NRC FORM 195 (2-70)

U.S. NUCLEAR REGULATORY COMMISSION

DOCKET NUMBER 50-400/401/402/403

FILE NUMBER

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

TO: MR B C RUSCHE	FROM: CP*L RALEIGH, NC J A JONES	DATE OF DOCUMENT 9-20-76 DATE RECEIVED 9-23-76
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DESCRIPTION

LTR NOTORIZED 9-20-76 TRANS THE FOLLOWING....

ACKNOWLEDGED

DO NOT REMOVE

PLANT NAME: Shearon Harris 1-4

ENCLOSURE

ENCLOSURES 1 & 2; A COMPARISON OF SHEARON HARRIS CONTAINMENT STRUCTURELOAD.....ENCLOSURE 3; A COMPARISON OF SHEARON HARRIS CONTAINMENT INTERNAL STRUCTURE LOAD..ENCLOSURE 4; LOAD COMBINATIONS FOR SEISMIC CAT I STRUCTURES.... ENCLSOURE 5; INDEX TO POSITIONS ON CODES, S STANDARDS, AND REG GUIDES..... CERTAIFICATE OF SERVICE....SHOWING SVC D OF LOAD COMBINATIONS BEING SERVED UPON MR. VASSAR P. SHEARON, CHAIRMAN BOARD OF CTY COMMISSIONERS OF WAKE COUNTY P O BOX 550 RALEIGH, NC.....ET AL.....

SAFETY		FOR ACTION/INFORMATION		ENVIRO 9-27-76 RKB
	ASSIGNED AD:			ASSIGNED AD:
✓	BRANCH CHIEF:	PARR		BRANCH CHIEF:
	PROJECT MANAGER:		X	PROJECT MANAGER: S. ECHOLS
✓	LIC. ASST.:	RUSHBROOK		LIC. ASST.:

INTERNAL DISTRIBUTION

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✓	NRC PDR		HEINEMAN		TEDESCO		ENVIRO ANALYSIS
✓	I & E (2)		SCHROEDER		BENAROYA		DENTON & MULLER
✓	OELD				LAINAS		
✓	GOSSICK & STAFF		ENGINEERING		IPPOLITO		ENVIRO TECH.
	MIPC		MACCARRY		KIRKWOOD		ERNST
	CASE		KNIGHT				BALLARD
	HANAUER		SIHWEIL		OPERATING REACTORS		SPANGLER
	HARLESS		PAWLICKI		STELLO		
							SITE TECH.
	PROJECT MANAGEMENT		REACTOR SAFETY		OPERATING TECH.		GAMMILL
	BOYD		ROSS	✓	EISENHUT		STEPP
	P. COLLINS		NOVAK	✓	SHAO		HULMAN
	HOUSTON		ROSZTOCZY	✓	BAER		
	PETERSON		CHECK	✓	BUTLER		SITE ANALYSIS
	MELTZ			✓	GRIMES		VOLLMER
	HELTEMES		AT & I				BUNCH
	SKOVHOLT		SALTZMAN			✓	J. COLLINS W/
			RUTBERG				KREGER

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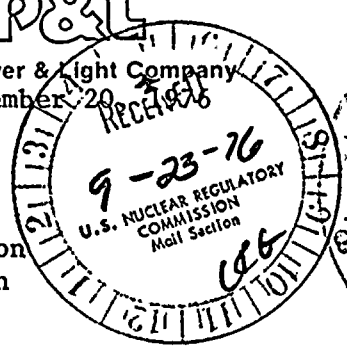
CP&L

Carolina Power & Light Company

September 20, 1976



Mr. Benard C. Rusche, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

RE: DOCKET NOS. 50-400, 50-401, 50-402, AND 50-403

Dear Mr. Rusche:

As a result of recent discussions with your staff, we are enclosing the following information:

Enclosures 1 and 2; a comparison of Shearon Harris Containment Structure load combinations and load factors to those of ASME/ACl 359-1975.

Enclosure 3; a comparison of Shearon Harris Containment internal structure load combinations to those of Standard Review Plan 3.8.3.

Enclosure 4; a comparison of Shearon Harris load combinations for Seismic Category I structures other than Containment to those of Standard Review Plan 3.8.4.

Enclosure 5; index to positions on codes, standards, and regulatory guides referenced in Standard Review Plans 3.7 and 3.8.

Should you have further questions regarding this information, please contact us.

Yours very truly,

J. A. Jones
Executive Vice President
Engineering, Construction & Operation

JAJ/dkm

Enclosures

Sworn to and subscribed before me this 20th day of September, 1976.

NOTARY PUBLIC

Marilyn Y. Pease
Notary Public

My Commission expires: October 19, 1980

9629

336 Fayetteville Street • P. O. Box 1551 • Raleigh, N. C. 27602

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket Nos. 50-400
	)	50-401
(Shearon Harris Nuclear Power Plant	)	50-402
	)	50-403
Units 1, 2, 3, and 4)	)	

CERTIFICATE OF SERVICE

This is to certify that a copy of the letter dated September 20, 1976, to Mr. Benard C. Rusche from Mr. J. A. Jones regarding Shearon Harris Nuclear Power Plant structure load combinations has this 20th day of September been served upon the following government officials by deposit of the same in the United States mail addressed as follows:

Mr. Vassar P. Shearon, Chairman
Board of County Commissioners of Wake County
Post Office Box 550
Raleigh, North Carolina 27602

Mr. Ben Wimberly, Chairman
Board of County Commissioners of Chatham County
Post Office Box 111
Pittsboro, North Carolina 27312

Office of Intergovernmental Relations
116 West Jones Street
Raleigh, North Carolina 27603

Mr. Dave Hopkins
Environmental Protection Agency
1421 Peachtree Street, N. E.
Atlanta, Georgia 30309

A copy of this letter has also been served this day upon each member of the Atomic Safety and Licensing Board, and other appropriate NRC personnel by deposit of the same in the United States mail addressed as follows:

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

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

Dr. J. V. Leeds, Jr.
Post Office Box 941
Houston, Texas 77001

Mr. Nathaniel H. Goodrich, Chairman
Atomic Safety and Licensing Board Panel
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Secretary
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555
Attention: Chief, Public Proceeding Staff

Mr. Thomas S. Erwin
Post Office Box 928
115 West Morgan Street
Raleigh, North Carolina 27602

Mr. C. A. Barth
Regulatory Staff Counsel
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Jesse C. Brake, Esq.
Department of Justice
Post Office Box 629
Raleigh, North Carolina 27602

Richard E. Jones

Associate General Counsel
Carolina Power & Light Company

Business Address: 336 Fayetteville Street
Raleigh, N. C. 27602

Business Telephone: Area Code 919
828-8211

Dated: September 20, 1976

ENCLOSURE (1)

ASME/ACI 359-1975 EDITION

TABLE-3230-1

LOAD COMBINATIONS AND LOAD FACTORS

Category	D	L^1	F	P_i	P_a	T_i	T_o	T_a	E_o	E_u	W	W_i	R_o	R_a	R_r	P_t	H_c
Service:																	
Test	1.0	1.0	1.0	1.0	...	1.0	...	...	...	...	...	...	...	...	...	...	...
Construction	1.0	1.0	1.0	...	...	...	1.0	...	...	...	...	...	...	...	...	...	...
Normal	1.0	1.0	1.0	...	...	...	1.0	...	...	...	...	...	1.0	...	...	1.0	...
Severe environmental	1.0	1.0	1.0	...	...	...	1.0	...	1.0	...	...	...	1.0	...	...	1.0	...
	1.0	1.0	1.0	...	...	...	1.0	...	...	...	1.0	...	1.0	...	...	1.0	...
Factored:																	
Severe environmental	1.0	1.3	1.0	...	...	...	1.0	...	1.5	...	...	...	1.0	...	...	1.0	...
	1.0	1.3	1.0	...	...	...	1.0	...	...	...	1.5	...	1.0	...	...	1.0	...
Extreme environmental	1.0	1.0	1.0	...	...	...	1.0	...	...	1.0	...	...	...	...	...	1.0	...
	1.0	1.0	1.0	...	...	...	1.0	...	...	...	...	1.0	...	...	...	1.0	...
Abnormal	1.0	1.0	1.0	...	1.5	...	...	1.0	...	...	...	...	...	1.0	...	...	...
	1.0	1.0	1.0	...	1.0	...	...	1.0	...	...	...	...	...	1.25	...	...	...
Abnormal/Severe environmental	1.0	1.0	1.0	...	1.25	...	...	1.0	1.25	...	...	...	...	1.0	...	...	...
	1.0	1.0	1.0	...	1.25	...	...	1.0	...	...	1.25	...	...	1.0	...	...	...
	1.0	1.0	1.0	...	...	...	1.0	...	1.0	...	1.0	...	...	...	...	...	...
Abnormal/Extreme environmental	1.0	1.0	1.0	...	1.0	...	...	1.0	...	1.0	...	...	...	1.0	1.0	...	...

NOTE:

(1) Includes all temporary construction loading during and after construction of containment.

ENCLOSURE (2)

CONTAINMENT STRUCTURE LOAD COMBINATIONS AND LOAD FACTORS

1. Test Pressure
   $C = (1.0 \pm 0.05)\ D + 1.0P_T + 1.0B + 1.0S$

2. Normal Operating
   $C = 1.5\ (D + To + TLo) + 1.8L + 1.0B + 1.0S$

3. Non-Accident Pressure
   $C = (1.0 \pm .05)\ (D + To + TLo) + 1.25IN\ (or\ IP) + 1.0B + 1.0S$

4. Operating Basis Earthquake
   $C = (1.0 \pm 0.05)\ (D + To + TLo) + 1.25E + 1.0B + 1.0S'$

5. Hurricane
   $C = (1.0 \pm 0.05)\ (D + To + TLo) + 1.25Hu + 1.0B + 1.0S$

6. Design Basis Earthquake
   $C = (1.0 \pm 0.05)\ (D + To + TLo) + 1.0E' + 1.0B + 1.0S'$

7. Tornado
   $C = (1.0 \pm 0.05)\ (D + To + TLo) + 1.0W + 1.0B + 1.0S$

8. Loss Of Coolant Accident
   $C = (1.0 \pm 0.05)\ D + 1.5P + 1.0\ (T'' + TL'') + 1.0B + 1.0S$

9. Loss Of Coolant Accident With OBE
   $C = (1.0 \pm 0.05)\ D + 1.25P + 1.0\ (T' + TL') + 1.25E + 1.0B + 1.0S'$

10. Loss Of Coolant Accident With Hurricane
    $C = (1.0 \pm 0.05)\ D + 1.25P + 1.0\ (T' + TL') + 1.25\ Hu + 1.0B + 1.0S$

11. Loss Of Coolant Accident With DBE
    $C = (1.0 \pm 0.05)\ D + 1.0P + 1.0\ (T + TL) + 1.0E' + 1.0B + 1.0S'$

Note: [1]Buoyant force and earth load are to be included only when they increase net load on section; omitted when they decrease net load on section.

LOAD COMBINATION \ DOCUMENT	SHNPP - PSAR	NRC - SRP 3.8.3
NORMAL OPERATING	C= 1.5 (D + L' + T) + 1.8A	U= 1.4D + 1.7L U= .75 (1.4D + 1.7L+1.7T.+ 1.7Ro)
NORMAL SHUTDOWN	C= 1.5 (D + L' + T + F) + 1.8L	Not given as a load combination
OPER.BASIS EARTHQUAKE PLUS NORMAL OPERATING	C= 1.25 (D+L' + T + A + E). C= .9 (D+L') + 1.1E + (1.0±0.1) (T+A)	U= 1.4D + 1.7L + 1.9E U= .75 (1.4D+1.7L+1.9E+1.7To.+ 1.7Ro)
OPER. BASIS EARTHQUAKE PLUS NORMAL SHUTDOWN	C= 1.25 (D+L'+T+F+E) C= .9 (D+L'+F) + 1.1E + (1.0± 0.1) T	Not given as a load combination
DBE PLUS NORMAL OPERATING	C= (1.0±.1) (D+T + L' + A) + 1.0E'	U= D + L + To + Ro + E'
DBE PLUS NORMAL SHUT DOWN	C= (1.0 ± .1) (D + T+L' +F) + 1.0E'	Not given as a load combination
ACCIDENT	C= (1.0 ± 0.1) (D+T) + 1.5P + 1.25(L'+M)+A+Q	U= D+L+Ta + Ra + 1.5 Pa
ACCIDENT PLUS OBE	C= (1.0 ±.1) (D+T) + 1.25(P+M+L'+E) + A+Q	U= D+L+Ta+Ra+1.25 Pa+1.0Q+1.25E
ACCIDENT PLUS DBE	C= (1.0± .1) (D+T+L'+A) +1.0 (P+E'+M+Q)	U= D+L+Ta+Ra+1.0Pa + 1.0Q + 1.0E'.

ENCLOSURE (3)

LOAD COMBINATION / DOCUMENT	SHNPP - PSAR	NRC - SRP 3. 8. 4.
NORMAL OPERATING	C= 1.5 (D+L'+T) + 1.8 (L+A) + 1.0B + 1.8S	U= 1.4 (D+B) + 1.7 (L+S) U= .75 [1.4(D+B) + 1.7(L+S+To+Ro)]
OPERATING BASIS EARTHQUAKE	C= 1.25 (D+L'+L"+A+E+S'+T) + 1.0B C= .90 (D+L'+L") + 1.1 (T+E) + 1.0S'+ 1.0B	U= 1.2(D+B) + 1.9E U= 1.4 (D+B) + 1.7 (L+S) + 1.9E U= .75 [1.4(D+B) + 1.7(L+S+To+Ro)+1.9E]
HURRICANE	C= 1.25 (D+L'+L"+A+Hu+T) + 1.1S + 1.0B C= .90 (D+L'+L") + 1.1 (S+T+Hu) + 1.0B	U= 1.2 (D+B) + 1.7W U= 1.4 (D+B) + 1.7 (L+S+W) U= .75 [1.4(D+B) + 1.7(L+S+W+To+Ro)]
TORNADO	C= (1.0±.1) (D+L'+L"+A+S+T) + 1.0 (W+M+B)	U= D+B+L+S+To+Ro+W_t
DESIGN BASIS EARTHQUAKE	C= 1.0 (D+L'+L") + 1.0 (A+E'+S'+B+T)	U= D+B+L+S+To+Ro+E'
PIPE OR EQUIPMENT ACCIDENT	C= (1.0±.1) (D+L'+L"+S) + 1.0B + 1.5P_A + 1.0 (A'+T_A,)	U= D+B+L+S+Ta+Ra+1.5Pa
PIPE OR EQUIP. ACCIDENT PLUS OBE	C= 1.0 (D+L'+L"+T_A,+A'+S'+B) + 1.25P_A, + 1.0Q + 1.25E	U= D+B+L+S+Ta+Ra+1.25Pa+1.0Q+1.25E
PIPE OR EQUIP. ACCIDENT PLUS DBE	C= 1.0 (D+L'+L"+T_A,+A'+S'+B) + 1.0P_A, + 1.0Q + 1.0E'	U= D+B+L+S+Ta+Ra+1.0P_a+1.0Q+1.0E'

LEGEND: Q= Y_r + Y_J + Y_M

ENCLOSURE (5)

INDEX TO POSITIONS ON CODES, STANDARDS
AND REGULATORY GUIDES REFERENCED
IN STANDARD REVIEW PLANS 3.7 AND 3.8

SRP	SRP 3.7	PSAR PAGE NO.
3.7.1	R. G. 1.60	See Page 1.4 - 30
	R. G. 1.61	See Page 1.4 - 31
3.7.4	R. G. 1.12	See Page 1.4 - 12
	SRP 3.8	
3.8.1	ASME/ACI 359	See Enclosures 1 and 2
	R. G. 1.70	FSAR will meet 1.70 format and content where possible
	R. G. 1.10	See Page 1.4 - 11
	R. G. 1.15	See Page 1.4 - 12
	R. G. 1.19	See Page 1.4 - 13
	R. G. 1.55	See Page 1.4 - 29
	R. G. 1.18	See Page 1.4 - 12A
	R. G. 1.35	Does not apply to SHNPP See Page 1.4 - 17
3.8.2	ASME Sect.III, Div. I - Subsection NE	*
	R. G. 1.57	Does not apply to SHNPP See Page 1.4 - 29
	R. G. 1.70	FSAR will meet 1.70 format and content where possible
3.8.3	ASME Sect.III, Div. I - Subsection NF	Equipment was ordered & purchased prior to implementation of Subsection NF
	ACI 318-71	See Page 5.5-1
	AISC Specification	See Page 5.5-1 And Section 3.1.2, Page 5E-4a
	ASME/ACI 359	See Enclosures 1 & 2
	ASME Sect. III, Div.I Subsection NE	Not applicable - no portions of internal containment structure are of steel frame design
	R. G. 1.55	See Page 1.4 - 29
	ANSI N45.2.5	See R. G. 1.94 Position on Page 1.4 -51

*The personnel air locks, equipment hatch, valve chambers, and components of each shall be designed in accordance with the ASME Code, Section III, Class MC, Subsection NE.

	R. G. 1.70	FSAR will meet 1.70 format and content where possible
	R. G. 1.57	Does not apply to SHNPP See Page 1.4 - 29
3.8.4	ACI 318.71	See Page 5.5-1
	AISC Spec.	See Page 5.5-1 and Section 3.1.2, Page 5E-4a
	R. G. 1.70	FSAR will meet 1.70 format and content where possible
3.8.5	ACI 318.71	See Page 5.5-1
	AISC Spec.	See Page 5.5-1 and Section 3.1.2, Page 5E-4a
	ASME/ACI 359	See Enclosures 1 and 2
	R. G. 1.70	FSAR will meet 1.70 format and content where possible