

HUGHES BROTHERS

June 26, 1985

P.O. BOX 159 • 210 NORTH 13TH STREET • SEWARD, NEBRASKA 68434 • PHONE (402) 643-2991 • TELEX 438076

SOUTH CAROLINA PUBLIC SERVICE AUTHORITY

MONCKS CORNER, SOUTH CAROLINA

TYPE TS-14 DC

230 KV DOUBLE CIRCUIT TANGENT

HUGHES DRAWING NUMBER C4561-ADC

STRUCTURE RETEST

POLE DIMENSIONS
(Circumference)

	<u>West Pole</u>	<u>East Pole</u>
Top	36-1/2"	37-3/4"
Upper Crossarm	38-1/8"	40-1/4"
Lower Braces	39-1/4"	42"
Lower Crossarm	43-1/4"	47-3/8"
Top X-Brace	46-1/2"	50-1/2"
Bottom X-Brace	49-5/8"	53-1/2"
Groundline	55-3/4"	57-1/2"
Butt	62-1/2"	59-3/4"

90' Class 1 Douglas Fir Poles



August 27, 1985

P.O. BOX 159 • 210 NORTH 13TH STREET • SEWARD, NEBRASKA 68434 • PHONE (402) 643-2991 • TELEX 438076

SOUTH CAROLINA PUBLIC SERVICE AUTHORITY

230 KV DOUBLE CIRCUIT STRUCTURE TEST

TYPE TS-14DC

HUGHES DRAWING C4561-ADC

TEST NO. 6, CASE III LOADING

CASE III - NESC LIGHT LOADING

NO ICE
9 PSF WIND

VERTICAL LOADS - COND: 7,500 LBS./PHASE
SHIELD WIRE: 1,000 LBS./EA.

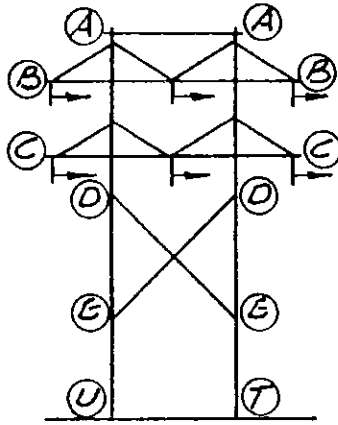
TRANSVERSE LOADS						
LOAD NO.	CONDUCTOR* LOAD/PHASE	SHIELD WIRE* LOAD/EA.	TOTAL STR. LOAD	DYNO. READING		SAFETY FACTOR
				COND. CIRCUIT	S.W.	
1	2,400	900	16,200	7,200	900	2.4 (60%)
2	3,200	1,200	21,600	9,600	1,200	3.2 (80%)
3	3,600	1,350	24,300	10,800	1,350	3.6 (90%)
4	4,000	1,500	27,000	12,000	1,500	4.0 (100%)
5	4,400	1,500	29,400	13,200	1,500	4.4 (109%)

*NOTE: These loads include wind-on-the-pole components. Wind on pole is based on ANSI 0.5-1979 minimum pole dimensions.

Approved

S. Wilfong

Drawn



TYPE T5-14DC (C4561-ADC)
SOUTH CAROLINA PUBLIC SERVICE AUTHORITY
DOUBLE CIRCUIT TANGENT STRUCTURE
230 KV CONSTRUCTION

— # — TEST No 6 — # —
CASE III NESC LIGHT
NO ICE 9 PSF WIND

Date: 7-22-85

VERTICAL LOADS
 PER. PHASE: 7,500 lbs.
 PER. S.W.: 1,000 lbs.

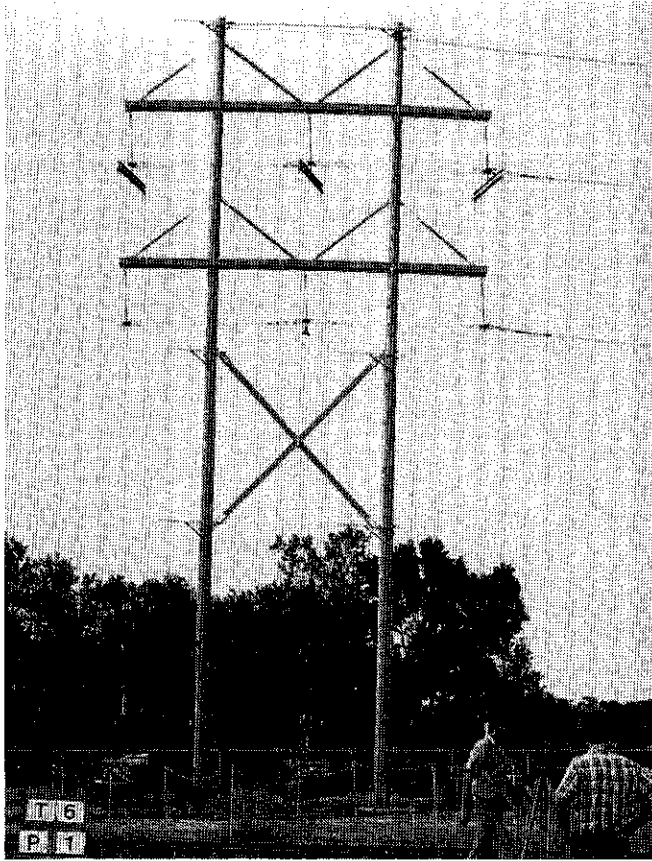
— # — TRANSVERSE LOADS — # —

LOAD No.	LOADS (lbs.)				DEFLECTION (in.)												PIC. No.
	PER. PHASE	PER. S.W.	WIND on POLE	TOTAL LOAD	WEST POLE					EAST POLE							
					A	B	C	D	E	UPLIFT	A	B	C	D	E	THRUST	
	VERTICAL LOADS APPLIED																T6P1
1	2,400	900		16,200	10	9 ³ / ₈	7 ¹ / ₂	6 ³ / ₈	5 ⁵ / ₈	0	9 ¹ / ₈	8 ⁷ / ₈	7 ¹ / ₈	5 ⁷ / ₈	5	0	T6P2
2	3,200	1,200		21,600	14 ⁵ / ₈	13 ³ / ₄	10 ³ / ₄	9	8	0	13 ⁵ / ₈	13 ¹ / ₄	10 ³ / ₈	8 ¹ / ₄	6 ⁷ / ₈	0	T6P3
3	3,600	1,350		24,300	19	17 ⁷ / ₈	14	11 ³ / ₈	9 ³ / ₄	0	17 ¹ / ₈	16 ⁵ / ₈	13 ¹ / ₈	10 ¹ / ₄	8 ¹ / ₈	0	T6P4
4	4,000	1,500		27,000	24 ⁷ / ₈	23 ⁵ / ₈	18 ³ / ₈	15	12	0	24 ¹ / ₈	23 ¹ / ₈	18 ¹ / ₈	14	10 ⁵ / ₈	0	T6P5
				29,400	FAILURE OF THE X BRACE											T6P6	
					COMPRESSION MEMBER												

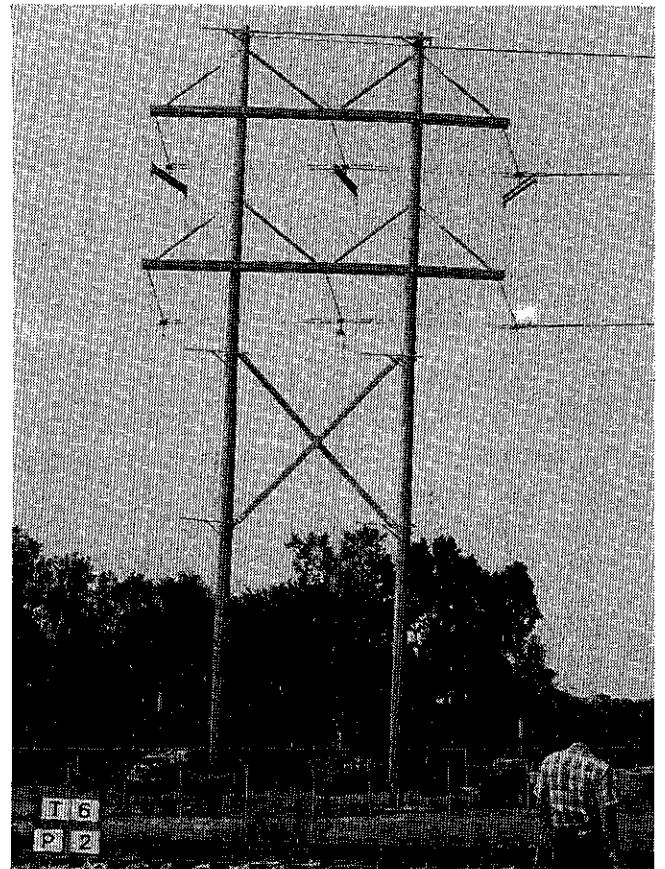
HUGHES BROTHERS
 Seward, Nebraska

DRG. NO. A2376-F

Date Printed



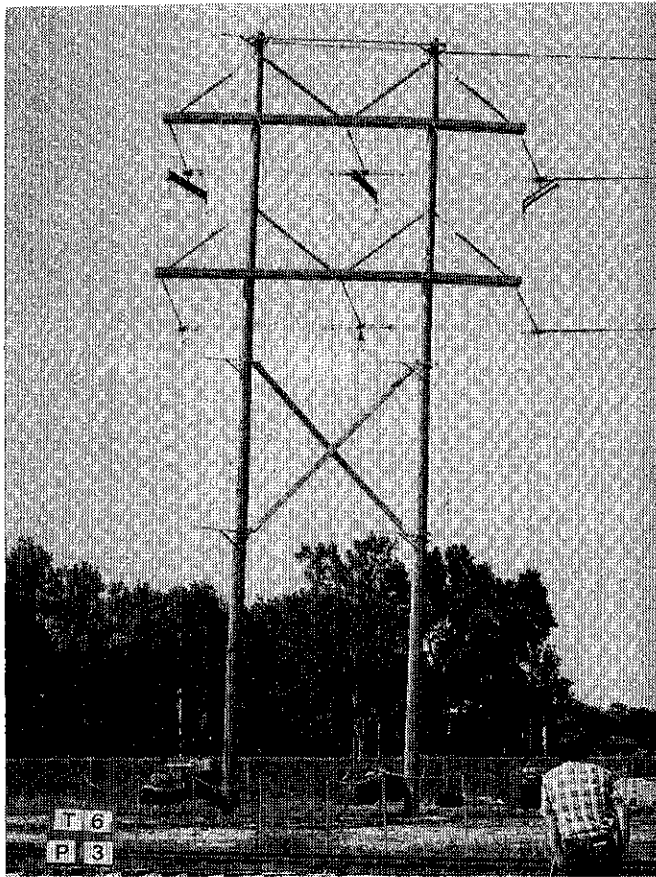
VERTICAL LOADS APPLIED



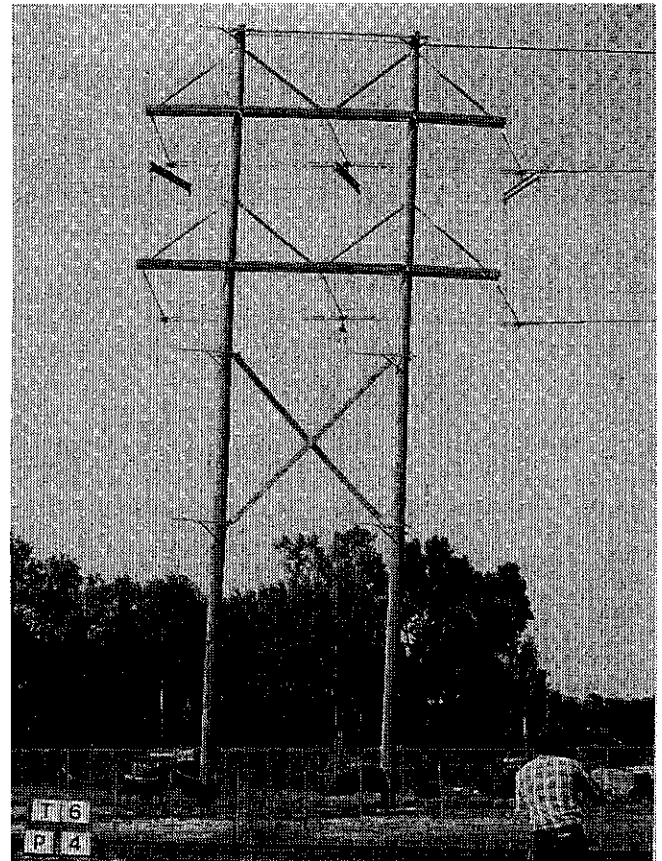
16200 lbs.

HUGHES
BROTHERS

P.O. Box 159 210 North 13th Street Seward, Nebraska 68434



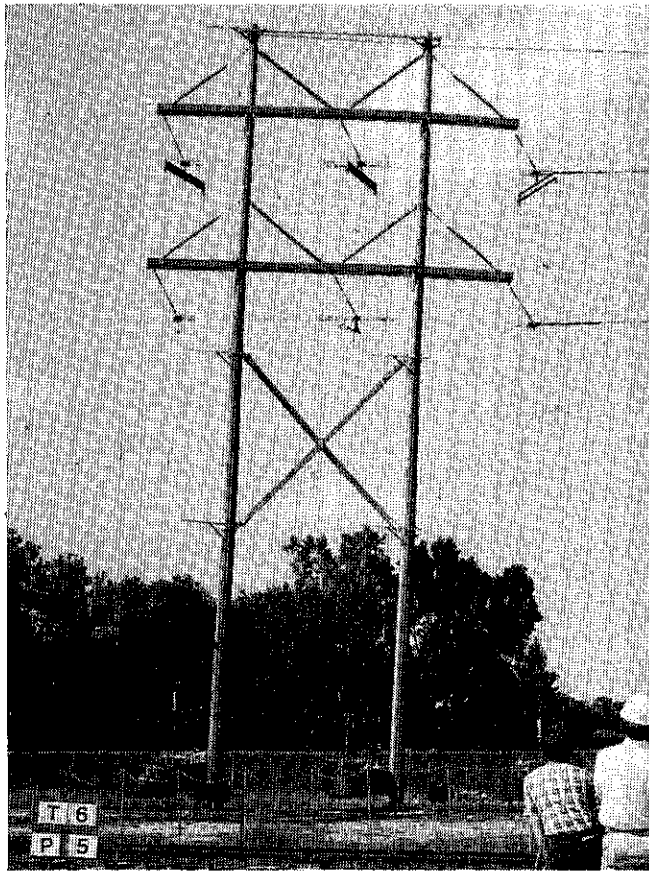
21600 lbs.



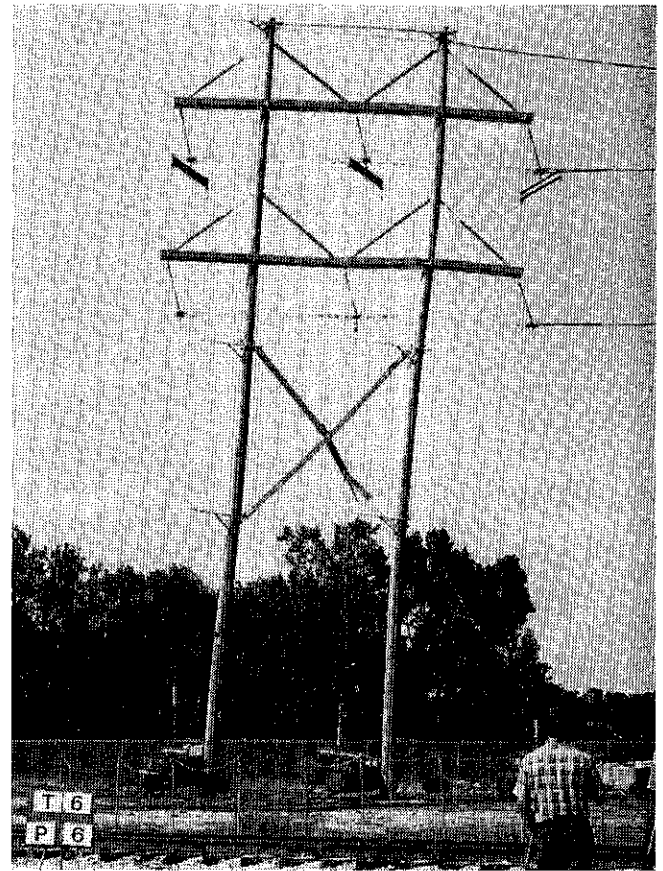
24300 lbs.

HUGHES
BROTHERS

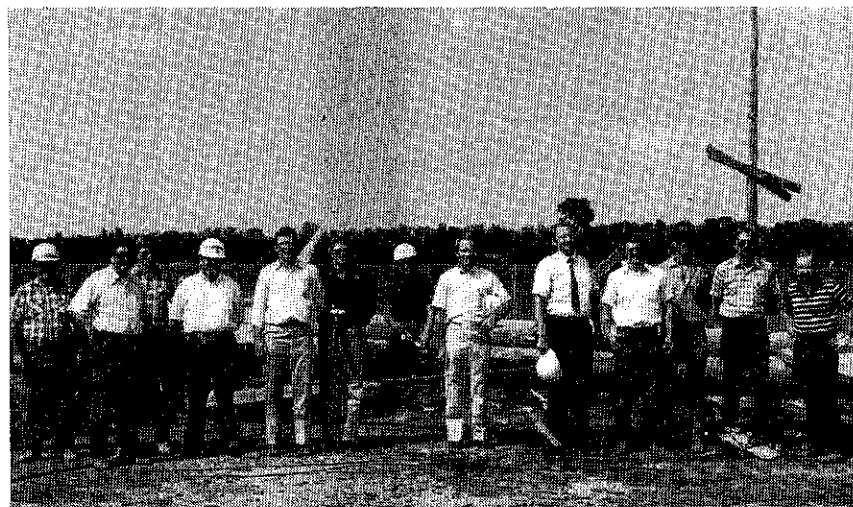
P.O. Box 159 210 North 13th Street Seward, Nebraska 68434



27000 lbs.



29400 lbs. Failure



Left to Right: Stan Mifflin, HB; Steve Smith, HB; Carl Jirovsky, HB; Al Chaney, HB; Ken Johnson, SCPSA; Charlie Hamer, SCPSA; Wayne VonFeldt, PSCC; Larry Moore, SCPSA; Steve DeBoer, Reimers; Dan Policky, HB; Russ Mahalek, HB; Bob Reisdorff, HB; Merrill Peterson, HB.

HUGHES
BROTHERS

P.O. Box 159 210 North 13th Street Seward, Nebraska 68434