

**AEC DISTRIBUTION FOR PART 50 DOCKET MATERIAL  
(TEMPORARY FORM)**

CONTROL NO: 6593

FILE:

FROM: Carolina Power & Light Company Raleigh, N.C. 27602 Mr. E.E. Utley			DATE OF DOC 7-5-74	DATE REC'D 7-19-74	LTR X	TWX	RPT	OTHER
TO: J.F. O'Leary			ORIG 2 signed	CC	OTHER	SENT AEC PDR XXX SENT LOCAL PDR XXX		
CLASS	UNCLASS XXX	PROP INFO	INPUT	NO CYS REC'D 40		DOCKET NO: 50-261		

DESCRIPTION:  
Ltr reporting an abnormal occurrence concerning  
Main Steam Line Seismic Restraints.....

ENCLOSURES:

**DO NOT REMOVE**

**ACKNOWLEDGED**

PLANT NAME:  
H.B. Robinson

FOR ACTION/INFORMATION 7-19-74 JB

BUTLER (L)	SCHWENCER (L)	ZIEMANN (L)	REGAN (E)
W/ CYS	W/ CYS	W/ CYS	W/ CYS
CLARK (L)	STOLZ (L)	DICKER (E)	✓LEAR
W/ CYS	W/ CYS	W/ CYS	W/7 CYS
W/ CYS	VASSALLO (L)	KNIGHTON (E)	
W/ CYS	W/ CYS	W/ CYS	W/ CYS
KNIEL (L)	PURPLE (L)	YOUNGBLOOD (E)	
W/ CYS	W/ CYS	W/ CYS	W/ CYS

**INTERNAL DISTRIBUTION**

✓REG FILE	✓TECH REVIEW	DENTON	LIC ASST	A/T IND
✓AEC PDR	✓HENDRIE	GRIMES	DIGGS (L)	BRAITMAN
✓OGC	✓SCHROEDER	GAMMILL	GEARIN (L)	SALTZMAN
✓MUNTZING/STAFF	✓MACCARY	KASTNER	GOULBOURNE (L)	B. HURT
✓CASE	✓KNIGHT	BALLARD	KREUTZER (E)	
GIAMBUSSO	✓PAWLICKI	SPANGLER	LEE (L)	PLANS
BOYD	✓SHAO		MAIGRET (L)	✓MCDONALD
MOORE (L)(LWR-2)	✓STELLO	ENVIRO	REED (E)	CHAPMAN
DEYOUNG (L)(LWR-1)	✓HOUSTON	MULLER	SERVICE (L)	DUBE w/input
SKOVHOLT (L)	✓NOVAK	DICKER	SHEPPARD (L)	E. COUPE
✓GOLLER (L)	✓ROSS	KNIGHTON	SLATER (E)	
P. COLLINS	✓IPPOLITO	YOUNGBLOOD	SMITH (L)	✓D. THOMPSON (2)
DENISE	✓TEDESCO	REGAN	✓TEETS (L)	✓KLECKER
✓REG OPR	✓LONG	PROJECT MGR	WILLIAMS (E)	✓EISENHUT
FILE & REGION (3)	✓LAINAS		WILSON (L)	
✓MORRIS	✓BENAROYA	HARLESS		
✓STEELE	✓VOLLMER			

**EXTERNAL DISTRIBUTION**

✓1 - LOCAL PDR Hartsville, S.C.	(1)(2)(10)-NATIONAL LABS	1-PDR-SAN/LA/NY
✓1 - TIC (ABERNATHY)	1-ASLBP(E/W Bldg, Rm 529)	1-BROOKHAVEN NAT LAB
✓1 - NSIC (BUCHANAN)	1-W. PENNINGTON, Rm E-201 GT	1-G. ULRIKSON, ORNL
1 - ASLB	1-B&M SWINEBROAD, Rm E-201 GT	1-AGMED (RUTH GUSSMAN)
1 - P. R. DAVIS	1-CONSULTANTS	Rm B-127 GT
✓16 - AGRS SENT TO LIC ASST Teets	NEWARK/BLUME/AGBABIAN	1-RD..MUELLER, Rm F-304
7-19-74		GT



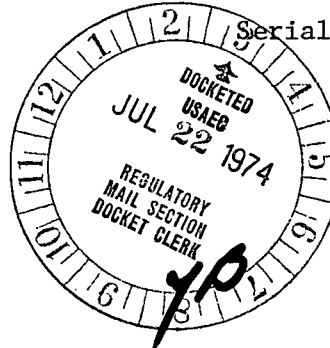
Carolina Power &amp; Light Company

July 5, 1974

File: NG-3514

Serial: NG-74-822

Mr. John F. O'Leary, Director  
Directorate of Reactor Licensing  
Office of Regulation  
U. S. Atomic Energy Commission  
Washington, D. C. 20545



Dear Mr. O'Leary:

50-261

H. B. ROBINSON UNIT NO. 2  
LICENSE DPR-23

MAIN STEAM LINE SEISMIC RESTRAINTS

In my letter of January 4, 1974, I informed you of a significant operating event involving damage to a seismic restraint on Main Steam Line "A." This letter is to provide additional information on subsequent investigations and the related modifications made during the May-June 1974 refueling outage.

The pipe stress analysis by Ebasco design engineers indicated a large axial thermal movement of Main Steam Line "A" at the point occupied by seismic restraint AP-1. It is believed that as axial thermal movement was occurring, frictional loads were set up between the pipe shoes and the restraint structure which had to be overcome before the pipe would slide axially. This frictional load created a moment about the weak axis of the restraint embedded plant and caused the restraint to bend. The restraint was damaged to the point that it could no longer be considered effective.

Corrective action was taken during the refueling outage based on Ebasco recommendations to sever and completely remove restraint AP-1 from its embedded plate. The embedded plate will remain in place but will not be utilized for any structural support functions. In order to reduce the pipe stresses that exist without this restraint, adjacent pipe whip restraint, P-8, was modified to carry the additional thermal and seismic loads as well as the pipe whip loads associated with pipe break. This pipe whip restraint is located a distance of two feet from the damaged restraint AP-1.

The structural integrity of the pipe whip restraint with modifications has been verified by calculations to sustain the following load combinations:

1. Original pipe whip plus thermal load plus seismic load, with stresses not to exceed 90% of material yield strength.

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2. Thermal load plus seismic load plus frictional loads, with stresses not to exceed AISC (1963 edition) working stresses.

The modification to the pipe whip restraint consisted of reinforcement of the ring plate with two new plates and the addition of bearing plates built out to within 1/16 inch from the main steam line surface which restrict transverse movement of the pipe. The main steam line has been reanalyzed under the conditions following modification, and the resulting stresses and restraint loadings are substantially the same as in the original analysis. No further problems are expected in this area.

A complete inspection was performed by Ebasco design engineers of the existing pipe whip restraint system, thermal-seismic restraint system, and hanger system on the Main Steam and Feedwater Lines in Containment. In the pipe whip and hanger systems all restraints and hangers were installed in accordance with the original Ebasco design drawings and specifications. Several minor discrepancies were corrected concerning nuts and bolts.

In the thermal-seismic restraint system all restraints were installed as designed except the following:

1. Thermal-seismic restraint AP-3 at point 20 on Feedwater Line "A" contained restraining shoes in the horizontal plane only. Design drawings indicated that at this point the feedwater pipe should have had four pipe shoes to transmit thermal and seismic loads to the restraint in both the vertical and horizontal directions. During the outage this restraint was modified to conform to the original design concept in accordance with field sketches provided by Ebasco.
2. Thermal-seismic restraint at point 57 on Feedwater Line "C" did not exist as shown on the design drawings. Only part of the embedded plates were installed due to a penetration passing through the polar crane wall in the embedded plate area, and the restraint was not attached to these plates. However, this point on the feedwater line was restrained by another restraint which was judged by Ebasco design engineers to be equivalent.

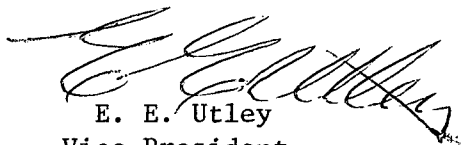
All changes and modifications were done under the on-site supervision of an Ebasco design engineer.

In summary, damage and design discrepancies discovered in the Main Steam and Feedwater Systems in Containment have been rectified and no future problems are expected. Periodic surveillance of these restraints will be instituted to confirm these conclusions.

ACT:DBW:mvp

Yours very truly,

cc: Messrs. N. B. Bessac  
B. J. Furr  
W. E. Graham  
D. V. Menscer  
D. B. Waters

  
E. E. Utley  
Vice-President  
Bulk Power Supply