

TYPE "TS-3A" STRUCTURE TEST
SOUTH CAROLINA PUBLIC SERVICE AUTHORITY
SEWARD, NEBRASKA
NOVEMBER 5, 1981

PURPOSE:

The purpose of this structure test was to confirm the design of the Hughes material for a type "TS-3A" 115 KV tangent structure for use on South Carolina Public Service Authority's transmission lines.

PROCEDURE:

A full-scale structure was framed utilizing Class 2, 70 ft. Douglas Fir poles. The structure was then subjected to the following loading conditions.

The structure was initially loaded vertically to 2,660 lbs. per phase and 230 lbs. per shield wire by means of free hanging weights. This loading represented bare conductor and shield wire with an overload capacity factor of 4.0.

Next, incremental transverse loads were applied until the structure failed at a total transverse load of 14,950 lbs. This load represented NESC "Light" loading, 9 lbs./ft.² wind on bare conductor, with an overload capacity factor = 5.0 (this included the wind on the pole).

DESIGN CRITERIA:

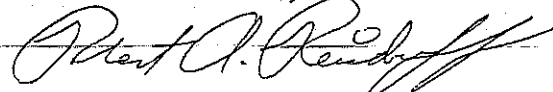
Shield Wire: 7 No. 8 Alumoweld
Conductor: 795 ACSR 26/7
Wind & Weight Spans: Conductor = 800 ft., Shield Wire = 800 ft.
Line Angle = 0°

CONCLUSION:

The structure test confirmed the ability of the structure framing to support the given design loads, thus verifying all pretest calculations.

Respectfully submitted,

HUGHES BROTHERS, INC.



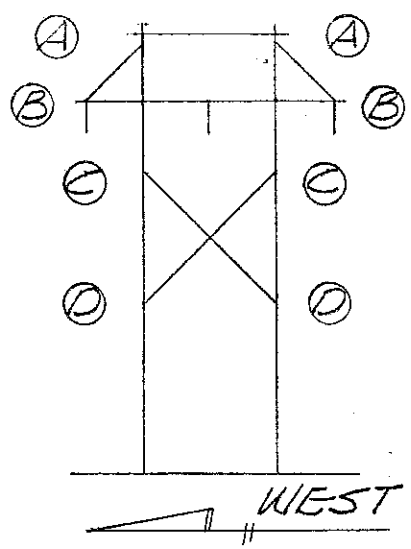
Robert A. Reisdorff, P.E.
Design Engineer

SOUTH CAROLINA PUBLIC SERVICE AUTHORITY
TYPE C-4404-A 115 KV. STRUCTURE

DATE: NOV. 5, 1981

VERTICAL LOADS

EAST PHASE	<u>2660</u>
CENTER PHASE	<u>2660</u>
WEST PHASE	<u>2660</u>
SHIELD WIRE (ea.)	<u>230</u>



Drawn
[Signature]
 Approved

HOUGHES
BROTHERS
 Seward, Nebraska

DRG. NO. A-2294-A

CONDUCTOR	LOADS (lbs.)		DEFLECTION (in.)											PHOTO No.
	SHIELD WIRE	TOTAL LOAD	EAST POLE					WEST POLE					DOWN	
			A	B	C	D	JP	A	B	C	D			
0	0	0												1
0	0	0	VERTICAL LOADS APPLIED											2
665	235	2990	2 1/4	2 3/4	2 1/4	1 3/4	0	3	2	2 3/4	2 1/8	0	3	
890	310	4220	5 1/2	3 1/4	4	3 3/4	0	5 1/2	5	5 3/4	4 1/4	0	4	
1330	470	5980	10 3/4	8	8 3/4	6 3/4	0	9	8 1/4	8	6	0	5	
1950	680	9260	14 1/2	10 3/8	11 1/8	8 5/8	0	15 1/2	14 1/2	13 1/2	10 3/8	0	6	
2660	940	11960	23 1/2	16 7/8	17 5/8	12 3/4	0	24 1/2	21 3/4	20 1/4	15	0	7	
3000	1060	13480	29	21 1/4	22	15 3/4	0	31	27 3/4	25 1/2	18	0	8	
3325	1175	14950	FAILURE											9, 10, 11

Date Printed

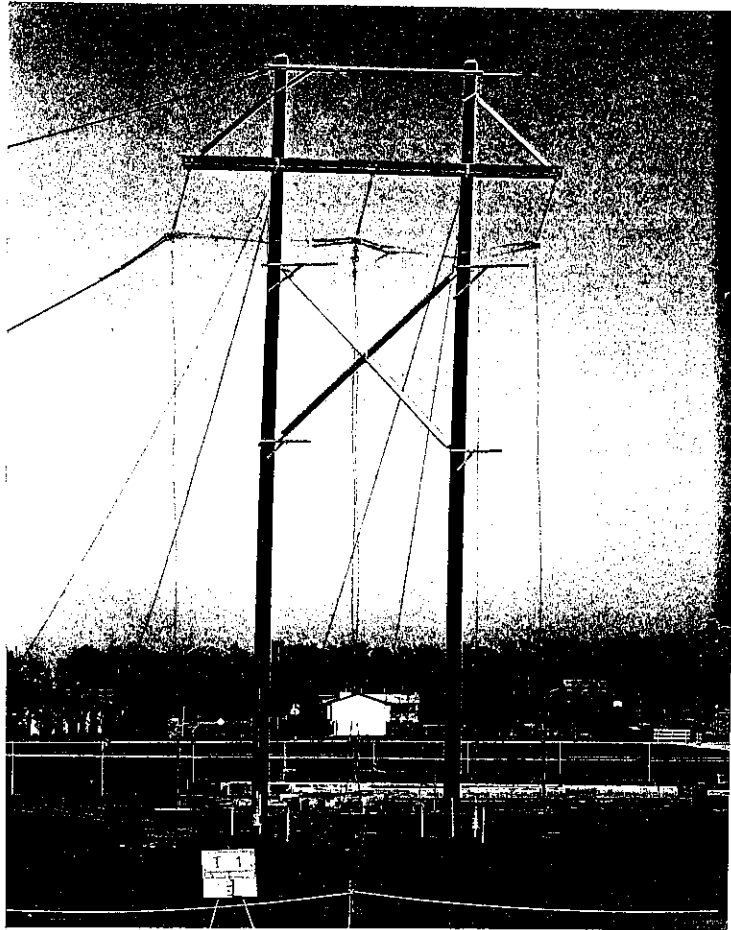


Photo No 1

0 lbs.

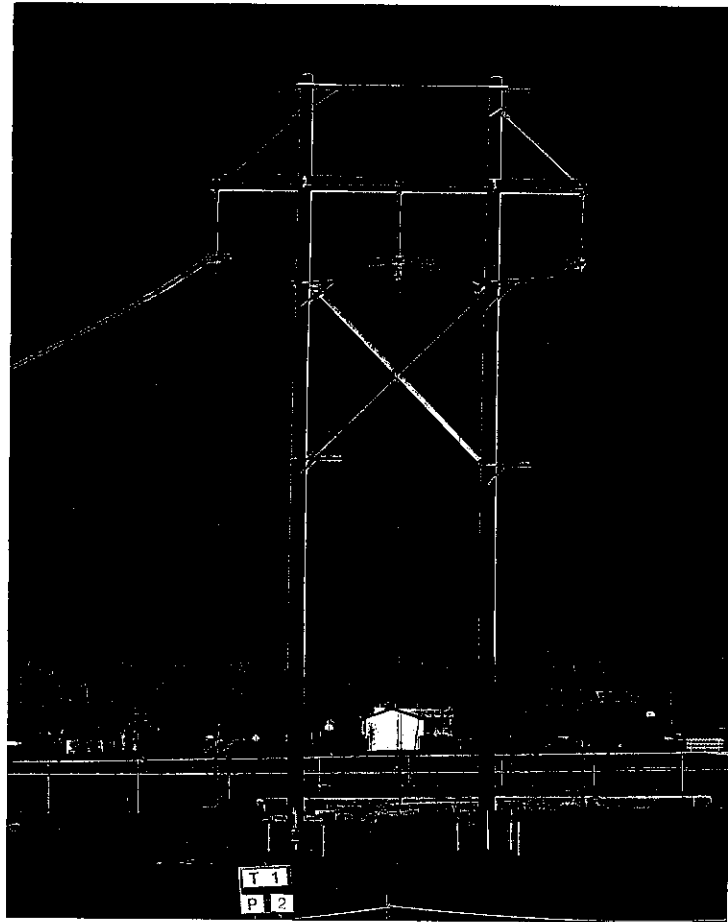


Photo No 2

Vertical Loads
Applied

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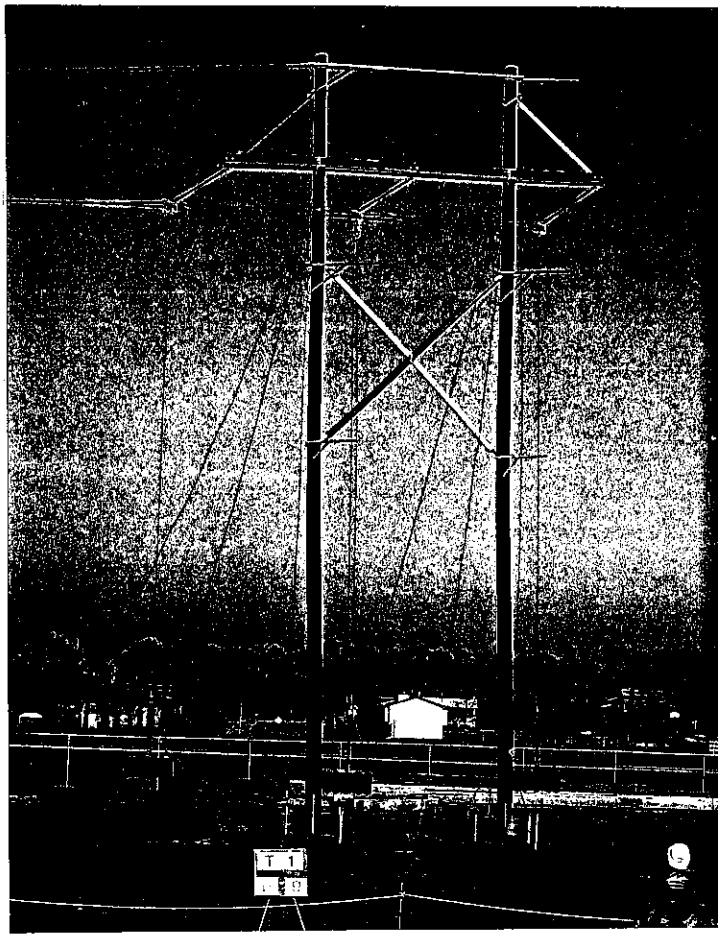


Photo No.9 14950 lbs.

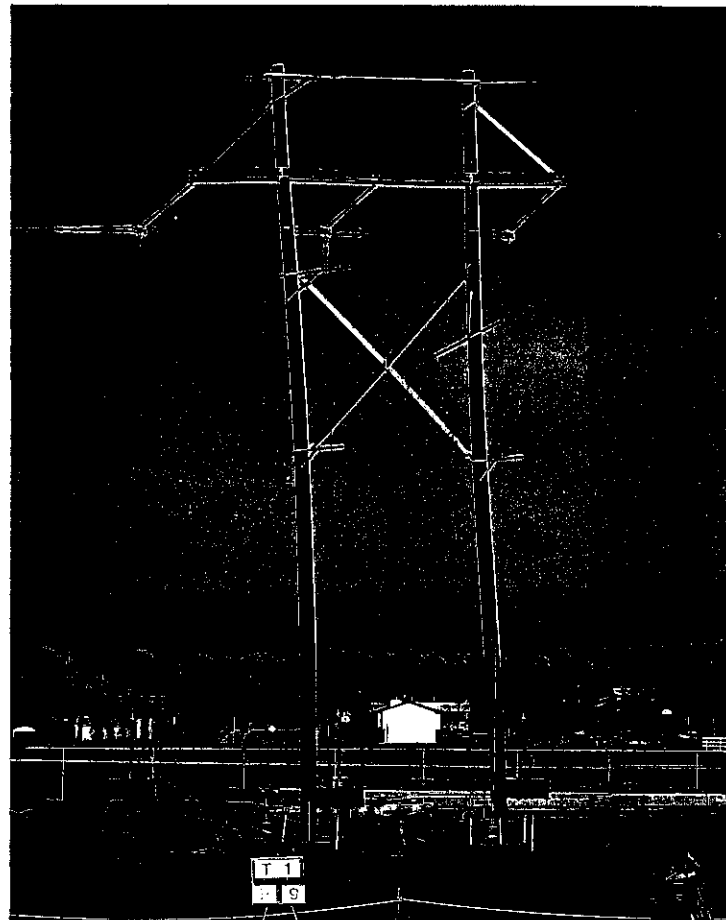


Photo No.10 Failure

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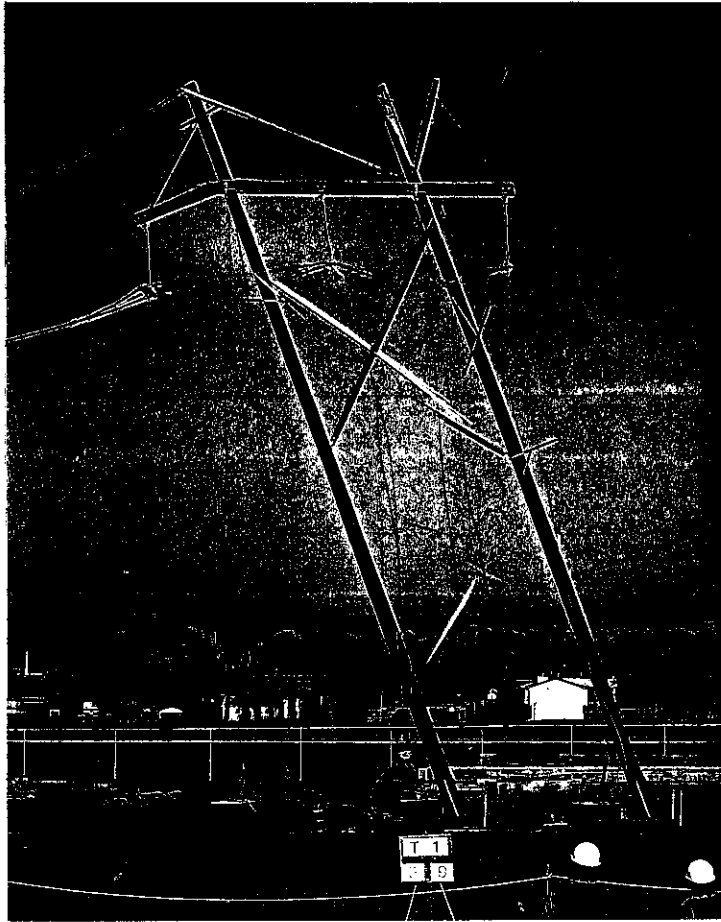


Photo No. II

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