

PLS-CADD Version 7.01T 3:39:06 PM Friday, November 12, 2004
Power Line Systems, Inc. - Missouri
Project Name: 'c:\projects\optimization\projects\optimization6point9.DON'
Line Title: 'Wood Pole Optimization'

Criteria notes:

NESC Medium per Rule 250B, Page 161
Extreme Wind Loading per Rule 250C, Page 161, Coefficients and Gust Response Factors per Equations in Tables 250-2, 250-3
90 MPH Basic Wind Speed, 3 second Gust Wind Speed, Figure 250-2 Beginning on Page 166
Grade B Construction "Method A" per Table 253-1, Page 173 and Table 261-1A, Page 182
Tension Limits per Rule 261H1, Page 179
Insulator Strength Reduction per Rule 277, Page 188 Should be applied to Insulator Strengths when Modeling Insulators
2002 NESC C2-2002 Criteria File for PLS-CADD Created December 21, 2001
POWER LINE SYSTEMS, INC. IS NOT RESPONSIBLE FOR THE ACCURACY OF THE CONTENT HEREIN. THIS FILE IS BEING PROVIDED
AS A REFERENCE. CRITERIA SHOULD BE CHECKED AND MODIFIED AS NECESSARY BY A QUALIFIED ENGINEER FAMILIAR WITH THE
NESC REQUIREMENTS OF THE AREA WHICH THE PROJECT IS IN AND ITS APPLICATION.
Project in SPCS Oregon North NAD83 Feet
UTM NAD83 Feet Coordinates;
P.I.1 - 1753909.05, 16471881.83
P.I.11 - 1735576.53, 16446118.50

Optimization parameters:

Create report only, do not modify line
Optimize only overused structures
Use weight as metric for comparing pole shafts
Optimize with the current pole material
Concrete pole library to use for optimization: Default stored with model
Steel pole library to use for optimization: c:\projects\optimization\structures\components\components.spp
Wood pole library to use for optimization: Default stored with model
Wood material library to use for optimization: Default stored with model
Part file used for calculating costs: c:\projects\optimization\parts\optimization.prt

Notes:

Costs are determined by looking up the stock number for a pole property in the parts list.
Costs and usages are given for the pole shaft, not the entire structure.
A cost of 0.00 will be printed if the pole property does not have a stock number.
Weight will be used to compare pole shafts whenever the cost is 0.00.
In multi-pole structures the cost and weight printed are per pole.
Can only optimize frames where all poles have identical class and height.
Only poles with the same length are considered if using the default material (structure height does not change).
If switching materials and no matching height is found with the new material, the next tallest height will be used.

Total initial cost of poles: 77345.57
Total final cost of poles: 61194.24
Total initial weight of poles: 295.794 (kips)
Total final weight of poles: 312.566 (kips)

Automatic Pole Shaft Selection Results:

Str. No.	Structure Name	Pole Label	Initial Property	Initial Cost	Initial Weight (kips)	Initial Usage %	Final Property	Final Cost	Final Weight (kips)	Final Usage %	Optimize Outcome
2	deadend-1-090	Pole	SP-1-90	2638.12	5.639	152.38	SP-H2-90	1941.64	7.209	92.18	Fixed Shaft
3	tangent-h2-085	Pole	SP-H2-85	1462.60	6.587	94.35	SP-H2-85	1462.60	6.587	94.35	No change
4	tangent-h2-085	Pole	SP-H2-85	1462.60	6.587	107.12	SP-H3-85	0.00	7.385	87.87	Fixed Shaft
5	tangent-h2-080	Pole	SP-H2-80	1302.90	5.996	101.78	SP-H3-80	0.00	6.736	83.54	Fixed Shaft
6	tangent-h2-075	Pole	SP-H2-75	1112.40	5.504	117.98	SP-H3-75	0.00	6.119	97.87	Fixed Shaft
7	tangent-h2-075	Pole	SP-H2-75	1112.40	5.504	92.03	SP-H2-75	1112.40	5.504	92.03	No change
8	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	78.70	SP-H1-75	957.90	4.856	78.70	No change
9	deadend-1-080	Pole	SP-1-80	1746.31	4.778	38.62	SP-1-80	1746.31	4.778	38.62	No change
10	tangent-h1-085	Pole	SP-H1-85	1287.50	5.911	87.79	SP-H1-85	1287.50	5.911	87.79	No change
11	runnning_angle-h2-105	Pole	SP-H2-105	2000.00	9.158	16.22	SP-H2-105	2000.00	9.158	16.22	No change
12	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	78.67	SP-H1-75	957.90	4.856	78.67	No change
13	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	100.12	SP-H2-75	1112.40	5.504	80.68	Fixed Shaft
14	tangent-h2-085	Pole	SP-H2-85	1462.60	6.587	104.38	SP-H3-85	0.00	7.385	84.98	Fixed Shaft
15	tangent-h2-085	Pole	SP-H2-85	1462.60	6.587	110.41	SP-H3-85	0.00	7.385	89.67	Fixed Shaft
16	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	101.21	SP-H2-75	1112.40	5.504	83.08	Fixed Shaft
17	tangent-h2-085	Pole	SP-H2-85	1462.60	6.587	117.01	SP-H3-85	0.00	7.385	94.43	Fixed Shaft
18	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	88.25	SP-H1-75	957.90	4.856	88.25	No change
19	deadend-1-100	Pole	SP-1-100	2937.57	6.658	27.93	SP-1-100	2937.57	6.658	27.93	No change
20	runnning_angle-h2-105	Pole	SP-H2-105	2000.00	9.158	36.35	SP-H2-105	2000.00	9.158	36.35	No change
21	tangent-ld07-115	Pole	LD07-115	6302.00	6.302	83.95	LD07-115	6302.00	6.302	83.95	No change
22	tangent-h1-070	Pole	SP-H1-70	894.91	4.371	91.03	SP-H1-70	894.91	4.371	91.03	No change
23	tangent-h1-070	Pole	SP-H1-70	894.91	4.371	61.09	SP-H1-70	894.91	4.371	61.09	No change
24	tangent-2-065	Pole	SP-2-65	799.40	3.026	70.58	SP-2-65	799.40	3.026	70.58	No change
25	tangent-h1-070	Pole	SP-H1-70	894.91	4.371	95.78	SP-H1-70	894.91	4.371	95.78	No change
26	tangent-ld05-100	Pole	LD05-100	3946.00	3.946	89.25	LD05-100	3946.00	3.946	89.25	No change
27	tangent-h2-100	Pole	SP-H2-100	1950.00	8.448	84.04	SP-H2-100	1950.00	8.448	84.04	No change
28	tangent-h2-095	Pole	SP-H2-95	1797.35	7.861	57.09	SP-H2-95	1797.35	7.861	57.09	No change
29	tangent-h1-065	Pole	SP-H1-65	818.85	3.912	66.13	SP-H1-65	818.85	3.912	66.13	No change
30	tangent-h2-080	Pole	SP-H2-80	1302.90	5.996	87.90	SP-H2-80	1302.90	5.996	87.90	No change
31	tangent-h2-080	Pole	SP-H2-80	1302.90	5.996	105.05	SP-H3-80	0.00	6.736	84.89	Fixed Shaft
32	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	111.13	SP-H2-75	1112.40	5.504	89.69	Fixed Shaft
33	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	86.12	SP-H1-75	957.90	4.856	86.12	No change
34	runnning_angle-h2-100	Pole	SP-H2-100	1950.00	8.448	22.28	SP-H2-100	1950.00	8.448	22.28	No change
35	tangent-h2-065	Pole	SP-H2-65	952.75	4.398	106.65	SP-H3-65	0.00	4.912	90.09	Fixed Shaft
36	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	91.68	SP-H1-75	957.90	4.856	91.68	No change
37	tangent-h2-080	Pole	SP-H2-80	1302.90	5.996	102.10	SP-H3-80	0.00	6.736	82.94	Fixed Shaft
38	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	101.71	SP-H2-75	1112.40	5.504	83.00	Fixed Shaft
39	tangent-h2-080	Pole	SP-H2-80	1302.90	5.996	102.37	SP-H3-80	0.00	6.736	83.28	Fixed Shaft
40	tangent-h2-080	Pole	SP-H2-80	1302.90	5.996	104.89	SP-H3-80	0.00	6.736	85.82	Fixed Shaft
41	runnning_angle-h2-105	Pole	SP-H2-105	2000.00	9.158	16.02	SP-H2-105	2000.00	9.158	16.02	No change
42	tangent-h2-075	Pole	SP-H2-75	1112.40	5.504	95.30	SP-H2-75	1112.40	5.504	95.30	No change
43	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	102.52	SP-H2-75	1112.40	5.504	83.74	Fixed Shaft
44	tangent-h2-075	Pole	SP-H2-75	1112.40	5.504	102.56	SP-H3-75	0.00	6.119	86.99	Fixed Shaft
45	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	112.17	SP-H2-75	1112.40	5.504	90.76	Fixed Shaft

46	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	111.50	SP-H2-75	1112.40	5.504	89.26	Fixed Shaft
47	tangent-h2-080	Pole	SP-H2-80	1302.90	5.996	117.87	SP-H3-80	0.00	6.736	95.72	Fixed Shaft
48	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	106.37	SP-H2-75	1112.40	5.504	86.39	Fixed Shaft
49	tangent-h1-070	Pole	SP-H1-70	894.91	4.371	85.46	SP-H1-70	894.91	4.371	85.46	No change
50	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	104.69	SP-H2-75	1112.40	5.504	84.07	Fixed Shaft
51	tangent-h1-075	Pole	SP-H1-75	957.90	4.856	96.60	SP-H1-75	957.90	4.856	96.60	No change
52	light_angle-1-095	Pole	SP-1-95	2750.56	6.096	74.44	SP-1-95	2750.56	6.096	74.44	No change
53	deadend-1-090	Pole	SP-1-90	2638.12	5.639	38.69	SP-1-90	2638.12	5.639	38.69	No change