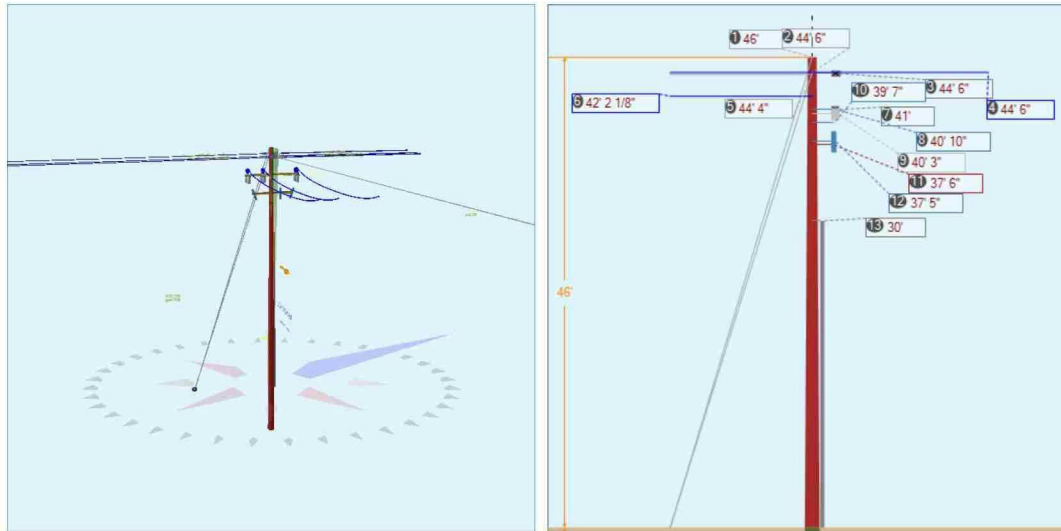




Pole Num:	0	Pole Length / Class:	55 / 1	Code:	NESC	Structure Type:	Guyed Tangent
PM Order Number	35217268	Species:	DOUGLAS FIR	GO 95 Rule:	At Replace (Existing)	Pole Strength Factor:	0.50
Estimator LAN ID		Setting Depth (ft):	9.00	Construction Grade:	B	Transverse Wind LF:	1.00
Sketch Location	LOC_1	G/L Circumference (in):	45.31	Loading District:	Heavy	Wire Tension LF:	1.00
Joint Pole Number	N/A	G/L Fiber Stress (psi):	7,600	Ice Thickness (in):	0.00	Vertical LF:	1.00
Notification	117045209	Allowable Stress (psi):	3,800	Wind Speed (mph):	90.00	Pole Factor of Safety:	2.25
Aux Data 6	1.0.6542.28955	Fiber Stress Ht. Reduc:	No	Wind Pressure (psf):	20.74	Vertical Factor of Safety:	24.39
Latitude:	39.911096 Deg	Longitude:	-121.326877 Deg	Elevation:	1898.999939232 Feet	Bending Factor of Safety:	2.29



Pole Capacity Utilization (%)	Height (ft)	Wind Angle (deg)
Maximum	88.8	0.0
Groundline	88.8	0.0
Vertical	8.2	40.8

Pole Moments (ft-lb)	Load Angle (deg)	Wind Angle (deg)
Max Cap Util	81,324	115.2
Groundline	81,324	115.2
GL Allowable	93,245	
Overturn	170,000	

Guy System Component Summary				Load From Worst Wind Angle on Pole		Individual Maximum Load With Overload Applied	
Description	Lead Length (ft)	Lead Angle (deg)	Height (ft)	Nominal Capacity (%)	Wind Angle (deg)	Max* Load Capacity (%)	Wind Angle (deg)
? Anchor - 20M	15.0	212.0		36.1	123.4	47.2	30.0
? EHS 7/16 (Down)			46.0	33.8	123.4	43.6	30.0
? EHS 7/16 (Down)			44.5	35.6	123.4	47.2	30.0
? Anchor	60.0	28.0		0.0	123.4	0.0	0.0
? EHS 3/8 (Span/Head)			44.3	0.0	123.4	0.0	0.0
System Capacity Summary:				Adequate		Adequate	

Groundline Load Summary - Reporting Angle Mode: Load - Reporting Angle: 115.2°										
	Shear Load* (lbs)	Applied Load (%)	Bending Moment (ft-lb)	Applied Moment (%)	Pole Capacity (%)	Bending Stress (+/- psi)	Vertical Load (lbs)	Vertical Stress (psi)	Total Stress (psi)	Pole Capacity (%)
Powers	1,071	44.3	46,857	57.6	50.3	1,923	84	1	1,923	50.6
GuyBraces	-202	-8.3	-9,069	-11.2	-9.7	-372	6,898	42	-330	-8.7
GenericEquipments	163	6.8	6,597	8.1	7.1	271	180	1	272	7.2
Pole	905	37.4	20,322	25.0	21.8	834	2,036	12	846	22.3
Crossarms	210	8.7	8,589	10.6	9.2	352	605	4	356	9.4
Risers	158	6.5	3,139	3.9	3.4	129	0	0	129	3.4
Insulators	111	4.6	4,889	6.0	5.2	201	126	1	201	5.3
Pole Load	2,418	100.0	81,324	100.0	87.2	3,337	9,929	61	3,398	89.4
Pole Reserve Capacity			11,921		12.8	463			402	10.6

Load Summary by Owner - Reporting Angle Mode: Load - Reporting Angle: 115.2°										
	Shear Load* (lbs)	Applied Load (%)	Bending Moment (ft-lb)	Applied Moment (%)	Pole Capacity (%)	Bending Stress (+/- psi)	Vertical Load (lbs)	Vertical Stress (psi)	Total Stress (psi)	Pole Capacity (%)
PG&E	1,512	62.6	61,002	75.0	65.4	2,503	7,893	48	2,551	67.1
Pole	905	37.4	20,322	25.0	21.8	834	2,036	12	846	22.3
Totals:	2,418	100.0	81,324	100.0	87.2	3,337	9,929	61	3,398	89.4

Detailed Load Components:

Power	Owner	Height (ft)	Horiz. Offset (in)	Cable Diameter (in)	Sag at Max Temp (ft)	Cable Weight (lbs/ft)	Lead/Span Length (ft)	Span Angle (deg)	Wire Length (ft)	Tension (lbs)	Tension Moment* (ft-lb)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)	
Primary	397.5 (19) AAC XLPE TW	PG&E	44.50	31.52	1.0740	0.30	0.612	26.0	31.8	26.0	2,780	14,415	2	1,066	15,482
Primary	397.5 (19) AAC XLPE TW	PG&E	44.50	49.63	1.0740	0.30	0.612	26.0	31.8	26.0	2,780	14,415	3	1,066	15,483
Primary	397.5 (19) AAC XLPE TW	PG&E	44.50	48.59	1.0740	0.30	0.612	26.0	31.8	26.0	2,780	14,415	-2	1,066	15,478
Primary	1/0 (6/1) ACSR XLPE TW	PG&E	44.50	22.16	0.7480	0.40	0.284	50.0	208.1	50.0	1,872	-4,347	2	1,430	-2,915
Primary	1/0 (6/1) ACSR XLPE TW	PG&E	44.50	44.27	0.7480	0.40	0.284	50.0	208.1	50.0	1,872	-4,347	2	1,430	-2,915
Primary	1/0 (6/1) ACSR XLPE TW	PG&E	44.50	43.11	0.7480	0.40	0.284	50.0	208.1	50.0	1,872	-4,347	-3	1,430	-2,920
Primary	397.5 (19) AAC XLPE TW	PG&E	42.18	57.38	1.0740	0.40	0.612	42.0	118.0	42.3	75	3,163	4	-8	3,159
Primary	397.5 (19) AAC XLPE TW	PG&E	42.18	22.97	1.0740	0.40	0.612	42.0	118.0	42.3	75	3,163	6	-8	3,161
Primary	397.5 (19) AAC XLPE TW	PG&E	42.18	57.38	1.0740	0.40	0.612	42.0	118.0	42.3	75	3,163	10	-8	3,165
Totals:											39,691	24	7,465	47,180	

Generic Equipment	Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Height (in)	Unit Depth (in)	Unit Diameter (in)	Unit Length (in)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)
Box Insulator Bracket	PG&E	40.82	57.38	118.0	0.0	10.00	3.00	30.00	--	6.00	3	165	168
Cylinder Switch Insulator	PG&E	40.24	59.37	191.8	0.0	10.00	14.00	--	8.00	--	11	654	666
Cylinder Switch Insulator	PG&E	40.24	57.10	211.4	0.0	10.00	14.00	--	8.00	--	-5	654	649
Box Insulator Bracket	PG&E	40.82	22.97	118.0	0.0	10.00	3.00	30.00	--	6.00	5	165	170
Cylinder Switch Insulator	PG&E	40.24	27.57	170.9	0.0	10.00	14.00	--	8.00	--	13	654	667
Cylinder Switch Insulator	PG&E	40.24	22.26	216.8	0.0	10.00	14.00	--	8.00	--	-4	654	651
Box Insulator Bracket	PG&E	40.82	57.38	118.0	0.0	10.00	3.00	30.00	--	6.00	8	165	173
Cylinder Switch Insulator	PG&E	40.24	57.10	24.6	0.0	10.00	14.00	--	8.00	--	0	654	654
Cylinder Switch Insulator	PG&E	40.24	59.37	44.2	0.0	10.00	14.00	--	8.00	--	16	654	671
Box Switch SB	PG&E	39.57	57.38	118.0	0.0	10.00	1.00	36.00	--	3.00	8	27	34
Box Switch SB	PG&E	39.57	57.38	118.0	0.0	10.00	1.00	36.00	--	3.00	3	27	30
Box Switch SB	PG&E	39.57	22.97	118.0	0.0	10.00	1.00	36.00	--	3.00	5	27	31
Cylinder Pothead	PG&E	37.42	46.43	118.0	0.0	20.00	25.00	--	5.00	--	21	668	689
Cylinder Pothead	PG&E	37.42	46.43	118.0	0.0	20.00	25.00	--	5.00	--	28	668	696
Cylinder Pothead	PG&E	37.42	22.70	118.0	0.0	20.00	25.00	--	5.00	--	25	668	693
Totals:											136	6,506	6,643

Crossarm	Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Height (in)	Unit Depth (in)	Unit Length (in)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)
Normal 8L Composite Dead-End Arm	PG&E	44.50	6.70	30.0	30.0	54.00	3.63	4.63	96.00	3	153	156
Normal US Air Switch 900A - Deadend	PG&E	41.00	6.61	118.0	118.0	515.00	4.25	4.00	126.00	283	5,029	5,313

Normal	Cutout Arm w/Potheads	PG&E	37.50	5.84	118.0	118.0	36.00	4.00	2.00	92.00	17	3,161	3,179
Totals:											304	8,344	8,648

Riser	Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Height (in)	Unit Depth (in)	Unit Diameter (in)	Unit Length (in)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)	
Riser 4" PG&E 73.0°	Riser 4" PG&E	PG&E	30.00	7.53	73.0	73.0	30.00	360.00	4.00	4.00	360.00	0	3,161	3,161
Totals:											0	3,161	3,161	

Insulator	Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Diameter (in)	Unit Length (in)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)	
Pin	Insulator	PG&E	44.65	18.00	99.6	0.0	6.00	5.50	7.50	9	263	273
Pin	Insulator	PG&E	44.65	44.00	111.3	0.0	6.00	5.50	7.50	22	263	286
Pin	Insulator	PG&E	44.65	-44.00	308.7	0.0	6.00	5.50	7.50	-22	263	242
Deadend	Dead-End Insulator	PG&E	44.50	18.00	99.6	1.8	4.00	3.90	18.75	7	464	471
Deadend	Dead-End Insulator	PG&E	44.50	42.00	110.9	1.8	4.00	3.90	18.75	15	464	479
Deadend	Dead-End Insulator	PG&E	44.50	-42.00	309.1	1.8	4.00	3.90	18.75	-13	464	451
Deadend	Dead-End Insulator	PG&E	44.50	18.00	99.6	-181.9	4.00	3.90	18.75	6	464	470
Deadend	Dead-End Insulator	PG&E	44.50	42.00	110.9	-181.9	4.00	3.90	18.75	14	464	478
Deadend	Dead-End Insulator	PG&E	44.50	-42.00	309.1	-181.9	4.00	3.90	18.75	-14	464	450
Post	Post 12 (P/N 2)	PG&E	41.18	57.00	201.4	0.0	13.00	6.00	12.00	4	426	430
Post	Post 12 (P/N 2)	PG&E	41.18	22.00	191.3	0.0	13.00	6.00	12.00	6	426	432
Post	Post 12 (P/N 2)	PG&E	41.18	-57.00	34.6	0.0	13.00	6.00	12.00	10	426	436
Underhung	Single Bolt	PG&E	40.82	57.00	201.4	0.0	5.00	3.00	0.00	2	0	2
Underhung	Single Bolt	PG&E	40.82	22.00	191.3	0.0	5.00	3.00	0.00	2	0	2
Underhung	Single Bolt	PG&E	40.82	-57.00	34.6	0.0	5.00	3.00	0.00	4	0	4
Underhung	Single Bolt	PG&E	40.82	-57.00	34.6	0.0	5.00	3.00	0.00	4	0	4
Underhung	Single Bolt	PG&E	40.82	57.00	201.4	0.0	5.00	3.00	0.00	2	0	2
Underhung	Single Bolt	PG&E	40.82	22.00	191.3	0.0	5.00	3.00	0.00	2	0	2
Bolt	Cutout	PG&E	37.67	44.00	200.4	0.0	5.00	5.00	0.00	3	0	3
Bolt	Cutout	PG&E	37.67	-44.00	35.6	0.0	5.00	5.00	0.00	5	0	5
Bolt	Cutout	PG&E	37.67	-18.00	46.0	0.0	5.00	3.00	0.00	4	0	4
Totals:										72	4,851	4,922

Guy Wire and Brace	Owner	Attach Height (ft)	End Height (ft)	Lead/Span Length (ft)	Wire Diameter (in)	Percent Solid (%)	Lead Angle (deg)	Incline Angle (deg)	Wire Weight (lbs/ft)	Rest Length (ft)	Stretch Length (in)	
EHS 7/16	Down	PG&E	46.00	0.00	15.00	0.438	75.00	212.0	71.7	0.399	54.42	0.88
EHS 7/16	Down	PG&E	44.50	0.00	15.00	0.438	75.00	212.0	71.1	0.399	52.97	0.91
EHS 3/8	Span/Head	PG&E	44.33	27.50	60.00	0.375	75.00	28.0	15.6	0.273	64.49	0.00

Guy Wire and Brace (Loads and Reactions)		Elastic Modulus (psi)	Rated Tensile Strength (lbs)	Guy Strength Factor	Allowable Tension (lbs)	Initial Tension (lbs)	Loaded Tension* ² (lbs)	Maximum Tension ² (lbs)	Applied Tension ³ (lbs)	Vertical Load (lbs)	Shear Load In Guy Dir (lbs)	Shear Load At Report Angle (lbs)	Moment at GL ³ (ft-lb)
EHS 7/16	Down	2.30e+7	20,800	0.50	10,400	700	4,536	4,536	3,512	3,334	1,105	-132	-4,860
EHS 7/16	Down	2.30e+7	20,800	0.50	10,400	700	4,907	4,907	3,698	3,498	1,198	-143	-5,202
EHS 3/8	Span/Head	2.30e+7	15,400	0.50	7,700	700	0	0	0	0	0	0	930
Totals:										6,832	2,302	-274	-9,132

Anchor/Rod Load Summary	Owner	Rod Length AGL (in)	Lead Length (ft)	Lead Angle (deg)	Strength of Assembly (lbs)	Anchor/Rod Strength Factor	Allowable Load (lbs)	Max Load ² (lbs)	Load at Pole MCU ³ (lbs)	Max Required Capacity ² (%)
Anchor - 20M	PG&E	30.00	15.00	212.0	40,000	0.50	20,000	9,443	7,209	47.2
Anchor	PG&E	6.00	60.00	28.0	25,000	0.50	12,500	0	0	0.0

Pole Buckling													
Buckling Constant	Buckling Column Height* (ft)	Buckling Section Height (% Buckling Col. Hgt.)	Buckling Section Diameter (in)	Minimum Buckling Diameter at GL (in)	Diameter at Tip (in)	Diameter at GL (in)	Modulus of Elasticity (psi)	Pole Density (pcf)	Ice Density (pcf)	Pole Tip Height (ft)	Buckling Load Capacity at Height (lbs)	Buckling Load Applied at Height (lbs)	Buckling Load Factor of Safety
0.71	40.84	35.38	12.59	7.72	8.60	14.43	2.38e+6	60.00	57.00	46.00	120,696	1210.81	12.20

Notes		
Date	Author	Description
8/3/2015		Install C/O Arm min 2.5 ft below Primary Conductor
Install C/O Arm min 2.5 ft below Primary Conductor		