

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

CONTROL NO: 1013

FROM: Carolina Power & Light Company Raleigh, N. C. 27602 E. E. Utley		DATE OF DOC: 2-6-73		DATE REC'D 2-12-73		FILE LTR MEMO RPT OTHER	
TO: Mr. Giambusso		ORIG 3 signed		CC OTHER		SENT AEC PDR X SENT LOCAL PDR X	
CLASS: <u>U</u> PROP INFO		INPUT		NO CYS REC'D 40		DOCKET NO: 50-261	
DESCRIPTION: Ltr furnishing info re postulated pipe failures outside containment....W/Attached figs.				ENCLOSURES: <div style="text-align: center; border: 1px solid black; padding: 5px; font-weight: bold;">Do Not Remove ACKNOWLEDGED</div>			
PLANT NAMES: H. B. Robinson Unit No. 2							

FOR ACTION/INFORMATION 2-13-73 AB

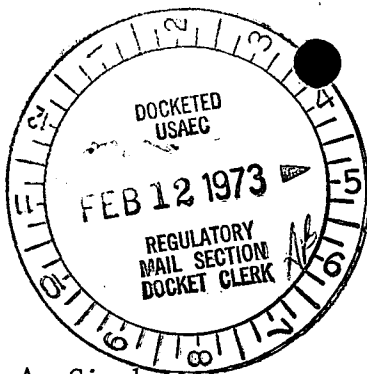
BUTLER(L) W/ Copies	SCHWENCER(L) W/ Copies	✓ SCHEMEL(L) W/ 4 Copies	KNIGHTON(E) W/ Copies
CLARK(L) W/ Copies	STOLZ(L) W/ Copies	ZIEMANN(L) W/ Copies	YOUNGBLOOD(E) W/ Copies
GOLLER(L) W/ Copies	VASSALLO(L) W/ Copies	CHITWOOD(FM) W/ Copies	REGAN(E) W/ Copies
KNIEL(L) W/ Copies	H. DENTON W/ Copies	DICKER(E) W/ Copies	

INTERNAL DISTRIBUTION

✓ REG FILE	TECH REVIEW	VOLLMER	HARLESS	WADE	E
✓ AEC-PDR	HENDRIE	DENTON		SHAFFER	F & M
OGC, ROOM P-506A	SCHROEDER	GRIMES	F & M	BROWN	E
MUNTZING/STAFF	MACCARY	GAMMILL	SMILEY	G. WILLIAMS	E
CASE	KNIGHT(2)	KASTNER	NUSSBAUMER	E. GOULBOURNE	L
GIAMBUSSO	PAWLICKI	BALLARD		A/T IND	✓ VARGA
✓ BOYD-L(BWR)	SHAO	SPANGLER	LIC ASST.	BRATTMAN	✓ CARTER
DEYOUNG-L(PWR)	KNUTH		SERVICE L	SALTZMAN	✓ KLECKER
SKOVHOLT-L	STELLO	ENVIRO	MASON L		✓ EISENHUT
P. COLLINS	MOORE	MULLER	WILSON L	PLANS	
REG OPR	HOUSTON	DICKER	MAIGRET L	MCDONALD	
FILE & REGION (2)	✓ TEDESCO	KNIGHTON	SMITH L	DUBE	
MORRIS	LONG	YOUNGBLOOD	GEARIN L	INFO	
STEELE	LAINAS	PROJ LEADER	DIGGS L	C. MILES	
	BENAROYA		TEETS L		
		REGAN	LEE L		

EXTERNAL DISTRIBUTION

✓ 1-LOCAL PDR Hartville, S. C.	(1)(5)(9)-NATIONAL LAB'S	1-PDR-SAN/LA/NY
1-DTIE(ABERNATHY)	1-R. CARROLL-OC, GT-B227	1-GERALD LELLOUCHE
1-NSIC(BUCHANAN)	1-R. CATLIN, E-256-GT	BROOKHAVEN NAT. LAB
1-ASLB-YORE/SAYRE	1-CONSULANT'S	1-AGMED(WALTER KOESTER,
WOODWARD/H. ST.	NEWMARK/BLUME/AGABIAN	Rm C-427, GT)
16-CYS ACRS HOLDING		1-RD...MULLER...F-309GT



Regulatory

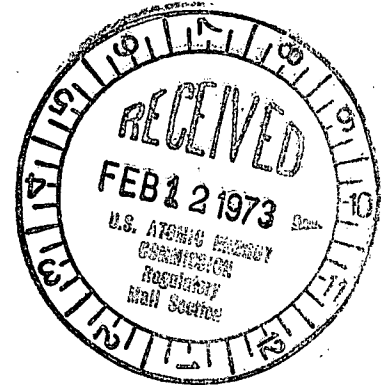
File Cy

50-261

CP&L

Carolina Power & Light Company

February 6, 1973



Mr. A. Giambusso
Deputy Director for Reactor Projects
Directorate of Licensing
United States Atomic Energy Commission
Washington, D. C. 20545

H. B. ROBINSON UNIT NO. 2

LICENSE DPR-23

POSTULATED PIPE FAILURES OUTSIDE CONTAINMENT

Dear Mr. Giambusso:

In response to your concern on pipe whip of the main steam line outside of the containment of H. B. Robinson Unit No. 2, Carolina Power & Light Company has evaluated the effects of the rupture of a main steam line and finds that there will be no penetration of the containment due to impact of the pipe on the containment.

This evaluation is based on the layout of the secondary steam system outside of the containment, and the supporting and enclosing structures for the system. Referring to the attached Figure 1, the main steam lines come out of the containment normal to the axis of the containment for a distance of about 30 feet and then turn 90° for a run of approximately 45 feet to the main steam header. The first run of piping contains the steam safety and relief valves, as well as the double isolation valve arrangement, and is enclosed in a structural steel tower arrangement. This tower has been constructed as a Class I structure and will withstand both seismic and pipe rupture loadings without damage to the structural integrity of the tower or loss of function of the isolation valves following a rupture. A photograph of the tower arrangement is shown in Figure 2, picture 3 and shows the web-like arrangement of wide-flange I-beams, varying in size from 12" to 36", which make up the tower structure.

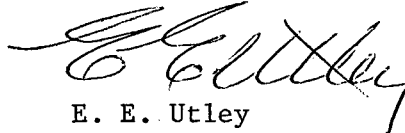
After completing the turn, each steam line has a restraint, normal to the pipe axis, which is tied into the tower structure. This restraint is designed as a rigid support, and can be considered as the first possible point of formation of a plastic hinge due to a downstream rupture of a pipe. Thus, the attention for pipe whip consideration centers on the main steam lines between these restraints and the main steam header. The attached figures provide further clarification of the above information.

Of the three main steam lines, only the first line (1) need be considered for containment impingement, since it lies between the containment and the other lines. Considering a rupture at the junction of the

February 6, 1973

line with the main steam header, the maximum moment arm for the reaction force will be produced, but the resulting movement of the pipe under the applied torque will be intercepted by the steel support structure shown in photographs 1 and 2, Figure 2. Substantial damage will result to the support structure, but this will not result in any loss of safety systems. Also, it is not likely that the pipe will continue to move toward the containment and strike it. Even if this were to happen, there would not be sufficient impact energy remaining to cause penetration of the containment wall. Thus, the containment will remain intact providing no degradation of safety due to the rupture of a main steam line.

Very truly yours,

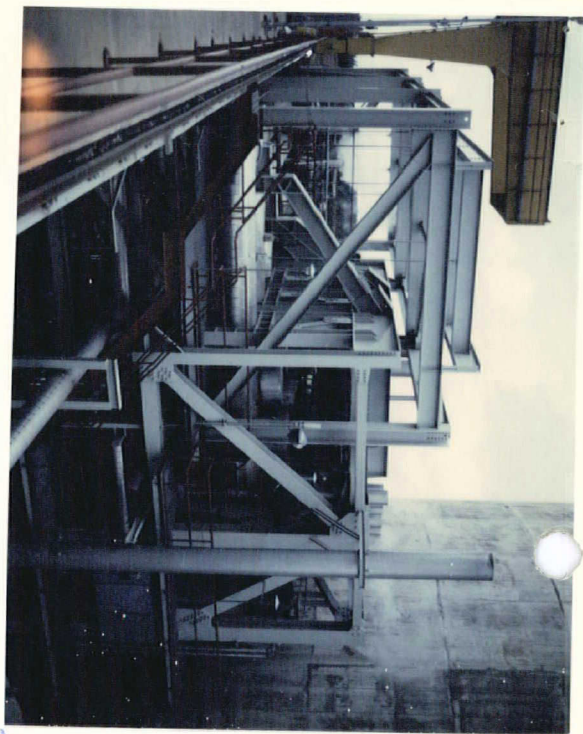


E. E. Utley
Vice President
Bulk Power Supply

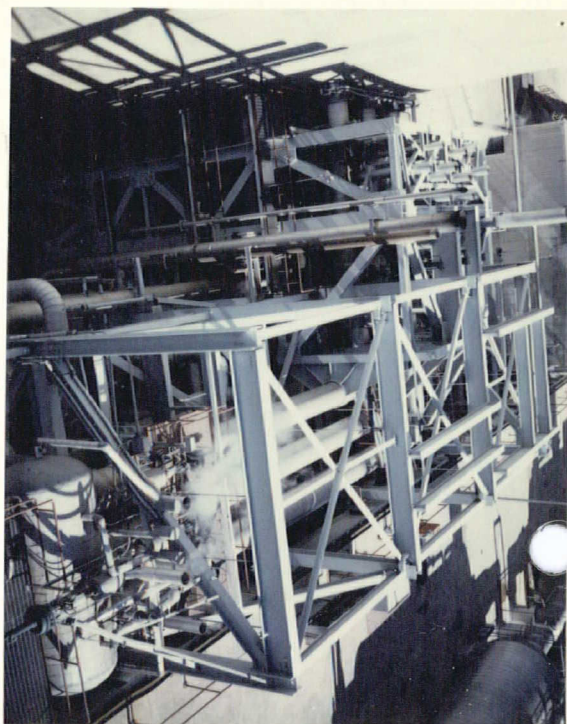
DBW/za

Enclosures

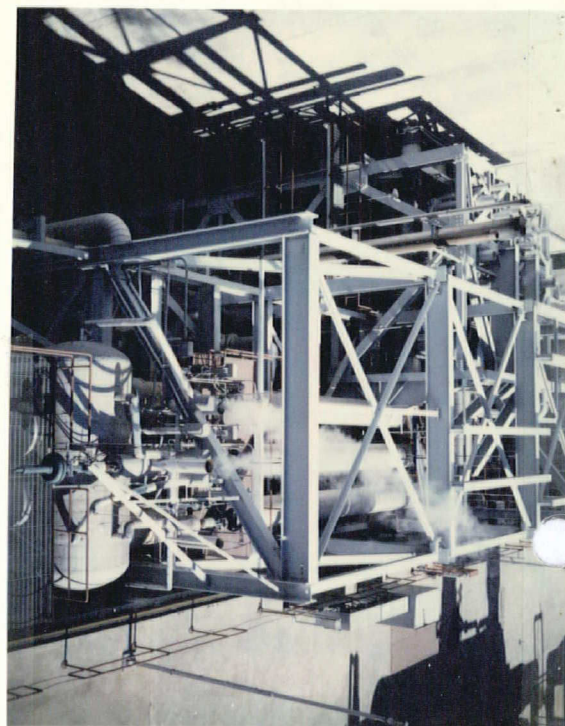
cc: Mr. C. D. Barham
Mr. N. B. Bessac
Mr. B. J. Furr
Mr. D. V. Menscer



3



2



1

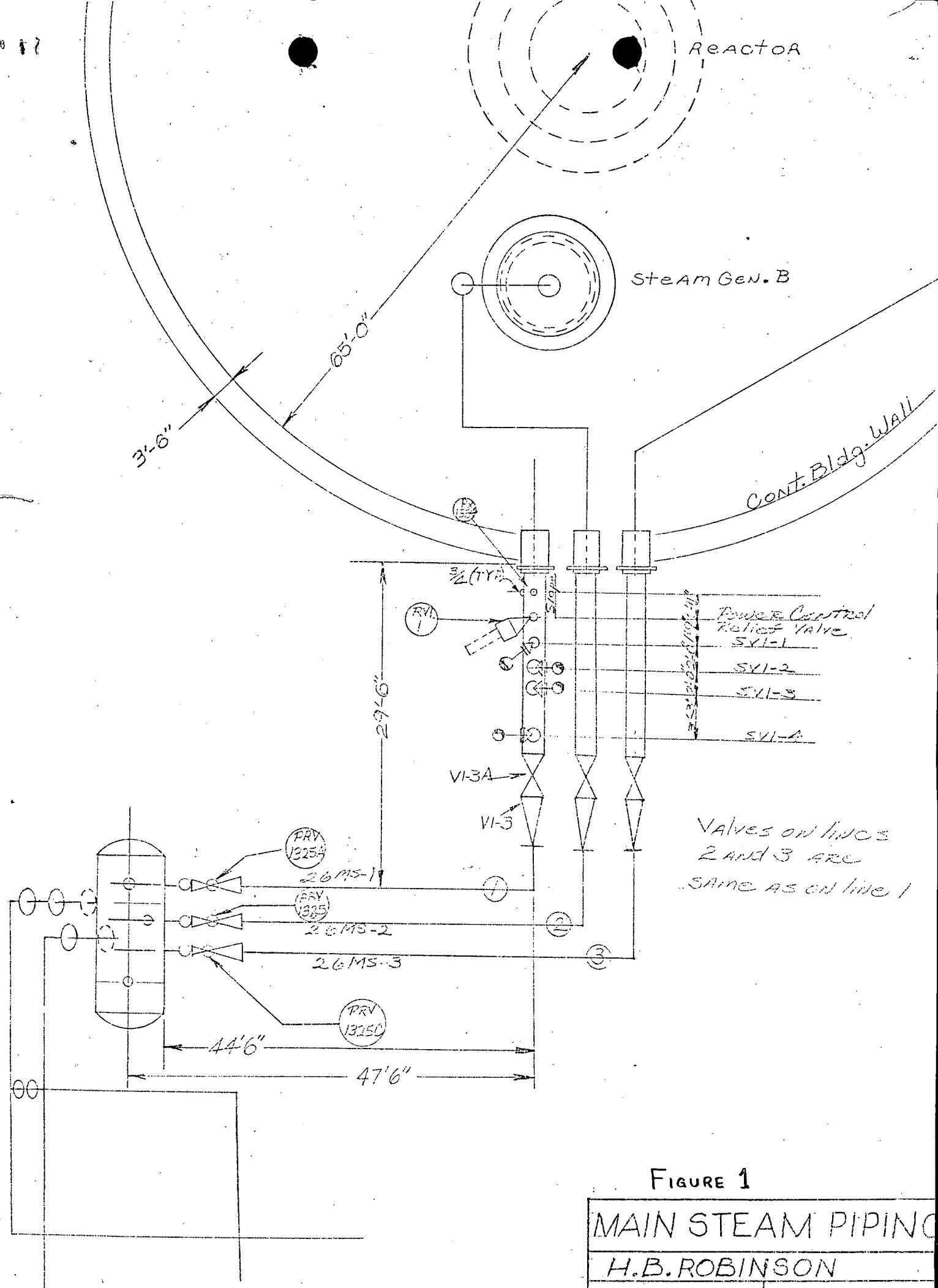


FIGURE 1

MAIN STEAM PIPING

H.B. ROBINSON

1-22-73

J.P.