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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )

CAROLINA POWER & LIGHT COMPANY )  
AND NORTH CAROLINA EASTERN )  
MUNICIPAL POWER AGENCY )

Docket Nos. 50-400 OL  
50-401 OL

(Shearon Harris Nuclear Power Plant, )  
Units 1 & 2) )

APPLICANTS' ANSWERS TO JOINT INTERVENORS  
INTERROGATORIES AND REQUEST FOR PRODUCTION OF  
DOCUMENTS TO APPLICANTS ON JOINT CONTENTION I (FIRST SET)

Applicants Carolina Power & Light Company ("CP&L") and North Carolina Eastern Municipal Power Agency, pursuant to 10 CFR § 2.740b, hereby submit the following responses to "Joint Intervenor Interrogatories and Request for Production of Documents to Applicants on Joint Contention I (First Set)." The provision of answers to these interrogatories is not to be deemed a representation that Applicants consider the information sought to be relevant to the issues to be heard in this proceeding.

ANSWERS TO GENERAL INTERROGATORIES

ANSWER G1:

(a) The following list identifies those persons who provided information upon which Applicants relied in answering the interrogatories on Joint Contention I and indicates the particular interrogatory answer for which such person provided information:

INTERROGATORYTECHNICAL CONTACT(S)

I-1 through 9

Sherwood Zimmerman  
Ronnie Coats  
Joe Harness  
Blaine Rieck  
Bill Hindman

I-10

John Eads

I-11 through 12

Wayne Ennis  
Ron Brown  
Ronnie Coats  
Mike Jones

I-13 through 15

Ronnie Coats  
John Eads

I-16 through 21

Ronnie Coats

I-22

Henry Oehman  
Joe Harness  
Blaine Rieck  
Bill Hindman

I-23

John Eads

I-24

Ronnie Coats

I-25

Henry Oehman

I-26

John Eads  
Ronnie Coats

I-27

Ronnie Coats  
Joe Harness  
Blaine Rieck  
Bill Hindman  
Wayne Ennis/Mac HarrisI-28 (a & b)  
(c-f)  
(g)  
(h)Ron Brown  
Ron Brown  
Jim Deaton  
John Eads

I-29

Joe Harness  
Henry Oehman  
Ronnie Coats



I-30 (a-c)	John Eads
(d)	Joe Harness
(e)	Joe Harness
	Ronnie Coats
	Ray Hanford
(f-g)	Joe Harness
(h-m)	Jack Hammond
(n-q)	John Eads
(r) i-xxvi	Joe Harness
	Ronnie Coats
(r) xxvii-xxix	Ronnie Coats
(r) xl-end	Ronnie Coats
 I-31	 Ron Brown
I-32 through 33	Bob Stancil
I-34 through 37	Ron Brown
I-38	Bob Stancil
I-39 (a-h)	Jim Deaton
(i-j)	Malcolm Holmes
	Bob Stancil
(k-l)	Bob Stancil
(m-n)	Wayne Ennis
	John Eads
(o-s)	Manley Pope
(u-x)	Manley Pope
 I-40	 Ronnie Coats
	Joe Harness
 I-41	 Ronnie Coats
	Sam McManus
	Ray Hanford
 I-42	 Ronnie Coats
I-43	Joe Harness
I-44	Ronnie Coats
I-45	Fred Tollison
 I-46 (a-f)	 Ronnie Coats
(g)	Dave Fleshood
	R. B. Richey
(h)	Ronnie Coats
(j)	Ronnie Coats

I-47 (a-b) (c-end)	John Eads Ronnie Coats
I-48 through 49	Ronnie Coats
I-50	Bill Hindman Jim Nevill Peggy Morris
I-51	Ronnie Coats
I-52 through 54	Murray Johnson
I-55	Henry Oehman
I-56 through 57	Joe Harness
I-58	Ronnie Coats
I-59	Joe Harness
I-60	Ronnie Coats
I-61	Joe Harness
I-62 through 65	John Eads
I-66 through 67	Bill Hindman
I-68 through 69	Joe Harness
I-70	Joe Harness Ronnie Coats
I-71	John Eads Joe Harness
I-72 (a-c) (d)	John Eads Dr. Tom Elleman
I-73	Ronnie Coats
I-74 through 75	John Eads
I-76	Fred Tollison
I-78	Bob Stancil Ron Brown Wayne Ennis
I-79	Wayne Ennis

I-80	John Eads Henry Oehman John Walker
I-81 through 83	Ron Brown
I-84	Bill Hindman
I-85	Dr. Tom Elleman
I-86	Joe Harness
I-87	John Walker Joe Harness
I-88	John Walker Joe Harness
I-89 through 95	Murray Johnson
I-96	Dr. Tom Elleman
I-97 through 99	Murray Johnson
I-100	Bob Staneil Lynn Farmer

(b) See Answer G1(a)

ANSWER G2:

(a) Applicants have not yet identified the expert or other witnesses they expect to call in this proceeding regarding Joint Contention I. When and if such witnesses are identified, Applicants will supplement this response in a timely manner.

(b) See Answer G2(a).

ANSWER G3:

(a) Documents relied upon by Applicants are either identified within each response to the specific interrogatories or will be provided for Joint Intervenors inspection upon request as stated in the various responses.

(b) See Answer G3(a).

ANSWER G4:

- (a) See Answer G3(a).
- (b) See Answer G3(a).

ANSWER G5:

(a) Applicants have not at this time identified which documents, if any, they intend to use in cross-examination of witnesses presented by Joint Intervenor and/or the NRC Staff on Joint Contention 1.

ANSWER G6:

Applicants have no such information.

ANSWERS TO INTERROGATORIES ON JOINT CONTENTION 1

ANSWER I-1 through I-5:

The following documents, which pertain to regulation of Applicants' nuclear units by the U.S. Nuclear Regulatory Commission and which contain information responsive to these interrogatories, will be made available for Joint Intervenor's inspection at CP&L's General Office upon request:

<u>Document Description</u>	<u>Dates</u>
NRC Inspection Reports and CP&L Responses (Harris)	1978 to present
NRC Inspection Reports and CP&L Responses (Brunswick)	1976 to present
NRC Inspection Reports and CP&L Responses (Robinson)	1975 to present
SALP Reports and CP&L Responses	covering periods 7/80-12/81; 1/82-1/83
Licensee Event Reports (Brunswick)	1976 to present
Licensee Event Reports (Robinson)	1976 to present
Reports of occurrences reportable under 10 CFR § 50.55(e) (Harris)	1978 to present
Reports of occurrences reportable under	1976 to present

10 CFR §50.55(e) (Brunswick)	
Reports of occurrences reportable under	
10 CFR Part 21 (Harris)	1978 to present
Reports of occurrences reportable under	
10 CFR Part 21 (Brunswick)	1976 to present
Reports of occurrences reportable under	
10 CFR Part 21 (Robinson)	1979 to present
Summary Exposure Reports required under	
10 CFR §20.407 (Brunswick)	1976 to present
Summary Exposure Reports required under	
10 CFR §20.407 (Robinson)	1978 to present
Semiannual Radioactive Effluent Release	
Reports required under Reg. Guide 1.21	
(Brunswick)	1976 to present
Semiannual Radioactive Effluent Release	
Reports required under Reg. Guide 1.21	
(Robinson)	1978 to present

Documents relating to civil penalties levied against Applicants since 1982 by the State of South Carolina under regulations pertaining to radioactive waste shipments will also be made available for Joint Intervenor's inspection at CP&L's General Office upon request. Additionally, documents relating to exceedences of NPDES permit effluent limitations since 1979 pertaining to the Harris, Robinson and Brunswick Plants will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWER I-6 through I-8:

Applicants interpret these Interrogatories as referring to occurrences related to operation of their nuclear units. To the extent that any such occurrences are reflected in the documents provided in response to Interrogatory Nos. I-1 through I-5, reference should be made to the documents themselves. In addition, the final orders of the North Carolina Utilities Commission and the South Carolina Public Service Commission in the following dockets contain language that can be interpreted as responsive to these Interrogatories:

## NCUC ORDERS

<u>Case</u>	<u>Docket No.</u>
1981 N.C. Rate Case	Docket E-2, Sub 416
1982 N.C. Rate Case	Docket E-2, Sub 444
1983 N.C. Rate Case	Docket E-2, Sub 461
October 1980 N.C. Fuel Clause Case	Docket E-2, Sub 402

## SCPSC ORDERS

<u>Case</u>	<u>Docket No.</u>
1982 S.C. Rate Case	Docket 81-163-E, Order No. 82-284
1983 S.C. Rate Case	Docket 82-328-E, Order No. 83-583
August 1981 S.C. Fuel Clause Case	Docket 79-7-E, Order No. 81-596
September 1982 S.C. Fuel Clause Case	Docket 79-7-E, Order No. 82-680

Copies of these orders will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

### ANSWER I-9:

Applicants have no knowledge of any occurrences that were required to be reported to the NRC that have not been reported. (See response to Interrogatory No. I-30(f-g)).

### ANSWER I-10:

The design basis for Brunswick and for Robinson is different from that of Harris and different from one another. The applicability of safety requirements, regulations or restrictions to the Brunswick, Robinson, and Harris nuclear plants is detailed in their respective Final Safety Analysis Reports (FSAR), copies of which will be made available for Joint Intervenor's inspection at CP&L's General Office upon request. As part of the regulatory process, the NRC has required backfitting of selected requirements for already built plants. The NRC may, at any time, require backfitting of a facility in accordance with 10

CFR 50.109 if such action "will provide substantial, additional protection which is required for the public health and safety or the common defense and security."

ANSWERS I-11 and I-12:

The following list identifies testimony that contains discussions relating to problems at Brunswick and Robinson from 1979-1984. The transcripts and prefiled testimony of these witnesses will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

N.C. Rate Cases

<u>Case</u>	<u>Witnesses</u>
E-2, Sub 431 (1984)	P.W. Howe, J.M. Davis, M.A. McDuffie, S.H. Smith
E-2, Sub 461 (1983)	L.W. Eury, S.H. Smith, M.A. McDuffie
E-2, Sub 444 (1982)	L.W. Eury, M.A. McDuffie, B.J. Furr, S.H. Smith, R.M. Coats
E-2, Sub 416 (1981)	S.H. Smith, L.W. Eury, B.J. Furr
E-2, Sub 391 (1980)	S.H. Smith
E-2, Sub 366 (1979-80)	S.H. Smith

N.C. Fuel Cases

<u>Case</u>	<u>Witnesses</u>
E-2, Sub 446	B.J. Furr
E-2, Sub 434	L.W. Eury
E-2, Sub 420	B.J. Furr
E-2, Sub 383	B.J. Furr/J.B. McGirt
E-2, Sub 380	B.J. Furr

S.C. Rate Cases

<u>Case</u>	<u>Witnesses</u>
82-328-E (1983)	S.H. Smith, R.M. Coats
81-163-E (1982)	S.H. Smith
80-69-E (1980)	S.H. Smith, R.B. Starkey

S.C. Fuel Cases (79-7-E)

<u>Case</u>	<u>Witnesses</u>
March 27, 1984	R.M. Coats
September 27, 1983	R.M. Coats
March 29, 1983	T.S. Elleman
September 28, 1982	R.M. Coats

August 24, 1981  
September 23, 1980

L.W. Eury  
R.A. Watson

Other Hearings

<u>Case</u>	<u>Witnesses</u>
HBR Steam Generator - Docket 50-261-OLA	J.J. Sheppard T.F. Timmons (Westinghouse)
Harris ASLB Remand Hearing - Docket Nos. 50-400, 50-401, 50-402 50-403	E. E. Utley H. R. Banks M. A. McDuffie J. A. Jones

Applicants will also make available copies of press releases (Company statements generally mailed or released to the media), media inquiry forms (internal News Services documents that reflect information given to a reporter(s) in response to a specific question or questions), and Infobulletins (informational bulletins prepared and distributed to CP&L offices which generally reflect Company statements or positions given to the media), which contain information about problems at Brunswick or Robinson Unit 2 for Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWERS I-13 and I-14:

The Company's organization with respect to nuclear plant design, construction and operation through March 1979 was discussed in detail in the Harris ASLB remand hearings and is set forth in the record of that hearing.

Since March 1979, the Company's organization with respect to nuclear plant engineering, construction, operation, and support has been described in detail in a series of Management Capability Reports which were submitted to the NRC and dated August 1979, September 1980, July 1981, August 1983, and January 1984, respectively.

Copies of these reports will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.



In addition, organizational changes have been discussed in rate case testimony before the South Carolina Public Service Commission and North Carolina Utilities Commission. The following witnesses discussed organizational changes:

N. C. Rate Cases

<u>Case</u>	<u>Witnesses</u>
Docket E-2, Sub 481 (1984)	M. A. McDuffie
Docket E-2, Sub 461 (1983)	L. W. Eury, S. H. Smith
Docket E-2, Sub 444 (1982)	M. A. McDuffie, B. J. Furr, L. W. Eury
Docket E-2, Sub 416 (1981)	L. W. Eury, B. J. Furr

S. C. Rate Case

Docket 82-328-E (1983)	S. H. Smith
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Copies of these transcripts and prefiled testimony will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

Over the years of CP&L's involvement in nuclear power, CP&L's organization has experienced significant growth. The structure of CP&L's organization has been modified when appropriate to accommodate that growth as well as changes occurring in the nuclear industry. In developing and implementing any reorganizations or reassignments during this period, CP&L's major objective has always been that of maintaining and/or improving its ability to engineer, construct, operate, and maintain its nuclear plants in a safe, reliable, and efficient manner and in full compliance with applicable regulatory requirements. In developing and implementing organizational changes, CP&L has been attuned not only to immediate organizational needs but also to the need to develop its organization and personnel in an orderly and logical manner in order to facilitate future growth.

Each manager/supervisor has an inherent responsibility to develop his assigned organization and personnel in a manner that provides for satisfactory accomplishment of assigned responsibilities now and in the future. Thus, the need for organizational changes may be identified at various levels of responsibility within the Company. The Company provides for review and approval of changes at succeeding management levels up to and including the Company's Senior Management. The approval level will vary depending on the change being proposed.

ANSWER I-15:

Company records regarding approval of organizational changes since January 1981 will be made available for the Joint Intervenors' inspection at CP&L's General Office upon request. Records relating to the years prior to 1981 are not accessible without undue burden.

ANSWER I-16:

Attachment I-16 provides the information requested in the first sentence of Interrogatory No. I-16 for the years 1977 through 1983. Records of outages prior to 1978 are not accessible without undue burden.

Whenever a nuclear unit is taken out of service, appropriate general office management personnel are notified. The timing of such reporting depends on the reason for the outage. Because scheduled outages are planned, management personnel up to and including the Executive Vice President - Power Supply and Engineering & Construction are aware of the outage in advance. In the case of a forced outage, notification to the general office is normally made by phone as soon as reasonably possible. The notification sequence may vary depending on personnel availability and the nature of the outage. In any case, during normal working hours, the Senior Vice President Nuclear Generation and/or

the Executive Vice President Power Supply and Engineering & Construction are normally advised of a forced outage within a few hours of its occurrence.

In addition, daily reports (Monday - Friday) that document the status of all of our units are provided to other management personnel.

ANSWER I-17:

CP&L files a monthly report with the North Carolina Utilities Commission that documents the reasons for off-line outages and the remedial action taken. These reports were initiated in May 1978. Copies of these reports will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWER I-18:

See Attachment I-16 for the definition of planned outages and identification of planned outages since 1977 for each of CP&L's nuclear units. Attachment I-18 compares the scheduled versus actual duration of these planned outages and summarizes the reasons for any extension of the original schedule.

Copies of the outage reports for those planned outages identified in Attachment I-18 for which outage reports were written will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWER I-19:

Limitations on plant output can occur due to various reasons such as (1) unit outages, (2) routine equipment related limitations (such as a pump out of service for maintenance), (3) other plant conditions (such as condenser cooling water temperature or fuel preconditioning limits at Brunswick), and (4) restrictions due to regulatory limitations.

Limitations relative to (1) above are included in response to Interrogatory No. I-16. Limitations related to (2) and (3) are routine operating

occurrences. Identification of such limitations as requested is not practical and would be extremely burdensome. Limitations associated with item (4) are discussed below:

#### Robinson Unit 2

During the period from May 16, 1973 to July 25, 1973 Robinson Unit 2 was limited to approximately 95% power due to a generic concern related to fuel densification. The limitation was removed when special core surveillance equipment was installed and approved for use. This concern was fully resolved at the end of cycle 2 by replacing core regions 2 and 3 with new fuel not subject to the densification phenomenon.

During the period from September 2, 1981 to November 6, 1981 Robinson Unit 2 was limited to a power level of approximately 50%. This reduction was established in order to reduce steam generator hot leg temperatures to reduce the rate of tube corrosion. During the period of November 6, 1981 to November 15, 1981 the unit was shut down to make instrumentation set point changes. Following this outage, the unit was limited to approximately 80% power until it was shut down on January 26, 1984. Steam generator replacement is currently in progress.

#### Brunswick Unit 1

During the period from August 30, 1979 to September 1, 1979, Unit 1 was limited by approximately 10% due to a rotated fuel bundle. The limitation was lifted after analyses were completed to verify the acceptability of operation with the rotated bundle.

#### Brunswick Unit 2

During the period of August 1981 through April 24, 1982, output from Brunswick Unit 2 was limited to comply with technical specification limits on off-

gas activity releases. The off-gas releases were due primarily to leaking fuel bundles in the originally installed 7x7 fuel bundles that remained in the core at that time. Reductions ranged from 10 - 30% at various times during this period. The remaining 7x7 fuel bundles were removed during the outage that began on April 24, 1982.

ANSWER I-20:

Documents relating to the limitations discussed in Applicants' response to Interrogatory No. I-19 will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWER I-21:

See response to Interrogatory No. I-13.

ANSWER I-22:

CP&L maintains an Employee Handbook for all employees. This handbook identifies 14 personnel policies that apply to all employees of the Company. In addition, the Company maintains a Standard Personnel Practices Manual which further amplifies and helps explain the 14 Company policies. The first manual covering Company policy and personnel practices was published in January 1947. Since that time it has been revised and reprinted 13 times. CP&L does not routinely maintain any of the prior printings of the manual; however, some copies of previous manuals may be available from individuals in Employee Relations or other departments. Those known to exist will be made available for Joint Intervenor's inspection at CP&L's General Office upon request. In October 1981 the Company developed a separate policy manual for construction craft employees. This manual became part of the Construction Craft Employee Handbook published for craft employees. The use of the Construction Craft Handbook has been discontinued and all employees are covered by the Standard



Personnel Practices Manual. These manuals will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

In addition to these two manuals, two programs, which are amplifications of Company policy, should be mentioned. The first is the Drug and Alcohol Abuse Procedure. This procedure explains the details of the policy statement in the Employee Standard Personnel Practices Handbook on drug and alcohol abuse as applied to all employees working at a nuclear project and those other employees requiring unescorted access. In addition, the Company maintains a procedure of personnel screening for unescorted access to the protected and vital areas of the nuclear plant. This procedure identifies the screening requirements for employment of applicants and the screening prior to placement of employees into a nuclear unit. Both of these procedures are designed to enhance the security of the nuclear plants by assuring the reliability, trustworthiness, and stability of employees working within those nuclear units. Copies of these procedures will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

The Conduct of Nuclear Operations Manual was prepared in 1982 and 1983 in support of CP&L's management's desire and direction to achieve greater consistency at CP&L's nuclear facilities with respect to programs, methodology, and practices to be utilized in the management of the nuclear facilities.

The manual contains a codification of the philosophy and executive directives regarding performance, responsibilities, management, and operations. It further defines nuclear operations programs and methodology that are instituted to achieve consistency in practices within the three nuclear plants and defines organizational functions and interfaces.

Chapter 4 of the manual was developed in furtherance of CP&L's belief that an essential part of nuclear operations management control is that the intentions, desires, and opinions of management be articulated through specific management concepts, statements, and policy interpretations. Examples of the subjects that are covered in this section are safety, housekeeping, responsibilities and accountabilities, management attitudes, control room discipline, discipline of operators, nuclear operational consistency, and integrity.

ANSWER I-23:

See Applicants' Management Capability Reports dated August 16, 1979, September 22, 1980, July 31, 1981, August 4, 1983 and January 10, 1984; in addition, see Section 13.1 of the FSAR.

ANSWER I-24:

Attachment I-24 is a summary of the staffing levels for the Brunswick and Robinson plants operating staffs for the period 1978 to July 1983. The summary details the authorized level of employees by major functional classifications and presents the actual number of employees on a total plant basis. Data necessary to respond in the detail requested is not readily available and would be burdensome to retrieve.

In the fall of 1983, CP&L instituted a computerized Personnel Inventory Tracking System (PITS) that can provide the type of detail requested. A copy of the PITS report for year-end 1983 will be made available for Joint Intervenor's inspection at CP&L's General Office upon request. Historical data that existed prior to the implementation of PITS has not been backfitted into the system. The PITS report referenced above provides the detail requested for each of the Nuclear Projects, which includes the operating organization.

ANSWER I-25:

CP&L does not maintain records in the form requested in Interrogatory No. I-25.

ANSWER I-26:

The following reports are nonroutine, formal management studies concerning the safety or operation of Applicants' nuclear units which will be made available for Joint Intervenor's inspection at CP&L's General Office upon request (see response to Interrogatory No. I-51):

- United Engineers & Constructors, Inc. — "Brunswick Steam Electric Plant Units 1 & 2 Design Decisions"
- A. Ronald Jacobstein — "Investigation of Carolina Power & Light Company Brunswick Steam Electric Plant"
- Analysis & Technology, Inc. — "An Evaluation of Carolina Power & Light Company's Nuclear Operator Training Program"
- Lapp, Inc. — "Assessment of the Health Physics Program at the Brunswick Steam Electric Plant"
- General Electric — "Management Team Review of the Brunswick Site Operations"
- Management Analysis Company — "An Evaluation and Audit of the Carolina Power & Light Company Quality Assurance Program and Its Implementation During Construction and Operation of Its Nuclear Power Plants"
- NRC Performance Appraisal Team Report
- INPO Evaluation Reports for the Robinson and Brunswick plants for the years 1981-1983 and the Harris Self-Initiated Evaluation Report dated December 10, 1982.



ANSWER I-27:

(a-d) Statements 1-51 were made by Messrs. Jones, McDuffie, Utley, or Banks as identified in the transcripts of the Harris Remand Hearings. These statements were made under oath. All of these individuals, with the exception of Mr. Jones, are currently employees of CP&L. Mr. Jones retired on October 1, 1982 and has contracted with CP&L to perform various consulting functions in the area of corporate nuclear activity since his retirement. The three remaining individuals all hold different positions now than they did at the time of the Harris Remand Hearings. In 1979, Mr. McDuffie was Senior Vice President - Engineering and Construction; currently, he is Senior Vice President - Nuclear Generation. Mr. Banks was Manager - Nuclear Generation in 1979; currently, he is Manager - Corporate Quality Assurance. Mr. Utley was Senior Vice President - Power Supply Group in 1979; currently, he is Executive Vice President - Power Supply and Engineering and Construction.

(e-h) These statements were made in an open regulatory proceeding. The transcripts and exhibits for the proceeding support the statements. Each such person was employed with CP&L in such a position as to serve as spokesperson for CP&L.

Applicants acknowledge that statements numbered 52 through 117 were contained in various news publications. Their accuracy has not been verified.

(i-l) Details of follow-up action are outlined below:

Item 21 - See the Management Capability report which addresses organization and staffing at Harris.

Item 22 - Appropriate inspections of work at Harris have been conducted as part of our Quality Assurance Program.

Item 27 - See the testimony of CP&L witnesses in hearings before the North Carolina Utilities Commission. See response to Interrogatory No. I-11.

Item 28 - Does not require CP&L follow-up.

Item 29 - See response to Interrogatory No. I-30(r)(viii).

Item 32 - See the testimony of CP&L witnesses in hearings before the North Carolina Utilities Commission. See response to Interrogatory No. I-11.

Item 37 - See the Management Capability report for a discussion of Applicants' current Quality Assurance Organization.

Item 40 - Based upon modifications made to the fire protection system at Brunswick, the NRC issued a final Fire Protection Safety Evaluation Report on June 11, 1980. On November 19, 1980, the NRC issued Appendix R to 10 CFR 50 which established new and additional fire protection criteria. Additional modifications to the fire protection system are planned and/or in progress in response to the revised criteria.

Item 50 - Does not require follow-up.

ANSWER I-28:

(a) Mr. Shearon Harris, 1969-1980 - resume provided as Attachment I-28A.

Mr. Sherwood H. Smith, Jr., 1980 - Present - resume provided as Attachment I-28B.

(b) Education and professional experience are identified in the resumes provided. Through the Chairman/President's involvement in the listed nuclear industry organizations, he is continuously informed of and involved in nuclear-related activities and issues critical to the industry.

(c) With the exception of expense records and a record of nuclear plant visits, CP&L does not retain any other records of the Chairman/President's

past appointments, travel, telephone calls, daily activities, etc in a form that would permit Applicants to respond to this Interrogatory without undue burden. A record of the Chairman/President's visits to the nuclear plants has been maintained since 1981. A list of these visits is provided as Attachment I-28C.

(d) See response to Interrogatory No. I-28(c).

(e) See response to Interrogatory No. I-28(c).

(f) See response to Interrogatory No. I-28(a and c).

(g) Under the Agreements between CP&L and North Carolina Eastern Municipal Power Agency (NCEMPA), CP&L has full responsibility for constructing, operating and maintaining jointly-owned facilities. NCEMPA has the right to have an observer at each plant in which it has an ownership interest and CP&L keeps NCEMPA informed about matters relevant to the construction, operation and maintenance of jointly-owned facilities. Pursuant to the agreements between CP&L and NCEMPA, NCEMPA pays its proportionate share of the costs of constructing, operating and maintaining jointly-owned nuclear plants. Only in this sense does NCEMPA have a role in item (iv) "financing nuclear plants" and item (viii) "financing repairs needed to assure safety of nuclear plants it co-owns."

(i) The terms of the Agreements between CP&L and NCEMPA were arrived at through negotiations between the parties.

(ii) Not applicable.

(iii) Not applicable.

(h) Attached are resumes for the senior management executives other than the Chairman/President who have responsibilities regarding CP&L's nuclear facilities: Mr. E. E. Utley - Executive Vice President, Attachment I-28D; Mr. M. A. McDuffie - Senior Vice President, Nuclear Generation, Attachment I-28E; and

Mr. James M. Davis, Jr. - Senior Vice President, Operations Support, Attachment I-28F. Education and professional experience are identified in each resume. Other than expense records and the record of nuclear plant visits for Mr. Utley, CP&L does not maintain any records of the executives' past appointments, travel, telephone calls, etc. The record of nuclear plant visits for Mr. Utley is provided as Attachment I-28G.

A copy of CP&L's Management Capability Report as filed with the Nuclear Regulatory Commission for the Shearon Harris Nuclear Power Plant in Docket No. 50-400 and 50-401 will be made available for Joint Intervenor's inspection at CP&L's General Office upon request. This document details CP&L's organization and personnel qualifications in all nuclear activities.

ANSWER I-29:

(a-d) CP&L does not possess a list of each person who has been hired as an operator or trainee at our nuclear plants since commercial operation of those plants. A list of current operators and trainees will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

(e)(1-4) In compliance with NRC requirements, reactor operators must be licensed by the NRC at the plant at which they work. Based on an individual's background, varying levels of training and experience are required prior to taking the NRC licensing exams. CP&L does not tender applicants for the NRC examinations unless they have satisfied the applicable training and qualification requirements for our plants.

Details of CP&L's training and qualification requirements, including retraining, and requalification, are discussed in the following references which will be made available for Joint Intervenor's inspection at CP&L's General Office upon request:

1. Plant Final Safety Analysis Reports (FSARs)
2. Training Instructions contained in the Plant Operating Manuals
3. Plant Technical Specifications
4. Training Manual for Nuclear and Fossil Operations Personnel

All licensed CP&L operators have passed their licensing exams in accordance with NRC criteria applicable at the time of their licensing. Current NRC requirements specify that each candidate tested must achieve a minimum total score of 80% with a score of 70% or greater on each section of the test.

(e)(5-6) CP&L Management is not aware of any CP&L operators cheating on an NRC exam.

(e)(7) CP&L policies provide for disciplinary action for various reasons. There have been instances in which disciplinary action has been taken against operating personnel. Such action, when taken, has been in accordance with company policy. When employee action results in a violation of NRC regulations, disciplinary action taken as to the employee may be discussed in CP&L's response to the NRC's Notice of Violation which would, in turn, be provided in response to Interrogatories I-1 through I-5. Any additional details regarding such actions are considered confidential. At no time has CP&L allowed an individual to remain in an operating position if there were questions regarding that person's fitness for duty (see response to Interrogatory No. I-39(p)).

(e)(8-11) Periodic retraining is required by the NRC. See response to (e)(1-4) above.

(f) See responses to (e)(1-11) above.

(g)(i-ii) In addition to the documents referred to in response to (e)(1-4) above, CP&L requirements for employment of personnel, including testing requirements, are contained in policies established by the Company's Employee



Relations Department. Documents containing these requirements will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

(g)(iii) At all times the role of senior management with respect to selection of power plant operators has been to ensure that appropriate qualification and hiring criteria and training programs are established such that personnel placed in an operating position are qualified for the position in accordance with company policy and regulatory criteria. The criteria and programs so developed have been revised from time to time as required in order to ensure continued compliance with applicable regulations and company policies.

(h) See response to (a-d) above.

(j) No.

(k) Not applicable.

(l) CP&L's pay schedule for operators is established to be competitive within the industry. The pay schedule is reviewed at least annually and revised as appropriate in order to maintain Applicants' competitive posture.

(m)(i-v) Applicants' response to Interrogatory No. I-24 identifies the number of reactor operators at Brunswick as of year-end 1983. Applicants do not possess a list of the number of operators who have left Brunswick, Robinson, or Harris, for any reason.

(m)(vi) Many of the operators or operator trainees at Harris were hired for the Harris Plant but received training at either Robinson or Brunswick. These personnel have been transferred to Harris on a schedule consistent with the schedule for completion of Harris and in a manner that has not adversely affected the availability of operators at Robinson or Brunswick. As of March 30, 1984, there were 82 operating personnel at Harris (Auxiliary Operators (AO), Control Operators (CO), Senior Control Operators (SCO), and Foremen). Of these

personnel, 20 have had experience at Brunswick (eight were licensed at Brunswick) and 18 have experience at Robinson (seven were licensed at Robinson).

(m)(vii) See response to (e)(7) above.

(n-p) Applicants have established security and background requirements for personnel who work in Applicants' nuclear plants. These requirements are included in Applicants' Security Plan which has been approved by the NRC. A copy of Applicants' screening program will be made available for Joint Intervenors' inspection at CP&L's General Office upon request. Operators are included in this program and therefore have been appropriately screened.

ANSWER I-30:

(a) Copies of the testimony of CP&L witnesses in the Harris construction permit hearings and remand hearings will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

(b-c) Since 1979, CP&L has made numerous communications to NRC under oath pursuant to NRC regulations. Some of these communications could be viewed as responsive to this interrogatory. It would be unduly burdensome, however, to locate and examine each such document to determine its content.

(d) The issue of the High Pressure Coolant Injection (HPCI) door annunciators was discussed extensively in the Harris Remand Hearings. A copy of the hearing record will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

As discussed in those hearings, when the issue of the HPCI doors was initially raised, CP&L took action to implement administrative requirements to keep the doors closed. The hearing record further indicates that when administrative controls were found to be inadequate, additional measures were taken in the form of adding annunciators to the doors that would alarm in the

control room, thus alerting the operators if the doors were open. This modification was scheduled as part of the ongoing fire protection upgrade work. Actual completion of the modification was accomplished in the spring of 1979.

(e) The watertight doors between the HPCI compartment and the RHR compartments are designed for normal access between the compartment and, therefore, are opened several times daily. In addition, plant procedures allow that one of these doors may be left open when maintenance and other functions are taking place in the HPCI compartment provided personnel are available to shut it in a fire or flood situation.

The opening of this door for other than normal passage makes the HPCI CO<sub>2</sub> fire suppression system inoperable due to opening up the compartment; therefore, a Limiting Condition for Operation (LCO) is established to assure its return to service and to monitor the time it remains open. In addition, routine tours are made to assure that the doors are maintained in the closed position as required by procedures.

The NRC is not routinely informed of the opening of these doors as this is a routine operation governed by the plant's license.

(f) There have been events at Brunswick which the NRC has determined to be reportable but for which CP&L had not submitted an LER. Upon reevaluation of these events by CP&L, CP&L determined they were reportable and reported them in accordance with appropriate regulations. In addition, where these events were identified by the NRC, a violation was usually issued by the NRC and a nonconformance report (NCR) may have been issued by QA. NRC correspondence regarding such events is included in the documentation discussed in response to Interrogatory Nos. I-1 through I-8.

(g) There have been reportable events at Brunswick for which an LER



was not submitted within the required time frame. Upon determination of the reportability of the events, CP&L notified the NRC and filed appropriate reports per applicable regulations. In addition, a violation may have been issued by the NRC or a nonconformance report may have been issued by QA on these events. NRC correspondence regarding such events is included in the documentation discussed in response to Interrogatory Nos. I-1 through I-9.

(h-j) CP&L Nuclear Plant LER totals are as follows:

	<u>Robinson 2</u>	<u>Brunswick 1</u>	<u>Brunswick 2</u>
1970	13	-	-
1971	18	-	-
1972	19	-	-
1973	21	-	2
1974	32	-	1
1975	20	-	35
1976	21	9	165
1977	33	118	70
1978	32	95	83
1979	37	118	107
1980	29	92	120
1981	33	94	145
1982	19	152	144
1983	31	63	98

(k) CP&L does not segregate LERs into safety significant categories, such as those having "unusual safety significance". The LERs are reported in accordance with the criteria, format, and time limits specified in NRC regulations. CP&L's actions to correct problems and prevent recurrence is addressed in each LER. The NRC and CP&L's Corporate Nuclear Safety Section review the appropriateness of the corrective actions.

(l) See response to Interrogatory No. I-30(k).

(m) See response to Interrogatory No. I-30(k).

(n)(i) Brunswick has experienced some instrument drift with various types of instrumentation. Evaluations of the instrument drift occurrences do not

indicate that the drift problem is out of line with industry standards or experiences. When trending indicates that instrument drift may be a problem with a particular instrument or type of instrument, an evaluation is normally performed to determine appropriate corrective actions which may include:

1. more frequent calibrations
2. establishment of a more conservative setpoint to assure safe actuation
3. replacement of the instrument.

Where instrument drift problems cause limiting conditions for operations as outlined in the technical specifications, an LER is generally required. LERs on instrument drift are included in the documentation made available in response to Interrogatory No. I-1.

(ii) There have been problems identified at Brunswick where moisture/corrosion caused instrumentation to become inoperable. These events occurred mainly in the -17' elevation of the Reactor Building or other high moisture areas. As required by technical specifications, appropriate reports and/or LERs were submitted. These reports will be made available for Joint Intervenor's inspection at CP&L's General Office upon request. In addition, an extensive program has been initiated by CP&L in accordance with IE Bulletin 79-01B to assure the environmental qualification of designated equipment. Completion of this program should minimize moisture/corrosion problems.

(iii) In accordance with the Brunswick Technical Specifications, several instruments may be taken out of service simultaneously as long as appropriate designated actions are taken. At certain times, this is done in a planned sequence for planned evolutions (testing, preventive maintenance), while at other times it may be caused by either failed equipment or a combination of

failed equipment and planned testing. Individual events which fall into these categories are reported to the NRC as required by technical specifications and NRC regulations. These reports/LERs will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

(o) The moist climate at Brunswick was considered in design, installation, and procurement specifications by specifying the humidity the equipment would be exposed to. Special humidity conditions independent of the site itself, such as saturated steam conditions or water spray, were also specified when appropriate.

Moist ambient conditions at the site have not of themselves, to the best of Applicants' knowledge, given rise to any unusual problems.

(p) General design criteria for electrical, instrumentation, and air handling equipment at Brunswick are detailed in the FSAR for the Brunswick plant. Specific criteria are also contained in the design specifications for such equipment. A copy of the FSAR and equipment specifications will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

A review of the equipment specifications to specifically identify design requirements related to salt or salinity in the environment at Brunswick has not been performed. During the design of Brunswick, however, CP&L's general approach was to tailor equipment specifications to reflect the environment in which the equipment was expected to operate. Material requirements were specified based upon the process fluid with which the parts would normally come into contact. General environmental criteria such as humidity and temperature were also specified. Other general provisions, such as painting, galvanizing, or other protective coating were specified as deemed appropriate based on the specific equipment and its location within the plant.

During construction, equipment was stored in accordance with established storage procedures and criteria. Specific storage requirements ranged from outdoor storage to storage in environmentally controlled enclosures depending upon the particular equipment.

Additional information regarding corrosion problems that have been experienced at Brunswick is contained in response to Interrogatory No. I-41(d-g).

(q) CP&L was aware of the salinity and corrosive nature of the cooling water at Brunswick. The corrosiveness was a major consideration in the selection of the materials for the condenser. The original materials of construction for the Brunswick condensers were 90-10 copper-nickel for both the tubes and tube sheets. Copper-nickel materials were selected based on recommendations by CP&L's architect/engineer and independent evaluations by CP&L. At the time the material was selected, copper-nickel was considered to be state-of-the-art material and was used extensively in seawater applications. The United Engineers evaluation and recommendation will be made available for Joint Intervenor's inspection at CP&L's General Office upon request. In selecting the materials for the Brunswick condensers, no specific consideration was given to the question of radiation exposure during replacement. As indicated above, the material selected was state-of-the-art at the time, thus the potential for replacement was deemed to be no greater than that for other materials considered. CP&L recognized that condenser retubing might be required, however, and appropriate provisions were made in the plant design to facilitate such work when and if required.

CP&L upper management was aware of the use of copper-nickel in the original condensers. Messrs. J. A. "Ott" Jones and W. B. Kincaid approved that decision based on the fact that copper-nickel was the unanimous choice of experts in industry and other utilities for salt water service.

In May of 1981 an evaluation was completed on replacement of the Brunswick condensers. Modification of the condenser was considered necessary to minimize the potential for condenser in-leakage. In-leakage had been a problem at Brunswick and was due to several factors such as tube inlet and erosion, sulfide corrosion, and tube-to-tubesheet leakage. The modifications involve retubing the condenser with titanium tubes, which are more corrosion resistant than copper-nickel, and replacement of the tubesheet with a recently developed integrally grooved tubesheet that provides increased protection against leaks at the tube-to-tubesheet joint.

CP&L management was aware of and gave approval to the replacement decision. Any testimony by Mr. Smith as to the Brunswick condensers is contained in the transcripts referenced in response to Interrogatory No. I-11.

(r) (i-vii) Applicants refer the Joint Intervenors to the testimony and exhibits in the record of the Shearon Harris Remand Hearings wherein the subjects of the Augmented Off-Gas (AOG) System, problems related to explosions in the system, and NRC limits with respect to the system were reviewed in detail.

(viii) CP&L decided to install new hydrogen recombiners on the front end of the off-gas system at the steam jet air ejector discharge. Installing the recombiner at this location reduces the hydrogen and oxygen concentrations at the earliest possible point and thus minimizes the potential for explosions in the system. In addition, CP&L decided to replace the cryogenic distillation system with a charcoal absorption system. These modifications were completed in 1983 on Unit 1 and are being completed in 1984 on Unit 2. Documents regarding the regulatory and design history of the AOG System will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.



(ix) The AOG System is not needed to maintain the amount of gaseous radioactive effluents released within 10 CFR 20 limits and 10 CFR 50 design objectives. Upon review of the Brunswick Semi-Annual Environmental and Effluent Release Reports for the period 1976-1983, the highest annual calculated whole body exposure (utilizing the methodology contained in NRC Regulatory Guide 1.109—Calculation of Annual Doses to Man From Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR 50, Appendix I) to a member of the general public was 4.34 mrem (1983). The 10 CFR 50, Appendix I design objective for the Brunswick Plant is 20 mrem.

(x) An AOG System will reduce the amount of gaseous radioactive effluents by increasing the radioactive decay time from the reactor to the effluent release point. As discussed in response to Interrogatory No. I-30(r)(ix), gaseous effluent releases from the Brunswick Plant have not exceeded 10 CFR 20 limits nor 10 CFR 50 design objectives during the operating history of the plant.

(xi) The NRC has never imposed a license amendment or condition on the Brunswick Plant which limits operation based upon an estimated or calculated amount of failed fuel.

(xii) In 1978, as part of the discussions between CP&L and NRC regarding the proposed modification and operation of the AOG System, CP&L committed to meet the numerical guidelines of 10 CFR 50, Appendix I in the interim period prior to the operation of the AOG System. As part of this commitment, an amendment was made to the Brunswick Technical Specifications, Appendix B, to provide somewhat more restrictive gaseous effluent release limits. No violation of these limits occurred during this interim period.

(xiii) The Brunswick Plant has never operated with one percent or greater failed fuel.

(xiv) The highest percentage of failed fuel that Brunswick Unit 1 has operated with was approximately .003 percent.

The highest percentage of failed fuel that Brunswick Unit 2 has operated with was approximately .041 percent.

These figures are based on the results of fuel inspections (sipping) at the Brunswick Plant. Documentation relative to the failed fuel determination will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

(xv) A small amount of contaminated material was inadvertently shipped to the Brunswick County landfill and local scrap dealers between 1978 and 1980. Plant administrative controls have been strengthened to prevent a recurrence of this event.

CP&L senior management was made aware of the presence of these small amounts of low-level radioactive material at these locations within one day of its discovery.

(xvi) Inadvertent shipments of slightly contaminated material from the Brunswick Plant occurred from mid-1978 through April 1980 until its discovery at the Brunswick County landfill.

(xvii) The presence of contaminated material at the local landfill and scrap dealers was first noted by a CP&L foreman and an NRC inspector, who promptly reported this information to management personnel.

(xix) No.

(xx) Approximately 0.0000038 curies of activity was recovered from the landfill. Somewhat less activity was recovered from the local scrap dealers.

(xxi) All low-level radioactive waste generated at the Brunswick

Plant is accounted for. This material is disposed of at state and NRC-licensed facilities in accordance with CP&L and NRC procedures.

(xxii) The following is a summary of measures which CP&L has taken in response to the landfill concerns:

1. staff increases in the plant Health Physics organization
2. expansion of the Health Physics training program for all plant employees
3. a lowering of plant background radiation levels
4. purchase of new Health Physics survey equipment and upgrade of existing equipment
5. institution of additional administrative controls to reduce the volume of low-level radioactive waste generated at the Brunswick Plant

(xxiii) CP&L believes that the prompt and thorough corrective action with respect to the low level radwaste disposal incidents was indicative of good management. See the response to Interrogatory No. I-30(r)(xxii) for a summary of corrective actions resulting from this event.

(xxiv) The person in charge of record keeping at Brunswick as it relates to records required to be maintained by the NRC is the Document Control Supervisor. This position was established in 1983. Prior to that, it was the Administrative Supervisor, but with a position reporting to the Administrative Supervisor having direct accountability. Generally the same individual has been directly accountable for record keeping although he has held different titles during the period.



Some temporary record keeping has occurred in various locations at Brunswick but all required by the NRC to be retained ultimately are delivered to the Records File Room (Vault) and maintained under the control of the Document Control Supervisor.

(xxv) Ensuring that NRC-required tests are carried out is ultimately the responsibility of the Plant General Manager; however, specific responsibility assignments for various tests are made on a functional basis. In other words, the operating staff is responsible for operational testing, the maintenance staff is responsible for maintenance testing, etc. This functional responsibility assignment has been followed since the unit began commercial operation.

(xxvi) Maintenance controls related to testing are contained in the Plant Operating Manual procedure RCI-02.4. The Technical Specifications Surveillance Test Scheduling and Tracking System provides the details of these procedures and references several other procedures that spell out detailed procedures in various area. Before 1984, the key procedures in this area were found in AI-21, Technical Specifications Surveillance Test Scheduling.

Additional controls are provided by the Quality Assurance Program via audits to ensure compliance with established procedures and testing schedules.

(xxvii-xxix) The Containment Testing Program for the Brunswick Plant involves numerous tests ranging from tests of individual lines and valves (Local Leak Rate Tests) up to and including a total containment test (Integrated Leak Rate Test). During the period of 1979-1982, Integrated Leak Rate Tests that measure the leak tightness of the containment and penetrations as a whole were performed as required. Applicants assume that Interrogatory No. I-30(r)(xxvii-xxix) is directed at the failure to perform local leak rate testing of certain valves

which was identified in July 1982. Reasons for the failure to test these valves has been documented in the testimony of CP&L personnel in regulatory proceedings before the North Carolina Utilities Commission, the South Carolina Public Service Commission, and in CP&L's May 2, 1983 response to the NRC concerning this event. Copies of transcripts covering this issue and the May 2, 1983 response to the NRC will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

Pursuant to CP&L's Corporate Nuclear Safety Program Policy Statement, it is a function of Senior Management to ensure that appropriate procedures and administrative controls are in place enabling operation of its nuclear units in compliance with applicable regulations. When CP&L determined that the procedures and administrative controls in place at Brunswick had not been sufficient to prevent this event from occurring, CP&L's senior management, in accordance with this policy, instituted the comprehensive corrective measures which are described in detail in CP&L's May 2, 1983 response to the NRC and in the Brunswick Improvement Program.

(xl-xlvii) The issue of the turbine bearing failure that occurred in July 1981 on Brunswick Unit 1 has been exhaustively discussed in proceedings before the North Carolina Utilities Commission and the South Carolina Public Service Commission. The following CP&L witnesses discussed the turbine bearing failure:

NCUC Cases

Docket E-2, Sub 446

Docket E-2, Sub 444

Docket E-2, Sub 434

Docket E-2, Sub 425

Witnesses

B. J. Furr

L. W. Eury, M. A. McDuffie,  
B. J. Furr, R. M. Coats  
L. W. Eury

L. W. Eury

Docket E-2, Sub 416

L. W. Eury, B. J. Furr

SCPSC Cases

Witnesses

Docket 79-7-E

L. W. Eury

Copies of the transcripts and prefiled testimony for these hearings will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

(xlviii) A total of 2.26 man-rem was received in repairing the Brunswick turbine in 1981 as measured by self-reading pocket dosimeters. Additionally, each individual's exposure was measured by thermoluminescence dosimeters. The exposure received is documented in the 1981 ALARA Job Exposure Tracking Log.

(xlix) Given the need to repair the turbine, the radiation exposure could not have been avoided. Work in radiactively contaminated areas at Brunswick is performed under a Radiation Work Permit system. A Radiation Work Permit issued by Health Physics personnel establishes a prior assessment of radiation exposure levels, surface and airborne contamination levels, and protective equipment requirements for worker protection. Completed Radiation Work Permits will be made available for the Joint Intervenor's inspection at CP&L's Brunswick Plant upon request.

(l-li) The general nature of outage and modification work in any generating plant is such that there is a potential for some piece of equipment or component to be damaged during the course of modification and/or repair. Such events would normally be documented through various sources such as equipment maintenance records, inspection reports, and QA reports. Review of these various records systems to produce a list as requested would be burdensome and would not provide the kind of detail requested. Based on a general review of activities at

Brunswick since 1981, Applicants believe that the most significant event related to equipment damage was the Brunswick Unit 1 turbine bearing failure which is discussed in the testimony referenced in response to Interrogatory No. I-30(r)(xl-xlvii).

While damage to equipment is not desirable, it is inherent in the nature of the work regardless of the degree of planning and caution used. Reasonable precautions are taken in the planning and conduct of Applicants' repair activities to prevent or minimize the potential for damage. However, when damage to equipment occurs, appropriate action is taken to repair the damage and restore the equipment to a safe and proper operating condition.

(lii) CP&L is opposed to using capacity factor goals for establishing rates it may collect from its customers. It does not oppose capacity factor goals for the Brunswick Plant or any of its nuclear plants as an internal management tool, however. CP&L utilizes annual capacity factor goals for its nuclear plants as part of its corporate planning efforts. Such a goal, however, is always subservient to an even more important objective which is to operate and maintain our nuclear units safely. At no time has the existence of capacity factor goals resulted in the unsafe operation of Applicants' nuclear plants.

Capacity factor goals are documented in CP&L's corporate and department goals, and performance with respect to those goals is monitored on a quarterly and annual basis.

ANSWER I-31:

Copies of portions of CP&L Minute Books covering Annual Meetings, Meetings of the Board of Directors, and Meetings of the Executive Committee of the Board of Directors which concern the nuclear matters inquired about in Interrogatory No. I-31 will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWER I-32:

Copies of the requested documents for the period from January 1965 through March 1984 that have been filed with the SEC will be made available for Joint Intervenors' inspection at CP&L's General Office upon request. In accordance with SEC rules and regulations, these filings are not made under oath.

ANSWER I-33:

A copy of each prospectus or official statement related to the sale of (a) CP&L common stock, (b) CP&L preferred stock, (c) CP&L bonds, (f) CP&L nuclear plants or interest(s) therein, e.g., to NCEMPA, and (g) CP&L overseas finance notes will be made available to the extent possible for Joint Intervenors' inspection at CP&L's General Office upon request.

Generally, prospectuses or official statements are not prepared for (d) CP&L notes, (e) CP&L commercial paper, (f) CP&L nuclear fuel trust(s), or (g) CP&L nuclear fuel.

ANSWER I-34:

Set forth below is a listing of testimony and statements of the officers designated in response to Interrogatory No. I-34 to committees of the U. S. Congress dealing with nuclear matters. The texts will be available for Joint Intervenors' inspection at CP&L's General Office upon request.

<u>DATE</u>	<u>ITEM</u>	<u>COMMITTEE/ORGANIZATION</u>	<u>UNDER OATH</u>
03/12/84	Response to Questions	Subcommittee on Energy Research and Production	No
02/09/84	Testimony	Subcommittee on Energy Research and Production	Yes
02/09/84	Summary Testimony	Subcommittee on Energy Research and Production	Yes
03/02/83	Statement	Committee on the Judiciary	Yes

05/25/82	Statement	Senate Agricultural Committee on Rural Development, Oversight and Investigations	Yes
06/10/82	Statement	Subcommittee on Energy, Conservation & Power	Yes
10/21/81	Response to Questions	Senator James A. McClure and Senator Alan K. Simpson	No
10/06/81	Statement and Summary Statement	Committee on Energy and Natural Resources	Yes
07/09/81	Statement	Subcommittee on Energy and the Environment	Yes
07/09/81	Summary Statement	Subcommittee on Energy and Environment	Yes
07/25/80	Statement	Subcommittee on Energy and Power	Yes
04/01/80	Statement	Subcommittee on Energy Research and Development	Yes
04/01/80	Summary Statement	Subcommittee on Energy Research and Development	Yes
03/14/80	Statement	Subcommittee on Energy and the Environment	Yes

ANSWER I-35:

The Chairman/President, Mr. Sherwood H. Smith, Jr., has presented testimony before committees of the U.S. Congress. Such testimony is identified in response to Interrogatory No. I-34. All such testimony was given voluntarily.

ANSWER I-36:

(a) Yes.

(b) 3004 Sandia Drive, Raleigh, North Carolina 27607.

(c) Yes.

(d) Yes.

(e) Yes. It has been CP&L's policy that its executives will retire at age 65.



(f) No.

(g) Mr. E. E. Utley.

(h) Yes.

(i) Yes.

(j) Mr. Jones has contracted with CP&L to perform various consulting functions in the area of corporate nuclear activity since his retirement in October 1, 1982. Mr. Jones has been paid for his consulting work.

(k) No.

ANSWER I-37:

(a) Yes.

(b) It is unduly burdensome to review every document within those files to determine its content. By virtue of his position with the Company, it seems reasonable to infer that some of the documents relate to nuclear matters.

(c) As stated in (b) above, this would be unduly burdensome. It would be very difficult to segregate those items responsive to the interrogatory.

(d) No.

(e) Not applicable.

(f) Not applicable.

ANSWER I-38:

(a) Many departments within the Company are involved in the corporate decisions associated with the planning of a new plant. The decisions regarding the planning of the Harris plant were made at the highest level of the Company. In 1971, when the Harris plant was announced, the following officers of the Company held positions having responsibilities with regard to the planning of the Harris plant: Shearon Harris, Chairman/President; J. A. Jones, Senior Vice President, Engineering and Operations; Sherwood H. Smith, Jr., Senior Vice

President and General Counsel; R. S. Talton, Vice President, System Engineering and Construction; and Edward G. Lilly, Jr., Senior Vice President, Finance.

(b) CP&L contracted with the architect/engineer firm of Ebasco Services, Inc. to perform the detailed engineering and design of the Harris Plant. The initial contract with Ebasco was signed by CP&L on September 1, 1970. At that time, the persons in CP&L management who had responsibilities for the design of the Harris Plant were as follows: Shearon Harris, Chairman/President; Paul S. Colby, Senior Vice President, Operating and Engineering; J. A. Jones, Vice President, Power Supply; W. B. Kincaid, Manager, Power Plant Design; and Sam McManus, Manager, Nuclear Plant Engineering.

Due to the on-going nature of the plant design process and as a result of organizational changes within the Company, the following persons in CP&L management have also had responsibility for the design of the Harris Plant: Sherwood H. Smith, Jr., Chairman/President; E. E. Utley, Executive Vice President; M. A. McDuffie, Senior Vice President, Nuclear Generation; Alan B. Cutter, Vice President, Nuclear Engineering & Licensing; and R. A. Watson, Vice President, Harris Nuclear Project.

(c) A contract with Westinghouse Electric Corp. for the nuclear steam supply systems (NSSS) was signed by CP&L on April 23, 1971. At the time the NSSS contract was signed, the following persons in CP&L management had responsibilities with regard to the contract: Shearon Harris, Chairman/President; J. A. Jones, Senior Vice President, Engineering & Operations; W. B. Kincaid, Manager, Power Plant Engineering & Construction; and Sam McManus, Manager, Nuclear Plant Engineering.

(d) See response to subpart (b) above.

(e) CP&L has provided the construction management for the Harris Plant; however, the Company did contract with Daniel Construction Company on September 1, 1972 to provide the necessary labor force. At the time the contract with Daniel was signed, the following persons in CP&L management had responsibilities for selecting the prime contractor: Shearon Harris, Chairman/President; J. A. Jones, Senior Vice President, Engineering & Operations; and W. B. Kincaid, Vice President, Power Plant Engineering & Construction.

(f) There have been numerous subcontractors involved in the Harris plant. The subcontractors identified in subpart (f) of Interrogatory I-38 were selected through the architect/engineer with approval by CP&L. Generally, the persons in CP&L management who have, over the duration of the project, participated in subcontractor selection for the Harris Plant were: Shearon Harris, Chairman/President; Sherwood H. Smith, Jr., Chairman/President; J. A. Jones, Executive Vice President; E. E. Utley Executive Vice President; M. A. McDuffie, Senior Vice President, Engineering & Construction; W. B. Kincaid, Vice President, Power Plant Engineering; Alan B. Cutter, Vice President, Nuclear Engineering; Sheldon D. Smith, Vice President, Power Plant Construction; and R. A. Watson, Vice President, Harris Nuclear Project.

(g) In 1974, following approval by the ASLB of an exemption for certain site work, the following persons in CP&L management had responsibilities with regard to on-going work at the site: Shearon Harris, Chairman/President; J. A. Jones, Executive Vice President, Engineering, Construction & Operations; and M. A. McDuffie, Vice President, Power Plant Construction.

(h) In December 1973, the Company requested an exemption from the AEC to allow certain site preparation activities. The exemption authorizing limited site work was granted in January 1974. At that time, the following

persons in CP&L management had responsibilities with regard to project licensing and site work at the Harris site: Shearon Harris, Chairman/President; J. A. Jones, Executive Vice President, Engineering, Construction & Operation; W. B. Kincaid, Vice President, Power Plant Engineering; Darrell V. Menscer, Vice President, Special Services; and M. A. McDuffie, Vice President, Power Plant Construction.

(i) At the time the Company received a Construction Permit, the following persons in CP&L management had responsibilities with regard to construction at the Harris site: Shearon Harris, Chairman/Chief Executive Officer; Sherwood H. Smith, Jr., President; J. A. Jones, Executive Vice President; M. A. McDuffie, Senior Vice President, Engineering & Construction; and Sheldon D. Smith, Manager, Power Plant Construction.

Due to the on-going nature of the plant construction activities and due to organizational changes within the Company, the following persons in CP&L management have also had responsibility for construction at the Harris site: E. E. Utley, Executive Vice President, and R. A. Watson, Vice President, Harris Nuclear Project.

(j) The Company announced cancellation of Harris Units 3 and 4 on December 16, 1981. Decisions such as the cancellation of a generating unit require the participation of many departments within the Company. Decisions of this nature are made at the highest level. At the time of the announcement, the following executive officers of the Company had responsibilities with regard to the decision: Sherwood H. Smith, Jr., Chairman/President; J. A. Jones, Vice Chairman; Edward G. Lilly, Jr., Executive Vice President; William E. Graham, Jr., Executive Vice President; and E. E. Utley, Executive Vice President.

(k) Harris Unit 2 was cancelled on December 21, 1983. The following executive officers of the Company had responsibilities with regard to the

cancellation of Harris Unit 2: Sherwood H. Smith, Jr., Chairman/President; Edward G. Lilly, Jr., Executive Vice President; William E. Graham, Jr., Executive Vice President; and E. E. Utley, Executive Vice President.

(1) At this time, the executive officers of the Company who have responsibilities with regard to the Company's constuction program are as follows: Sherwood H. Smith, Jr., Chairman/President; Edward G. Lilly, Jr., Executive Vice President; William E. Graham, Jr., Executive Vice President; and E. E. Utley, Executive Vice President.

The documentation "concerning" each of these decisions is extensive and was developed over a period of several years. Identifying all such documents would be unduly burdensome.

ANSWER I-39:

(a) During the period that the Harris Plant was being designed, Mr. Talton was Vice President - System Planning. In that position, he was responsible for the design of the transmission system associated with the plant. He was also consulted about the type of cooling system that might be used for the plant. The Company chose the cooling lake concept. The Company selected the present site for the plant, in part, because it allowed a cooling lake to be constructed.

(b) CP&L does not have records available in a form that would enable Applicants to respond to Interrogatory No. I-39(b) without undue burden.

(c) Mr. Talton is employed as a consultant to CP&L. He is paid a fee by CP&L. His work involves negotiating with other entities for the possible acquisition by those other entities of interests in CP&L facilities.

(d) Yes, Mr. Talton did work for CP&L in negotiating the sale of an ownership interest in the Harris Plant to NCEMPA. The Purchase, Construction



and Ownership Agreement between CP&L and NCEMPA contains a number of provisions which express the understanding of the parties with respect to CP&L's completion of Harris Units 1, 2, 3 and 4, including Sections 2.1, 7.2, 9.2, 12.1, 25.1, 25.2, 25.3, 25.4. The Agreement will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

(e) Not at this time.

(f) No.

(g) No.

(h) No.

(i) CP&L is not aware of any complaints or charges that CP&L or any agent or person working for CP&L misrepresented what CP&L was doing in acquiring land for the Harris plant. CP&L's acquisition for the Harris project began in June 1970 using an undisclosed agent. During that period of time no representation was made as to CP&L acquiring the land. Approximately 7,622 acres were purchased in this manner prior to the public announcement in April 1971.

The North Carolina Utilities Commission conducted a public inquiry in 1978-79 entitled "In the Matter of Investigation of Carolina Power & Light Company's Land Requirements, Acquisition, and Disposal at the Shearon Harris Nuclear Power Plant — Docket No. E-2, Sub 333." That proceeding is a matter of public record and sets forth therein CP&L's land acquisition policies or practices for the Harris site. Any complaints relative to these policies or practices generally involved issues of market value for land or damages to land arising out of a taking of a portion thereof.

CP&L maintains files of its land acquisitions for the Harris project and contacts with respective owners. These files will be made available for Joint



Intervenors' inspection during regular business hours at their place of storage — either at CP&L's General Office or CP&L's Warehouse in Garner, N.C., upon specific request.

(j) Yes.

"Carolina Power & Light Company v. Philip P. Ragan and wife, Mary Frances H. Ragan"

75 SP 353 - Wake County Clerk of Court's Office

CP&L Attorney: Andrew McDaniel

Attorneys for CP&L: Bailey, Dixon, Wooten, McDonald &  
Fountain  
(Kenneth F. Wooten)

Commenced: April 23, 1975

Voluntary Dismissal filed: May 23, 1975

This Court proceeding is a matter of public record (75 SP 353), which record sets forth all hearings and dates.

"Carolina Power & Light Company v. C. P. Ragan and others"

75 SP 376 - Wake County Clerk of Court's Office

CP&L Attorney: Andrew McDaniel

Attorneys for CP&L: Bailey, Dixon, Wooten, McDonald &  
Fountain  
(Kenneth F. Wooten)

Commenced: April 24, 1975

Consent Judgment filed: November 16, 1977

This Court proceeding is a matter of public record (75 SP 376), which record sets forth all hearings and dates.

"Carolina Power & Light Company v. Irma R. Holland and others"

75 SP 377 - Wake County Clerk of Court's Office

CP&L Attorney: Andrew McDaniel

Attorneys for CP&L: Bailey, Dixon, Wooten, McDonald &  
Fountain  
(Kenneth F. Wooten)

Commenced: April 24, 1975

Judgment filed: May 24, 1978

This Court proceeding is a matter of public record (75 SP 377), which record sets forth all hearings and dates.

"Carolina Power & Light Company v. Lydia C. Ragan and others"

75 SP 375 - Wake County Clerk of Court's Office

CP&L Attorney: Andrew McDaniel

Attorneys for CP&L: Bailey, Dixon, Wooten, McDonald &  
Fountain  
(Kenneth F. Wooten)

Commenced: April 24, 1975

Consent Judgment filed: August 11, 1977

This Court proceeding is a matter of public record (75 SP 375), which record sets forth all hearings and dates.

No CP&L attorney or attorneys for CP&L ever made any statement or argument in any proceedings named above that CP&L had not decided whether Harris would be a nuclear plant or a coal plant, or said any words to that effect.

CP&L adopted the title "Shearon Harris Nuclear Power Plant" on March 17, 1971.

Nuclear fueled units were chosen because they were projected to be the most economical when compared to both coal and oil-fired units.

See the response to Interrogatory No. I-38(c) as to when CP&L ordered the Harris nuclear steam supply system.

CP&L received an Order Granting Certificate of Public Convenience and Necessity for Harris as a 4-unit nuclear plant from the North Carolina Utilities Commission, which was dated February 29, 1972.

CP&L considered coal conversion in connection with the Harris 3 and 4 units cancellation study. Relevant documents will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

(k) (i-x) CP&L has a corporate policy on business conduct, contained in the Company's Supervisors' Manual, which states that "The Company is dedicated to honesty, integrity, and impartiality in the conduct of its business both in fact and in appearance." As a basic guideline to this policy, Company employees are not authorized to achieve any Company objective directly or indirectly through the violation of generally accepted business standards or the laws, rules, and regulations to which the Company is subject. Such policy would include truthfulness and accuracy of Company statements to all persons or business entities.

(l) Not to our knowledge.

(m) Yes.

February 22, 1980 - Brunswick Steam Electric Plant. Copies of statements released by CP&L to the media concerning the release will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

(n) See response to Interrogatory No. I-39(m).

(o) Applicants are not aware of any employee having been fired for any of the reasons contained in Interrogatory No. I-39(o).

(p) The following incidents involved employee termination or a resignation where events with possible safety significance were investigated by CP&L. The Company is not aware of the exact reasons for those employee's resignation.

<u>Date of Incident or Action</u>	<u>Description of Incident</u>	<u>Action Taken</u>	<u>Plant</u>
prior to 7/29/82	improper inspection of welds	employee resigned before action could be taken	Harris
4/82	suspected of improper initialing of seismic I inspection reports	employee resigned while investigation being conducted	Harris
prior to 2/3/82	evidence of use of cocaine	terminated	Harris
5/83	improper performance of valve lineups	employee sent home; resigned before further disciplinary action could be taken	Robinson
2/83	conviction of possession of controlled substance off the job (on his own time)	terminated	Robinson

(q) See response to Interrogatory No. I-39 (o-p). Applicants do not intend to make further information available due to its confidential nature.

(r) Disciplinary actions related to NRC regulation violations are attached as Attachment I-39(r).

(s) Disciplinary actions related to known technical specification violations are indicated with an asterisk (\*) on Attachment I-39(r). Applicants are unable to determine which, if any, of the other disciplinary actions contained in Attachment I-39(r) are technical specification violations without review of all documentation related thereto. Applicants have not performed such a review.

(t) CP&L has not taken disciplinary action against any employee of the rank of Vice President or higher due to management or safety problems at a nuclear facility. As indicated in response to Interrogatories I-13 and I-14, CP&L has modified its organization from time to time as appropriate to accommodate growth, to maintain and improve its organizational capabilities, and to develop organizations and personnel to facilitate future needs. As a result, reassignment of responsibilities of personnel at the rank of Vice President or higher have occurred but not specifically for the reasons stated in the Interrogatory.

(u) See response to Interrogatory No. I-30(r-s).

ANSWER I-40:

(a-f) The issues raised in these questions were discussed extensively during the Harris Plant Construction Permit Remand Hearings (Docket Nos. 50-400, et al.) which were held in March of 1979. Applicants' positions on these issues are set forth in the testimony of E. E. Utley, H. R. Banks, J. A. Jones, and M. A. McDuffie in that hearing. Transcripts of this testimony will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

(g) Between January 1, 1979, and the present, there have been times when employee turnover at the Brunswick plant has been higher than Applicants would desire. As discussed in the response to Interrogatory No. I-47c(xii-xiii),

there have been periods when the staff levels were lower than CP&L considered desirable. Applicants do not believe, however, that employee turnover at Brunswick has posed a threat to the safety of the Brunswick plant operation or reduced the margin of safety in Brunswick plant operations. Employee turnover at Brunswick is not considered to be a problem at the present time.

(h) It is CP&L's policy to maintain wage and benefits programs that are competitive with neighboring utilities, with other industry within our service area and for certain positions within the nation. The maintenance of this competitive posture is essential in recruiting and retaining the numbers of skilled personnel that are necessary to operate and maintain nuclear plants. In accordance with this policy, several enhancements have been made to CP&L's wage and benefit program since 1979. Significant changes are listed below:

1. Foreman supplement pay was initiated in mid 1979.
2. Rate ranges have been adjusted for various classifications as necessary to resolve salary compression problems for foremen, engineers, health physics technicians, and operating personnel.
3. In mid-1980, a nuclear supplement was implemented for nuclear plant personnel.
4. Reactor operator and senior reactor operator supplement pay has been reviewed and revised each year since 1977. The net effect of these reviews has been to maintain competitive salaries for these personnel.
5. Improvements have been made since 1977 in the insurance program. These improvements have involved increased basic life coverage, increased contributory life coverage, the adoption of dependent life coverage for family life coverage, the

implementation of a dental insurance program, and overall reductions in employee costs for the benefit programs.

6. CP&L's policy with respect to moving expense reimbursement has also been revised several times since 1977. CP&L has maintained a policy that is consistent with the practices of other utilities and industry in its service area. These changes have facilitated the transfer of personnel within the Company and improved CP&L's recruiting posture for employees outside the Company.
7. Employee Relations personnel have been placed on-site to provide direct assistance in recruiting plant personnel.

Applicants believe that policies and improvements such as those listed above, have been effective in allowing Applicants to recruit and retain personnel necessary to safely operate and maintain all of their nuclear units. These improvements in the wage and benefit program were approved by senior company management. The growth in Applicants' staff, as illustrated by the response to Interrogatory No. I-24, points to the success of these policies.

(i) Documents regarding employee turnover will be made available for Joint Intervenors' inspection at CP&L's General Office upon request. Prior to 1982, data on turnover by classification was not routinely maintained. However, data by classification has been maintained to CP&L's Employee Relations Departments for 1982 and 1983.

The Brunswick Site Personnel Director has participated in monthly Nuclear Plant Senior Management meetings since late 1980. Information regarding turnover and other personnel related matters has been reviewed with Senior Management personnel during these meetings.



(j) As discussed in the Harris Remand Hearings, the NRC did have concerns with respect to personnel turnover at the Brunswick plant during the period from 1975 to 1977. The NRC's witnesses' transcripts from those hearings will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

Applicants are not aware of any specific NRC concerns with respect to the employee turnover at the Brunswick plant since the events discussed during the Harris Remand Hearings.

(k) The report of A. Ronald Jacobstein, prepared for the NCUC Public Staff, dated February 1982, discussed staffing levels at the Brunswick plant (see response to Interrogatory No. I-47c(xii-xiii)).

The "Management Study of Carolina Power & Light Company" prepared for the North Carolina Utilities Commission by Cresap, McCormick, and Paget, Inc. dated December 1982, discussed staffing of operators at the Brunswick Plant. (Also see the response to Interrogatory No. I-68.)

(l-m) Applicants are not aware of any concerns expressed by anyone else with respect to employee turnover at the Brunswick plant.

(n) Applicants do not consider that there presently exists any problem with respect to employee turnover at the Brunswick plant. Applicants do, however, plan to maintain a policy of providing competitive wage and benefit programs as discussed in response to Interrogatory No. I-40(h).

(o-p) Strategies for recruiting, employment, compensation, and development of personnel are developed by senior management. As these strategies have been developed and implemented over the years, one may assume that these have been recommendations proposed that were not adopted. The final strategies adopted by senior management were those that were deemed to be the

most effective in allowing us to recruit, employ, develop, and retain qualified employees at CP&L, including the Brunswick plant. A listing of any recommendations not adopted has not been maintained.

(q) CP&L management does not consider there is a problem with employee turnover at Brunswick. The basis for this position is the fact that turnover for the Brunswick plant operating staff for 1983 was approximately 5.6 percent. Excluding clerical personnel, the turnover rate was 3.7 percent. Applicants consider these turnover rates to be reasonable for an organization the size of the Brunswick plant.

ANSWER I-41:

The general design practice followed by CP&L in the design of Brunswick was to specify equipment to be compatible with the process fluids with which the equipment or its parts would normally come into contact. Thus the parts of equipment or components that were normally exposed to the brackish cooling water (such as the circulating water side of the condenser and the service water side of the RHR heat exchanger) were specified to be compatible with that application. As indicated in our response to I-30(p), design specifications for the Brunswick equipment are available for Joint Intervenor's inspection at CP&L's General Office upon request.

Since startup of Brunswick Unit 2, the cooling water at the Brunswick site has, however, caused a number of problems due to corrosion and/or fouling of equipment. Such problems were brought to the attention of Senior Management once they began to be identified. Senior Management has been very involved in the resolution of these problems. For example, in December, 1975, in response to continuing corrosion problems being experienced at Brunswick, the metallurgical engineering staff of the Quality Assurance Engineering Section was commissioned

to provide a detailed study of corrosion problems at Brunswick. Personnel from this Section performed a comprehensive study during the first half of 1976. This study entailed design reviews of components and systems against plant environments and extensive visual examinations of plant components which were accessible. Parts were examined while in operation and disassembled when appropriate. The results of this study were reported in two reports issued in the fall of 1976. Copies of these reports will be made available for Joint Intervenor's inspection at CP&L's General Office upon request. The studies identified problems associated with the operating environment, galvanic corrosion, crevice corrosion, material selection, stagnant areas resulting in oxygen concentration, coating failures, etc. The studies also included suggested corrective measures.

Based upon these early studies and our continuing experience at Brunswick, the most significant corrosion and fouling problems at Brunswick have been:

- (1) Corrosion/erosion of condenser tubes
- (2) Corrosion of cement lined piping in the Service Water System
- (3) Fouling problems caused by shell growth in the service water and circulating water systems.
- (4) Radwaste problems caused by leakage of brackish water which ultimately had to be processed via the radwaste system.
- (5) Corrosion of equipment not designed for brackish water service but which came into contact with brackish water due to leakage from other equipment.
- (6) Blockage of the RHR Heat exchanges due to the shell buildup.

As a result of our initial evaluations and our continuing experience with the brackish water at Brunswick, corrective actions have been taken to

minimize problems due to corrosion and fouling at Brunswick. Corrective actions have involved changes in materials, equipment replacement, improved coatings, improved control of leakage, etc. as appropriate to resolve each problem. Some of the more significant corrective actions are:

- (1) Condenser modification to replace the 90-10 copper-nickel tubes with titanium tubes and to install in integrally-grooved tube sheet. The titanium tubes are more corrosion resistant than copper-nickel and the integrally-grooved tube sheets provide increased protection against condenser leaks at the tube to tubesheet joints. This modification was completed on Unit 1 in 1983 and is currently in progress on Unit 2.
- (2) Debris filters were installed on the circulating water system in 1980 and 1981. These filters prevent debris such as shells from getting to the condenser where they can cause tube corrosion.
- (3) Portions of the service water piping have been replaced with more corrosion resistant material and a continuing program of inspections/replacement is in place.
- (4) Changes have been made in the radwaste system to more efficiently process brackish water.
- (5) A condenser tube cleaning system was installed in 1981. This system is designed to maintain condenser tube cleanliness.
- (6) Provisions have been made to provide for differential pressure monitoring on the RHR heat exchanges to provide advance indication of shell buildup which can result in blockage of the heat exchanges.

Documentation regarding the problems discussed above will be made available for Joint Intervenor's inspection at CP&L's General Office upon request. To the extent that problems associated with fouling and/or corrosion have resulted in any events reportable to the NRC, they would be discussed in the documentation provided in response to Interrogatory Nos. I-1 through I-8.

ANSWER I-42:

CP&L did not review Mr. Jacobstein's report prior to its issuance to the Public Staff of the NCUC. CP&L initially was provided a copy of the report in a meeting with Mr. Jacobstein and representatives of the Public Staff. The report was in final form at that time, and no efforts were made to change any portion of the report. With respect to Item C, CP&L management has no knowledge of any present or former employee making any effort to prevent Mr. Jacobstein from getting other consulting work, to have any of his consulting work terminated, or to have him fired or relieved of duties for any employer including the Public Staff.

ANSWER I-43:

Minor personnel contamination events involving construction workers have occurred at the Brunswick plant. These events are normally associated with maintenance on reactor systems containing radioactive material. Upon completion of work in a contaminated area, all persons are thoroughly monitored. If external contamination is found, the individual is directed to a personnel decontamination area where the contamination is removed from the skin or personal article using warm water and mild detergent.

In April 1980, two construction workers ingested measurable quantities of radioactive material while cleaning up a construction work area. The event was attributed to a build-up of contamination levels in the work area since the

last contamination survey, and a failure on the part of the workers to recognize the seriousness of causing dust to become airborne in a contaminated area. Once contamination was detected, the workers received a thorough external decontamination prior to receiving a whole body count. These counts indicated the presence of small amounts of radioactive material in each worker. Subsequent whole body counts were made during the following days. Based upon the results of these counts and utilizing the calculational techniques presented in the International Commission on Radiological Protection (ICRP) Publication 10, the cumulative 50-year organ dose for the highest exposed individual was 1198 millirem to the gastrointestinal tract. The current CP&L annual administrative exposure limit is 4000 millirem.

As a result of this incident, the following corrective actions were undertaken:

1. The incident was reviewed with the Health Physics technicians to alert them to the possibility of contamination during future clean-up activities.
2. Additional radiation safety training was initiated for Brunswick contractor employees.
3. The location of the incident was decontaminated in order to significantly lower the contamination limits.
4. Additional Health Physics technicians were brought to the Brunswick site to increase job coverage in work areas.
5. A special radiation safety training course was developed for personnel performing decontamination and clean-up work in contaminated areas.



6. General Employee Training (GET) has been increased to 16 full hours (GET I and II) which includes dressing out and removal of protective clothing, monitoring for personnel contamination, and the use of portable radiation detection instruments. CP&L first-line supervisors who direct activities in contaminated areas or radiation areas are also required to attend a 40-hour (GET III) course on advanced health physics practice and knowledge.

The results of this investigation were documented in an Operating Experience Report and reviewed by the two individuals involved, the Plant Management Group, Plant Nuclear Safety Committee, and the Vice President-Nuclear Operations.

At Brunswick, contamination events are handled in accordance with procedure No. E&RC-0210 which is in the Plant Operating Manual. Appropriate notification of management personnel is accomplished in a timely manner; however, logs of when management personnel are notified are not maintained. The management level to which reporting is made depends on the significance of the contamination event.

ANSWER I-44:

Coordination problems are inherent in any large undertaking such as the construction, operation, or maintenance of a nuclear power plant. During CP&L's experience with nuclear power, such problems have occurred in many of the areas referenced in this question. The Company does not maintain lists of such problems. To the extent that any coordination problem may have led to an event that was reportable to the NRC, it would be identified in the documentation provided in the response to Interrogatory Nos. I-1 through I-8.

The management response to coordination problems when they are identified is to take appropriate action to resolve the problem. The action required will vary depending upon the nature and significance of the problem and the organizational units involved.

One of the Company's primary tools for resolving coordination problems is the staff and project review meetings that are periodically held at various levels within the organization up to and including Senior Management meetings. Such meetings, regardless of the level of personnel involved, provide the opportunity for managers and supervisors to review the status of work, to interface that work with other personnel and organizations, and to discuss and resolve any coordination and interfacing problems that may be evidenced at the time.

Resolution of coordination problems, when identified, can range from clarifying work functions and job responsibilities to making organizational changes. For example, one of the objectives of the organizational changes at Brunswick in the fall of 1983 was to improve coordination among the operations, engineering, and construction organizations that were working at the site.

ANSWER I-45:

(a)(i-ii) Yes.

(b) Not applicable.

(c) CP&L senior managers have been and continue to be involved in identifying and ensuring effective training for all nuclear power plant personnel, including Shift Technical Advisors (STAs). As part of this involvement, CP&L has appointed a manager at the section level, who is responsible for effective implementation and evaluation of nuclear plant personnel training. This manager reports directly to the Vice President - Operations Training & Technical Support.

In addition, senior management requires reviews of training programs by plant management, training advisory committees, and quality assurance, and requests periodic outside agency reviews (such as INPO) of training. QA and INPO reviews are forwarded directly to the Executive Vice President - Power Supply, Engineering & Construction. Responses and follow-up actions are also documented to the same management. As a result of these reviews and reports, senior management is kept current with training programs, including STA training, and takes positive action to ensure effective training.

Specific management involvement with regard to Shift Technical Advisor Training is evidenced as follows:

1. By formal correspondence with the NRC, the Executive Vice President - Power Supply, Engineering & Construction, described the training and retraining programs of STAs at the Brunswick and Robinson plants. These programs were developed in accordance with the requirements of NUREG-0737, Item I.A.1.1., and were approved by the Nuclear Regulatory Commission (reference letters E.E. Utley to D.G. Eisenhut, December 31, 1980).
2. As further indication of management involvement in training for STAs, the Vice President of Nuclear Operations required that STAs be licensed and receive licensed retraining (reference memorandum from B.J. Furr to R.B. Starkey, Jr. and J.L. Willis, February 7, 1983). This is a significant commitment that goes well beyond regulatory requirements.
3. Harris General Manager identified the STA training schedule for license training and also identified a review of STA responsibilities in relation to the license training program

(reference memorandum J.L. Willis to B.J. Furr, SHNPP-83-104, March 1, 1983).

Copies of these documents will be made available for Joint Intervenor's at CP&L's General Office upon request.

ANSWER I-46:

(a) Spills of the type identified in this Interrogatory, while not desirable, cannot be completely avoided during the operation and maintenance of a power plant. Inherent in the planning and conduct of work at Applicants' power plants are provisions to prevent or minimize the potential for such spills and to take prompt corrective action should spills occur. This philosophy is illustrated in the various plant procedures identified in the response to Interrogatory No. I-46(c).

Maintenance of records of such events would depend on the significance of the spill. To the extent that such spills are significant enough to be reported to the NRC or the EPA, they would be identified in the LERs, reports, or other documentation referenced in response to Interrogatory Nos. I-1 through I-8. With respect to equipment damage, see the response to Interrogatory No. I-30(r)(1).

(b) As stated in response to Interrogatory No. I-46(a), spills are not desirable, but cannot be totally avoided during the operation and maintenance of a power plant. Spills of various nature occurred during the 1981 turbine outage at Brunswick, however a specific listing of such events has not been compiled. The occurrence of such events did not impact the critical path of the outage or result in radiation exposure of personnel beyond administrative or regulatory limits.

(c) Procedures and controls were in place at Brunswick prior to 1981. The following list identifies some of the administrative/procedural controls that

exist at the plant. In addition, various other maintenance and operating procedures address prevention and control of spills. These procedures were in place prior to 1981 unless otherwise noted.

FP-6, Storage and Use of Hazardous Materials

AOP-05.2, Liquid Radioactive Spills (1984)

Brunswick Plant Water and Pollution Control Handbook

AI-17, Plant Housekeeping

EI-16, Main Condenser Tube Failure

PN-1, Emergency Action for Spillage of Contaminants

E&RC-1400, Handling, Storage, and Disposal of Polychlorinated Biphenyls (PCBs)

AI-4B, Bulk Chemical Control (1982)

RCI-06.1, Licensee Event Reports and Special Reports (1983): Identification, Investigation, Preparation, and Submittal

RCI-06.5, NRC Reporting Requirements (1983)

AI-00, Plant Safety and Reliability Enhancement Through Consideration of Human Factors

AI-09, Plant Nuclear Safety Committee Administration

(d) Prevention and/or control of spills is an inherent part of Applicants' maintenance planning activities and the conduct of maintenance activities. Thus, these items were considered in the planning of the 1981 Brunswick outage. All personnel involved in the planning and/or conduct of maintenance activities are responsible for ensuring that such activities are conducted safely. Documentation of such plans to the extent that documentation was necessary or required would be in the maintenance procedures or other instructions governing the work.

(e) Prior to 1981, the approach to outage planning at Brunswick was to utilize assigned outage coordinators who coordinated the planning of the outage under the direction of the Superintendent - Operation and Maintenance (prior to 1980) or the Manager - Maintenance (1980). In 1981, Applicants established a permanent outage planning organization under the direction of the Director - Planning & Scheduling who reported to the Plant General Manager. In early 1983, the Director of Planning & Scheduling began reporting to the Vice President - Brunswick Nuclear Project and in early 1984 outage planning responsibility was included in the Outage Management Section under the direction of the Manager - Brunswick Nuclear Project - Outages.

As evidenced by the above discussion, there has been continual upgrading of the organization responsible for outage planning at Brunswick since 1980. These changes relate in part to the experience gained during this period and to the recommendations and suggestions of personnel responsible for outage management.

(f) CP&L's practice with respect to outage planning and scheduling is to plan and schedule in a manner that provides sufficient time to accomplish known work requirements while minimizing unit downtime.

Guidelines with respect to outage planning are contained in the Company's Power Plant Reliability Program which was implemented in 1979. Guidelines are also included in the Nuclear Operating Procedure NO-7.17, Generating Unit Outage Scheduling. At Brunswick, procedure PPP-06.1, "Outage Planning and Control" provides general guidance in this area. At Robinson, similar guidance is provided in procedure PP-13. In addition, expanded guidelines for Outage Planning & Scheduling and Outage Organizational guidelines were adopted in 1983 (this information is referenced in the response to Interrogatory No. I-70).



A generic discussion of CP&L's outage planning and scheduling practices was included in a report filed with the North Carolina Utilities Commission in February, 1981 and in the following proceedings before the North Carolina Utilities Commission:

1981 N.C. Rate Case - Docket E-2, Sub 416	Testimony of L. W. Eury and B. J. Furr
1982 N.C. Rate Case - Docket E-2, Sub 444	Testimony of L. W. Eury, B. J. Furr, M. A. McDuffie, R. M. Coats

(g) It is and has been the practice of CP&L to provide for the availability of necessary spare parts for each nuclear plant as part of the engineering, construction, start-up and initial operation of the plant. The general process that is used is as follows:

1. Obtain a recommendation for spare parts from Original Equipment Manufacturers (OEM).
2. Evaluate the recommendation based on expected operation, maintenance experience and cost considerations.
3. Determine the Company's spare parts requirements.
4. Obtain management approval.
5. Procure the material.
6. Receive the material, ensuring specifications are met.
7. Store the material until required for use.

The continuing availability of spare parts is ensured through the use of inventory control systems to record usage history and reorder the material as necessary, and to record changes to the material indicated by the OEM or by CP&L's maintenance, operations or engineering experience and requirements. The

actual technique of implementing this practice has improved with each new plant drawing upon the Company's growing nuclear plant experience.

Robinson Unit 2 was a turnkey project through contractual arrangements with Westinghouse Corporation. Ebasco was the architect/engineer selected to assist in the engineering and construction of the plant. The availability of necessary spare parts was provided by the CP&L plant maintenance staff, reviewing vendor recommended spares and placing orders through CP&L's Purchasing Department.

Robinson's initial procurement of spare parts could be characterized as only essential parts. As operating experience has been gained, additional spare parts have been added as necessary. The availability of the Robinson plant demonstrates that essential spare parts were available as needed for the operation of that plant. All of the initial procurement at Robinson predates January 1, 1974.

At the Brunswick plant, CP&L was involved to a larger extent in the engineering, construction and start-up. Through contractual arrangements with the architect/engineer, and the prime Nuclear Steam Supply System contractor, the availability of essential spare parts was assured. Recommended spare parts lists were obtained from vendors and reviewed by the architect/engineer and submitted to CP&L. The plant staff had final review and approval of all recommended spare parts. An additional feature of the Brunswick spare parts program was the development of an automated inventory system called Plant Parts Inventory (PPINV) which was used at the Brunswick plant to ensure spare parts availability and inventory control. The contractual arrangements for the initial procurement of Brunswick predates January 1, 1974.

In the case of spare parts for the Harris Plant, CP&L's active role has increased in regards to both spare parts procurement and the management of the construction effort. There are plant staff resources dedicated to determining which spare parts are necessary. CP&L Purchasing is handling the procurement of these parts. Harris Plant is utilizing the new, comprehensive, on-line Corporate Materials Management System (CMMS) as a tool for the management of its inventory.

In each of these processes, senior management is and has been intimately involved. This is evidenced by the contractual arrangements that require top management approval. Also the plant organizational structures and resources that are responsible for spare parts availability require senior management approval. These practices apply to all the equipment indicated (i-xi) and were in effect on all the dates indicated (dd-ll). Practices and procedures for Robinson's (aa) and Brunswick's (bb) initial spare parts were utilized well before the earliest date (dd).

CP&L has several documents that illustrate the practices and procedures used to ensure spare parts availability at Harris (cc). These documents will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

(mm-nn) The procedures and practices are changed as necessary depending on experience, schedule, resources and other factors to ensure that spare parts are available in the most advantageous and cost-effective manner to CP&L. An example of a change in procedure was the replacement of the manual KARDEX inventory control system at Robinson and the batch automated PPINV inventory system at Brunswick with the new on-line automated Corporate Materials Management System (CMMS). Procedures were changed to reflect the improved system.

In addition to the attention given to spare part availability at each plant site, CP&L is involved with other utilities in the Pooled Inventory Management System (PIMS) which will assure spare part availability while reducing the cost to individual utilities through the sharing of inventory management expertise as well as pooling the materials themselves. Documents related to PIMS will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

(oo-pp). Some distinction may be made between spare and replacement parts in the industry for QA, financial, or other purposes, but with respect to the availability of parts (spare or replacement) for CP&L's plants, there is no distinction. CP&L ensures the availability of those parts necessary to operate and maintain plant systems and equipment without regard to other definitions that might be applied to those parts.

(h) CP&L utilizes contract personnel in its generating plants during periods of high maintenance activity (i.e., outages) to supplement its own workforce and to perform special work functions that require expertise not normally available within the Company (i.e., specialized testing and/or inspections).

Many of the work functions require highly skilled craftsmen, technicians, or professional personnel. CP&L routinely maintains contracts with various companies from which the Company can obtain the craft or professional personnel required. The fact remains, however, that there is not an unlimited source of such skilled personnel and CP&L is thus in competition with other utilities and industries for these personnel.

This means that CP&L is not always able to obtain the quantities of personnel needed on the schedule that the Company would desire. CP&L

minimizes this problem to the extent possible through advanced planning, scheduling and/or work sequencing during an outage.

The work of contractor personnel at Company plants is coordinated by appropriate CP&L supervisory personnel. If problems are experienced with the competence of any contractor personnel, appropriate action is taken. Action may range from counseling the individual involved, reassignment to other duties, removal of the individual from the site, or removal of the contractor from the site. The level of management involvement in such action will range from the responsible supervisor up to Senior Management depending on the particular problem or concern.

(j) CP&L routinely utilizes critical path method (CPM) scheduling techniques in the construction of nuclear plants and in the planning and conduct of plant outages. CP&L uses the CPM method because CP&L considers it to be the best available concept.

During construction or during an outage, frequent meetings involving key personnel are held to review schedule progress, any problems that have been identified, and to resolve any coordination problems that may have been experienced. In the case of nuclear plant outages, such meetings (plan-of-the-day) are generally held on a daily basis. Over the past several years, significant enhancements have been made in the Company's concepts for planning, scheduling, and coordinating plant outages and additional enhancements are expected in the future.

CP&L does not agree that the use of CPM concepts has been a detriment to noncritical path activities. While it is not uncommon for a task that was planned as a noncritical path activity to become critical path, the cause of such an occurrence is not normally the result of the scheduling concept.



Generally, such occurrences are due to unexpected and unanticipated delays in the noncritical path activity which cause that activity to take longer than originally planned.

Some problems of "interference" among critical path activities and/or competition for limited resources and equipment, such as QA/QC support, health physics support and cranes, are likely to occur in any major outage. Identification and resolution of such concerns is one of the primary reasons for the coordination or plan-of-the-day meetings discussed above.

ANSWER I-47:

(a) CP&L senior management does not directly establish engineering requirements of power plant equipment other than to assure, through the Power Plant Engineering Departments, that equipment is specified to meet regulatory requirements, CP&L engineering requirements, and accepted industry standards. The Brunswick main steam isolation valves (MSIVs) were part of the General Electric scope of supply and as such were designed to meet primary system temperatures, pressures, flow rates, shut off leak rates, and specified maximum closing times as analyzed and specified by General Electric.

The Brunswick MSIVs were built and certified to meet the following standards where applicable:

1. ANSI B31.1.0 and B16.5
2. ASTM (American Society for Testing Materials)
3. ASME B&PU Code Sections I, III, and VIII
4. Institutes of Electronic and Electrical Engineers
5. Pipe Fabrication Institute
6. National Electrical Manufacturers Association



(b) The following tests were performed on the Brunswick MSIVs by the manufacturer in the shop:

1. At 1000 psig and no flow, the valves were stroked to assure closing times between 3 and 10 seconds.
2. Leak testing both seated and back seated.
3. Hydrostatic testing.
4. Tests performed during fabrication include radiographic, liquid dye penetrant, or magnetic particle examinations on castings, forgings, welds, hard facings, and bolts.

Details of these tests may be found in Section 5.4.5 of the Brunswick FSAR.

In addition, after installation at the plant, these valves were tested in place as part of the plant preoperational and start up program. Tests included hydrostatic and leak rate testing.

(c)(i-v) CP&L agrees with the listing of MSIV failures in the Jacobstein report. CP&L also agrees that these events involved failures of the threaded connections that join the disc to the valve stem. Review of the MSIV failures also indicated that aggravated flow turbulence created by the specific piping configuration on some of main steam lines could have been a factor in the failure of the threaded connections.

Flow turbulence is routinely considered in piping designs; however there was no specific consideration given to turbulence as it related to stem/disc separation.

There have been no stem/disc separation failures of the Brunswick MSIVs since September 8, 1981. The only significant problem associated with MSIVs since September 8, 1981 was associated with valve stem galling. This

problem was identified in November 1982 on Brunswick Unit 2 when a valve failed to open properly during unit start-up.

The problem was resolved by: (1) replacing or restoring the stems; (2) replacing the junk rings (junk rings are metal rings that serve as a support and guide for the valve stem, i.e., the valve stem passes through the junk ring as the valve opens or closes) with rings of a softer material that should minimize the potential for galling; and (3) revision of the MSIV valve packing procedure. Documentation on this event will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

(vi-xi) Since there are no MSIVs at CP&L's Mayo Unit 1, it is assumed that the valves referred to in these questions are the Main Steam blending system isolation valves. These valves are installed in accordance with the boiler manufacturer's design drawings at an inclined angle with the operator off vertical approximately 30 degrees.

During construction, there was some question as to whether the valves should be installed in a vertical position. CP&L investigated and verified the acceptability of the valve orientation with both the boiler manufacturer and valve manufacturer. These valves do not have to be installed in a vertical position.

The valves were never cut out and reinstalled; they remain in their original inclined position as designed. The valves have been in commercial service for over one year with no problems and CP&L has performed a complete valve disassembly for maintenance, again verifying the acceptability of the off-vertical orientation.

The handling of this question of valve orientation is an example of CP&L's good management practices. The question regarding the orientation of the valves was raised as part of CP&L's operations review of the plant and was

pursued in accordance with established procedures for resolution of such concerns. CP&L ensured the acceptability of the valves by investigating the valve orientation prior to installation, verifying this position with the boiler and valve manufacturers, performing a complete valve disassembly prior to commercial operation, and has subsequently experienced over a year of successful operation of the valves without problems.

(xii-xiii) CP&L's management has carefully and continuously evaluated the staffing requirements of the Brunswick Plant. The steady growth of operating plant staff as illustrated in the response to Interrogatory No. I-24 is indicative of management's philosophy of providing sufficient resources to perform the work of the plant and to ensure that the plant is operated and maintained safely.

In hindsight, there have been periods when the staffing level at the Brunswick plant has not been at the level that Applicants would have desired in order to more effectively cope with the workload that existed at that time. The period from 1975 to 1977 was one such period. The staffing levels that existed during that period, problems that existed with respect to staffing, and the corrective actions taken by Senior Management were reviewed in the Harris ASLB Remand Hearings (Docket Nos. 50-400 et al.) which were held in March of 1979.

A second period when staffing level was less than desirable was the 1979 to 1981 period. During that period Applicants were confronted with a significant increase in regulatory requirements primarily resulting from the Three Mile Island accident. The net effect of this significant increase in regulatory requirements combined with the on-going plant improvement and reliability programs that were underway at that time was to create a shortfall in staff resources and thus contribute to a backlog of work to be performed. In response to this situation, Senior Management provided for increased staffing.

In addition to the above, during the period of 1979-1983, the number of licensed operating personnel has been less than desirable. Sufficient personnel have been available to ensure safe operations and to staff the operating shifts in accordance with NRC requirements. We have not however, had the numbers of licensed personnel required to establish what we consider to be optimum shift rotation and training schedules. As indicated in the response to Interrogatory No. I-68, this shortage has now been reduced to a level that we consider reasonable. We plan however, to maintain a strong emphasis on the recruitment and training of operators for Brunswick.

There are several basic principles of workforce management that Applicants have always attempted to follow with respect to staffing of their plants. These are:

- o That productivity is not simply a function of the number of personnel assigned to a task;
- o Staff growth must be at a rate at which manpower can be properly absorbed and integrated into the existing structure;
- o That supervisory personnel must be well-trained, experienced and properly deployed to achieve high levels of efficiency;
- o That the safety of all personnel must be protected;
- o That spans of control must be compatible with the nature of the work to be supervised;
- o That work planning must reflect priorities of management.

By following these principles, the staffing and organization at CP&L's plants have been modified in a logical manner to provide sufficient resources to accomplish the work requirements that CP&L currently has and those that reasonably can be expected for the future.

(xiv) CP&L agrees that the significant increase in regulatory requirements that resulted following the Three Mile Island accident, when combined with the on-going plant reliability improvement efforts at the Brunswick

plant, created a backlog of backfit and maintenance work during the 1979 to 1981 time period.

(xv-xvi) CP&L has had and still has a backlog of backfit and maintenance work to be performed at the Brunswick plant. Whether or not this backlog of work is "large" is a matter of definition and interpretation. CP&L does not consider the present backlog of work to be unmanageable. The primary cause of the backlog of work at the Brunswick plant has been and continues to be increasing and changing regulatory requirements. In addition, the Maintenance Management System (MMS) prioritizes work according to its safety and power generation significance. This is indicative of good management in that the work backlog ensures full utilization of available craft labor while correcting material deficiencies on a priority basis.

Records of the backlog of MMS work have been maintained since the program's inception in March 1980. Formal records for any backlogs prior to that date do not exist.

With respect to plant modifications, all suggestions for improvements or items identified for evaluation by plant Engineering are collected by the Engineering Work Request System (EWR). This system categorizes, prioritizes, and stores these potential work items so they may be addressed in the order of their relative importance. Items of greater regulatory or plant operation concern are addressed on a priority basis while those of negligible benefit or concern are held for future review. This reserve or backlog assures the full utilization of engineering resources.

This orderly planning and scheduling process causes all significant projects to be budgeted, submitted for management review, and scheduled in the most efficient manner. It assures each project is properly integrated with overall



site needs and that the most effective use is made of financial and manpower resources as well as outage opportunities.

With respect to future years significant backfit work planned over the next several years is listed on the Brunswick Master Project Schedule. A copy of the current Master Project Schedule will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWER I-48:

Most of the items identified in Interrogatory No. I-48 may be considered to be important qualifications for safe management of a nuclear power plant. However, the context in which a particular qualification is considered determines how the qualification is important for safe management. Some of the qualifications listed are basic management practices; others are those which may be developed through experience or lessons learned over the years.

The only items listed which are in and of themselves indicative of poor management are those that imply intentional attempts to hinder or prevent safe management of nuclear plants.

ANSWER I-49:

CP&L's commitment to safe operation of its nuclear plants is illustrated in the Company's Conduct of Nuclear Operations Manual which, among other things, contains the Power Supply, Engineering and Construction Management Philosophy, the Corporate Quality Assurance Policy Statement, the Corporate Health Physics Policy Statement, and the Corporate Nuclear Safety Policy Statement.

ANSWER I-50:

(a-f) The retaining wall was designed such that backfill of the Units 3 and 4 excavations would neither affect the seismic response nor alter the structural analysis of the fuel handling building (FHB).



The retaining wall was designed by Ebasco Services, Inc. per the direction of the Manager - HPES and the design was released for construction in July 1983. Ebasco reports to the Manager - Harris Project Engineering Section.

As a result of NRC Staff reviews of the retaining wall design, settlement monitors will be provided such that CP&L may assure that settlement is consistent with design. Additionally, to ensure design adequacy over time, specimens of deadmen anchor tie rod material will be buried for future inspection.

By letter from CP&L to H. R. Denton of the Nuclear Regulatory Commission dated September 19, 1983, the NRC was provided additional information and the NRC requested further information in the Safety Evaluation Report (Section 2.5.5.6) which was published in November 1983. By letter to the Nuclear Regulatory Commission from CP&L, dated March 7, 1984, CP&L provided further information requested in the Safety Evaluation Report.

(g-k) The items listed — hanger design, probabilistic risk analysis, riser and cable tray design, radiological assessment, site support and conduit supports — actually did not require additional engineering support. These were routine items to support the construction schedule which simply required more manhours to complete than was originally anticipated. Additional manhours for the scheduled activities were identified after the establishment of the 1983 budget. Thus, the work efforts required to accomplish these activities were additions to the budgeted scope of work. However, please note that these items were approved through normal approval channels and their accomplishment assured that the design schedule remained consistent with current construction activities.

Work on the conduit supports also involved routine work to support the construction schedule. Some additional conduit supports had been installed when,

as construction progressed, it was found that supports were necessary in a few locations not called for in the original design. Applicants do not recall that problems, if any, with conduit supports were referred to in any LERs, noncompliances, nonconformances, etc., but will make such documents available for Joint Intervenors' inspection at CP&L's General Office upon request. The request for a list of nonconformances related to conduit supports in the Harris containment building has been responded to by inclusion in the documents referred to in response to Interrogatory Nos. I-1 through I-5.

(1) The current schedule for engineering, procurement, construction, and testing activities is intended to achieve commercial operation of Harris Unit 1 in March 1986. As of September 30, 1983, construction was approximately four percent behind schedule, based on installed quantities. Weather-related factors and electrical design changes resulting from the NRC's Three Mile Island Action Plan are the primary reasons for construction progress being behind schedule. As of December 31, 1983, construction was approximately 83% complete, based on installed quantities.

From the current stage of construction until commercial operation of Harris Unit 1, the construction scheduling and monitoring shifts from installed quantities to completion of systems and subsystems required to meet the remaining scheduled major milestones of cold hydrostatic testing, hot functional testing, fuel loading, and commercial operation. CP&L schedules and monitors the release for testing of systems and subsystems which are required to support the major milestones. Some of the engineering, procurement, construction, and testing activities required to meet these major milestones are currently behind schedule; however, others are ahead of schedule.

The first systems required to be tested and placed into service to support plant start-up are utility or support systems. These systems include electrical, compressed air, demineralized water, auxiliary steam, etc. They constitute the majority of the 282 subsystems scheduled for release through 1983. A cumulative total of 267 Release-For-Test items were turned over to the Operations start-up organization through the end of 1983. One of the primary reasons that some of the Release-For-Test items were delayed was cable tray revisions caused by the Three Mile Island mandated human factors review and the resulting modifications of the control room. Some of these modifications included fire barrier and seismic support relocations for the cable trays. Significant management attention is being placed on recovery of the schedule in these areas. Major systems and equipment tested and placed into service through 1983 includes electrical switch-gear and motor control centers, fire protection system, water treatment plant, demineralized water system, instrument and service air, waste neutralization system, auxiliary boilers, chemical feed system, process instrumentation cabinets, and nitrogen supply system.

Although some of the Release-For-Test items are behind schedule, CP&L believes the steps it is taking to accelerate activities in those areas should enable Harris Unit 1 to begin commercial operation in March, 1986.

The steps CP&L has taken to accelerate activities include a restructuring of the Harris project organization. A vice president, who reports directly to the group executive for nuclear generation, was assigned full time to the project site with direct line responsibility for all site functions with the exception of quality assurance. Currently, the Harris Nuclear Project Department is organized into five sections: engineering, construction, operations, project administration, and planning and controls. The Vice President, Harris Nuclear

Project Department, has authority to direct and responsibility for all engineering, construction, start-up and testing, and operation and maintenance of the plant, and he controls day-to-day site activities. Additional steps taken include the movement and consolidation of all engineering functions and responsibility to the site. Also, the construction work force at the site has been expanded.

ANSWER I-51:

(a-e): Background information regarding the decision to conduct a comprehensive self-evaluation at the Brunswick plant is contained in the testimony of Mr. L. W. Eury before the North Carolina Utilities Commission in July of 1983 (Docket E-2, Sub 461) and in CP&L's May 2, 1983 letter to the NRC. Copies of this and other documentation will be made available for Joint Intervenor's inspection at CP&L's General Office upon request. A copy of the Brunswick Improvement Program (BIP) and CP&L's letter of transmittal which submitted that program to the NRC will also be made available. The specific action items listed in the BIP illustrate the scope of the self-evaluation.

CP&L senior management has followed the progress of the BIP very closely. NRC personnel also have closely followed the progress of the BIP through frequent site visits and discussion with key personnel involved in the conduct of the BIP.

In addition to the above, quarterly reports on the BIP status have been provided to the North Carolina Utilities Commission beginning with Applicants' submittal of December 15, 1983. Also in April 1984 CP&L received a letter from the NRC indicating that CP&L had satisfied the requirements imposed by Confirmatory Order EA-82-106.

Based on our experience at Brunswick, improvement programs were also formalized at Robinson and Harris. Copies of these programs will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

(f-g) The reasons for the effort to upgrade Brunswick plant procedures were discussed in the testimony of Mr. L. W. Eury before the North Carolina Utilities Commission in July 1983 (Docket E-2, Sub 461). A copy of the pertinent pages from that testimony will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

(h) The procedure rewrite effort undertaken as part of the BIP involved the review and revision of approximately 133 Operating Procedures, 2700 Annunciator Procedures, and 121 Operational Periodic Tests. Due to the large work effort involved, a consultant was used to provide additional personnel resources so that this project could be completed in a timely manner.

(i) The procedure rewrite effort was conducted under the supervision and direction of a CP&L Project Engineer who was also a licensed reactor operator.

(j) The procedure rewrite effort involved a multidisciplinary review of the procedures prior to their approval. All of the procedures were determined to be adequate prior to their approval.

(k) The procedure rewrite effort identified in the BIP involved Operating Procedures, Annunciator Procedures, and Operational Periodic Tests. Most other procedures at Brunswick, such as Maintenance Procedures, Fire Protection Procedures, etc., are also being reviewed and revised to improve formats, quality, etc. These additional review efforts are not part of the formal BIP.

The decision regarding the scope of the procedure review effort in the BIP was made by CP&L management.

(l) The operational procedure review was completed by the end of 1983 as scheduled.



(m) The operational procedure review referenced in the BIP has been completed.

(n) Generally procedures are developed on a functional basis, i.e., operations personnel develop operating procedures, maintenance personnel develop maintenance procedures, etc.

The CP&L Procedure Administration Manual establishes the criteria for procedure development, revision, and approval at its nuclear plants. A copy of this manual will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

(o) See response to Interrogatory No. I-51 (n).

(p) All procedures go through formal review and approval steps that involve various levels of supervision; thus no single individual can write, approve, or implement a procedure. Given this process, the question has no meaning.

(q) Not applicable.

(r) Procedures being used at Brunswick are considered to be adequate and in compliance with applicable NRC regulations when approved. If, at any time, a procedure is subsequently determined not to be adequate, the procedure is revised to make it adequate.

ANSWER I-52:

A copy of each and every report and any draft(s) in CP&L's possession by Management Analysis Company concerning CP&L's Corporate Quality Assurance Program, as referred to in Interrogatory No. I-52, will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWER I-53:

CP&L's commitments and resolutions regarding the MAC recommendations were submitted to the NRC by letter dated April 7, 1983. A



copy of this letter will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

ANSWER I-54:

(a) Because of Management Analysis Company's reputation and experience with respect to evaluating, assessing and auditing quality assurance programs within the nuclear-related utility industry.

(b) CP&L's Executive Vice President for Power Supply and Engineering & Construction Group, to whom the Manager — Corporate Quality Assurance Department directly reports.

Contract No. 82-NO-49, dated July 20, 1982 between Management Analysis Company and CP&L.

(c) CP&L's Corporate QA Department had been formed as a department in early 1981 by consolidating the QA/QC functions that had previously been performed by three separate departments within CP&L. CP&L's senior management desired to have an independent review and assessment of its overall quality assurance program in meeting short and long-range commitments to provide more efficient and effective QA/QC within CP&L. This decision was not based on any inadequacies or problems with Corporate QA Department's handling of past Brunswick quality assurance problems but on a commitment and desire to identify opportunities for achieving basic improvements of a continuing and long-range nature in quality assurance performance within CP&L.

(d) Management Analysis Company was asked with respect to CP&L's Corporate QA to provide a management assessment of CP&L's programs and commitments in order to achieve improvements of a continuing and long-range nature in CP&L's quality assurance performance.

There were no areas Management Analysis Company was prohibited from inquiring into concerning QA or QC.

ANSWER I-55:

It is CP&L's practice to keep information relating to the medical history of CP&L employees in the strictest of confidence. However, to CP&L's knowledge, none of the persons referenced in Interrogatory No. I-55 has been diagnosed or treated for psychosis or depression; nor has been unable to perform his duties because of psychological problems.

ANSWER I-56:

The MAC Report concerning methods for reducing outside demands on the Brunswick Plant Staff will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

(a-d) An assessment of the MAC Report, including individual responses to recommendations, was provided to the NRC in a letter from Mr. P. W. Howe, Vice President - Brunswick Nuclear Project, to Mr. J. P. O'Reilly, Director - U.S. Nuclear Regulatory Commission. A copy of that letter will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

(e) Yes.

(f) Senior management has always been concerned that undue outside demands not be placed on the plant staffs of operating plants. "Undue outside demands" refers to such matters as requests for assistance and information which tend to detract plant personnel from their primary responsibility of operating and maintaining the plant.

(g) CP&L decided to have MAC do a study of outside demands on the Brunswick plant staff in September 1982. This study was conducted as part of the BIP. MAC was selected by CP&L management on the basis of its qualifications and experience.

ANSWER I-57:

(a) A copy of the Shift Foreman Time Utilization Study will be made available for Joint Intervenor's inspection at CP&L's General Office upon request. Documents that requested, discussed, or implemented the recommendations of this study will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

An implementation schedule for addressing the recommendations in the Shift Foreman Time Utilization Study was developed as part of the BIP, (Item VII-4). On January 11, 1983, the initial completion date for the implementation plan and schedule was extended from January 1983 to March 1983 by the Plant General Manager with the approval of the Vice President - Brunswick Nuclear Project.

(b) Twelve.

(c) Ten.

(d) The Work Force Performance Development Section of CP&L.

(e) The Brunswick plant General Manager requested the study as part of the BIP.

(f) The plant General Manager and the Manager - Plant Operations.

(g) The plant General Manager and the Vice President - Brunswick Nuclear Project.

(h) Of the five recommendations made in the Task Analysis—Brunswick Operations Shift Foreman Report, two were not implemented. The documentation discussed in Subpart (a) above discusses the basis for not implementing these recommendations.

ANSWER I-58:

Turnover of the supervisory personnel at Brunswick during the period from 1975 to 1977 was discussed in detail in the Harris ASLB Remand Hearings which were held in March of 1979. CP&L witnesses in those hearings outlined the actions that had been taken to resolve the turnover problem. See response to Interrogatory No. I-40. CP&L does not consider that there has been a problem with turnover of middle and upper management at Brunswick since the time period discussed in the Remand Hearings.

ANSWER I-59:

No, CP&L selects personnel to fill management positions that meet applicable Company and regulatory requirements for the position being staffed.

ANSWER I-60:

(a) CP&L does not believe that there has ever been a period in which the size of the Brunswick plant staff was inadequate to operate and maintain the plant safely and adequately. As discussed in our response to Interrogatory No. I-47(c)(xii-xiii), there have been periods during which the size of the plant staff was less than CP&L would have desired. During such periods, CP&L has established priorities to ensure that work important to the safety of the plant has been accomplished while deferring nonessential work to later periods.

(b) CP&L's program, practices and experience with respect to extended work weeks and overtime at the Brunswick Plant was reviewed on the record of the Harris Remand Hearings which were held in March of 1979. CP&L does not consider that there has been a problem with extended work weeks and/or the amount of overtime being worked at Brunswick since that time.

ANSWER I-61:

Problems have been identified by the NRC to CP&L regarding the Brunswick Plant. These problems have been documented in NRC inspection reports and the SALP reports, and have been replied to accordingly. These, in turn, have been addressed in response to Interrogatory Nos. I-1 through I-8.

ANSWER I-62:

(a) (i) On June 30, 1980, CP&L submitted comments to the NRC regarding the proposed amendments to the Commission's fire protection regulations.

(ii) In 1980 CP&L obtained a complete Safety Evaluation Report from NRC for compliance at Brunswick with the fire protection guidelines set forth in Appendix A to Branch Technical Position Auxiliary Power Conversion System Branch 9.5-1 "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976," dated August 23, 1976. Subsequent to this, NRC significantly revised its fire protection criteria. CP&L has taken significant steps to implement these regulations as quickly as appropriate means can be identified. Significant fire protection measures currently installed at the Brunswick facility include a remote shutdown system; suppression for major safety-related components; wraps, barriers, and localized suppression for protection of safety-related cables in close proximity to each other; a strengthened fire brigade; and a detection system that is in compliance with Appendix R. CP&L is currently implementing Appendix R modifications to the Diesel Generator Building Hatch covers and installing Cable Spread Room suppression systems. With NRC's approval, CP&L has been conducting an Alternative Shutdown Capability Assessment (ASCA) which is due to be filed with the NRC on April 30, 1984. The Brunswick facility is currently equipped with a



very high level of protection against fires which will be even further enhanced by modifications which CP&L will make resulting from ASCA study.

(iii) The Court of Appeals for the District of Columbia Circuit held that the NRC's fire protection regulations had been validly promulgated.

(b) Relevant documents will be available for the Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWER I-63:

(a) As a result of the ASLB decision, CP&L submitted a Management Capability Report to the NRC for review and has continued to issue revised Management Capability Reports as appropriate.

(b) No. CP&L has, however, made significant improvements in its management system since that time.

ANSWER I-64:

(a) Copies of CP&L responses dated May 2, 1983 and July 27, 1983 will be made available for the Joint Intervenor's inspection at CP&L's General Office upon request.

(b) Other documents detailing or discussing actions CP&L took in response to this notice of violation will be made available for Joint Intervenor's inspection at CP&L's General Office upon request. A detailed summary of CP&L actions taken in response to this notice of violation is contained in the May 2, 1983 response to the violation. In addition, a copy of the BIP submitted to the NRC on October 29, 1982 will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWER I-65:

A review of CP&L's files indicates that the response to Interrogatory No. I-65 is no.



ANSWER I-66:

A system of reporting of installed quantities was implemented as bulk quantities installation began at the start of construction in early 1978. Also random verification of installed quantities reports was implemented at that time. As the project progressed and mechanical and electrical systems installation became active, the procedure was expanded to also include collecting data on, and verifying quantities related to, these types of installations. A procedure was formalized in March 1982 and further updated in 1983.

This procedure was initially formulated in 1982 as a stand-alone document entitled "Quality Monitoring Procedure for SHNPP." In March 1982, the procedure was included in the Harris Construction Procedures Manual as an administrative procedure entitled "Quantity Survey." Copies of these documents as well as copies of forms used to report installed quantities of concrete, rebar, steel, hangars, ductwork, instruments, etc. will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

The system was put in place as a cost/productivity and schedule monitoring tool. It is normal practice to implement such a system and did not require a specific "order."

Verification of quantities installed is accomplished from engineers' installation records for concrete placements, electrical pull cards, construction control system (computer tracking program) for piping and hangers (maintained by CP&L engineers), and visual verification. Some handwritten records have been maintained in files for the visual verifications. Verification records along with analyses of variance, percentage of quantity verified, and percentage of error in quantity reported are maintained. A summation of the bulk quantities installed and verification thereof is contained in the quarterly reports made by CP&L to

the North Carolina Utilities Commission. Copies of such reports will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

ANSWER I-67:

In August 1983 Applicants strengthened their "project control systems" on the Harris project by restructuring that project's organization. Previously, operations, construction, and engineering had reported through their own separate company vice presidents. In 1983 these three sections were directed to report through a single vice president in order to facilitate communications and increase efficiency. In addition, two new sections were established out of the three previous ones - Project Administration, and Planning and Controls - for more effective operations.

ANSWER I-68:

(a) The report prepared by Cresap, McCormick, and Padgett (CMP), will be made available for Joint Intervenors' inspection at CP&L's General Office upon request. It contains all the recommendations CMP made pertaining to operating personnel at Brunswick.

(b) See response to I-68(a) above. A report discussing CP&L's response to the CMP recommendation is being drafted and is scheduled to be complete in May 1984. A copy of that report will be made available for Joint Intervenors' inspection at CP&L's General Office when complete.

(c) Yes.

(d) CP&L does not consider that there is a shortage of repair and maintenance personnel at Brunswick at this time.

(e) The Brunswick Operations group is considered to be fully staffed at the present time. At any given time, a few of the slots in the organization may be vacant as the result of terminations or transfers until new personnel can be hired or transferred into the group.

ANSWER I-69:

(a) The report prepared by CMP will be made available for Joint Intervenor's inspection at CP&L's General Office upon request. This report contains all of CMP's recommendations and considerations pertaining to construction backlog at Brunswick.

(b) See response to Interrogatory No. I-69(a).

(c) A copy of a report discussing CP&L's response to the CMP recommendation will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

(d) See response to Interrogatory No. I-69(c).

(e) See response to Interrogatory No. I-47(xiv-xvi) and I-69(c).

ANSWER I-70:

Copies of the CMP report and CP&L's report describing actions taken or planned in response to CMP's recommendations related to outage management will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWER I-71:

(a) There is no formal experience profile for the Brunswick or Robinson 2 operating crews. As requested by NRC letter dated December 9, 1983, CP&L prepared an experience profile for its Harris operating crew and submitted the requested survey sheets by letter dated December 16, 1983. CP&L was not requested to prepare information for Robinson 2 or Brunswick operating crews.

(b) CP&L has not begun to develop an experience profile for the Brunswick or Robinson operating crews subsequent to the meeting announced (as referred to) in Mr. John Hannon's (NRC) January 17, 1984, memorandum to operating license applicants. The Harris experience profile was prepared prior to the January 17, 1984 meeting notice.

(c) CP&L did participate in the January 26, 1984 meeting with the NRC Staff.

(d) The following NRC and CP&L letters relate to the above matter:

December 9, 1983	NRC letter to CP&L
December 16, 1983	CP&L letter to NRC
January 6, 1984	NRC Generic Letter 84-02
January 17, 1984	NRC Meeting Notice
March 1, 1984	NRC Meeting Summary

These documents will be made available for Joint Intervenors' inspection at CP&L's General Office upon request.

ANSWER I-72:

(a) For CP&L senior management, performance evaluations are made on a continuing basis by the particular executive's immediate superior. In the case of the President, the evaluation is performed by the Board of Directors. Records of evaluations are not kept.

(b) The Management Capability Report was originally written in 1979 and has been periodically revised. The Management Capability Report submitted on January 10, 1984 is an updated version of the Management Capability Report updated and submitted on August 4, 1983. The CP&L Nuclear Licensing Section has been the coordinator for updating this report. Appropriate individuals within the applicable CP&L organizations review and revise the report during updating and the revised report sections are transmitted back to the Nuclear Licensing Section through the appropriate organization managers. Identification of all the individual contributors to the Management Capability Report since 1979 has not been maintained and it would be impracticable and unduly burdensome to attempt to make such identifications.

(c) CP&L employees undergo a periodic review of their job performance. These performance appraisals are conducted by the employees' supervisors.

(d) The technical personnel who are associated with CP&L's nuclear plants or who are members of the Corporate Nuclear Safety and Research Department are aware that they can take safety-related issues directly to senior management if they so choose. This has been orally stated by senior management on numerous occasions and is a part of written Company policy. Therefore, any individual who believes that the Vice President - Corporate Nuclear Safety and Research is not properly responding to his duties has a channel for bypassing this office in order to ensure that senior management is properly informed on safety issues.

There have been no instances of communication in the above fashion with the Chairman/President or other senior management regarding a failure of the Vice President - Corporate Nuclear Safety and Research to respond satisfactorily to issues.

ANSWER I-73:

Applicants interpret this question to be referencing the Senior Management Oversight Function as described in Section 3.4 of the January 1984 Harris Management Capability Report.

Currently, CP&L senior management has retained the assistance of two consultants to assist in the Senior Management Oversight Function. These consultants are:

--Mr. L. F. Sillin, Jr.: Previously Chairman and Chief Executive Officer of Northeast Utilities; currently Chairman, Executive Committee, of Northeast Utilities.



—Mr. G. C. Hurlbert: Previously President, Power Systems Company, Westinghouse Electric Corporation; currently President, GCH Management Services, Inc.

In addition to the assistance of these consultants, examination of the Senior Management Oversight Function has occurred in the following ways:

1. Examination of this function is inherent in the audits, reviews, and assessments conducted by the NRC. Documentation regarding these reviews would be contained in the documentation provided in response to Interrogatory Nos. I-1 through I-8.

2. The Management Analysis Company's review of CP&L's Corporate QA Program (see response to Interrogatory No. I-52).

3. The Institute of Nuclear Operations (INPO) reviews of Brunswick and Robinson.

4. Reviews of CP&L's Health Physics Program conducted by Dr. Ralph Lapp.

5. The External Review Panel Report (August 18, 1982). See the response to Interrogatory No. I-51.

6. The Sol Levi & Associates report, "Evaluation of Corporate Nuclear Safety Section," February 1984.

7. The 1982 management study of Carolina Power & Light Company conducted by Cresap, McCormick and Paget. (See response to Interrogatory No. I-26.)

Applicants believe that the Senior Management Oversight Function is properly implemented and provides the oversight required for Applicants' nuclear programs. When potential improvements in this function are identified, they are evaluated and implemented if appropriate.



ANSWER I-74:

Table 3.1 of the Management Capability Report contains information on all plant management and supervisory personnel including total work experience and total nuclear plant experience. Applicants do not maintain the additional information requested in this Interrogatory in the form requested and assembling such information for all such persons would be unduly burdensome. However, the information requested concerning individuals holding management-level positions in the Harris Plant Operations organization is contained in the following table:

<u>Job Title</u>	<u>Other Nuclear Plant Experience (excluding Navy)</u>	<u>Length of Experience At Operating PWR (excluding Navy)</u>
Plant Manager	San Onofre	1 year
Manager - Plant Operation*	(position vacant)	—
Assistant to General Manager	Brunswick	—
Manager - Technical Support	Brunswick	—
Manager - Maintenance	—	—
Manager - Operations	Robinson	7 years
Manager - Start-up	Brunswick	—
Manager - E & RC	Seabrook, Vermont Yankee	—
Director - Regulatory Compliance	Robinson, Brunswick	5 months

To Applicants' knowledge, none of these persons has been fired or disciplined in connection with work at any nuclear plant.

ANSWER I-75:

(a) The purpose of the "degrees/person" figure in Table 3.2 of the Management Capability Report is to emphasize the fact that many CP&L personnel have bachelor's and advanced degrees.

(b) Yes.

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\*CP&L is currently evaluating the need for this position based on the current Harris Nuclear Projection Organization. A decision to fill the position will not be made until our evaluations are complete.

(c-d) Table 3.5 of the Management Capability Report provides a complete breakdown by section and degree type of each group listed in Table 3.2. The degree categories requested have been extracted from Table 3.5 and are provided as Attachment I-75(c-d).

ANSWER I-76:

A formal policy for administration of examinations was issued in 1980 in the Training Manual for Nuclear & Fossil Operations Personnel. These guidelines have been periodically updated and will be made available for Joint Intervenors' inspection at CP&L's General Office upon request. Prior to publication of this formal policy, examinations were administered using precautions against cheating such as treating all examinations as "confidential," use of proctors, and physical separation of candidates being tested.

Selected examinations have been reviewed by CP&L management and the NRC. CP&L has discovered no evidence of cheating on examinations.

Some test questions used in CP&L training have duplicated old NRC questions. However, since the objective is to learn and relate on examinations knowledge and facts important to safe and reliable plant operation, it is not surprising that some information would appear on both CP&L and NRC exams. In fact, the NRC returns graded exams to the candidates to help correct weak areas. They also return a blank copy of the exam and an answer key to the utility. Although CP&L has never requested permission to use old NRC questions, there are no NRC rules that prevent use of these questions. In 1983, the NRC requested that utilities share with the NRC questions developed for use in training programs. This has resulted also in joint use of questions.

ANSWER I-77:

, Does not require an answer.

ANSWER I-78:

(a) Reports to the Company's stockholders and to the SEC, and the FERC Form 1 Report are prepared under the direction of the Company's senior management.

(b) Organizational changes within the corporate structure have from time to time resulted in different senior level positions assuming different responsibilities. However, senior management's role with regard to these reports generally remains unchanged.

(c) Events of interest to shareholders are discussed in the Annual and Quarterly Reports to stockholders, including nuclear matters or other matters.

In addition to the Annual and Quarterly Reports to stockholders, the Company summarizes matters of interest that are discussed at the annual stockholders' meeting and reports this information to the stockholders. Copies of the Annual Reports, Quarterly Reports, and the Summaries of the Annual Stockholders' Meetings dating back to 1964 or the first year of issuance if after 1964, to the extent available within the Company, will be made available for Joint Intervenors' inspection at CP&L's General Office upon request. Generally these reports provide information related to the Company's nuclear program and corporate management achievements.

(d) There is no record or recollection of an interview by Mr. Sherwood H. Smith, Jr., or any member of Senior Management, with Mr. Mark Hertsgaard.

(e) Applicants have transcripts or summaries of the following interviews with Mr. Smith which will be made available for Joint Intervenors' inspection at CP&L's General Office upon request:

1. News and Observer, September 30, 1982
2. NBC-TV News, January 12, 1982
3. News and Observer, May 6, 1982
4. NBC-TV, February 2, 1984.

ANSWER I-79:

CP&L has received numerous awards and other recognition for the manner in which it and its various divisions conduct their activities. Those awards and other recognition which CP&L has received since 1972 are listed below. Documents describing these items in more detail will be available for the Joint Intervenors' inspection at CP&L's General Office upon request:

1. W. H. Weatherspoon Plant, CP&L all-time safety record, one million hours of work without a doctor-attended injury.  
September 13, 1983
2. Electric Institute 1982 Accident Frequency Award, lowest frequency rate of disabling work injuries (7th consecutive year)  
July 8, 1983
3. Edison Electric Institute 1983 Man-hour Safety Achievement Award, 3 million hours without a lost work-day accident (8th consecutive year)  
July 8, 1983
4. N. C. Department of Labor 1982 Man-hour Safety Award (5th consecutive year)  
July 8, 1983
5. N. C. Department of Labor 1982 Certificate of Safety Achievement (4th consecutive year)  
July 8, 1983

6. N. C. Department of Labor Certificate of Special Recognition, W. H. Weatherspoon Plant, 1.7 million man-hours without a single lost-time injury  
May 20, 1983
7. American Society of Mechanical Engineers, Outstanding Leadership Award, Mr. Sherwood H. Smith, Jr., CP&L Chairman and President  
May 17, 1983
8. National Safety Council Award of Honor for 1982  
May 13, 1983
9. National Safety Council 1982 Public Utilities Safety Contest First Place Award (10th consecutive year)  
May 13, 1983
10. S. C. Occupational Safety Council Award, lowest incident rate of lost-time accidents in 1982  
May 10, 1983
11. S. C. Occupational Safety Council Award, lowest incident rate of lost-time accidents in 1983  
April 9, 1984
12. S. C. Occupational Safety Council Award for H. B. Robinson Plant, 1982 safety record  
May 10, 1983
13. Southeastern Electric Exchange 1983 Safety Performance Award (11th consecutive year)  
February 8, 1983

14. Southeastern Electric Exchange 1982 Fleet Safety Award  
February 8, 1983
15. N. C. Utilities Commission-ordered audit by Cresap, McCormick & Paget, Inc. found that "In many respects CP&L is one of the best-managed utilities that we have audited in the past several years."  
December 15, 1982
16. Roxboro Plant, Units 3 & 4, 200,000 man-hours without a doctor-attended injury  
October 15, 1982
17. State of South Carolina Award, H. B. Robinson Plant, 5 years without a lost-time accident  
September 2, 1982
18. Edison Electric Institute Frequency Rate Safety Award for 1981 (6th consecutive year)  
August 19, 1982
19. National Safety Council Public Utilities Section Safety Contest Award for 1981 (9th consecutive year)  
April 14, 1982
20. National Safety Council Award of Honor for 1981  
March 16, 1982
21. Southeastern Electric Exchange 1981 Safety Performance Award (9th consecutive year)  
January 29, 1982
22. Southeastern Electric Exchange 1981 Fleet Safety Award (6th year)  
January 29, 1982



23. Yeargin Construction Company personnel, Brunswick Plant, over two million man-hours without a lost-time accident  
December 30, 1981
24. Edison Electric Institute 1980 Frequency Rate Safety Award  
(5th consecutive year)  
October 13, 1981
25. National Safety Council 1980 First Place Award  
(8th consecutive year)  
October 13, 1981
26. W. H. Weatherspoon Plant, 600,000 man-hours without an on-the-job accident which required a doctor's attention  
June 24, 1981
27. Southeastern Electric Exchange 1980 First Place Safety Award  
(8th consecutive year)  
April 8, 1981
28. Edison Electric Institute 1979 Safety Award (5th consecutive year)  
May 15, 1980
29. Southeastern Electric Exchange 1979 First Place Safety Award  
(7th consecutive year)  
May 15, 1980
30. Named American Society of Mechanical Engineers Fellow,  
Mr. J. A. Jones, chief operating officer  
February 20, 1980
31. National Safety Council 1978 First Place Public Utilities Safety Award (6th consecutive year)  
November 19, 1979

32. Edison Electric Institute 1978 Safety Award (3rd consecutive year)  
November 19, 1979
33. U. S. Department of Energy First Place Power Plant Efficiency Award  
June 16, 1978
34. Edison Electric Institute 1976 Frequency Rate Safety Award  
November 30, 1977
35. N. C. Utilities Commission-ordered audit by Booz, Allen & Hamilton concluded that CP&L performs in a "cost effective" manner  
February 1, 1977
36. Federal Power Commission Efficiency Rating  
(CP&L 3rd in the nation)  
April 2, 1976
37. N. C. Society of Engineers "Outstanding Engineering Achievement" Award, Mr. J. A. Jones, executive vice president  
March 5, 1974
38. Electric Light & Power Magazine Outstanding Electric Utility of the Year for 1973  
November 6, 1973
39. All-time company annual safety record in 1971 by completing the year with only eight lost-time accidents  
January 20, 1972
40. N. C. Department of Natural Resources and Community Development Certificate of Recognition for protection of the

state's largest population of the endangered plant species, the  
Cooley's Meadowrue

February 29, 1984

41. N. C. Department of Natural Resources and Community  
Development Certificate of Recognition for registration by CP&L  
of the Pee Dee Gabbro Slopes as a N. C. Natural Heritage Area

March 9, 1982

ANSWER I-80:

(a) CP&L does not routinely maintain such information; however,  
Applicants are not aware that any such persons has been indicted or tried on  
felony charges.

(b) CP&L does not routinely maintain such information; however,  
Applicants are not aware that any such person has stood charges before a military  
court martial.

(c) None of those persons has been convicted of a felony or adjudged  
guilty by a court martial.

(d) Other than one person who was convicted of underage possession of  
alcohol, none of those persons has been convicted of a misdemeanor other than a  
traffic offense.

ANSWER I-81:

(a) Following is a list of reports regularly received by the  
Chairman/President, Sherwood H. Smith, Jr., from the Nuclear Generation, Fossil  
Generation and Power Transmission, and Operations Support Groups.

<u>REPORT</u>	<u>FREQUENCY</u>
Daily Status Report	Daily
Unit Availability Report	Daily

Daily Operating Report	Daily
Monday Morning Report	Weekly
Progress Pictures of Harris Construction	Monthly
Oral Report from Vice President of Corporate Nuclear Safety	Approximately biannually
Customer Minutes Out of Service	Monthly
System Load & Production Plan	Quarterly
Unit Capacity Factor, Output, and Availability	Biannually

(b - c) Mr. Smith reviews each report, with the exception of the Daily Status Report and the Daily Operating Report, and takes such action as is appropriate given the nature and content of each report. With respect to the Daily Status Report and the Daily Operating Report, a member of his staff reviews them and provides Mr. Smith with pertinent information from each report.

ANSWER I-82:

It would require an excessive amount of time to identify with specificity every report and other communications received by the Executive Vice President Power Supply, Engineering and Construction. A list of some of the more significant reports or communications regularly received by the Executive Vice President Power Supply, Engineering and Construction is presented below. In addition, reference is made to CP&L's Management Capability report, the Senior Management Oversight Section, for a discussion of the Senior Management Oversight function.

- Daily Operating Report
- Daily Status Report
- Daily Unit Unavailability Report

- Monthly and Quarterly Budget Status and Cost Reports
- Monthly, Quarterly, and Annual Personnel Reports
- Monthly, Bi-monthly, and Quarterly Safety Reports (such as LER Trend Analysis, ALARA Status, etc.)
- Quarterly Status of Goals
- Quarterly Forced Outage Statistics Report
- Semiannual and Weekly Fuel Status Reports
- Quarterly Productivity Trends Report
- Monthly Power Interruptions to Customers Report
- Monthly Nuclear Operating Plan
- Monthly Power Estimate Report
- Planned Unit Outage Schedule (as changes are made)
- Monthly Minutes of Nuclear Outage Planning Meeting
- QA Audit Reports as audits are completed
- Specified Department Monthly Activity Reports
- Weekly Facility Automated Commitment Tracking System (FACTS) Management Report
- Nuclear Plant Projects' Monthly Report
- Weekly Nuclear Plant Status Report
- Monthly Senior Management Review Presentation Report
- Semiannual Comparative Performance Indicators Report
- Load/Energy Forecasts (annual or when updated)
- Planned System Expansion for coming year Report (as updated)
- Monthly Base Load Power Plant Performance Report
- Company Weekly INFO Briefs and News Releases (as necessary)
- Industry Publications Magazines, Newsletters, Newspaper

clippings

- (a) Frequency of reports is as indicated in listing above.
- (b) The action required is dependent upon the individual report.
- (c) Meetings regularly conducted to review reports or communications:
  - Monthly Nuclear Senior Management Meeting (attended by the Executive Vice President)
  - Monthly Outage Planning Meeting (attended by the Executive Vice President)
- (d) Minutes of meetings available from the Executive Vice President's office are:
  - Monthly Outage Planning Meeting
- (e) Formal followup procedures and logs are not maintained.

ANSWER I-83:

It would require an excessive amount of time to identify with specificity every report and other communications received by the Senior Vice President - Nuclear Generation. The following is a list of some of the more significant reports or communications regularly received by the Senior Vice President - Nuclear Generation:

Daily Operating Report

Daily Status Report

Daily Unit Unavailability Report

Weekly Reports from Group Managers

Weekly Nuclear Generation Staff Meeting Minutes

Weekly Facility Automated Commitment Tracking System (FACTS) Management Report



Weekly Construction Progress Reports

Monthly Budget Status and Cost Reports

Monthly Personnel Reports

Monthly Safety Reports (such as bimonthly LER Trend Analysis,  
monthly ALARA status, etc.)

Monthly Power Estimate

Monthly Nuclear Operating Plan

Planned Unit Outage Schedule

Monthly Agendas for Project Review Meetings

Specified Department Monthly Progress Reports

Monthly Nuclear Senior Management Review Report

Quarterly Status of Goals

Master Project Schedules as Issued

Exceptional Hours Report - Every Two Weeks

QA Memos Documenting Reportable/Potentially Reportable Items to  
NRC

Nuclear Licensing Notices of Incoming NRC and INPO Correspondence

Company Weekly INFO Briefs and News Releases (as necessary)

Industry Publications — Wall Street Journal, Magazines, Newsletters

QA Audit Reports - As Audits are Completed

(a) Frequency is as indicated,

(b) Action required is dependent upon the individual report,

(c) Meetings regularly conducted to review reports or

communications:

Weekly staff meeting with Group Managers (conducted and  
attended by Group Executive)

Monthly project review meetings (attended by Group Executive)

Monthly nuclear senior management meeting (attended by Group Executive)

Monthly outage planning meeting (attended by Group Executive)

(d) Minutes of meetings available from the Group Executive's office

are:

Weekly staff meeting minutes

Monthly nuclear senior management meeting minutes

(e) There are no formal follow-up procedures. The secretary to Group Executive maintains a notebook of open action items due to the Group Executive. As responses come in, she pulls the request for action and attaches it to the responses if a copy is not already attached. One or two days before items are due, she calls the appropriate manager and reminds him of the due date. A duplicate notebook is updated for and maintained in the Group Executive's office. Formal logs are not maintained.

ANSWER I-84:

The Manager-Environmental and Radiation Control, the Environmental and Chemistry Supervisor, and the Radiation Control Supervisor of the Harris Plant Operations Section have:

a. No authority to order plant shutdowns.

b. The authority to recommend plant shutdowns. The final decision rests with the shift foreman. (The Manager-Environmental and Radiation Control has a direct communication channel to the Plant Manager on matters pertaining to plant chemistry or health physics.)

c. The authority to recommend specific power levels.

d. The authority and responsibility to report to individuals other than

their immediate supervisors in matters affecting plant operations.

e. The authority to request or order other information collection activities such as air quality or water sampling to verify that no harmful effects are taking place. He could also order sampling of internal functions or primary systems.

ANSWER I-85:

The Vice President - Corporate Nuclear Safety and Research receives numerous reports and communications that originate from both outside of the Company and from within. Outside reports include NRC reports on unusual events, results of NRC studies or recommendations on technical issues, NRC SALP reports on other utilities, EPRI summary reports and abstracts from nuclear safety research projects, INPO reports on utility issues or INPO policies, INPO significant operating experience reports, and miscellaneous technical reports from PWR and BWR Owners' Groups, the Edison Electric Institute, AIF Committees, and special EPRI groups such as the Nuclear Safety Analysis Center. Internally generated reports include monthly activity reports, system assessments on nuclear systems, quarterly reports on progress toward department goals, bimonthly LER trend analyses, bimonthly status reports on nuclear safety concerns and recommendations, bimonthly reports on NRC noncompliance, monthly ALARA status reports, quarterly minutes from the Nuclear Safety Review Board, memoranda related to special investigations conducted by all department sections, and various administrative reports that cover budget status, personnel complements, and professional personnel to secretary ratios.

Report frequency has been identified above in those cases where a prescribed frequency is designated and other reports such as reactor system assessments are prepared and distributed upon completion of the designated

investigations. Those outside reports that specify recommended actions are handled as operating experience feedback items and are processed through the OEF review mechanisms. The Vice President for Corporate Nuclear Safety and Research may elect to initiate actions or recommendations from technical data in other reports based upon his cognizance of what is important and necessary for plant safety. Internally generated documents typically specify follow-up actions and these are handled in accordance with defined department procedures. Meetings involving department personnel or individuals outside of the department are held as required to resolve technical issues and with a scheduled frequency of every two weeks with section managers for a technical overview. Presentations and discussions of nuclear safety issues with senior management occur at least quarterly with the Executive Vice President, semiannually with the Chief Executive Officer, and annually with the Board of Directors.

ANSWER I-86:

Yes. Once a facility is operational a "key card" system maintains access control. A card is inserted into the card reader. If the attempted entry is valid, the individual is admitted. The name and time of entry/exit are recorded in the computer memory and retained for a period of time.

ANSWER I-87:

(a - c) Facility access information referred to in the response to Interrogatory No. I-86 is not contained in any report or other written document which provides an answer to this interrogatory.

(d) Because the data available is not in the form contemplated by Interrogatory No. I-87(a-c), Applicants assessment of the time spent at the Brunswick and Robinson by the groups inquired about is as follows: Both the Corporate Nuclear Safety Department and the Corporate Quality Assurance

Department have staffs assigned to our nuclear plants on a full time basis. Personnel from these organizations are in the plant on a routine basis as part of their job responsibilities. In addition to other time inside the plant, the managers on the operating staff normally tour specific plant areas as a group on a weekly basis.

ANSWER I-88:

It is intended that upon commencement of operation, those individuals entering the protected area will be logged into the area. Logging will be performed as described in response to Interrogatory No. I-86, with records normally maintained for one year.

ANSWER I-89:

(a - f) As set forth on page 2-24 of said Report, the "Manager — QA/QC Brunswick and Robinson Plants and staff are responsible for: . . . b. Reporting quality-related problems for correction." There are numerous methods for the respective on-site QA/QC organization to report quality-related problems to appropriate respective plant management. These methods range from informal meetings to formal monthly reviews with the respective plant management as well as a series of written communications, including monthly reports of nonconformance activities and trends, written requests and responses for information, review comment sheets, and nonconformance reports.

Depending on the method used to notify the respective plant management of significant quality-related problems, the distribution of these reports varies. Typically, the manager for the respective plant activity is notified along with his counterpart in the QA organization. The manager's supervisor is also frequently notified. In order to formally resolve an identified nonconforming condition, it is necessary for appropriate corrective action to be identified,

implemented, verified and documented. Depending on the nonconformance, the time to implement the appropriate corrective action can vary from immediate on-the-spot correction to several months if a new programmatic system or series of procedures need to be generated.

CP&L maintains a permanent record of nonconformance reports, their resolution, and monthly trending reports at the respective Plants, which respective records will be available for Joint Intervenor's inspection at CP&L's Brunswick Plant and at the Robinson Plant upon request.

ANSWER I-90:

Maintenance and modification work stoppage at both Brunswick and Robinson Plants have been imposed and resolved through the issuance of nonconformance reports without issuance of a formal stop work order. Any nonconformance report written for unacceptable work or work practices has the potential to stop progress on a job.

CP&L maintains a permanent record of nonconformance reports, their resolution, and documentation in connection therewith at the respective Plants, which respective reports are available for Joint Intervenor's inspection at CP&L's Brunswick Plant and at the Robinson Plant upon request.

ANSWER I-91:

The resolution of any nonconformance report becomes a part of the report which CP&L maintains as a permanent record. See the response to Interrogatory No. I-90 for availability of records for inspection upon request.

ANSWER I-92:

Mechanism exists within CP&L's Corporate Quality Assurance Department and at the Brunswick and Robinson Plants to escalate to appropriate levels of management any condition which cannot be resolved at a lower level.



Any notifications to CP&L's Senior Management, the dates and individuals involved are contained in CP&L's permanent record of nonconformance reports filed at the respective Plants. See the response to Interrogatory No. I-90 for availability of records for inspection upon request.

ANSWER I-93:

The Manager — QA/QC Harris Plant and staff have not had to impose their authority to stop work via the stop work authorization referred to on page 2-26 of said Report. The QA/QC Harris Plant section has resolved all identified conditions adverse to quality by utilizing less significant measures. Such measures include simply not signing the inspection document until conditions are in conformance with requirements, application of hold tags, or initiation of a nonconformance report. The Harris nonconformance control procedure provides acceptable methods for identifying and controlling nonconforming conditions. The procedure assures that all identified nonconformances are properly resolved and that any subsequent work will not prohibit any required inspections.

ANSWER I-94:

Not applicable. See response to Interrogatory No. I-93.

ANSWER I-95:

Not applicable. See response to Interrogatory No. I-93.

ANSWER I-96:

The referenced passage on page 3-7 of the Management Capability Report allows members of the Corporate Nuclear Safety Section to bypass department management and take concerns directly to senior management if they believe that timely resolution is not being obtained within their own management chain. This provision has never been exercised within the Company.

ANSWER I-97:

A log of QA audits sent to a CP&L Executive Vice President is maintained by CP&L's Corporate Quality Assurance Department and will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWER I-98:

"Concerns" and "findings" are terms used in quality assurance audit reports furnished CP&L's Senior Management. The "concerns" and "findings" are set forth in said reports and represent nonconformances which require documented corrective action for resolution. These reports will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWER I-99:

Monthly reports containing the status of quality assurance audits will be made available for Joint Intervenor's inspection at CP&L's General Office upon request.

ANSWER I-100:

(a) In order to achieve sound internal control, authorizing expenditures and making disbursements are separate functions performed by different departments in the corporate structure. The disbursement responsibility is further segregated between a pre-audit and processing function in the Accounting Department and a post-audit and disbursing function in Treasury. Basically, all departments have the responsibility for authorizing their respective expenditures; however, corporate procedures restrict the departments to pre-established approval limits for designated departmental personnel. The separation of duties and structured approval guidelines promote the integrity of the system and the proper utilization of funds.

The approval guidelines are broken into these broad expenditure categories: those expenditures related to purchase order items that require specific supporting documentation and authorization to release payment; expenditures not related to purchase orders that have designated procedures for certain situations; and expenditures related to contractor's invoices. Both expenditures related to purchase orders, including capital items and those resulting from contractual arrangements, are the culmination of elaborate authorization and approval procedures at the pre-obligation stage as well as specific approvals at the payment stage.

(b) The Accounting Department prepares numerous expenditure reports for the other departments in the Company. These reports fall generally into three broad categories: generalized reporting, including operating information, capital reporting, including construction information, and specialized reporting. These categories represent standard reporting resulting from cyclical processing as well as special ad hoc reporting.

Those reports in the general category are sent to all departments and cover such information as operating statements, cost control data, budget versus actual comparisons and detailed transaction reports by responsible unit. For those areas where it is important to operations, such additional information as project reports or vehicle usage and maintenance reports are also provided.

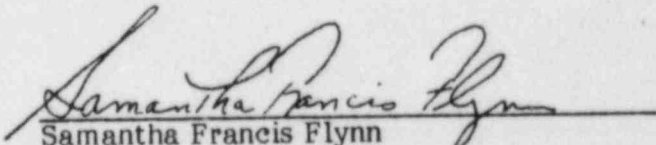
Those reports in the capital category are sent to all departments having activity involving capital items. This category covers such reports as necessary to provide 1) compliance with regulations in identifying construction costs by units of property, and 2) sufficient data on current cost of construction projects in progress for internal management. These reports include such information as summary reports by construction point and major project reflecting

budget versus actual comparisons, administrative and general expense allocation per project, furniture and fixture reports as well as detailed audit trial reports.

Those reports in the specialized reporting category are sent only to those respective departments that need the information. These reports reflect detailed listings or summarizations of specific expenditures or transactions which are relevant to the departments' specific needs. This category would include regularly produced reports such as invoices processed relative to a specific location as well as any ad hoc reporting. The Accounting department provides required financial data to all departments as needed.

(c) The corporate procedures for expenditures are set up such that the justification process for said expenditures are internal to the respective department and group. Each group executive sets the justification criteria for the departments within his group. This justification process occurs prior to the Company's incurring the obligation, i.e., before the purchase order is issued, the item is purchased, the contract is signed or the individual is hired. Final departmental approval for the expenditure occurs only after the proper justifications have been made.

This the 1<sup>st</sup> day of May, 1984.

  
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Commercial operating dates:

Robinson 2 - March 7, 1971  
Brunswick 1 - March 18, 1977  
Brunswick 2 - November 3, 1975

Following is a list of off-line outages at each of the Brunswick and Robinson nuclear units for the years 1978 through 1983. Included on this list is a designation of the outage type. The key to this list is as follows:

F = Forced  
S = Scheduled/Maintenance  
SP = Scheduled/Planned

A Forced Outage is defined as the occurrence of a component failure, or other condition, which requires that the unit be removed from service immediately or up to and including the very next weekend. A Maintenance Outage is the removal of a unit from service to perform work on specific components which could have been postponed past the very next weekend. This is work done to prevent a potential forced outage and which could not be postponed from season to season. The Planned Outage is the removal of a unit from service for inspection and/or general overhaul of one or more major equipment groups. This is work which is usually scheduled well in advance.



## BRUNSWICK UNIT 1

OFF-LINE OUTAGES  
1977\*

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
1. 03/18:1045	03/19:0643	F	19:58	Rx scram - during a pressure regulator failure test at 95% Rx power on APRM Hi flux level.
2. 04/01:2203	04/05:1521	M	89:18	Rx scram - the Rx scrambled during startup test #27/8.2-load reject test at full power.
3. 04/06:1457	04/08:0622	F	39:25	Rx scram - control operator reset recirc pump run back too quickly causing the Rx to scram on Rx Hi flux level.
4. 04/27:1141	07/07:0541	F	2,242:00	Rx scram - generator ground caused turbine trip and Rx scram.
5. 07/07:0644	07/07:0707	F	:23	Relay maintenance personnel tripped generator pri. lockout relay which removed generator from the grid.
6. 07/08:0005	07/08:0022	M	:17	Generator was removed from grid to perform overspeed trip test on turbine.
7. 07/08:0045	07/08:2237	F	21:52	Generator was removed from grid in order to degas and rebalance the rotor.
8. 07/17:1059	07/18:1627	F	29:28	Generator was removed from the grid due to high drywell leakage through the floor drain.
9. 07/22:2045	07/25:0402	F	55:17	Manual Rx shutdown - unit was manually scrambled to investigate drywell floor drain leakage.

Commercial Operation - March 18.

## BRUNSWICK UNIT 1

OFF-LINE OUTAGES  
1977\*

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
10. 07/28:1112	08/10:1140	F	312:28	Scram - operator error while performing PT 2.1.22 (pri. containment isolation system steam line).
11. 08/12:2242	08/13:1715	F	18:33	Main turbine trip and generator was separated from grid to clean a ground on #6 lift pump piping.
12. 08/14:1520	08/15:0243	F	11:23	Reduced power in order to clear a ground on #6 lift pump piping.
13. 08/28:2125	08/29:1128	F	14:03	Power was reduced due to a steam leak in turbine building.
14. 09/16:0953	09/17:0419	F	18:26	Rx scram - operator error caused condensate booster pump low suction and Rx scrambled low water level.
15. 09/30:2229	10/06:0650	M	128:31	Rx scram - startup test #25 MSIV full closure at full power.
16. 10/08:0631	10/08:2049	F	14:18	Generator was removed from grid to clean A-S & A-N waterboxes.
17. 10/14:1736	10/16:2238	F	53:02	Shut down due to high drywell leakage through floor drains.
18. 10/29:0109	10/30:1319	M	37:10	Rx shutdown to repair steam leaks on valve and repair main generator auto. voltage regulator.
19. 11/13:0037	11/26:2141	F	333:04	Rx scram while performing PT 1.3.2 recirc pump seals failed, replaced both recirc pumps.
20. 12/02:2341	12/04:2045	F	45:04	Unit shutdown to repair reactor feedwater pump 1A.

## BRUNSWICK UNIT 1

OFF-LINE OUTAGES  
1977\*

<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs./Min.</u> <u>Duration</u>	<u>Reason</u>
21. 12/16:0645	12/17:1129	F	28:44	Rx scram during ECCS test, power lost to Unit #1 EHC system, loss of E2 bus; blown fuse.
22. 12/21:1102	12/23:0723	F	44:21	Rx scram - operator was reducing power with recirculation pumps low water level caused scram.
23. 12/31:2316	12/31:2400	M	:44	The drywell was de-inerted to make an entry to add oil to 1A recirc pump.

## BRUNSWICK UNIT 2

OFF-LINE OUTAGES  
1977

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min Duration</u>	<u>Reason</u>
1. 01/02:0500	01/02:1934	F	18:44	Rx Scram while performing PT 40.25 (Turbine control valve test).
2. 01/07:1255	01/08:1148	F	22:53	Rx Scram - Technician error while performing PT 1.1.4 caused a Group I isolation and scram.
3. 02/02:2354	02/06:0132	F	73:38	Manual shutdown to repair a burned drywell drain pump motor.
4. 02/14:0825	02/17:1858	F	82:31	Rx Scram - off line at 544 MWe when high exhaust hood temp. was received.
5. 02/23:1448	02/24:0807	F	17:19	Rx Scram - B Feedwater pump tripped - A F.W. pump was operating at minimum speed.
6. 04/05:2259	04/07:0138	F	26:39	Rx Scram - Loss of instrument air caused loss of condensate booster pump supply pressure.
7. 04/15:2150	05/06:2210	M	503:20	Rx Scram - Shutdown for routine maintenance and modification of 2A recirc. pump.
8. 05/07:1132	05/08:1349	F	26:17	Rx Scram - FW pump and booster pump trip, causing low water level and Rx Scram.
9. 05/21:2209	05/22:1653	F	18:44	Rx Scram - Operator error while performing P.T. 40.2.5 control valve test.
10. 05/31:0936	06/02:0304	F	41:28	Rx Scram - Mechanic error while cleaning EHC duplex oil filters.
11. 06/02:2127	06/03:0547	F	8:20	Rx Scram - Spurious upscale on 2C Radiation monitor caused by man climbing on cable tray.

## BRUNSWICK UNIT 2

OFF-LINE OUTAGES  
1977

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min Duration</u>	<u>Reason</u>
12. 06/14:2324	06/15:2328	F	24:04	Rx Scram caused by heater drain deaerator level oscillation.
13. 07/11:0202	07/12:0330	F	25:28	Scram - Loss of lube water to CW pumps due to shells in lube water lines.
14. 07/15:1038	07/18:1455	F	76:17	Rx Scram - A spurious signal (Hi turbine exhaust temp.) caused a turbine trip.
15. 07/19:2047	07/20:0605	M	9:18	Generator was removed to investigate reason for trip on 7/15.
16. 07/31:1347	08/01:1026	F	19:14	Scram - Technician error while performing P.T. 2.1.26 (Main steam line low pressure).
17. 08/15:1114	08/17:0235	F	39:21	Rx Scram - I&C error while performing P.T. 3.1.5.
18. 08/17:0435	08/21:1525	F	106:50	Generator was removed due to High Chlorides in the main condenser.
19. 09/04:0610	09/05:0720	F	25:10	Rx Scram - The generator auto. voltage regulator out of service due to loss of turbine building cooling.
20. 09/08:2047	09/09:1018	F	13:31	Rx Scram - Rx Feedwater pump control oscillation caused Rx to Scram.
21. 09/10:0105	12/26:1717	P	2585:12	Manual Scram - shutdown for a 54-day refueling and maintenance outage.
22. 12/26:2359	12/31:2400	F	120:01	To correct steam leak on the MS Bypass valves and problems with HPCI system speed control.

ROBINSON UNIT 2  
OFF-LINE OUTAGES  
1977

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
1. 01/11:1701	01/11:2015	F	3:14	Manual reactor trip following loss of MCC-6.
2. 01/24:1826	01/24:2220	F	3:54	Reactor trip due to Hi pressurizer press.
3. 01/25:1148	01/25:1508	F	3:20	Turbine trip caused by loss of "B" inverter.
4. 02/05	02/17	F	278:62	"C" RCP high leakage.
5. 02/18:1814	02/20:0352	F	33:38	Inspect #2 turbine generator for insulation failure.
6. 03/23:1333	03/24:1930	F	29:57	E.H. Governor valve failed shut causing Rx trip.
7. 03/25:2310	03/27:0113	M	26:03	Repair turbine trip block.
8. 04/24:1924	04/30:2342	F	148:18	Loss #1 seal leakoff indication on "C" RCP.
9. 06/17:2222	06/18:1938	M	21:16	NRC startups.
10. 08/17:0904	08/17:2020	F	11:16	#3 steam generator high steam line $\Delta P$ safeguard trip, while testing aux feedwater pump valve V214C.
11. 08/23:2339	08/24:0702	F	7:23	4B F.W. heater - repair tube leaks.
12. 09/29:2300	09/30:0854	M	9:54	To repair tube leaks in 4B heater.
13. 10/05:1621	10/05:1855	F	2:34	Turbine trip - High level "B" steam generator, loss of instrument Buss 2.
14. 10/26:0643	11/24:2140	F	710:57	Failed packing in valve RHR-750 and failure in Bit.
15. 12/19:1028	12/19:1247	F	2:19	Overtemp. Delta temp. trip while performing periodic test.



ROBINSON UNIT 2  
OFF-LINE OUTAGES  
1977

<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs./Min.</u> <u>Duration</u>	<u>Reason</u>
16. 12/19:1251	12/19:1305	F	:14	Trip - due to #3 steam generator Hi level while recovering from a previous trip.

BRUNSWICK UNIT 1  
OFF-LINE OUTAGES  
January through December 1978

	<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs/Min Duration</u>	<u>Reason</u>
1.	01/01:0000	01/01:0428	S	4:28	High oxygen level in drywell.
2.	01/13:1111	01/15:1948	F	56:37	Condenser hotwell drain line leak.
3.	01/19:2246	01/22:1530	S	64:44	Steam leaks on several valves.
4.	02/04:0102	02/05:0610	S	29:08	Clean condenser.
5.	02/13:0042	02/27:0004	F	335:22	Several switchyard breakers tripped causing generator trip and reactor scram.
6.	02/27:1635	02/28:2045	S	28:10	Safety relief valve repair.
7.	03/13:1644	03/15:0735	F	38:51	Spurious signals in main steamline leak detectors caused reactor scram.
8.	04/04:0849	04/06:1315	F	52:26	Reactor scram caused by reactor pressure spike.
9.	04/07:2237	04/08:0557	S	7:20	Clean strainer and replace stator cooling filters.
10.	04/08:1301	04/09:0017	F	11:16	Loose fuse caused main steam line isolation valves to close, and a reactor scram.
11.	04/30:1527	05/01:0655	F	15:28	Reactor scrambled due to reactor feed pump trip.
12.	05/01:1502	05/03:0023	F	33:21	Safety relief valve repair.
13.	05/03:0618	05/03:0644	S	:26	Turbine overspeed trip test.
14.	05/19:2153	05/24:0640	F	104:47	Reactor recirculation pump seals replacement.
15.	05/27:2255	05/28:0630	S	7:35	Excessive leaks in drywell equipment drain tank.
16.	06/27:0221	06/28:1235	F	34:14	Master turbine trip caused by high vibration signal.
17.	06/29:0908	06/29:1935	F	10:27	Reactor scram caused by turbine stop valve closure.

(cont.)

BRUNSWICK UNIT 1  
OFF-LINE OUTAGES  
January through December 1978

	<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs/Min Duration</u>	<u>Reason</u>
18.	07/26:1052	07/27:1406	F	27:14	Reactor scram initiated by low water level scram instruments.
19.	07/28:0316	07/28:1509	F	11:53	Reactor scram due to low water level.
20.	08/08:2022	08/09:0917	F	12:55	Problems with Master Trip Solenoid Test resulted in turbine trip and reactor scram.
21.	09/24:2346	10/01:0236	S	146:50	Drywell snubber inspection.
22.	11/02:1321	11/03:0727	F	18:06	Loss of condenser vacuum.
23.	11/11:1130	11/12:1547	F	28:17	High reactor vessel conductivity exceeded Technical Specification limit for operation.
24.	11/17:2058	11/20:0128	S	52:30	Inspection of the reactor recirculation system inlet nozzle safe-ends to the reactor vessel.

BRUNSWICK UNIT 2  
OFF-LINE OUTAGES  
January through December 1978

	<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs/Min Duration</u>	<u>Reason</u>
1.	01/01:0000	01/01:2025	F	20:25	Steam leaks on MS bypass valves.
2.	01/02:1019	01/03:0822	F	22:03	Low reactor water level.
3.	01/06:0941	01/09:1900	F	81:19	Reactor scram due to false low reactor water indication.
4.	01/17:1316	01/18:0559	F	16:43	Turbine and generator trip due to control circuit ground.
5.	01/31:1145	02/01:1348	F	26:03	EHC pressure spike causing reactor scram.
6.	03/05:0821	03/06:0900	F	24:39	False low reactor water indication.
7.	03/13:1251	03/14:1411	F	25:20	Main turbine and feed pump turbine trip.
8.	03/23:1137	03/24:0924	F	21:47	Reactor feed pump controller failure.
9.	03/24:1739	03/25:0035	F	6:56	Main turbine trip due to generator ground signal.
10.	03/26:1710	03/26:2150	F	4:40	Main turbine trip due to generator ground signal.
11.	03/28:1219	03/28:1822	F	6:03	Main turbine trip due to generator ground signal.
12.	03/29:1410	04/04:1412	F	144:02	Main turbine trip due to generator ground signal.
13.	04/09:0807	04/09:2237	F	14:30	230 KV bus lock out causing turbine trip.
14.	05/17:2027	05/18:1903	F	22:36	230 KV bus lock out causing turbine trip.
15.	05/23:0853	05/23:2157	F	13:04	Pressure transient on reactor vessel level instruments.
16.	06/02:2356	06/11:2232	S	214:36	Investigate and repair generator hydrogen leak.

(cont.)

BRUNSWICK UNIT 2  
OFF-LINE OUTAGES  
January through December 1978

	<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs/Min</u> <u>Duration</u>	<u>Reason</u>
17.	06/11:2232	06/22:0537	F	247:05	Excessive coolant temperatures in the pump seal cooling system.
18.	07/03:0052	07/06:1353	F	85:01	Reactor scram due to high flux level spike.
19.	07/18:1240	07/19:1250	F	24:10	Reactor scram due to APRM upscale trip.
20.	08/18:2034	08/22:0623	S	81:49	High drywell floor drain leakage.
21.	09/06:2034	09/24:1134	S	423:00	High condensate conductivity.
22.	11/06:1337	11/14:1438	F	193:01	Generator lockout due to loss of excitation.
23.	11/30:1129	12/01:0701	F	19:32	Reactor trip due to low reactor vessel water level.

ROBINSON UNIT 2  
OFF-LINE OUTAGES  
January through December 1978

	<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs/Min</u> <u>Duration</u>	<u>Reason</u>
1.	01/13:1912	01/15:1052	F	39:40	Main steam isolation valve (MSIV) failed closed.
2.	01/27:2210	02/01:2210	F	120:00	High vibrations on reactor coolant pump.
3.	02/01:2210	04/23:1934	S P	1941:24	Planned refueling and maintenance.
4.	04/24:1146	04/24:1701	F	5:15	High turbine vibrations.
5.	04/25:1509	04/25:1813	F	3:04	MSIV solenoid coil failure.
6.	07/10:0621	07/15:0045	F	114:24	High pressurizer pressure.
7.	07/16:0605	07/17:0620	F	24:15	Failure of "A" station battery.
8.	07/31:1022	07/31:1551	F	5:29	Reactor coolant pump trip.
9.	08/01:1505	08/01:1947	F	4:42	Steam generator high level alarm.
10.	09/21:2009	09/29:1918	F	191:09	Steam generator tube leak.
11.	10/16:0746	10/16:1044	F	2:58	Steam line pressure transmitter failure.



## BRUNSWICK UNIT 1

OFF-LINE OUTAGES  
1979

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
1. 01/12:2322	4/16:2317	S P	2255:55	Scheduled maintenance and refueling outage.
2. 4/17:1049	4/17:1256	S	02:07	The unit was removed from service to perform a planned test on the turbine overspeed devices.
3. 4/17:1458	4/19:1839	F	51:41	Reactor high-pressure trip due to the turbine runback.
4. 4/19:2300	4/19:2315	S	00:15	The unit was removed from service to repeat the electrical backup overspeed portion of the turbine overspeed trip test.
5. 4/20:0112	4/20:0205	S	00:53	The unit was retired to repeat the electrical turbine overspeed test.
6. 4/20:1148	4/20:1232	S	00:44	The unit was retired to repeat the turbine electrical backup overspeed test.
7. 5/01:0658	5/04:0220	F	67:22	Reactor trip due to indicated APRM upscale thermal trip signal.
8. 5/26:0247	6/10:1508	S P	372:21	Inspection and modification of pipe supports.
9. 7/18:2330	7/19:1709	F	17:39	Average Power Range Monitor flow was biased upscale, which caused a reactor trip.
10. 7/28:1433	7/29:0358	F	13:25	Reactor tripped on a false low reactor water level signal.
11. 8/04:1558	8/05:0715	F	15:17	Reactor trip on high neutron flux indication.
12. 8/09:0719	8/09:2310	F	15:51	Reactor trip on high neutron flux indication.
13. 8/19:1425	8/20:0224	F	11:59	Reactor transient in level instruments caused a reactor trip.

BRUNSWICK UNIT 1 (Continued)

OFF-LINE OUTAGES  
1979

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
14. 9/08:0750	9/17:0642	S	214:52	Hydraulic snubber (shock absorber) inspection required by NRC Technical Specifications.
15. 10/08:0913	10/09:0326	F	18:13	Reactor trip on low water level indication.
16. 10/19:0051	10/24:2124	F	140:33	The reactor tripped on a main steam line high radiation signal.
17. 11/05:0733	11/16:0621	F	262:48	Reactor trip due to reactor water low level.
18. 11/20:1330	11/29:1628	F	218:58	Reactor trip due to temporary loss of power to the emergency busses.
19. 12/01:2158	12/05:0504	F	79:06	To repair recirculation pump valve leaks.
20. 12/12:0057	12/20:2356	S	214:59	Hydraulic snubber inspections, modifications required by NRC in response to the TMI incident, and recirculation pump seal work.
21. 12/21:0548	12/21:0755	F	02:07	To test and repair safety relief valve modifications made during the previous (December 12-20) outage.

## BRUNSWICK UNIT 2

OFF-LINE OUTAGES  
1979

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
1. 01/29:1135	01/30:0118	F	13:43	High steam line pressure spike.
2. 02/04:2052	02/05:0357	F	07:05	Recirc. pump runback and reactor high pressure spike.
3. 03/02:2322	05/19:0715	SP	1854:53	Scheduled maintenance and refueling outage.
4. 05/19:1447	05/19:1557	S	01:10	The unit was removed from service to perform a planned test on the turbine overspeed trip device.
5. 05/21:1130	05/22:1912	F	31:42	Reactor trip.
6. 05/23:0717	05/23:2108	F	13:51	Reactor trip on low water level indication.
7. 05/25:1909	06/12:0612	SP	419:03	Inspection and modification of pipe supports.
8. 06/12:1309	06/13:0622	F	17:13	Reactor trip due to main steam isolation valve closure indication.
9. 06/29:2249	07/05:0442	S	125:53	Hydraulic snubber inspection required by Technical Specifications.
10. 07/19:1316	07/21:0649	F	41:33	Replacement of main steam safety relief valve.
11. 07/31:0423	08/03:0732	F	75:09	Turbine and reactor trip on loss of condenser vacuum.
12. 08/31:2347	09/06:2149	S	142:02	Hydraulic snubber (shock absorber) inspection required by Technical Specifications.
13. 09/07:0449	09/08:0220	F	21:31	Steam leak in main steam line drain valve.
14. 09/12:1415	09/13:1512	F	24:57	Nuclear service water leak.
15. 09/14:0743	09/15:0050	F	17:07	Reactor trip due to load reject indication.

BRUNSWICK UNIT 2 (Continued)

OFF-LINE OUTAGES  
1979

<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs./Min.</u> <u>Duration</u>	<u>Reason</u>
16. 09/22:0311	09/22:1533	S	12:22	Scheduled maintenance on reactor core instrumentation.
17. 11/19:0852	11/21:1226	F	51:34	Reactor trip due to nuclear system false high pressure signal.
18. 12/25:2345	Through the end of the year.	S	144:15	Hydraulic snubber inspections and modifications required by the NRC in response to the TMI incident.

## ROBINSON UNIT 2

OFF-LINE OUTAGES  
1979

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
1. 01/06:0924	01/07:2317	F	37:53	Feedwater control malfunction.
2. 01/07:2320	01/08:0438	F	05:18	Feedwater control malfunction.
3. 02/06:1328	02/07:0032	F	11:04	A containment high pressure signal resulting in a turbine trip.
4. 02/21:1029	02/21:1323	F	02:54	"B" steam generator high level trip.
5. 04/11:2042	04/17:2400	F	147:18	"B" steam generator leakage exceeded Technical Specifications.
6. 04/18:0000	07/21:2221	S P	2277:21	Scheduled maintenance and refueling outage.
7. 07/22:1151	07/22:1922	F	07:31	To balance the turbine and to perform turbine overspeed trip test.
8. 07/23:1103	07/23:1825	F	07:22	Oil leaks in the turbine Electrohydraulic Control System (EHC).
9. 08/16:1121	08/16:1935	F	08:14	False high pressure signal which resulted in a reactor trip.
10. 08/16:2332	08/17:1020	F	10:48	Nuclear Instrumentation System (NIS) Overpower reactor trip.
11. 09/04:2255	09/05:2207	S	23:48	Threat of Hurricane David
12. 09/23:0318	09/23:1247	F	09:29	Reactor trip on a "High Pressurizer Pressure" indication.
13. 09/30:0845	10/01:0205	F	17:20	Cleanup and evaluation of an oil fire in "C" reactor coolant pump bay.
14. 11/02:2055	11/03:0842	S	11:47	Unit shutdown to balance turbine.

ROBINSON UNIT 2 (Continued)

OFF-LINE OUTAGES  
1979

15.	12/13:1555 12/13:1907	F	03:12	Turbine trip and reactor trip due to high water level in "A" steam generator.
16.	12/22:0324 12/22:0906	F	05:42	Turbine and reactor trip during periodic test.



## BRUNSWICK UNIT 1

OFF-LINE OUTAGES  
1980

<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs./Min.</u> <u>Duration</u>	<u>Reason</u>
1. 03/23:0043	03/24:2018	F	43:35	Reactor trip due to high reactor water level.
2. 03/26:1545	03/28:0723	F	39:47	Drywell leakage.
3. 03/31:1310	04/03:0250	F	61:40	Reactor trip due to low reactor water level.
4. 04/05:0108	04/06:0721	F	30:13	Turbine trip.
5. 04/08:0450	04/13:0927	F	124:37	Turbine trip.
6. 04/15:1231	04/17:1500	F	50:29	Turbine trip.
7. 04/26:2325	04/27:2009	F	19:44	Drywell leakage.
8. 05/26:1518	08/22:1400	S P	2110:42	Refueling scheduled maintenance and unscheduled regulatory tests, inspections, and analyses.
9. 08/25:1721	08/28:0433	F	59:12	Reactor coolant conductivity.
10. 09/12:1538	09/15:1430	S	70:52	Inspect a generator bearing.
11. 10/14:0111	10/15:2015	F	43:04	The reactor scrammed when steam flow in main steam lines exceeded preset flow limits.
12. 12/28:1453	Through the end of Decem- ber 1980	S	81:07	Snubber inspections and feedwater heater maintenance.

## BRUNSWICK UNIT 2

OFF-LINE OUTAGES  
1980

<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs./Min.</u> <u>Duration</u>	<u>Reason</u>
1. 12/25:2345	01/05:1021	S	250:36 106:21-Jan. 144:15-Dec.	Hydraulic snubber inspections and modifications required by NRC in response to TMI incident.
2. 01/07:2300	01/10:0254	F	51:54	Indication of safety relief valve leakage.
3. 02/13:0951	02/15:1820	F	56:29	Reactor trip during periodic test.
4. 03/01:0244	09/17:1205	S P	4808:21	Refueling required modifications, scheduled maintenance, and unscheduled regulatory tests, inspections and analyses.
5. 09/17:1513	09/17:1524	S	00:11	To perform a turbine overspeed trip test.
6. 09/19:1030	09/22:0704	F	68:34	Reactor scram for which no cause could be determined.
7. 09/23:1438	09/26:1935	F	76:57	Drywell floor drain leakage in excess of Technical Specifications limits.
8. 10/11:1014	10/13:1625	F	54:11	Reactor scrambled when high neutron flux in the reactor exceeded Average Power Range Monitor (APRM) setpoint.
9. 10/28:0749	10/29:0636	F	22:47	High reactor water level caused a trip of the main turbine resulting in a reactor scram.
10. 11/13:0056	11/14:1143	F	34:47	Loss of the Reactor Protection System power supply.
11. 11/15:1750	11/16:0603	F	12:13	The unit was taken out of service to repair a leak in the recirculation system for the heater drain pumps.

## BRUNSWICK UNIT 2 (Continued)

OFF-LINE OUTAGES  
1980

<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs./Min.</u> <u>Duration</u>	<u>Reason</u>
12. 11/18:0724	11/19:2051	F	37:27	The reactor scrammed due to a turbine trip.
13. 12/05:2258	12/13:1857	S	187:59	The unit was taken out of service to repair tube leaks in a feed-water heater.
14. 12/16:0956	12/19:0651	F	68:55	Reactor scram due to low condenser vacuum.
15. 12/26:1026	12/30:2140	F	107:14	Reactor tripped on low water level.

## ROBINSON UNIT 2

OFF-LINE OUTAGES  
1980

<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs./Min.</u> <u>Duration</u>	<u>Reason</u>
1. 03/14:2357	03/28:0929	S	321:32	Steam generator tube leaks.
2. 04/13:2246	05/02:1551	F	448:05	Reactor coolant pump seal failures.
3. 05/17:1839	05/18:0836	F	13:57	Adjustment of reactor trip setpoints
4. 05/22:0748	05/22:1030	F	02:42	Reactor trip.
5. 06/10:0007	06/10:0231	F	02:24	Reactor trip.
6. 06/10:1715	06/10:2204	F	04:49	Loss of condenser vacuum.
7. 07/07:1147	07/16:2244	F	224:57	Steam generator tube leak.
8. 08/08:2207	10/25:0049	S P	1850:42	Refueling and scheduled main- tenance.
9. 10/25:0932	10/25:1151	S	02:19	To perform a turbine overspeed trip test.
10. 10/25:1459	10/25:1828	F	03:29	Disconnected grounding strap on the generator grounding transformer.
11. 10/25:1839	10/26:0151	F	07:12	The reactor tripped due to low water level in "B" steam generator coincident with steam flow-feedwater flow mismatch.
12. 10/26:0155	10/26:0421	F	03:26	High/High level in "B" steam generator.
13. 11/02:1538	11/02:2337	F	07:59	Reactor trip caused by low water level in "A" steam generator coincident with steam flow- feedwater flow mismatch.
14. 11/07:1005	11/07:1649	F	06:44	Loss of condensate and feedwater pumps.

ROBINSON UNIT 2 (Continued)

OFF-LINE OUTAGES  
1980

<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs./Min.</u> <u>Duration</u>	<u>Reason</u>
15. 11/15:2251	11/16:1724	S	18:33	High turbine vibration.
16. 11/27:1421	12/12:1153	F	357:32	Valve packing leak.
17. 12/12:2002	12/14:1240	F	40:38	Valve packing leak.

## BRUNSWICK UNIT 1

OFF-LINE OUTAGES  
1981

<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs./Min.</u> <u>Duration</u>	<u>Reason</u>
1. 12/28:1453	1/6:2347	S Dec. incl.	143:47 (Jan.) 224:54	Snubber inspections and feedwater heater maintenance.
2. 1/20:1143	1/22:0424	F	40:41	Indication of low water level in the vessel tripped the reactor.
3. 1/30:0347	1/31:1726	F	37:39	Reactor scram due to loss of reactor feed pump "A."
4. 2/12:0915	2/13:0858	F	23:43	Reactor scram due to loss of condenser vacuum.
5. 2/24:1349	2/25:0305	F	13:16	High oxygen concentration in the drywell.
6. 3/29:2153	4/9:0913	F	251:20	High-pressure trip signal.
7. 4/17:2312	9/23:1939	S P	3811:27	Scheduled annual outage.
8. 9/24:0255	9/25:0659	F	28:04	Turbine trip.
9. 10/1:1522	10/3:0621	F	38:59	Turbine trip.
10. 10/29:1634	10/31:2137	F	53:03	Reactor tripped on low water level.
11. 11/14:0218	11/14:0630	S	4:12	Unit was removed from service to investigate abnormal resistance readings on the generator hydrogen seals.
12. 11/15:0041	11/19:0204	F	97:23	Failure of turbine stop valve switch
13. 12/2:0724	12/4:1750	F	58:26	Valve packing leak.



## BRUNSWICK UNIT 2

OFF-LINE OUTAGES  
1981

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
1. 01/07:0737	01/11:0921	F	97:44	Reactor scrambled on low water level in the vessel.
2. 02/14:0843	02/22:0629	S	189:46	Main steam isolation valve repair.
3. 02/24:1811	02/26:0150	F	31:39	High oxygen concentration in the drywell.
4. 02/26:0830	02/27:0638	F	22:08	Reactor scram due to large power spikes.
5. 02/28:1633	02/28:1846	F	2:13	To test main generator instrumentation and control.
6. 03/05:0552	04/10:1521	F	873:29	The unit was shut down when periodic testing of accessible hydraulic snubbers indicated a high failure rate.
7. 04/11:0322	04/11:1322	F	10:00	The unit was manually shut down to comply with Technical Specifications concerning operability of safety systems.
8. 04/12:1301	04/17:1819	S	125:18	The unit was manually shut down when levels of conductivity and chlorides exceeded limits prescribed by Technical Specifications.
9. 04/17:2126	04/18:0506	F	7:40	The unit was manually shut down when levels of conductivity exceeded limits prescribed by Technical Specifications.
10. 05/03:0525	05/04:0227	F	21:02	Valve packing leak.
11. 05/06:0541	06/08:0704	F	793:23	Restricted water flow through residual heat removal heat exchangers.

## BRUNSWICK UNIT 2 (Continued)

<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs./Min.</u> <u>Duration</u>	<u>Reason</u>
12. 06/10:1020	06/11:2352	S	37:32	Excessive temperature differential between recirculation loops A and B.
13. 06/22:2151	06/28:0745	F	129:54	Recirculation pump failure.
14. 07/02:0153	07/03:1041	F	32:48	Main steam isolation valve (MSIV) failure.
15. 07/11:0545	07/12:2158	F	40:13	Reactor scram on turbine trip.
16. 07/18:1143	07/27:2304	F	227:21	Unit removed from service to repair two MSIV's.
17. 08/04:1947	08/07:1527	F	67:40	Reactor scrammed due to low condenser vacuum and turbine trip.
( 18. 10/23:1541	10/30:0446	F	158:05	Scheduled snubber inspection.
19. 11/2:1431	11/3:1601	F	25:30	Reactor tripped on high water level.
20. 12/18:1704	12/21:0214	F	57:10	Repair valve controls.
21. 12/26:1711	12/26:2351	S	6:40	Unit was removed from service to replace a gasket on the moisture separator reheater drain tank.

## ROBINSON UNIT 2

OFF-LINE OUTAGES  
1981

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
1. 01/24:2345	01/25:1700	F	17:15	Feedwater heater tube leak.
2. 01/29:0641	02/01:1715	F	82:34	Manual shutdown due to loss of oil from the turbine Electro-Hydraulic Control System.
3. 02/01:1906	02/01:2229	F	03:23	Reactor trip due to a steam flow, feed flow mismatch coincidental with low steam generator level.
4. 02/02:1505	02/02:1822	F	03:17	Reactor trip due to a steam flow, feed flow mismatch coincidental with low steam generator level.
5. 02/02:2043	02/04:1430	F	41:47	Reactor trip due to a steam flow, feed flow mismatch coincidental with low steam generator level.
6. 03/22:1345	03/23:0111	F	11:26	Manual shutdown due to incorrect rod position of Rod N-9.
7. 04/21:1515	04/21:2041	F	05:26	Reactor trip due to a steam flow, feed flow mismatch coincidental with low steam generator level.
8. 04/21:2139	04/22:0614	F	08:35	The unit was taken off line to repair heater drain valves.
9. 05/16:0003	06/11:1704	S	641:01	Scheduled steam generator tube inspection.
10. 06/19:1711	06/20:0446	F	11:35	Manual scram when turbine load was shed.
11. 06/20:1049	06/20:1829	F	07:40	Instrument bus electrical spike.
12. 07/10:12:55	07/10:1626	F	03:31	Reactor coolant leak into containment
13. 07/30:1502	09/02:0830	F	809:28	Steam generator tube leaks.

ROBINSON UNIT 2 (Continued)

<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs./Min.</u> <u>Duration</u>	<u>Reason</u>
14. 09/25:1750	09/27:0618	F	36:28	Inoperable control rod bank.
15. 09/28:2122	09/28:2350	S	02:28	Manual shutdown to troubleshoot and repair the manual turbine control circuitry.
16. 10/16:0122	10/16:1034	F	09:12	Generator exciter cooler service water tube leaks.
17. 11/6:2050	11/19:1837	S	309:47	Scheduled maintenance.
18. 11/20:1655	12/3:0615	F	301:20	Steam generator tube leaks.
19. 12/3:0638	12/3:2310	F	16:32	Reactor tripped on high steam generator level.
( 20. 12/6:0645	12/6:1746	S	11:01	Unit was retired to inspect feedwater regulator valve.
21. 12/6:1751	12/6:2102	F	3:11	Reactor tripped due to a steam flow, feed flow mismatch coincidental with low steam generator level signal.
22. 12/7:1426	12/7:2141	F	7:15	Reactor tripped on low-level in steam generator.
23. 12/16:2243	12/17:1755	F	19:12	Oil leak in the Electro-Hydraulic Control (EHC) System.

## BRUNSWICK UNIT 1

OFF-LINE OUTAGES  
1982

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
<u>1982</u>				
1. 02/05:2115	02/14:0721	S	202:06	Scheduled snubber inspections.
2. 02/18:1154	02/20:2207	F	58:13	Stuck control valve.
3. 04/19:1239	04/20:0440	F	16:01	Reactor scrammed due to loss of 125/150 V DC power.
4. 05/05:0728	05/06:0907	F	25:39	Condenser vacuum switch failure.
5. 06/01:1015	06/05:2000	F	105:45	Turbine tripped on low condenser vacuum indication.
6. 06/07:2127	06/09:1030	F	37:03	Reactor scrammed when all Main Steam Isolation Valves (MSIV) closed.
7. 06/28:0200	06/29:0947	F	31:47	Undervoltage on auxiliary power distribution system.
8. 07/10:1415	07/11:1429	F	24:14	Turbine trip resulting from defective instrument in Electro-Hydraulic Control (EHC) system.
9. 07/16:2224	10/17:2225	F	2232:01	Local leak rate testing.
10. 10/21:2238	10/25:2057	F	94:19	Turbine tripped during routine test, causing reactor to scram.
11. 12/11:0134	Remained off through the end of December	SP	502:26 through December	Refueling and scheduled maintenance.

## BRUNSWICK UNIT 2

OFF-LINE OUTAGES  
1982

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
<u>1982</u>				
1. 1/13:1236	1/15:0305	F	38:29	Reactor scram due to recirculation pump overspeed.
2. 1/16:1638	1/17:1742	F	25:04	Reactor tripped on turbine load rejection.
3. 1/20:0852	1/28:2152	F	205:00	Reactor tripped when level switches were disturbed.
4. 02/03:1516	02/05:0320	F	36:04	Reactor scrambled on main steam line high radiation indication
5. 03/13:1901	03/14:1837	F	23:36	Reactor scrambled on reactor coolant low-level indication signal.
6. 04/24:0048	10/03:1257	SP	3899:09	Refueling and scheduled maintenance.
7. 10/03:2012	10/03:2102	S	00:50	Turbine overspeed trip test.
8. 10/10:2016	10/18:0356	F	175:40	Leak in heater drain system.
9. 10/24:1339	10/25:0510	S	15:31	The unit was removed from service to troubleshoot and repair the primary system pressure sensor, which had caused the Reactor Recirculation Pump "A" to trip.
10. 10/28:0538	12/05:1101	S	918:23	Unit was removed from service to repair Traversing Incore Probe "A."
11. 12/22:1206	12/24:0453	F	40:47	Power/load imbalance.



## ROBINSON UNIT 2

OFF-LINE OUTAGES  
1982

<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
<u>1982</u>				
1. 02/26:2306	08/15:1448	SP	4070:42	Refueling and scheduled maintenance.
2. 08/15:1505	08/21:0240	F	131:35	Low steam generator water level.
3. 08/21:0313	08/21:0913	F	06:00	High steam generator water level.
4. 08/21:0925	08/21:1726	F	08:01	High steam generator water level.
5. 08/22:1707	08/24:0123	S	32:16	Turbine overspeed trip test.
6. 08/25:2228	08/25:2242	S	00:14	Turbine overspeed trip test.
7. 09/05:1529	09/06:0104	F	09:35	Reactor tripped due to a steam flow, feed flow mismatch coincidental with low steam generator level signal.
8. 09/07:0413	09/07:2256	F	18:43	Unit was removed from service to isolate a stuck open letdown relief valve in the chemical and volume control system.
9. 09/09:1245	09/13:0925	F	92:40	Low steam generator water level.
10. 09/21:1349	09/21:2117	F	07:28	Reactor tripped due to a steam flow, feed flow mismatch coincidental with low steam generator level signal.
11. 10/22:2251	10/24:0459	S	30:08	Scheduled maintenance.
12. 11/29:1512	12/01:1733	F	50:21	High sodium levels in the secondary system.
13. 12/31:0227	Remained off through the end of December	F	21:33 through December	Low steam generator water level.

Brunswick Unit 1

Off-Line Outages  
January Through December 1983

	<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
1.	12/11:0134	08/26:1436	S P	6204:02 Total 5701:36 Jan- August 502:26 Dec.	Refueling and scheduled maintenance
2.	08/27:0155	08/28:1514	S	37:19	Turbine overspeed trip test
3.	08/28:1830	08/29:0547	S	11:17	Turbine overspeed trip test
4.	10/18:0126	11/18:0858	SP	752:32	Planned maintenance outage
5.	11/25:2110	11/28:0539	F	56:29	Unidentified leaks in the drywell
6.	12/22:0810	12/25:1827	F	82:17	Reactor scram

Brunswick Unit 2

Off-Line Outages  
January Through December 1983

	<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
1.	01/03:0233	01/04:0842	F	30:09	Main Steam Isolation Valve (MSIV) closure signal
2.	02/03:0233	02/15:2310	S	308:37	Scheduled maintenance
3.	04/08:1839	05/09:1649	SP	741:10	Electrical and mechanical tie-ins to the Augmented Off-Gas System (AOGS)
4.	05/16:2108	05/19:0757	F	58:49	Reactor tripped on false signal from Main Steam Line Radiation Monitor
5.	06/02:1833	06/06:0035	F	54:02	Power/load imbalance
6.	06/20:1316	06/26:0413	F	134:57	High reactor water level
7.	07/30:1836	08/11:1837	F	288:01	High drywell floor drain leakage
8.	08/31:2226	09/03:0516	F	54:40	High Average Power Range Monitor Signal
9.	09/03:1534	09/04:0905	F	17:31	High drywell floor drain leakage
10.	11/02:0251	Remained off-line throughout December	SP	* 1437:09	Planned maintenance

\* Outage ended 01/05/84: 0725

Total duration: 1540:34

Robinson Unit 2

Off-Line Outages  
January Through December 1983

	<u>Date/Time Off</u>	<u>Date/Time On</u>	<u>Type</u>	<u>Hrs./Min. Duration</u>	<u>Reason</u>
1.	12:31:0227	01/01:1321	F	34:54 13:21 Jan. 21:33 Dec.	Low steam generator water level
2.	01/07:2346	01/09:0055	F	25:09	Feedwater heater tube leaks
3.	02/18:0725	02/18:1653	F	09:28	Excessive vibration on "B" component cooling water pump
4.	03/23:1109	03/24:0555	F	18:46	Low steam generator water level
5.	04/01:0642	04/02:0645	F	24:03	Feedwater heater tube leaks
( 6.	04/02:1454	04/04:1701	F	50:07	Oil leak in the Electro-Hydraulic Control (EHC) System
7.	04/19:2209	04/21:1205	F	37:56	Loss of Electro- Hydraulic Control (EHC) System oil pressure
8.	04/24:1728	04/25:0311	F	09:43	Inoperable Service Water Booster Pumps (SWBP)
9.	04/29:0105	05/28:0124	SP	696:19	Scheduled maintenance and steam generator inspection
10.	06/22:1653	06/22:2333	F	06:40	Reactor coolant system leak
11.	07/28:0446	07/29:0312	F	22:26	Valve leakage in Auxiliary Feedwater Pump
12.	09/05:1050	09/21:0159	F	375:09	Steam generator tube leak
13.	11/03:0453	12/08:1357	F	849:04	Steam generator tube inspection

Robinson Unit 2 (continued)

Off-Line Outages  
January Through December 1983

	<u>Date/Time</u> <u>Off</u>	<u>Date/Time</u> <u>On</u>	<u>Type</u>	<u>Hrs./Min.</u> <u>Duration</u>	<u>Reason</u>
14.	12/08:1415	12/08:2155	F	7:40	Feedwater regulator valve inoperable

Following is a list of the planned outages which occurred at each of the Company's nuclear generating units over the period 1978 through 1983. Included on this list is the outage duration as scheduled at the start of the outage. For those outages with actual durations exceeding the scheduled durations, a brief explanation of the extension is provided.

Brunswick Unit 1

<u>Year</u>	<u>Actual Duration (HRS:MINS)</u>	<u>Scheduled Duration (HRS)</u>	<u>Reason</u>
1979	2255:55	1680	The outage was extended to include replacement of core spray piping.
1980	2110:42	1768	Extension of the outage was required due to unplanned and unscheduled inspection, analysis, and repair of the control rod drive system pipe hangers and pipe supports; NRC requirements to test control rod operation under "scram" conditions; NRC required inspection of core spray piping; and unanticipated delays with other maintenance activities.
1981	3811:27	1752	Extension was required to repair damaged turbine-generator bearings.



1982/83      6204:02      4704

Extensions of the outage were incurred during the major activities portion of the schedule, prior to reactor start-up, in reassembling the reactor vessel and conducting hydrostatic tests of the vessel and associated systems; and in completing operability tests and periodic tests associated with the major plant and system modifications which had been made to that point. Further delays were encountered after reactor start-up with the nuclear instrumentation system, rod sequence control system, 480 volt safety-related breaker system, and control rod drive leakage.

1983      752:32      502

The outage was extended due to the need to make repairs to pipes, delays associated with periodic tests of batteries, and additional seismic support modifications identified as being needed after the outage started.

Brunswick Unit 2

1979      1854:53      1512

The outage was extended due to unanticipated repairs on generator

hydrogen seals, increased control rod drive maintenance, nuclear instrumentation repairs, and core spray piping replacement.

1980	4808:21	1728	Extension of the outage was required due to unanticipated delays experienced with the torus modification activities and due to unplanned and unscheduled inspection, analysis and repair of the control rod drive system pipe hangers and pipe supports.
1982	3899:09	1680	The outage was extended to perform additional testing of primary containment isolation valves and to complete a comprehensive review of Technical Specification test requirements.
1983	741:10	288	The outage was extended to repair Reactor Isolation Penetration valves which failed a periodic test performed during the outage, investigate Main Steam Isolation Valve (MSIV) control problems, and to replace a failed transformer.

1983/84	1540:34	1008	The outage was extended due to failure of one of the eight battery banks to successfully pass a periodic test required for startup.
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Robinson Unit 2

1978	1941:24	1080	Inspection of the low pressure turbines revealed the need to replace the turbine rotors. The outage was extended to allow for procurement and installation of replacement rotors.
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1979	2277:21	1008	The outage was extended to replace pipe fittings in the steam generator feedwater system. The need for replacement of the fittings was determined from radiographic inspection which revealed cracks in the fittings after a similar problem had been identified in other nuclear plants.
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1980	1850:42	768	The outage was extended to complete steam generator inspections and tube repair, and to finish modifications to the fire protection system.
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1982

4070:42

2304

The outage was extended to repair reactor coolant pumps based on problems discovered during performance of the Ten-Year In-Service Inspection and primary system leaks which developed during heat-up.

1983

696:19

552

The outage was extended due to an increase in the number of tubes requiring plugging and various miscellaneous delays that were required in order to correct problems identified during heat-up and start-up.

Staffing LevelsBrunswick Plant

(CP&amp;L Operating Personnel Reporting to the Plant General Manager)

	<u>78</u>	<u>79</u>	<u>80</u>	<u>81</u>	<u>82</u>	<u>July 83</u>	<u>Year-End</u>
**Manager/Superintendents	3	5	7	8	8	5	
*Engineering	33	36	36	39	84	97	
*Operations	77	115	109	130	133	195	
*Maintenance	125	177	192	271	278	328	
*Administration	55	62	63	63	90	91	
*F&RC	49	49	75	75	131	135	
Regulatory Compliance						11	
*Start-up	N/A	N/A	N/A	N/A	N/A	N/A	
*NS & QA *	7	24	26	N/A	N/A	N/A	
*Planning & Scheduling				5	10	N/A	
TOTAL	<u>349</u>	<u>468</u>	<u>508</u>	<u>591</u>	<u>734</u>	<u>862</u>	
Actual	294	378	432	521	701	830	

\*Functional subunits include authorized Supervisors, Foremen, Specialists, Engineers, Technicians, Clerks if applicable to subunit.

\*\*Includes Managers, Superintendents, Directors.

Staffing LevelsRobinson Plant

(CP&amp;L Operating Personnel Reporting to the Plant General Manager)

	<u>78</u>	<u>79</u>	<u>80</u>	<u>81</u>	<u>82</u>	<u>July</u> <u>83</u>
**Manager/Superintendents	1	1	4	4	4	7
*Engineering	26	26	25	25	27	54
*Operations	66	66	85	85	97	87
*Maintenance	71	71	95	95	98	126
*Administration	20	20	28	28	39	72
*E&RC	34	34	36	36	50	56
*Start-up						
*NS & QA	5	5	19	19		
*Planning & Scheduling					2	6
TOTAL						
	<u>223</u>	<u>223</u>	<u>292</u>	<u>292</u>	<u>317</u>	<u>408</u>
Actual	186	196	237	265	298	354

\*Functional subunits include authorized Supervisors, Foremen, Specialists, Engineers, Technicians, Clerks if applicable to subunit.

\*\*Includes Managers, Superintendents, Directors.



June 1979

Name: SHEARON HARRIS

Business Address: Carolina Power & Light Company  
P. O. Box 1551  
Raleigh, North Carolina 27602

Attachment 28 A

Education: Completed High School in Beaufort, North Carolina  
A.B. from Wake Forest University (1936)  
LL.B. from Wake Forest University (1938)  
Honorary LL.D. from Wake Forest University (1978)

Principal Business: Chairman of the Board, Carolina Power & Light Company

Other Business Affiliations:

PRESENT: Director of Wachovia Bank & Trust Company and Wachovia Corporation  
Director of Durham Life Insurance Company  
Director of General Motors Corporation  
Director of United States Steel Corporation

PAST: From 1939 until 1957, when he joined CP&L, he practiced law in Albemarle, North Carolina.

HISTORY AT CP&L:	Associate General Counsel in 1957	President	1963
	Vice President	1960	Chief Executive Officer 1969
	Member of Board	1961	Chairman of the Board 1970
	General Counsel	1962	

Record of activity and leadership in business, professional, civic and military organizations:

PRESENT:

Chairman, Executive Committee, Chamber of Commerce of the United States  
Director, North Carolina Foundation of Church Related Colleges  
Director, Executive Committee, North Carolina Citizens Association  
Member, The Business Council  
- Director, Edison Electric Institute  
Trustee, Committee for Economic Development  
Vice Chairman, Board of Trustees, Meredith College  
Member, Listed Company Advisory Committee, New York Stock Exchange  
Director, Research Triangle Foundation of North Carolina  
- Member, Policy Committee, Business Roundtable  
Member, North Carolina Council of Management and Development

PAST:

Principal Clerk in the North Carolina House of Representatives - 1941 and 1943  
Representative from Stanly County to the North Carolina House of Representatives - 1955  
President, North Carolina Citizens Association  
President, Southeastern Electric Exchange  
Chairman, Chamber of Commerce of the United States  
Chairman and Director, Electric Power Research Institute  
Chairman, Edison Electric Institute  
Chairman, National Association of Electric Companies  
Director, National Association of Manufacturers  
Trustee, Wake Forest University  
Recipient of Religious Heritage of America Award  
Parliamentarian for the North Carolina Baptist State Convention  
Holder of the Bronze Star and Legion of Merit citations for service in the European Theatre during World War II

Family: Married to the former Helen Finch Morgan of Albemarle. They have three daughters: Miss Sarah Harris of Hollywood, California; Mrs. Jennie H. Bell of Durham; and Miss Susan Harris of Raleigh, North Carolina.

BIOGRAPHICAL INFORMATION

June, 1983

SHERWOOD H. SMITH, JR.--CHAIRMAN/PRESIDENT/CEO  
CAROLINA POWER & LIGHT COMPANY

Positions Held at CP&L

Chairman/President/CEO, May, 1980;

President/Chief Administrative Officer, December, 1976;

Executive Vice President - Administration, 1974;

Member of Board of Directors, 1971;

Senior Vice President/General Counsel, 1971;

Associate General Counsel, 1965.

Prior to joining CP&L in 1965, practiced law in Charlotte and Raleigh, N.C. (1960-1965).

Current Electric Utility Industry Activities

Director/Executive Committee member, Edison Electric Institute;

Director/Executive Committee member, Atomic Industrial Forum, Inc.;

Director/Executive Committee member, Secretary/Treasurer, Southeastern Electric Reliability Council;

Director, American Nuclear Energy Council;

Director, United States Committee on Energy Awareness;

Director, Southeastern Electric Exchange;

Member, Policy Committee on Governmental Affairs, Edison Electric Institute.

Other Activities

Present:

Volunteer State Chairman, United States Savings Bonds Program;

Vice Chairman, Microelectronics Center of North Carolina;

Vice Chairman, Board of Trustees, Rex Hospital, Raleigh, N.C.;

Vice Chairman, Central Selection Committee, Morehead Scholars, University of N.C.;

Director, Business Foundation of North Carolina;

Director/Executive Committee member, Second Vice Chairman, North Carolina Citizens for Business & Industry;

Director, Durham Life Insurance Company & Durham Corporation;

Director, United States National Committee, World Energy Conference;

Director, Wachovia Bank & Trust Company and Wachovia Corporation;

Director, Research Triangle Foundation of North Carolina;

Director/Member, Raleigh Rotary Club;

Trustee, Independent College Fund of North Carolina;

Trustee, Z. Smith Reynolds Foundation, Winston-Salem, N.C.;

Member, President's Council for International Youth Exchange;

Member, American Nuclear Society;

Member, Energy Committee, Chamber of Commerce of the United States;

Member, United Negro College Fund's National Corporations Committee;

Member, North Carolina Council of Management & Development;

Member, Executive Committee, The Educational Foundation, Inc., UNC-Chapel Hill, N.C.;

Member, Christ Episcopal Church, Raleigh, N.C.

Past:

Chairman, American Nuclear Energy Council;

Chairman, Raleigh Civic Center Authority;

Chairman, North Carolina Heart Association;

President/Director, Greater Raleigh Chamber of Commerce;

President, Business Foundation of North Carolina;

President, Rehabilitation and Cerebral Palsy Center of Wake County;

Director of Manpower, Governor's Efficiency Study Commission;

Director, United Way of Wake County;

Director, Raleigh Boys' Club;

Member, Policy Committee, The Business Roundtable;

Member, Governor's Energy Crisis Study Commission.

Education

A.B. Degree and J.D. Degree with honors from The University of North Carolina at Chapel Hill, where he was a member of Phi Beta Kappa and a Morehead Scholar.

Family

Married to the former Eve Hargrave of Lexington, N.C. They are parents of three daughters.

PLANT VISITS  
Sherwood H. Smith, Jr.

<u>PLANT</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
BRUNSWICK	July 24 August 25 October 12 December 17	January 27 February 25-26 April 23 June 18 July 15 August 13 September 15 October 28	January 26 March 18 April 26 July 6
HARRIS		May 28 June 29 July 13	January 28 February 15 June 21
ROBINSON	September 2		June 11

BIOGRAPHICAL INFORMATION

E. E. UTLEY  
Executive Vice President  
Power Supply and Engineering & Construction

EDUCATION & TRAINING

College: Louisburg College and N. C. State University

Courses: Massachusetts Institute of Technology - "Nuclear Plant  
Design & Operation Course"

Georgia Institute of Technology - "Public Utility  
Executive Course"

Edison Electric Institute - "Executive Management  
Program"

PROFESSIONAL SOCIETIES & INDUSTRY ORGANIZATIONS

American Society of Mechanical Engineers  
North Carolina Society of Engineers  
The Raleigh Engineers Club  
American Nuclear Society (National)  
American Nuclear Society - Eastern Carolinas Section  
National Society of Professional Engineers  
Professional Engineers of North Carolina  
Association of Edison Illuminating Companies - Member of Committee  
on Power Generation  
Southeastern Electric Exchange - Member of Engineering & Operation  
Division Executive Committee  
American Nuclear Society - Corporate Organization Member  
Atomic Industrial Forum - Corporate Organization Member  
Institute of Nuclear Power Operations - Corporate Representative  
and Chairman of INPO's Evaluation & Assistance Division Industry  
Review Group

EXPERIENCE

Joined CP&L in 1951 in the Operating & Engineering Department. In 1959 appointed Superintendent of the W. H. Weatherspoon Plant. In 1963 appointed Superintendent of the H. F. Lee Plant. In 1965 appointed Superintendent of the Roxboro Plant. In 1966 promoted to Production & Results Engineer in the General Office. Responsibilities in that position included the general supervision of the operation and maintenance of steam electric generating plants and the procurement of coal. In 1968, named Manager of Production, and to previous responsibilities was added the general supervision of the Company's

hydroelectric generating plants. These functions and the System Operations Section were combined to form a separate department of the Company on May 1, 1970, and then became Manager of Generation & System Operations Department. This department was reorganized in 1972 and became the Bulk Power Supply Department. In September 1972, named Vice President of the Company. On January 1, 1977, the Bulk Power Supply Department was restructured into three departments, forming the Power Supply Group. At that time, appointed Senior Vice President and head of the Power Supply Group. In May 1979 named Executive Vice President. On June 1, 1979, a reorganization of the Company's Operations Groups resulted in being placed in charge of the Power Supply & Customer Services Groups. In April 1980 named Executive Vice President - Power Supply and Engineering & Construction. At the present time, this is composed of the Nuclear Generation, Fossil Generation & Power Transmission, & Operations Support Groups and the Corporate Quality Assurance, Corporate Nuclear Safety & Research, and Brunswick Nuclear Project Departments.



Senior Vice President  
Nuclear Generation

Date of Birth: September 8, 1924

I. Education

A. B.S. Degree in Civil Engineering from N. C. State University - 1948.

II. Experience

A. 1948 - 1952

1. Ebasco Services Incorporated, New York, N. Y.

a. 1948-1949 - Instrumentman, then acting Party Chief on construction of Lumberton S.E.P. - Units 1 & 2, 88,000 KW Installation.

b. 1949-1950 - Party Chief on construction of Lumberton S.E.P. - Units 1 & 2, 88,000 KW Installation.

c. 1950-1952 - Construction Supervisor on construction H. F. Lee S.E.P. - Unit 2, 66,000 KW Installation.

B. 1952 - 1955

1. News & Observer, Raleigh, N. C.

a. Reporter

C. 1955 - 1970

1. Ebasco Services Incorporated, New York, N. Y.

a. 1955-1956 - Office Engineer on construction of Cape Fear S.E.P. - Unit 5, 125,000 KW Extension.

b. 1956-1958 - Field Engineer on construction of Cape Fear S.E.P. - Units 5 & 6, 281,000 KW Extension.

c. 1958-1960 - Construction Engineer on construction of H. B. Robinson S.E.P. - Unit 1, 182,000 KW Installation.

d. 1960-1962 - Resident Engineer on construction of H. F. Lee S.E.P. - Unit 3, 250,000 KW Extension.

e. 1962-1964 - Construction Superintendent on construction of Asheville S.E.P. - Unit 1, 190,000 KW Installation.

f. 1964-1965 - Construction Superintendent on construction of Roxboro S.E.P. - Unit 1, 375,000 KW Installation.



- g. 1965-1966 - Project Superintendent on construction of Roxboro S.E.P. - Units 1 & 2, 1,025,000 KW Installation.
- h. 1966-1968 - Project Superintendent on construction of H. B. Robinson S.E.P. - Unit 2, 700,000 KW (e) Nuclear Installation.
- i. 1968-1970 - Construction Manager supervising construction of Fossil and Nuclear steam electric stations and switchyards on East Coast.

D. June 1970 to Present

- 1. Carolina Power & Light Company, Raleigh, N. C.
  - a. Employed as Manager of Construction in the Power Plant Design & Construction Department.
  - b. September 1, 1973 - Promoted to Manager, Power Plant Construction Department.
  - c. December 5, 1974 - Promoted to Vice President, Power Plant Construction Department.
  - d. June 24, 1976 - Promoted to Senior Vice President, Engineering & Construction.
  - e. August 1983 - Senior Vice President, Nuclear Generation

III. Professional Societies

- A. Registered Professional Engineer in State of North Carolina
- B. Registered Civil Engineer in State of South Carolina
- C. North Carolina Society of Engineers
- D. Raleigh Engineers Club
- E. National Society of Professional Engineers

## RESUME

Attachment 28 F

- I. Name - James M. Davis, Jr.
- II. Position - Senior Vice President - Operations Support
- III. Date of Birth - May 9, 1936
- IV. Education and Training

B. S. Degree in Mechanical Engineering,  
North Carolina State University, Raleigh, NC - 1958

- V. Experience

- A. Companies (other than CP&L) and Military Experience

- 1. July 1958 - August 1961 - Reserve Officer in U. S. Air Force.
    - 2. September 1961 - September 1965 - Test Engineer in the Experimental Engineering Department of Pratt and Whitney Aircraft, East Hartford, Connecticut.

- B. Carolina Power & Light Company

- 1. September 1965 - February 1968 - Employed as a Heating and Cooling Engineer in the Special Services Section of the Marketing Department.
    - 2. February 1968 - November 1970 - Assistant to Director in the Rates and Regulation Department.
    - 3. November 1970 - December 1976 - Assistant Director in the Rates and Regulation Department.
    - 4. December 1976 - June 1979 - Manager of Rates and Service Practices Department.
    - 5. June 1979 - December 1980 - Vice President of Fuel and Materials Management Group.
    - 6. December 1980 - August 1983 - Senior Vice President of Fuel and Materials Management Group.
    - 7. August 1983 - Present - Senior Vice President of Operations Support Group.

- VI. Professional Societies, Status of Registration, and Industry Organizations

- A. North Carolina Society of Engineers - Director, District II  
Professional Engineers of North Carolina  
National Society of Professional Engineers  
American Nuclear Society  
North Carolina Chapter of the Health Physics Society  
The Raleigh Engineers Club
  - B. Registered Professional Engineer - North Carolina - 1967
  - C. EEI/Utility Nuclear Waste Management Group - Chairman, Steering Committee  
Hazardous Waste Subcommittee of the Solid and Hazardous Waste Management  
Planning Committee of Triangle J Council of Governments  
Technical Advisory Committee on Low-Level Radioactive Waste of the  
Governor's Task Force on Waste Management

James M. Davis, Jr.

<u>YEAR</u>	<u>SEMINAR OR COURSE/SOURCE</u>
1966	National Warm Air Heating and Air Conditioning Association Instructor Training Course
1968	PUR GUIDE/Public Utilities Reports, Inc.
1968	Utility Training Program/Ebasco Services Incorporated.
1973	GENCO/CP&L.
1973	Speed Reading/North Carolina State University, Raleigh, NC.
1978	Adversary Interviewing Workshop/Reddy Communications.
1978	Executive Effectiveness Course/American Management Association, Atlanta, GA.
1979	BWR Fuel Conference/General Electric, Wilmington, NC.
1979	North Carolina's Energy Future: Policy Research Alternatives/ American Association for the Advancement of Science, Raleigh, NC.
1980	Assertiveness Training for Managers Course/American Management Association, Atlanta, GA.
1980	BWR Operating Familiarization Course/General Electric, Tulsa, OK.
1980	Fuel Cycle Conference '80/Atomic Industrial Forum, New Orleans, LA.
1980	Radwaste Management Seminar/Catalytic, Inc., Philadelphia, PA.
1980 & 1981	The Outlook for Coal Conferences/The Energy Bureau, Inc., Arlington, VA.
1981	Negotiating and Administering Coal Supply Agreements/Coal Age- McGraw Hill, Atlanta, GA.
1981	Executive Conference - State, Federal, Nuclear Interface, American Nuclear Society, Monterey, CA.
1981	Future Uncertain: North Carolina and the Problems of Hazardous Wastes/Duke University Program in Science, Chapel Hill, NC.
1981	Light Water Reactors Course/North Carolina State University, Raleigh, NC.
1981	Managing Low-Level Radioactive Waste Workshop/American Hospital Association, Chicago, IL.
1981	Nuclear Power Assembly, Washington, DC.

James M. Davis, Jr., Continued

<u>YEAR</u>	<u>SEMINAR OR COURSE/SOURCE</u>
1983	"On Leadership" Executive Seminar, Levinson Institute, Cambridge, MA.
1983	Executive Management Program, EEI, Hershey, PA.
1984	General Employee Training (GET) Level I: Plant Indoctrination Level II: Radiation Protection

3/84

ROBINSON PLANTDATEPURPOSE

March 5	Senior Management Review
April 14	Senior Management Review
May 21	Senior Management Review
June 30	Senior Management Review
August 27	Exit Meeting - INPO Emergency Preparedness Review & Assistance Visit
September 2	Senior Management Review
November 3	Senior Management Review
December 16	Senior Management Review

BRUNSWICK PLANTDATEPURPOSE

January 21	Senior Management Review
February 18	Senior Management Review
April 8	Senior Management Review
May 27	Senior Management Review
July 8	Senior Management Review
July 21	Meetings re: NRC enforcement action
July 26	Meetings re: NRC enforcement action
July 30	Meetings re: NRC enforcement action
August 13	Meeting of Safety Review Panel
August 30	QA videotape at plant
September 1	Senior Management Review
September 15	Board of Director's tour and meeting
October 13	Senior Management Review
November 17	Senior Management Review
November 18	GE/CP&L Meeting

HARRIS PLANTDATEPURPOSE

April 6*	Senior Management Review
June 29*	Harris INPO Evaluation Exit Meeting
July 13*	Senior Management Review
August 25*	Senior Management Review
September 21	Project Review - Site
October 22*	Senior Management Review
November 2*	Executive Review
November 11*	Senior Management Review
December 7*	Senior Management Review

\*Meetings held at Harris Energy & Environmental Center

ROBINSON PLANT

<u>DATE</u>	<u>PURPOSE</u>
January 13	Senior Management Review
February 18	Senior Management Review
April 20	Senior Management Review
May 20	Senior Management Review
May 27	QA Exit Meeting
June 16	Senior Management Review
July 6	Senior Management Review
August 9	Senior Management Review
September 15	Senior Management Review
October 11	Senior Management Review
November 30	Senior Management Review

BRUNSWICK PLANT

<u>DATE</u>	<u>PURPOSE</u>
January 5	Meeting regarding NRC enforcement action
January 6	Meeting regarding NRC enforcement action
January 21	Meeting regarding NRC enforcement action
February 4	Senior Management Review
March 9	Meeting with Charnoff (Shaw/Pittman)
March 10	INPO Exit Meeting (Brunswick Evaluation)
March 18	NRC Meeting
April 14	Senior Management Review
April 26	NRC Meeting
April 29	QA Exit Meeting
May 5	Senior Management Review
June 9	Senior Management Review
August 3	Senior Management Review
September 14	Senior Management Review
October 12	Senior Management Review
October 13	NRC Meeting
November 17	Senior Management Review
November 29	GE/CP&L Meeting
December 8	Senior Management Review

HARRIS PLANT

<u>DATE</u>	<u>PURPOSE</u>
January 12 *	Senior Management Review
January 28 *	Meeting with NRC - re: Harris Self-Initiated Eval.
February 3 *	Senior Management Review
March 1 *	Executive Review
April 12 *	Senior Management Review
May 3 *	Senior Management Review
June 2 *	Senior Management Review
June 24 *	Presentation on Harris Operational Program
July 12 *	Executive Review
August 2 *	Senior Management Review
September 1 *	Senior Management Review
October 4 *	Senior Management Review
November 8 *	Executive Review
December 6 *	Senior Management Review
December 14 *	Review Presentation for Harris ACRS Mtg.

\*Meetings held at Harris Energy & Environmental Center



NRC VIOLATIONSShearon Harris Nuclear Power Plant

<u>Date of Response to Notice of Violation</u>	<u>Summary of Incident</u>	<u>Action Taken</u>
11/17/81	Tests were improperly performed on concrete cylinders due to excessive loading.	Concrete Compressive Testing certification for the technician involved was rescinded until the technician passed both oral and written exams.
3/25/82	Weld inspector failed to identify report deficiencies because he did not see them.	Employee responsible was removed from pipe weld inspection, pending reinstruction.
4/23/82	Weld inspector either overlooked or arbitrarily failed to reject defects in welds	Employee responsible was removed from pipe weld inspection and is no longer employed by CP&L.
<u>Date of Incident</u>		
4/83	performed and inspected own work	counseled
prior to 7/29/82	improper inspection of welds	employee resigned before action could be taken
4/82	suspected of improper initialing of seismic I inspection reports	employee resigned while investigation being conducted
4/21/83	unsatisfactory performance of weld inspections	certification invalidated, retraining, retesting and recertification required
12/82	unsatisfactory performance of weld inspections	certification rescinded; recertification required. Warning given.
prior to 2/3/82	evidence of use of cocaine	terminated
2/84	Failure to comply with work procedure	suspension (probation)

H.B. Robinson Unit 2

Date of  
Response to Notice  
of Violation

7/26/78

A chain holding up a radiation area sign had broken loose from the wall and a Radiation Control Technician was instructed to submit a trouble ticket for the repair of the chain. The technician failed to perform this task.

Employee involved was reprimanded and counseled.

8/22/79

Individuals entered the reactor containment, which was a locked, high radiation area, without entering their names on a valid radiation work permit.

Employees were counseled.

2/5/80

Fire protection program states that every connection from a yard main to a building be equipped with a post indicator valve, and large yard main systems must be provided with sectional controlling valves at appropriate points. However, the yard main connection to the Auxiliary Building interior fire hose system was not provided with a post indicator valve and a post indicator sectional control valve was not provided for the northeast portion of the water main loop. This was a result of an FCR (field change request) made by Construction that was disapproved by Engineering but the change was actually made.

All parties involved were made aware of the incident and cautioned to prevent further occurrence.

11/12/80

Field documents used to verify the as-built for safety-related system ISO-RC-4 did not have any records of inspection of clearances for the wall penetrations.

Employees involved were cautioned and counseled.

7/30/81

An Auxiliary Operator was climbing in the overhead piping in the Boric Acid Evaporator Room wearing only shoe covers and gloves instead of anti-contamination clothing which were required.

Employee involved was reprimanded.

1/29/82	An individual was observed in the Boric Acid Evaporator Room without a dose rate survey instrument.	Employee involved was reprimanded.
6/17/81	Radiation surveys of the hot leg compartment inside Steam Generators A, B, C performed 9/17/80 were not maintained or preserved.	Employees involved were cautioned as to the importance of retaining all survey documentation.
9/10/81	Changes were made in the Gas Calibration step of procedure RCP-1, without prior review by Plant Nuclear Safety Committee or approval by the General Manager.	Employees involved were cautioned.
12/22/81	An operator failed to follow valve lineup procedure OP-38A for positioning of valve RHR-764 from locked open to locked shut position	Employee involved was counseled regarding the seriousness of improper performance of valve lineups.
4/15/82	Equipment control policy was not implemented in that Local Clearance and Test Request 113 listed incorrect auxiliary feedwater system valves for the maintenance performed, and clearance was canceled without opening the isolation valve for a local suction pressure gauge.	Employees directly involved were admonished.
12/2/82	QA audits were not performed within the 24 month frequency	Employees (CQA) responsible were counseled by the Corporate QA, not by the HBR management.
3/4/83	Various Fuel Shuffle procedures were not implemented during the 12/26-12/28 fuel movement	Employee involved had disciplinary action taken against him involving loss of pay. The employee's Shift Foreman was counseled.
6/22/83	Disposal of 1 gallon of liquid waste containing licensed material by way of Chem-Nuclear Systems, Inc., SC, who was not authorized to receive liquid waste	Employees responsible were admonished and counseled.

Date of Incident

2/83	failure to follow plant procedures	periodic increase in pay deferred for 6 months
------	------------------------------------	--

5/83	improper performances of valve lineups	employee sent home; resigned before further disciplinary action could be taken
3/83	noncompliance with administrative procedures	counseled
2/83	failure to sign out on R.W.P.	counseled
2/83	conviction of possession of controlled substance off the job (on his own time)	terminated
2/83	failure to follow procedure. Sodium hydroxide 2 supply valve left out of position.	counseled
2/10/83	failure to follow plant procedures	periodic pay increase deferred for 6 months
1/11/83	failure to implement all aspects of special procedure for moving spent fuel in spent fuel pit	counseled; required to review special procedure and administrative requirements for procedures compliance; 2 days suspension without pay.
2/19/84	Violation of H.P. procedures	1 week without pay
2/19/84	Violation of H.P. procedures	1 week without pay

Brunswick Steam Electric Plant

Date of Response  
to Notice of  
Violation

9/20/78	Individual was observed not wearing the required protective clothing as specified.	Employee involved was counseled on importance of radiation control techniques.
3/12/79	After an individual had received an exposure in excess of 5 rem (whole body), Licensee failed to submit a written report within 30 days.	Employees involved were counseled on value of prompt submittals.
4/2/79	Reviewers failed to notice out of specification stroke time for valve FO46 during RCIC Pump and Valve Operational Test.	Employee involved was counseled.
7/24/79	Two Auxiliary Operators without lab coats entered a contamination area in the Reactor Building which required lab coats for entry.	Employees involved were counseled by the Shift Foreman.
10/25/79	QA Test results had discrepancies that had not been identified by Licensee's review process.	Employees involved were cautioned about seriousness of not recognizing and evaluating deficiencies.
12/20/79	A fire protection sprinkler and stand-pipe system for the No. 3 Diesel Generator was isolated and the continuous fire watch was not stationed.	Employees involved were counseled regarding the proper actions to take.
1/13/81	Valve lineup verification documentation showed that locked valve PT46.1, RCIC, and HPCI turbine exhaust manual stop check valves were verified open, when in fact both were closed.	Appropriate corrective or disciplinary actions for employees were taken - two Shift Foremen received no nuclear license supplement pay for one week; two Auxiliary Operators given one day off with no pay.

12/30/80	Sampling and analysis of airborne particulate radioactivity was inadequate: 40% of total particulate activity in Reactor Building roof vents were not identified.	Involved RC&T technicians were counseled.
2/3/81	Training requirements for BSEP QA Surveillance Personnel, which had not been revised since 9/75, referenced procedures that no longer existed and did not cover more than 25 standards and procedures that were then a part of QA Control.	Appropriate employees were counseled.
12/18/81	Various vent monitors were found to be inoperable due to lack of maintenance.	Technicians responsible were counseled.
7/1/81	Approval requirements for temporary changes made to procedures RC-ER-12 and RC-ER-18 were not met.	Employees involved were counseled.
8/26/81	As a result of operator error, the reactor mode switch was taken out of the refueling mode, placed in startup, and controlled withdrawal commenced with the A-loop RHR torus suction valve shut.	Disciplinary action was taken with the employees involved. Letter of reprimand placed in file for one year period.
10/30/81	Radiation Hazards Survey concerning repair of a valve was inadequate, causing a worker to exceed dose limit.	All three employees involved were counseled and disciplinary action was taken - one employee was given two weeks off without pay; two employees were assigned to Caswell Beach Pumping Station.
10/6/81	Two employees were observed in posted radiation areas without proper dress.	Employees involved were counseled.
10/12/81	An inadvertent release of approximately 300 gallons of liquid waste from the "B" floor drain sample tank without prior sampling for gross activity.	Employee involved was counseled.
	Temporary changes to PT-A3 Rev. 0 and OP-50.1 Rev. 13 were approved by Plant Nuclear Safety Committee in 16 and 17 days instead of the required 14 days from implementation date.	Operations employees were cautioned.
11/2/81	Inoperable instrumentation channel was not placed in the tripped mode within one hour of determination that this instrumentation could not be calibrated.	All Senior Reactor Operators were counseled as well as I&C periodic testing personnel.



11/30/81	Temporary change to Liquid Radioactive Waste Processing System Procedure was not reviewed although it remained in effect through August 1981.	Operations employees were cautioned.
3/11/82	A primary coolant sample taken at 2100 hours exceeded .2 UCi/gram dose equivalent I-131, and the subsequent samples required once per 4 hours were not taken.	Employees involved were counseled.
8/16/82	Reactor vessel water level low instrumentation (transmitter), required by Technical Specifications, was inoperable. However, trouble ticket was prepared, stating that the transmitter was not required by Technical Specifications.	Employees involved were counseled.
4/30/82	Shift Foremen failed to complete an Event Evaluation Check Sheet or make entry in the Shift Foremen's log when informed that the Standby Liquid Control heat tracing circuits were inoperable.	Employees involved were counseled.
7/2/82	1A-1 battery charger was momentarily not positioned as per clearance procedure, and service water vital header crosstie valve was not positioned as per operating procedure.	Two operators responsible were counseled.
8/5/82	Contrary to Technical Specification 6.8.1(a), Regulatory Guide 1.33 Appendix A was not implemented in that safety-related equipment maintenance instruction was not correctly performed.	Technician involved was counseled.
6/24/83	Reactor Water Cleanup System was not isolated, as required by Table 3.3.2-1 Item 3.a, within one hour.	Senior Reactor Operator was removed from licensed duties for two weeks and during that time was counseled.

8/11/83	Unit 2 augmented off-gas system was out of service and the air ejector off-gas monitors were inoperable, yet a reactor shutdown was not initiated.	On-shift personnel (excluding radioactive waste and fire protection) were immediately counseled. One Control Operator was removed from licensed duties with loss of license supplement pay for 14 days. Approximately 10 Shift Operating Supervisors, Shift Foremen, and Control Operators involved were given verbal reprimands evidenced by memo to their files.
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8/4/83	A representative air sample was not collected in an individual's breathing zone while he was splitting radioactive waste bags containing material with unknown contamination levels and radiation levels of 30 mrem/hr.	The Health Physics Technician involved was been counseled.
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Date of Incident  
or Action

2/12/83	use of unapproved procedure in loading cask	5 days suspension without pay and written reprimand
12/81	failure to adhere to established health physics procedures	3 days suspension without pay
9/81	failure to adhere to established health physics procedures	3 days suspension without pay
3/83	two radiation safety violations within 60 days	letter placed in file with performance evaluation review to be made in 6 months
4/83	allowed an employee to sign verification sheet for a periodic test performed by another	letter placed in file
4/83	Improper clearance - failed to	one day suspension

	exercise supervisory overview	without pay, letter of reprimand included in file
3/17/83	improper review of periodic test	letter of caution
3/17/83	failure to sign off a step of a periodic test	written reprimand
7/81	allowed worker to exceed calculated stay time resulting in over-exposure	2 weeks suspension without pay
10/15/81	Radiation safety violation. False information about age.	counseling
12/20/82	failed to have QC verify cleanliness of hold point	letter of reprimand
2/5/83	improper attention to procedures related to waste casks	letter placed in personnel file for 1 year
8/81	Level 2 radiation safety violation	1 day suspension without pay and 1 day training with health physics.
12/82	failure to do required testing in time specified on diesel generator	letter of reprimand
* 1/83	failure to enter into action statement as required - Technical Specifications violation	suspension of license pay for 2 weeks
2/83	failure to perform safety related activity in accordance with procedure	5 day suspension without pay
5/83	failure to maintain awareness of power plant status	removed from control floor

January 10, 1984	Failed to exercise management control and demonstrate job responsiveness; three incidences.	Letter of reprimand.
January 10, 1984	Falsified time associated with procedure completion.	Two (2) days suspension without pay.
January 25, 1984	Failure to accurately complete calculation associated with PT.	Memo to personnel file.
January 26, 1984	Procedural noncompliance; improper work authorizations.	Memo to personnel file.
January 27, 1984	Deviation from procedure.	One (1) day suspension without pay.
January 31, 1984	Procedure violation.	One (1) day suspension without pay.
February 2, 1984	Failure to accurately research information and misrepresented conditions through negligence.	Memo to personnel file.
* March 5, 1984	Nonconservative interpretation of Tech Specs resulting in failure to initiate a LCO.	Memo to personnel file.
March 8, 1984	Lost 0.27 uCi source thru negligence and failed to follow sign out procedure.	Memo to personnel file.
March 22, 1984	Poor judgement and failure to notify supervision of occurrence resulting in airlock seal damage.	Memo to personnel file.
March 23, 1984	Failure to maintain attention to detail resulting in improper LCO handling/clearance.	Memo to personnel file.
April 11, 1984	Valving error resulting in reactor scram; demonstrated poor judgement in surveillance and communication.	One (1) day suspension

March 8, 1984 | Failure to follow control  
procedure on Q-list weld rods  
resulting in a nuclear plant  
procedures report.

Two days off without pay and a  
letter of reprimand.

March 19, 1984 | Violated two health physics  
rules related to moving tools  
to an uncontaminated tool  
room.

First violation - written reprimand.  
Second violation - two days off  
without pay.

February 15, 1984 | Worked on equipment prior  
to preparation

2 days without pay; written  
reprimand

## RETAINING WALL DESIGN DOCUMENT LIST

## Ebasco Drawings:

CAR-2167-G-2194

CAR-2167-G-2195

CAR-2167-G-2196

## Associated DCN's and FCR's

DCN-550-1118 Rev. 2

DCN-550-1140

DCN-550-1120 Rev. 2

DCN-550-1120

FCR-C-4380

FCR-C-4413

FCR-C-4416

FCR-C-4438 Rev. 2

FCR-C-4472

FCR-C-4475

FCR-C-2185

FCR-C-4368

FCR-C-4494 Rev. 1

FCR-C-4567

FCR-C-4583

FCR-C-4599

FCR-C-4536

FCR-C-4654

FCR-C-4350

FCR-C-4383



	HNP	RNP	NELD	NPL	NSSS	BNP	CNS	COA
	<u>BS MS PhD</u>	<u>BS MS PhD</u>	<u>BS MS PhD</u>	<u>BS MS PhD</u>	<u>BS MS PhD</u>	<u>BS MS PhD</u>	<u>BS MS PhD</u>	<u>BS MS PhD</u>
Nuclear Engineering	20 8	11 2	14 4	1	1 1	21 6	10 7 2	1 2
Physics	4	3 1 1	1 1		1	6 1	3	
Thermodynamics								
Eng. Systems Science								
Systems Engineering		1						

	OTTS	FUEL	MAT MGMT	FOSS OPS*
	<u>BS MS PhD</u>	<u>BS MS PhD</u>	<u>BS MS PhD</u>	<u>BS MS PhD</u>
Nuclear Engineering	5 3	14 15		1
Physics	4	10 2		
Thermodynamics				1
Eng. Systems Science				
Systems Engineering			1	

\* Ops & Maintenance Section Only

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

CAROLINA POWER & LIGHT COMPANY  
AND NORTH CAROLINA EASTERN  
MUNICIPAL POWER AGENCY

(Shearon Harris Nuclear Power Plant,  
Units 1 & 2)

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Docket Nos. 50-400 OL  
50-401 OL

AFFIDAVIT OF E.E. UTLEY

County of Wake

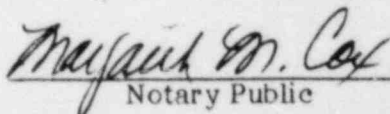
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State of North Carolina

E. E. Utley, being duly sworn according to law, deposes and says that he is Executive Vice President - Power Supply, Engineering and Construction of Carolina Power & Light Company; that the answers to Interrogatories on Joint Contention I (Management Capability) contained in "Applicants' Answers to Joint Intervenors Interrogatories and Request for Production of Documents to Applicants on Joint Contention I (First Set)" are true and correct to the best of his information, knowledge and belief; and that the sources of his information are officers, employees, agents and contractors of Carolina Power & Light Company.

  
\_\_\_\_\_  
E. E. Utley

Sworn to and subscribed before  
me this 3rd day of April, 1984.

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

My commission expires: July 4, 1985

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

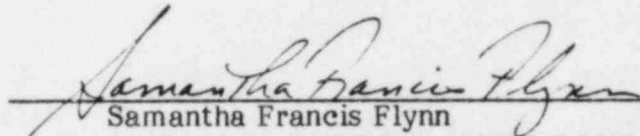
In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	
AND NORTH CAROLINA EASTERN	)	Docket Nos. 50-400 OL
MUNICIPAL POWER AGENCY	)	50-401 OL
	)	
(Shearon Harris Nuclear Power Plant,	)	
Units 1 & 2)	)	

APPLICANTS' RESPONSE TO JOINT INTERVENORS' REQUEST  
FOR PRODUCTION OF DOCUMENTS (JOINT CONTENTION I)

Pursuant to 10 C.F.R. §2.741(d), Applicants hereby respond to Joint Intervenor's Request for Production of Documents as contained in "Joint Intervenor's Interrogatories and Request for Production of Documents to Applicants on Joint Contention I (First Set)" by stating that the documents identified in Applicants' Answers to Joint Intervenor's Interrogatories and Request for Production of Documents to Applicants on Joint Contention I (First Set) will be made available to the Joint Intervenor for inspection and copying in the following manner:

The requested documents will be made available at the corporate offices of Carolina Power & Light Company, 411 Fayetteville Street Mall, Raleigh, North Carolina, 27602. The documents will be made available during Carolina Power & Light Company business hours (or such other mutually agreeable time). Appointments to inspect the documents may be arranged by telephoning Hill Carrow at 836-6839, at least 48 hours before the requested inspection. Applicants will maintain the requested documents assembled in Carolina Power & Light Company offices available for inspection by the Joint Intervenor, for a reasonable time (i.e., through June 1, 1984), after which they will be returned to their place of origin.

Inspected documents which the Joint Intervenor wish to have copied will be reproduced by Carolina Power & Light Company on a schedule compatible with other demands for duplicating equipment. A Carolina Power & Light Company employee will be available during the inspection in order to receive any requests for copying. Copies of such documents will then be furnished to the Joint Intervenor upon payment of 7 cents per page, to meet Carolina Power & Light Company's cost of reproduction.

  
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Dated: May 1, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )

CAROLINA POWER & LIGHT COMPANY )  
AND NORTH CAROLINA EASTERN )  
MUNICIPAL POWER AGENCY )

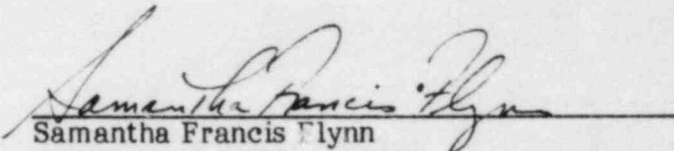
) Docket Nos. 50-400 OL  
) 50-401 OL  
)

(Shearon Harris Nuclear Power Plant, )  
Units 1 & 2 )

CERTIFICATE OF SERVICE

I hereby certify that copies of "Applicants' Answers to Joint Intervenors Interrogatories and Request for Production of Documents to Applicants on Joint Contention I (First Set)" were served this 1st day of May, 1984 by deposit in the United States mail, first class, postage prepaid, to all parties on the attached Service List.

This the 1st day of May, 1984.

  
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