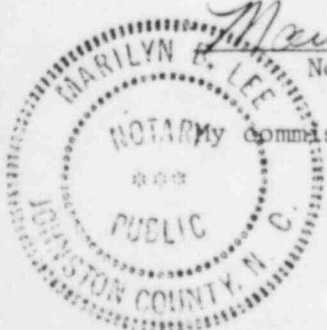
WAKE COUNTY     )  
                          )  
NORTH CAROLINA    )

W. Parker Tomlinson, being duly sworn according to law, deposes and says that he is Principal Engineer-Mechanical with Carolina Power & Light Company; that Answers to Interrogatories 1-1(Tomlinson), 1-2d), 3-1 through 3-8 contained in Applicant's Answers to The Hartsville Group Second Set of Interrogatories to Applicant, Carolina Power & Light Company, are true and correct to the best of his knowledge, information and belief, and that the sources of his information are officers, employees, agents and contractors of Carolina Power & Light Company.

  
W. Parker Tomlinson

Sworn to and subscribed before  
me this 17th day of August, 1983.

  
Notary Public



Commission expires: 11/15/87



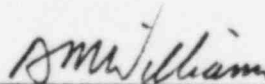
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket No. 50-261-OLA
	)	
(H. B. Robinson Steam Electric	)	ASLBP No. 83-484-03LA
Plant, Unit 2)	)	

AFFIDAVIT OF B. M. WILLIAMS

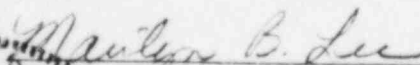
WAKE COUNTY       )  
                          )  
NORTH CAROLINA    )

B. M. Williams, being duly sworn according to law, deposes and says that he is Director-Staff Services with Carolina Power & Light Company; that Answers to Interrogatories 3-20 through 3-23, and 3-25 through 3-53, contained in Applicant's Answers to the Hartsville Group Second Set of Interrogatories to Applicant, Carolina Power & Light Company, are true and correct to the best of his knowledge, information and belief, and that the sources of his information are officers, employees, agents and contractors of Carolina Power & Light Company. Answer to Interrogatory 1-1(Williams) is true.

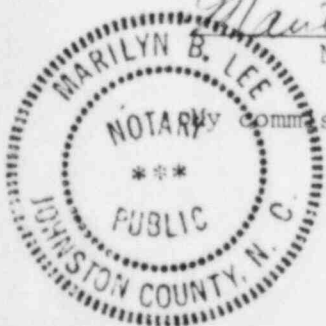


B. M. Williams

Sworn to and subscribed before  
me this 12<sup>th</sup> day of August, 1983.

  
\_\_\_\_\_  
Notary Public

Commission expires: 11/1/87



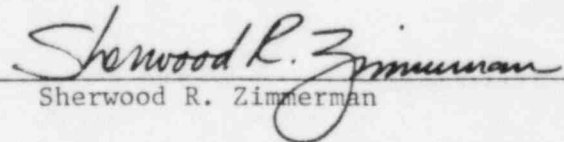
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket No. 50-261-OLA
	)	
(H. B. Robinson Steam Electric	)	ASLBP No. 83-484-03LA
Plant, Unit 2)	)	

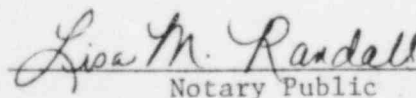
AFFIDAVIT OF SHERWOOD R. ZIMMERMAN

WAKE COUNTY       )  
                          )  
NORTH CAROLINA    )

Sherwood R. Zimmerman, being duly sworn according to law, deposes and says that he is Manager - Licensing and Permits Section, Technical Services Department with Carolina Power & Light Company; that the Answer to Interrogatory 1-1(Zimmerman) contained in Applicant's Answers to The Hartsville Group Second Set of Interrogatories to Applicant, Carolina Power & Light Company, are true and correct to the best of his knowledge, information and belief.

  
\_\_\_\_\_  
Sherwood R. Zimmerman

Sworn to and subscribed before  
me this 17<sup>th</sup> day of August, 1983.

  
\_\_\_\_\_  
Notary Public

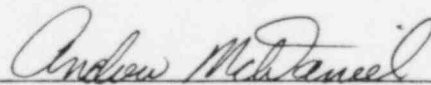
My commission expires: 5-18-88

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket No. 50-261-OLA
	)	
(H. B. Robinson Steam Electric	)	ASLBP No. 83-484-03LA
Plant, Unit 2)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of APPLICANT'S ANSWERS TO THE HARTSVILLE GROUP SECOND SET OF INTERROGATORIES AND REQUEST TO PRODUCE were served this 18th day of August, 1983 by depositing in the United States mail, first class, postage prepaid, to the parties on the attached SERVICE LIST. Affidavits of G. T. Beatty, Jr., ANSWER 1-1 (Beatty) and 1-6; Robert E. Halliburton, ANSWER 1-1 (Halliburton); L. B. Wilson, Jr., ANSWER 1-1 (Wilson); and R. B. Starkey, Jr., ANSWER 3-9 and 3-10 are not attached to said ANSWERS and will be provided.



\_\_\_\_\_  
Andrew McDaniel  
An Attorney for Applicant

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
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Plant, Unit 2)	)	

SERVICE LIST

Administrative Judge Morton B. Margulies  
Chairman, Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Atomic Safety and Licensing Board  
Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Administrative Judge Jerry R. Kline  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Atomic Safety and Licensing Appeal  
Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Administrative Judge David L. Hetrick  
Atomic Safety and Licensing Board  
Professor of Nuclear Engineering  
University of Arizona  
Tucson, Arizona 85721

B. A. Matthews  
Hartsville Group  
P. O. Box 1089  
Hartsville, South Carolina 29550

Docketing & Service Section (3)  
Office of the Secretary  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dr. John C. Ruoff  
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Washington, D. C. 20555