STRUCTURAL ANALYSIS REPORT

WHISPER 100/200
65-ft GUYED WIND TURBINE

TEP # 061289

Revision 0
November 3, 2006

NORTH CAROLINA PROFESSIONAL ENGINEER MICHAEL L. GARDNER

PORTABLE DOCUMENT FORMAT

Prepared For:

Southwest Windpower
Renewable Energy Made Simple

1.0 ASSIGNMENT

Subject – Structural analysis of the 65-ft guyed wind turbine

Purpose – The objective of the analysis was to determine if the guyed wind turbine would meet the ASCE 7-05, Minimum Design Loads for Buildings and Other Structures and the 2003 International Building Code for four different load cases.

2.0 SCOPE OF SERVICES

1) Conduct a structural analysis of the wind turbine support structure
2) Prepare a report of findings and conclusions

3.0 PARTICIPATING PERSONNEL

Carrier Representative: Mr. Jay Yeager
Southwest Windpower (SW)
1801 W. Route 66
Flagstaff, AZ 86001
(928) 779-9463

Consulting Engineers: Mr. Michael L. Gardner, P.E.
Mr. Ronnie E. Glover, EI
Tower Engineering Professionals, Inc. (TEP)
3703 Junction Boulevard
Raleigh, NC 27603-5263
(919) 661-6351

4.0 BACKGROUND INFORMATION

SW requested that TEP conduct a structural analysis of the guyed support structure. The analysis was to determine if the support structure would meet the ASCE 7-05. The structure is a 65-ft guyed, 2-1/2 Sch40-Grade 50 steel pipe with a Whisper 100/200 wind turbine installed.

TEP utilized the following information to complete the analysis:

1) Tower land kit installation manual by Southwest Windpower dated May 20, 2005, Document # 0029 REV E, provided by SW
2) Previous structural analysis by Southwest Windpower dated June 7, 2003, Document # 0189, provided be SW
3) Correspondence with SW with respect to the tower configuration

5.0 INVESTIGATION

Analyzed Appurtenance – See the appendix for a schedule including the wind turbine model considered in the analysis.

Codes and Standards – The structural analysis was performed in accordance with the ASCE/SEI 7-05, Minimum Design Loads for Buildings and Other Structures and the 2003 International Building Code.

Basic Load Combinations – Nine load combinations per ASCE 7-05 were considered for each of the four load cases as follows:

1) 1.4D
2) 1.2D + 0.8W
3) 1.2D + 1.6W
4) 1.2D + 1.0E
5) 0.9D + 1.6W
6) 0.9D + 1.0E
7) $1.2D + 0.2D_i$
8) $1.2D + D_i + W_i$
9) $0.9D + D_i + W_i$

D = dead load
W = wind load
E = earthquake load
D_i = weight of ice
W_i = wind-on-ice

5.0 INVESTIGATION – continued

Load Cases – Four load cases were considered in accordance with the above load combinations:

Load Case I – High wind, no ice, low seismic region

1) A 150-mph 3-second gust wind was applied for stress analysis.

Load Case II – Moderate wind, heavy ice, low seismic region

2) A 90-mph 3-second gust wind was applied for stress analysis.
3) A 40-mph 3-second gust wind was applied with 3/4" radial ice for stress analysis.

Load Case III – High wind, moderate ice, high seismic region

4) A 130-mph 3-second gust wind was applied for stress analysis.
5) A 30-mph 3-second gust wind was applied with 1/4" radial ice for stress analysis.

Load Case IV – Low wind, no ice, high seismic region

6) An 85-mph 3-second gust wind was applied for stress analysis.

Provisions of This Analysis

1) The tower and foundation were constructed according to manufacturer's requirements.
2) The tower has been maintained according to the manufacturer's specifications.
3) The structural integrity of the tower and tower components has not been compromised.
4) The information provided by SW was assumed accurate and complete.
5) This analysis report is not a construction document.
6) In determination of the design loads, TEP assumed the following:
   a) Importance Factor = 1.00
   b) Exposure Category C
   c) Site Class D assumed for all seismic conditions

   These assumptions may change depending on site specific data. See Recommendations.
7) The mechanical specifications for the Whisper 200 wind turbine at the top of the tower are as follows:
   a) Rotor Diameter = 9.2 ft
   b) Swept Area = 66.3 ft^2
   c) Turbine Weight = 46 lb
   d) Turbine Thrust = 400 lb

6.0 RESULTS – It is the opinion of Tower Engineering Professionals, Inc. that:

Load Cases I – IV

1) The superstructure will meet the ASCE 7-05 and 2003 IBC standards for structural capacity.

7.0 RECOMMENDATIONS – TEP recommends the following:

Load Cases I – IV

1) If the load differs from that described in the appendix of this report, or the assumptions listed in the provisions of this analysis are found to be invalid, another structural analysis should be performed.
2) This analysis report includes four load cases indicative to typical site design parameters. This analysis report is not a construction document. TEP shall reanalyze and issue a sealed report in the state specific to the wind turbine location.

8.0 APPENDIX

Height (ft)	Location	Mount	Description / Model
65	Top of Pipe Support	(1) Tower Insert Mount Bracket	Wind Turbine Whisper 100/200
45 – 65			(1) 20-ft 2-1/2 Sch40 ASTM A572 Gr. 50 Steel Pipe
30 – 45	–	–	(1) 15-ft 2-1/2 Sch40 ASTM A572 Gr. 50 Steel Pipe
15 – 30	–	–	(1) 15-ft 2-1/2 Sch40 ASTM A572 Gr. 50 Steel Pipe
0 – 15	–	–	(1) 15-ft 2-1/2 Sch40 ASTM A572 Gr. 50 Steel Pipe

Superstructure Results:

Item	Height (ft)	Result	Percent Capacity Used	Notes
Deflection	65	0.69-ft	-	
Twist	65	4.58º	-	
Mast Pipe	0 – 65	O. K.	69.3 %	
Guy Wires	0 – 65	O. K.	63.3 %	
Pivot Bolt	0	O. K.	16.6 %	Assumed A325 Type N 7/8" Φ

Guy Wire Configuration:

Guy Wires			Anchor Radius (ft)	IT @ 60°-F (kip)[1]	Allowable Tension (kip)	Maximum Tension (kip)
Elevation (ft)	Type	Diameter (in)				
60	7x19 Strand	1/4	33	0.33	4.20	2.66
45	7x19 Strand	1/4	33	0.33	4.20	0.60
30	7x19 Strand	1/4	33	0.33	4.20	0.64
15	7x19 Strand	1/4	33	0.33	4.20	0.64

[1] – Initial tension assumed to be 5% of breaking strength

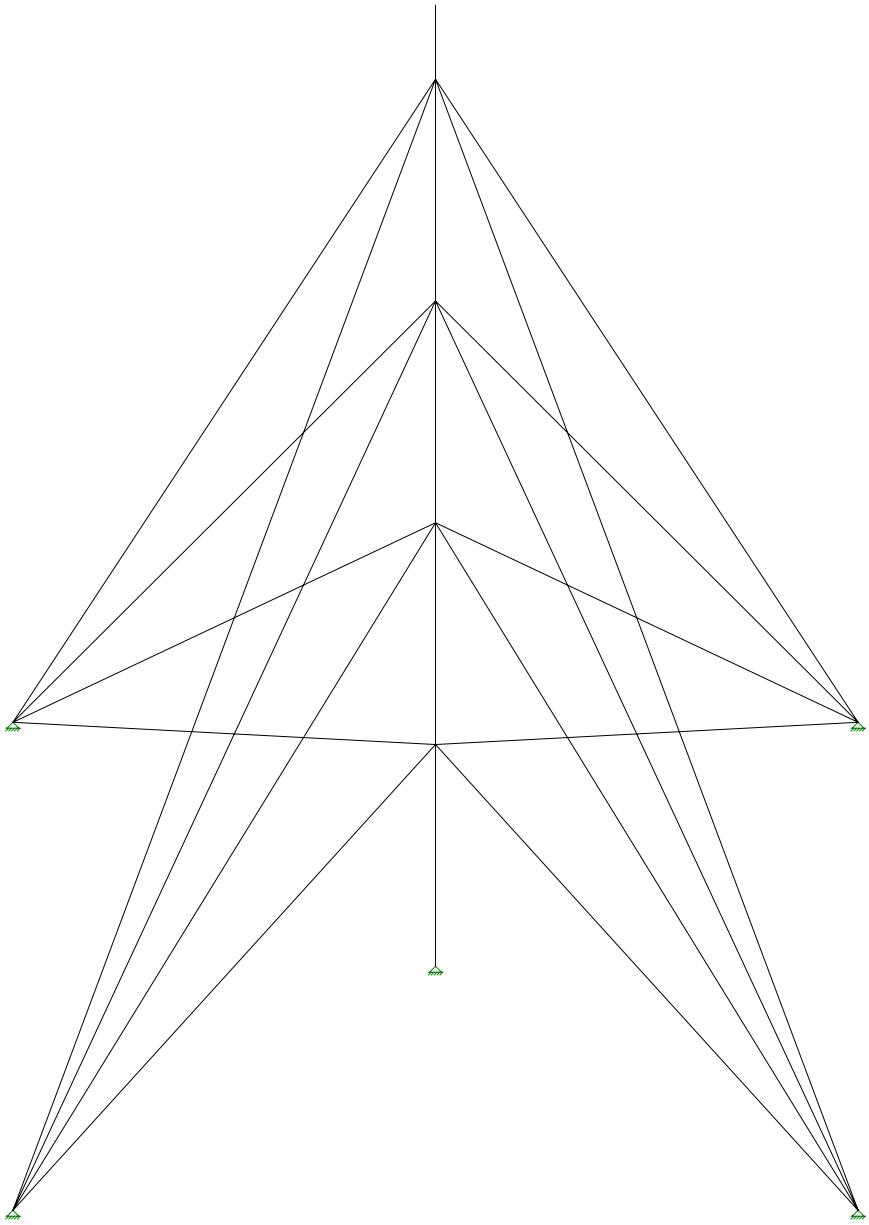
8.0 APPENDIX – continued

Substructure Results:

Item	Analysis Reactions (Kip)	Notes
Mast horizontal	0.1	
Mast vertical	6.4	
Anchor shear	2.7	
Anchor vertical	3.5	
Anchor rod	4.4	
Anchor angle	52.4°	

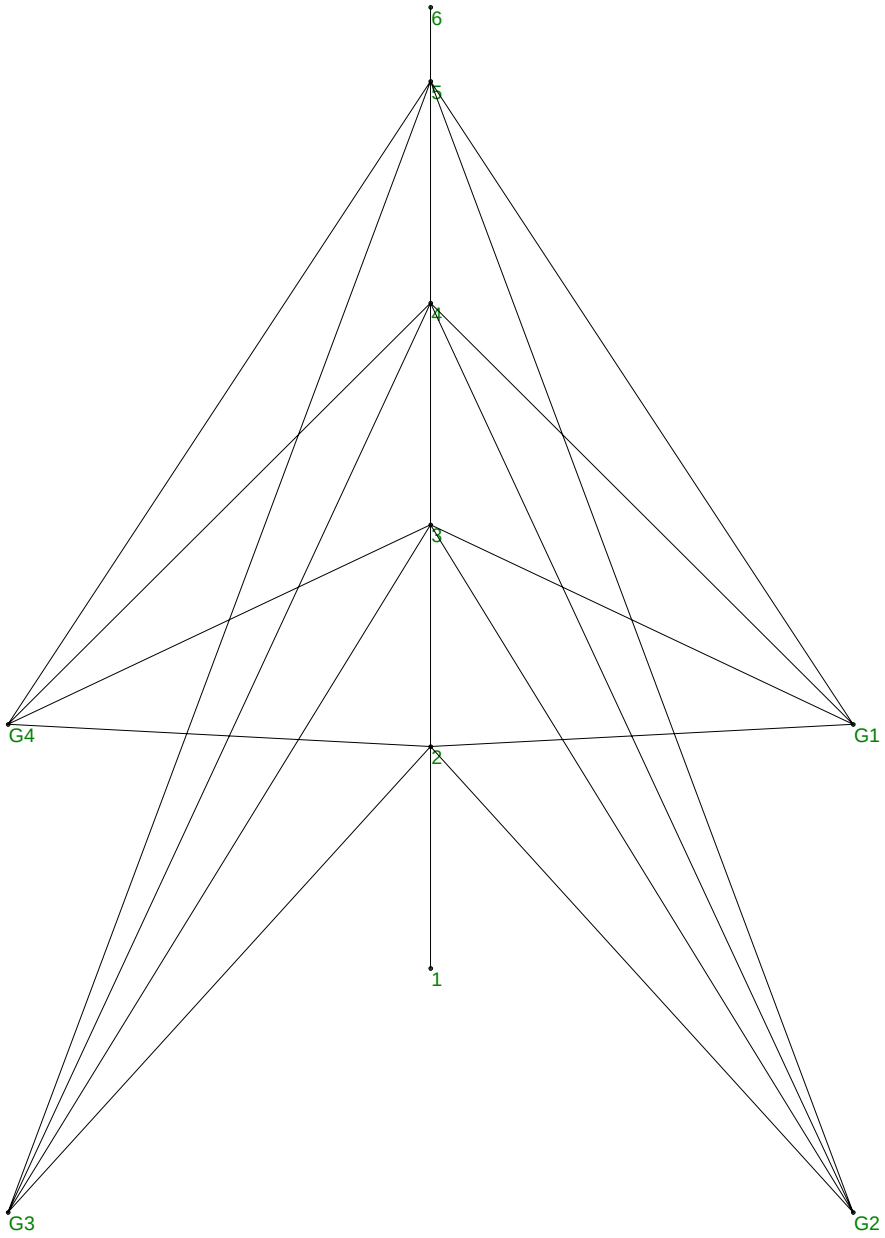
9.0 ATTACHMENTS

1) Program Output



Solution: Envelope

Tower Engineering Profes...	Whisper 100/200 65-ft	
REG		Nov 2, 2006 at 1:00 PM
061289		65-ft LC #1.r3d



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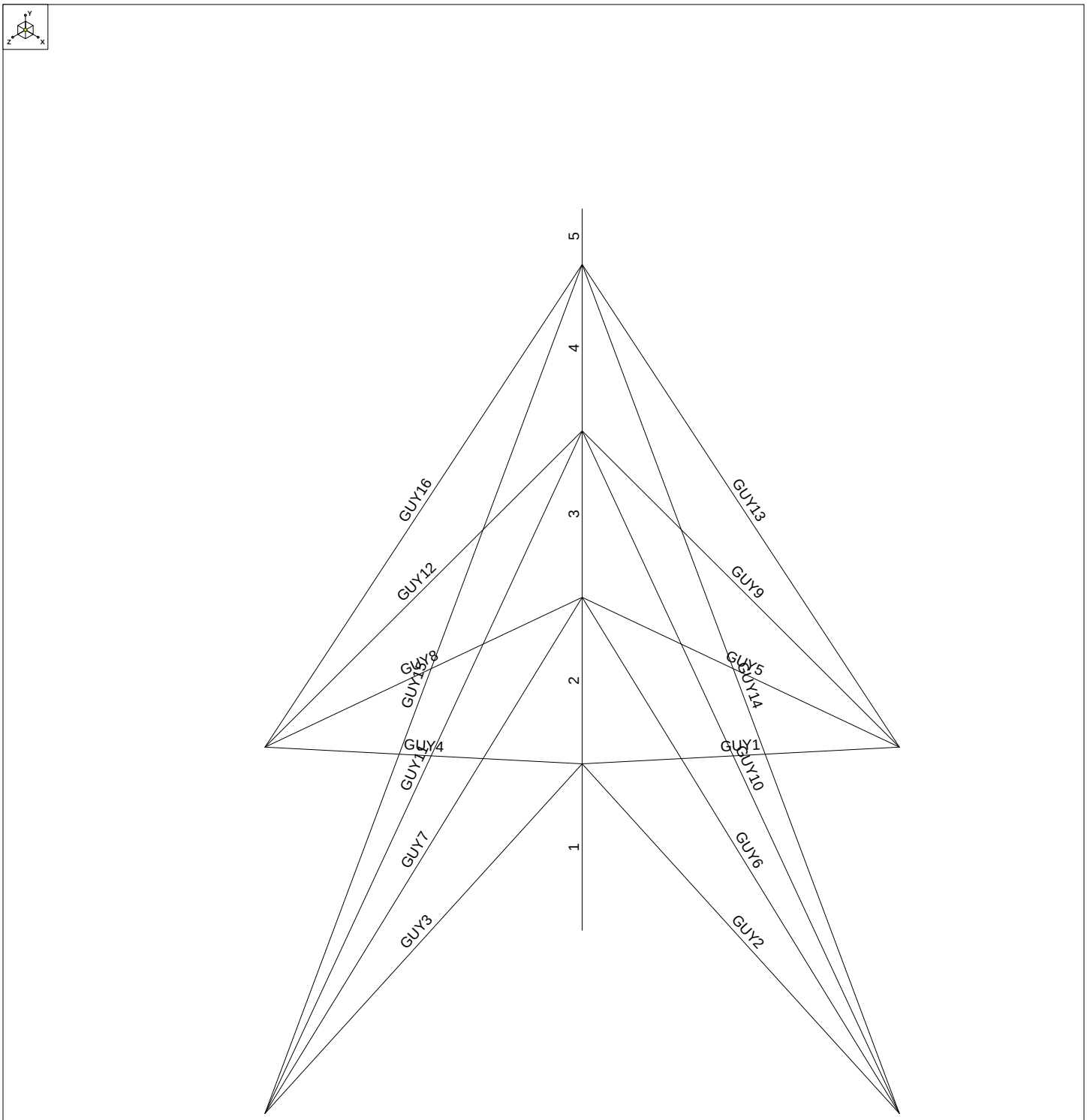

Solution: Envelope

Tower Engineering Profes...	Whisper 100/200 65-ft	
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Basic Load Cases

	BLC Description	Category	X Gr...	Y Grav..	Z Grav...	Joint	Point	Distributed	Area (...	Surfac...
1	Dead	DL		-1		9		16		
2	Wind	WL				9		5		
3	Earthquake	EL				6				
4	Ice Weight	DL				9		5		
5	Wind on Iced Members	WL				9		5		

Load Combinations

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	Comb 1	Yes	Y		1	1.4														
2	Comb 2	Yes	Y		1	1.2	2	.8												
3	Comb 3	Yes	Y		1	1.2	2	1.6												
4	Comb 4	Yes	Y		1	1.2	3	1												
5	Comb 5	Yes	Y		1	.9	2	1.6												
6	Comb 6	Yes	Y		1	.9	3	1												
7	Comb 7	Yes	Y		1	1.2	4	.2												
8	Comb 8	Yes	Y		1	1.2	4	1	5	1										
9	Comb 9	Yes	Y		1	.9	4	1	5	1										

General Material Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]
1	gen_Conc3NW	3155	1372	.15	.6	.145
2	gen_Conc4NW	3644	1584	.15	.6	.145
3	gen_Conc3LW	2085	906	.15	.6	.11
4	gen_Conc4LW	2408	1047	.15	.6	.11
5	gen_Alum	10600	4077	.3	1.29	.173
6	gen_Steel	29000	11154	.3	.65	.49
7	RIGID	1e+7		0	0	0
8	Guy E=26800	26800	11154	.3	1.17	0

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	1	0	0	0	0	
2	2	0	15	0	0	
3	3	0	30	0	0	
4	4	0	45	0	0	
5	5	0	60	0	0	
6	6	0	65	0	0	
7	G1	0	0	-33	0	
8	G2	33	0	0	0	
9	G3	0	0	33	0	
10	G4	-33	0	0	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
1	G1	Reaction	Reaction	Reaction				
2	G2	Reaction	Reaction	Reaction				
3	G3	Reaction	Reaction	Reaction				
4	G4	Reaction	Reaction	Reaction				
5	1	Reaction	Reaction	Reaction				

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design Rules
1	1	1	2			PIPE_2.5	Column	Pipe	A572 Gr.50	Typical
2	2	2	3			PIPE_2.5	Column	Pipe	A572 Gr.50	Typical
3	3	3	4			PIPE_2.5	Column	Wide Flan...	A572 Gr.50	Typical
4	4	4	5			PIPE_2.5	Column	Wide Flan...	A572 Gr.50	Typical
5	5	5	6			PIPE_2.5	Beam	Pipe	A572 Gr.50	Typical
6	GUY1	G1	2			1/4" EHS	None	None	Guy E=26800	Typical
7	GUY2	G2	2			1/4" EHS	None	None	Guy E=26800	Typical
8	GUY3	G3	2			1/4" EHS	None	None	Guy E=26800	Typical
9	GUY4	G4	2			1/4" EHS	None	None	Guy E=26800	Typical
10	GUY5	G1	3			1/4" EHS	None	None	Guy E=26800	Typical
11	GUY6	G2	3			1/4" EHS	None	None	Guy E=26800	Typical
12	GUY7	G3	3			1/4" EHS	None	None	Guy E=26800	Typical
13	GUY8	G4	3			1/4" EHS	None	None	Guy E=26800	Typical
14	GUY9	G1	4			1/4" EHS	None	None	Guy E=26800	Typical
15	GUY10	G2	4			1/4" EHS	None	None	Guy E=26800	Typical
16	GUY11	G3	4			1/4" EHS	None	None	Guy E=26800	Typical
17	GUY12	G4	4			1/4" EHS	None	None	Guy E=26800	Typical
18	GUY13	G1	5			1/4" EHS	None	None	Guy E=26800	Typical
19	GUY14	G2	5			1/4" EHS	None	None	Guy E=26800	Typical
20	GUY15	G3	5			1/4" EHS	None	None	Guy E=26800	Typical
21	GUY16	G4	5			1/4" EHS	None	None	Guy E=26800	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	TOM	Inactive
1	1						Yes		
2	2						Yes		
3	3						Yes		
4	4						Yes		
5	5						Yes		
6	GUY1					Tension Only	Yes		
7	GUY2					Tension Only	Yes		
8	GUY3					Tension Only	Yes		
9	GUY4					Tension Only	Yes		
10	GUY5					Tension Only	Yes		
11	GUY6					Tension Only	Yes		
12	GUY7					Tension Only	Yes		
13	GUY8					Tension Only	Yes		
14	GUY9					Tension Only	Yes		
15	GUY10					Tension Only	Yes		
16	GUY11					Tension Only	Yes		
17	GUY12					Tension Only	Yes		
18	GUY13					Tension Only	Yes		
19	GUY14					Tension Only	Yes		
20	GUY15					Tension Only	Yes		
21	GUY16					Tension Only	Yes		

Joint Loads and Enforced Displacements (BLC 1 : Dead)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	Y	-.046
2	2	L	Y	-.0034
3	2	L	Y	-.0034
4	3	L	Y	-.0042
5	3	L	Y	-.0042
6	4	L	Y	-.0052

Joint Loads and Enforced Displacements (BLC 1 : Dead) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
7	4	L	Y	-.0052
8	5	L	Y	-.0064
9	5	L	Y	-.0064

Joint Loads and Enforced Displacements (BLC 2 : Wind)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	X	.4
2	2	L	X	.0179
3	2	L	X	.0179
4	3	L	X	.0255
5	3	L	X	.0255
6	4	L	X	.0347
7	4	L	X	.0347
8	5	L	X	.0452
9	5	L	X	.0452

Joint Loads and Enforced Displacements (BLC 3 : Earthquake)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	1	L	X	.001
2	2	L	X	.002
3	3	L	X	.002
4	4	L	X	.002
5	5	L	X	.001
6	6	L	X	0

Joint Loads and Enforced Displacements (BLC 4 : Ice Weight)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	Y	0
2	2	L	Y	0
3	2	L	Y	0
4	3	L	Y	0
5	3	L	Y	0
6	4	L	Y	0
7	4	L	Y	0
8	5	L	Y	0
9	5	L	Y	0

Joint Loads and Enforced Displacements (BLC 5 : Wind on Iced Members)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	X	0
2	2	L	X	0
3	2	L	X	0
4	3	L	X	0
5	3	L	X	0
6	4	L	X	0
7	4	L	X	0
8	5	L	X	0
9	5	L	X	0

Member Distributed Loads (BLC 1 : Dead)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	GUY1	T	-27.91	-27.91	0	0
2	GUY2	T	-27.91	-27.91	0	0
3	GUY3	T	-27.91	-27.91	0	0

Member Distributed Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
4	GUY4	T	-27.91	-27.91	0	0
5	GUY5	T	-27.91	-27.91	0	0
6	GUY6	T	-27.91	-27.91	0	0
7	GUY7	T	-27.91	-27.91	0	0
8	GUY8	T	-27.91	-27.91	0	0
9	GUY9	T	-27.91	-27.91	0	0
10	GUY10	T	-27.91	-27.91	0	0
11	GUY11	T	-27.91	-27.91	0	0
12	GUY12	T	-27.91	-27.91	0	0
13	GUY13	T	-27.91	-27.91	0	0
14	GUY14	T	-27.91	-27.91	0	0
15	GUY15	T	-27.91	-27.91	0	0
16	GUY16	T	-27.91	-27.91	0	0

Member Distributed Loads (BLC 2 : Wind)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	1	X	.0155	.0155	0	0
2	2	X	.0155	.0155	0	0
3	3	X	.0155	.0155	0	0
4	4	X	.0155	.0155	0	0
5	5	X	.0155	.0155	0	0

Member Distributed Loads (BLC 4 : Ice Weight)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	1	Y	0	0	0	0
2	2	Y	0	0	0	0
3	3	Y	0	0	0	0
4	4	Y	0	0	0	0
5	5	Y	0	0	0	0

Member Distributed Loads (BLC 5 : Wind on Iced Members)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	1	X	0	0	0	0
2	2	X	0	0	0	0
3	3	X	0	0	0	0
4	4	X	0	0	0	0
5	5	X	0	0	0	0

Envelope Joint Reactions

	Joint		X [k]	lc	Y [k]	lc	Z [k]	lc	MX [k-ft]	lc	MY [k-ft]	lc	MZ [k-ft]	lc
1	G1	max	.002	5	-.686	5	-.698	5	0	1	0	1	0	1
2		min	0	4	-1.157	1	-1.158	1	0	1	0	1	0	1
3	G2	max	1.158	1	-.009	5	0	3	0	1	0	1	0	1
4		min	.019	5	-1.157	1	0	2	0	1	0	1	0	1
5	G3	max	.002	5	-.686	5	1.158	1	0	1	0	1	0	1
6		min	0	4	-1.157	1	.698	5	0	1	0	1	0	1
7	G4	max	-.744	9	-.744	9	0	2	0	1	0	1	0	1
8		min	-2.693	3	-3.499	3	0	5	0	1	0	1	0	1
9	1	max	0	9	6.067	3	0	5	0	1	0	1	0	1
10		min	-.141	5	3.39	6	0	2	0	1	0	1	0	1
11	Totals:	max	0	9	.646	1	0	4						
12		min	-2.647	3	.415	5	0	2						

Envelope Member Section Forces

	Member	Sec		Axial[k]	lc	y Shear[k]	lc	z Shear[k]	lc	Torque...	lc	y-y Momen...	lc	z-z Moment[k...	lc
1	1	1	max	6.067	3	.145	3	0	1	0	1	0	1	0	1
2			min	3.39	6	0	1	0	1	0	1	0	1	0	1
9		5	max	5.963	3	0	4	0	1	0	1	0	1	.622	5
10			min	3.311	6	-.227	5	0	1	0	1	0	1	0	4
11	2	1	max	5.332	3	.194	5	0	1	0	1	0	1	.551	5
12			min	2.83	6	0	4	0	1	0	1	0	1	0	1
19		5	max	5.228	3	0	1	0	1	0	1	0	1	.435	3
20			min	2.751	6	-.179	3	0	1	0	1	0	1	0	1
21	3	1	max	4.288	3	.172	3	0	1	0	1	0	1	.39	3
22			min	2.016	6	0	1	0	1	0	1	0	1	0	1
29		5	max	4.183	3	0	4	0	1	0	1	0	1	.629	5
30			min	1.937	6	-.202	5	0	1	0	1	0	1	0	4
31	4	1	max	3.108	3	.073	5	0	1	0	1	0	1	.634	5
32			min	1.079	6	0	4	0	1	0	1	0	1	0	4
39		5	max	3.004	3	0	1	0	1	0	1	0	1	2.338	3
40			min	1.001	6	-.3	3	0	1	0	1	0	1	0	1
41	5	1	max	.105	1	.769	3	0	1	0	1	0	1	3.536	3
42			min	.067	9	0	4	0	1	0	1	0	1	0	4
49		5	max	.064	1	.645	3	0	1	0	1	0	1	0	1
50			min	.041	9	0	4	0	1	0	1	0	1	0	1
51	GUY1	1	max	-.281	5	0	3	.002	5	.007	3	0	6	0	6
52			min	-.447	1	0	6	0	1	0	4	-.044	5	0	5
59		5	max	-.281	5	0	3	.002	5	.007	3	.03	3	0	6
60			min	-.447	1	0	6	0	1	0	4	0	1	0	3
61	GUY2	1	max	-.021	5	0	1	0	1	0	1	0	1	0	6
62			min	-.447	1	0	3	0	1	0	1	0	1	-.008	3
69		5	max	-.021	5	0	1	0	1	0	1	0	1	.014	3
70			min	-.447	1	0	3	0	1	0	1	0	1	0	1
71	GUY3	1	max	-.281	5	0	3	0	1	0	4	.044	5	0	6
72			min	-.447	1	0	6	-.002	5	-.007	3	0	6	0	5
79		5	max	-.281	5	0	3	0	1	0	4	0	1	0	6
80			min	-.447	1	0	6	-.002	5	-.007	3	-.03	3	0	3
81	GUY4	1	max	-.287	9	.004	3	0	1	0	1	0	1	.08	5
82			min	-.638	3	0	6	0	1	0	1	0	1	0	4
89		5	max	-.287	9	.004	3	0	1	0	1	0	1	0	6
90			min	-.638	3	0	6	0	1	0	1	0	1	-.051	3
91	GUY5	1	max	-.254	5	0	3	.002	5	.006	3	0	4	0	3
92			min	-.421	1	0	6	0	4	0	1	-.051	5	0	6
99		5	max	-.254	5	0	3	.002	5	.006	3	.025	3	0	6
100			min	-.421	1	0	6	0	4	0	1	0	4	0	3
101	GUY6	1	max	0	5	0	2	0	1	0	1	0	1	.002	2
102			min	-.421	1	0	5	0	1	0	1	0	1	0	3
109		5	max	0	5	0	2	0	1	0	1	0	1	0	5
110			min	-.421	1	0	5	0	1	0	1	0	1	-.006	2
111	GUY7	1	max	-.254	5	0	3	0	4	0	1	.051	5	0	3
112			min	-.421	1	0	6	-.002	5	-.006	3	0	4	0	6
119		5	max	-.254	5	0	3	0	4	0	1	0	4	0	6
120			min	-.421	1	0	6	-.002	5	-.006	3	-.025	3	0	3
121	GUY8	1	max	-.271	9	.002	3	0	1	0	1	0	1	.059	5
122			min	-.635	3	0	6	0	1	0	1	0	1	0	6
129		5	max	-.271	9	.002	3	0	1	0	1	0	1	0	6
130			min	-.635	3	0	6	0	1	0	1	0	1	-.025	3
131	GUY9	1	max	-.239	5	0	3	0	3	.006	5	0	1	0	5
132			min	-.409	1	0	6	0	1	0	4	-.04	3	0	6
139		5	max	-.239	5	0	3	0	3	.006	5	.01	2	0	6
140			min	-.409	1	0	6	0	1	0	4	0	1	0	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	lc	y Shear[k]	lc	z Shear[k]	lc	Torque...	lc	y-y Momen...	lc	z-z Moment[k...	lc
141	GUY10	1	max	0	5	0	3	0	1	0	1	0	1	.008	3
142			min	-.409	1	0	5	0	1	0	1	0	1	0	6
149		5	max	0	5	0	3	0	1	0	1	0	1	0	5
150			min	-.409	1	0	5	0	1	0	1	0	1	-.023	3
151	GUY11	1	max	-.239	5	0	3	0	1	0	4	.04	3	0	5
152			min	-.409	1	0	6	0	3	-.006	5	0	1	0	6
159		5	max	-.239	5	0	3	0	1	0	4	0	1	0	6
160			min	-.409	1	0	6	0	3	-.006	5	-.01	2	0	3
161	GUY12	1	max	-.263	9	0	3	0	1	0	1	0	1	.038	3
162			min	-.602	3	0	9	0	1	0	1	0	1	0	9
169		5	max	-.263	9	0	3	0	1	0	1	0	1	.004	5
170			min	-.602	3	0	9	0	1	0	1	0	1	-.009	2
171	GUY13	1	max	-.235	5	0	5	0	4	.031	5	.13	3	0	6
172			min	-.409	1	0	1	-.008	5	0	4	0	4	0	1
179		5	max	-.235	5	0	5	0	4	.031	5	0	4	0	6
180			min	-.409	1	0	1	-.008	5	0	4	-.397	5	0	3
181	GUY14	1	max	0	2	0	1	0	1	0	1	0	1	0	2
182			min	-.409	1	0	4	0	1	0	1	0	1	0	4
189		5	max	0	2	0	1	0	1	0	1	0	1	0	2
190			min	-.409	1	0	4	0	1	0	1	0	1	0	1
191	GUY15	1	max	-.235	5	0	5	.008	5	0	4	0	4	0	6
192			min	-.409	1	0	1	0	4	-.031	5	-.13	3	0	1
199		5	max	-.235	5	0	5	.008	5	0	4	.397	5	0	6
200			min	-.409	1	0	1	0	4	-.031	5	0	4	0	3
201	GUY16	1	max	-.263	9	0	4	0	1	0	1	0	1	0	6
202			min	-2.658	3	-.01	5	0	1	0	1	0	1	-.176	3
209		5	max	-.263	9	0	4	0	1	0	1	0	1	.477	5
210			min	-2.658	3	-.01	5	0	1	0	1	0	1	0	4

Envelope Member Section Deflections

	Member	Sec		x [in]	lc	y [in]	lc	z [in]	lc	x Rotate [r...	lc	(n) L/y Ratio	lc	(n) L/z Ratio	lc
1	1	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
2			min	0	1	0	1	0	1	0	1	NC	1	NC	1
9		5	max	-.012	6	0	1	0	1	0	1	NC	1	NC	1
10			min	-.022	3	-.122	5	0	1	0	1	NC	5	NC	1
11	2	1	max	-.012	6	0	1	0	1	0	1	NC	1	NC	1
12			min	-.022	3	-.122	5	0	1	0	1	NC	5	NC	1
19		5	max	-.022	6	0	1	0	1	0	1	NC	1	NC	1
20			min	-.041	3	-.227	5	0	1	0	1	NC	5	NC	1
21	3	1	max	-.022	6	0	1	0	1	0	1	NC	1	NC	1
22			min	-.041	3	-.227	5	0	1	0	1	NC	5	NC	1
29		5	max	-.03	6	0	1	0	1	0	1	NC	1	NC	1
30			min	-.057	3	-.351	5	0	1	0	1	NC	5	NC	1
31	4	1	max	-.03	6	0	1	0	1	0	1	NC	1	NC	1
32			min	-.057	3	-.351	5	0	1	0	1	NC	5	NC	1
39		5	max	-.033	6	0	1	0	1	0	1	NC	1	NC	1
40			min	-.068	3	-4.045	5	0	1	0	1	48.738	5	NC	1
41	5	1	max	-.033	6	0	1	0	1	0	1	NC	1	NC	1
42			min	-.068	3	-4.045	5	0	1	0	1	NC	5	NC	1
49		5	max	-.033	6	0	1	0	1	0	1	NC	1	NC	1
50			min	-.068	3	-8.297	5	0	1	0	1	14.11	5	NC	1
51	GUY1	1	max	0	1	0	1	0	1	3.841e-3	3	NC	1	NC	1
52			min	0	1	0	1	0	1	-2.862e-6	4	NC	1	NC	1
59		5	max	-.005	6	-.011	6	0	1	5.222e-4	3	NC	6	NC	1
60			min	-.009	3	-.02	3	-.122	5	-1.76e-6	6	NC	3	3562.724	5
61	GUY2	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	lc	y [in]	lc	z [in]	lc	x Rotate [r...	lc	(n) L/y Ratio	lc	(n) L/z Ratio	lc
62			min	0	1	0	1	0	1	0	1	NC	1	NC	1
69		5	max	-.005	9	.034	5	0	1	0	1	NC	5	NC	1
70			min	-.12	3	-.017	1	0	1	0	1	NC	1	NC	1
71	GUY3	1	max	0	1	0	1	0	1	2.862e-6	4	NC	1	NC	1
72			min	0	1	0	1	0	1	-3.841e-3	3	NC	1	NC	1
79		5	max	-.005	6	-.011	6	.122	5	1.76e-6	6	NC	6	3562.724	5
80			min	-.009	3	-.02	3	0	1	-5.222e-4	3	NC	3	NC	1
81	GUY4	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
82			min	0	1	0	1	0	1	0	1	NC	1	NC	1
89		5	max	.103	5	-.011	9	0	1	0	1	NC	9	NC	1
90			min	-.008	1	-.07	3	0	1	0	1	NC	3	NC	1
91	GUY5	1	max	0	1	0	1	0	1	3.174e-3	3	NC	1	NC	1
92			min	0	1	0	1	0	1	-2.299e-6	4	NC	1	NC	1
99		5	max	-.015	6	-.017	6	0	1	0	1	NC	6	NC	1
100			min	-.028	3	-.03	3	-.227	5	-5.309e-4	5	NC	3	2360.915	5
101	GUY6	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
102			min	0	1	0	1	0	1	0	1	NC	1	NC	1
109		5	max	-.015	9	.126	5	0	1	0	1	4237.139	5	NC	1
110			min	-.192	5	-.026	1	0	1	0	1	NC	1	NC	1
111	GUY7	1	max	0	1	0	1	0	1	2.299e-6	4	NC	1	NC	1
112			min	0	1	0	1	0	1	-3.174e-3	3	NC	1	NC	1
119		5	max	-.015	6	-.017	6	.227	5	5.309e-4	5	NC	6	2360.915	5
120			min	-.028	3	-.03	3	0	1	0	1	NC	3	NC	1
121	GUY8	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
122			min	0	1	0	1	0	1	0	1	NC	1	NC	1
129		5	max	.144	5	-.017	9	0	1	0	1	NC	9	NC	1
130			min	-.023	1	-.179	5	0	1	0	1	NC	5	NC	1
131	GUY9	1	max	0	1	0	1	0	1	2.578e-3	3	NC	1	NC	1
132			min	0	1	0	1	0	1	-1.816e-6	4	NC	1	NC	1
139		5	max	-.024	6	-.017	6	0	1	0	1	NC	6	NC	1
140			min	-.046	3	-.033	3	-.351	5	-1.582e-3	5	NC	3	NC	5
141	GUY10	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
142			min	0	1	0	1	0	1	0	1	NC	1	NC	1
149		5	max	-.024	9	.254	5	0	1	0	1	2632.32	5	NC	1
150			min	-.247	5	-.027	1	0	1	0	1	NC	1	NC	1
151	GUY11	1	max	0	1	0	1	0	1	1.816e-6	4	NC	1	NC	1
152			min	0	1	0	1	0	1	-2.578e-3	3	NC	1	NC	1
159		5	max	-.024	6	-.017	6	.351	5	1.582e-3	5	NC	6	NC	5
160			min	-.046	3	-.033	3	0	1	0	1	NC	3	NC	1
161	GUY12	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
162			min	0	1	0	1	0	1	0	1	NC	1	NC	1
169		5	max	.168	5	-.017	9	0	1	0	1	NC	9	NC	1
170			min	-.037	1	-.312	5	0	1	0	1	NC	5	NC	1
171	GUY13	1	max	0	1	0	1	0	1	2.134e-3	3	NC	1	NC	1
172			min	0	1	0	1	0	1	-1.463e-6	4	NC	1	NC	1
179		5	max	-.029	6	-.016	6	0	1	2.823e-7	4	NC	6	NC	1
180			min	-.059	3	-.033	3	-4.045	5	-2.512e-2	5	NC	3	NC	5
181	GUY14	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
182			min	0	1	0	1	0	1	0	1	NC	1	NC	1
189		5	max	-.029	9	3.515	5	0	1	0	1	NC	5	NC	1
190			min	-2.001	5	-.025	1	0	1	0	1	NC	1	NC	1
191	GUY15	1	max	0	1	0	1	0	1	1.463e-6	4	NC	1	NC	1
192			min	0	1	0	1	0	1	-2.134e-3	3	NC	1	NC	1
199		5	max	-.029	6	-.016	6	4.045	5	2.512e-2	5	NC	6	NC	5
200			min	-.059	3	-.033	3	0	1	-2.823e-7	4	NC	3	NC	1
201	GUY16	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
202			min	0	1	0	1	0	1	0	1	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	lc	y [in]	lc	z [in]	lc	x Rotate [r...	lc	(n) L/y Ratio	lc	(n) L/z Ratio	lc
209		5	max	1.897	5	-.016	9	0	1	0	1	NC	9	NC	1
210			min	-.045	1	-3.573	5	0	1	0	1	NC	5	NC	1

Basic Load Cases

	BLC Description	Category	X Gr...	Y Grav..	Z Grav...	Joint	Point	Distributed	Area (...	Surfac...
1	Dead	DL		-1		9		16		
2	Wind	WL				9		5		
3	Earthquake	EL				6				
4	Ice Weight	DL				9		5		
5	Wind on Iced Members	WL				9		5		

Load Combinations

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	Comb 1	Yes	Y		1	1.4														
2	Comb 2	Yes	Y		1	1.2	2	.8												
3	Comb 3	Yes	Y		1	1.2	2	1.6												
4	Comb 4	Yes	Y		1	1.2	3	1												
5	Comb 5	Yes	Y		1	.9	2	1.6												
6	Comb 6	Yes	Y		1	.9	3	1												
7	Comb 7	Yes	Y		1	1.2	4	.2												
8	Comb 8	Yes	Y		1	1.2	4	1	5	1										
9	Comb 9	Yes	Y		1	.9	4	1	5	1										

General Material Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]
1	gen_Conc3NW	3155	1372	.15	.6	.145
2	gen_Conc4NW	3644	1584	.15	.6	.145
3	gen_Conc3LW	2085	906	.15	.6	.11
4	gen_Conc4LW	2408	1047	.15	.6	.11
5	gen_Alum	10600	4077	.3	1.29	.173
6	gen_Steel	29000	11154	.3	.65	.49
7	RIGID	1e+7		0	0	0
8	Guy E=26800	26800	11154	.3	1.17	0

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	1	0	0	0	0	
2	2	0	15	0	0	
3	3	0	30	0	0	
4	4	0	45	0	0	
5	5	0	60	0	0	
6	6	0	65	0	0	
7	G1	0	0	-33	0	
8	G2	33	0	0	0	
9	G3	0	0	33	0	
10	G4	-33	0	0	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
1	G1	Reaction	Reaction	Reaction				
2	G2	Reaction	Reaction	Reaction				
3	G3	Reaction	Reaction	Reaction				
4	G4	Reaction	Reaction	Reaction				
5	1	Reaction	Reaction	Reaction				

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design Rules
1	1	1	2			PIPE_2.5	Column	Pipe	A572 Gr.50	Typical
2	2	2	3			PIPE_2.5	Column	Pipe	A572 Gr.50	Typical
3	3	3	4			PIPE_2.5	Column	Wide Flan...	A572 Gr.50	Typical
4	4	4	5			PIPE_2.5	Column	Wide Flan...	A572 Gr.50	Typical
5	5	5	6			PIPE_2.5	Beam	Pipe	A572 Gr.50	Typical
6	GUY1	G1	2			1/4" EHS	None	None	Guy E=26800	Typical
7	GUY2	G2	2			1/4" EHS	None	None	Guy E=26800	Typical
8	GUY3	G3	2			1/4" EHS	None	None	Guy E=26800	Typical
9	GUY4	G4	2			1/4" EHS	None	None	Guy E=26800	Typical
10	GUY5	G1	3			1/4" EHS	None	None	Guy E=26800	Typical
11	GUY6	G2	3			1/4" EHS	None	None	Guy E=26800	Typical
12	GUY7	G3	3			1/4" EHS	None	None	Guy E=26800	Typical
13	GUY8	G4	3			1/4" EHS	None	None	Guy E=26800	Typical
14	GUY9	G1	4			1/4" EHS	None	None	Guy E=26800	Typical
15	GUY10	G2	4			1/4" EHS	None	None	Guy E=26800	Typical
16	GUY11	G3	4			1/4" EHS	None	None	Guy E=26800	Typical
17	GUY12	G4	4			1/4" EHS	None	None	Guy E=26800	Typical
18	GUY13	G1	5			1/4" EHS	None	None	Guy E=26800	Typical
19	GUY14	G2	5			1/4" EHS	None	None	Guy E=26800	Typical
20	GUY15	G3	5			1/4" EHS	None	None	Guy E=26800	Typical
21	GUY16	G4	5			1/4" EHS	None	None	Guy E=26800	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	TOM	Inactive
1	1						Yes		
2	2						Yes		
3	3						Yes		
4	4						Yes		
5	5						Yes		
6	GUY1					Tension Only	Yes		
7	GUY2					Tension Only	Yes		
8	GUY3					Tension Only	Yes		
9	GUY4					Tension Only	Yes		
10	GUY5					Tension Only	Yes		
11	GUY6					Tension Only	Yes		
12	GUY7					Tension Only	Yes		
13	GUY8					Tension Only	Yes		
14	GUY9					Tension Only	Yes		
15	GUY10					Tension Only	Yes		
16	GUY11					Tension Only	Yes		
17	GUY12					Tension Only	Yes		
18	GUY13					Tension Only	Yes		
19	GUY14					Tension Only	Yes		
20	GUY15					Tension Only	Yes		
21	GUY16					Tension Only	Yes		

Joint Loads and Enforced Displacements (BLC 1 : Dead)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	Y	-.046
2	2	L	Y	-.0034
3	2	L	Y	-.0034
4	3	L	Y	-.0042
5	3	L	Y	-.0042
6	4	L	Y	-.0052

Joint Loads and Enforced Displacements (BLC 1 : Dead) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
7	4	L	Y	-.0052
8	5	L	Y	-.0064
9	5	L	Y	-.0064

Joint Loads and Enforced Displacements (BLC 2 : Wind)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	X	.4
2	2	L	X	.0064
3	2	L	X	.0064
4	3	L	X	.0092
5	3	L	X	.0092
6	4	L	X	.0125
7	4	L	X	.0125
8	5	L	X	.0163
9	5	L	X	.0163

Joint Loads and Enforced Displacements (BLC 3 : Earthquake)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	1	L	X	.002
2	2	L	X	.005
3	3	L	X	.005
4	4	L	X	.005
5	5	L	X	.003
6	6	L	X	.001

Joint Loads and Enforced Displacements (BLC 4 : Ice Weight)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	Y	-.05
2	2	L	Y	-.1319
3	2	L	Y	-.1319
4	3	L	Y	-.1623
5	3	L	Y	-.1623
6	4	L	Y	-.203
7	4	L	Y	-.203
8	5	L	Y	-.2491
9	5	L	Y	-.2491

Joint Loads and Enforced Displacements (BLC 5 : Wind on Iced Members)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	X	.05
2	2	L	X	.0176
3	2	L	X	.0176
4	3	L	X	.0251
5	3	L	X	.0251
6	4	L	X	.0342
7	4	L	X	.0342
8	5	L	X	.0445
9	5	L	X	.0445

Member Distributed Loads (BLC 1 : Dead)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	GUY1	T	-27.91	-27.91	0	0
2	GUY2	T	-27.91	-27.91	0	0
3	GUY3	T	-27.91	-27.91	0	0

Member Distributed Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
4	GUY4	T	-27.91	-27.91	0	0
5	GUY5	T	-27.91	-27.91	0	0
6	GUY6	T	-27.91	-27.91	0	0
7	GUY7	T	-27.91	-27.91	0	0
8	GUY8	T	-27.91	-27.91	0	0
9	GUY9	T	-27.91	-27.91	0	0
10	GUY10	T	-27.91	-27.91	0	0
11	GUY11	T	-27.91	-27.91	0	0
12	GUY12	T	-27.91	-27.91	0	0
13	GUY13	T	-27.91	-27.91	0	0
14	GUY14	T	-27.91	-27.91	0	0
15	GUY15	T	-27.91	-27.91	0	0
16	GUY16	T	-27.91	-27.91	0	0

Member Distributed Loads (BLC 2 : Wind)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	1	X	.0056	.0056	0	0
2	2	X	.0056	.0056	0	0
3	3	X	.0056	.0056	0	0
4	4	X	.0056	.0056	0	0
5	5	X	.0056	.0056	0	0

Member Distributed Loads (BLC 4 : Ice Weight)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	1	Y	-.0088	-.0088	0	0
2	2	Y	-.0088	-.0088	0	0
3	3	Y	-.0088	-.0088	0	0
4	4	Y	-.0088	-.0088	0	0
5	5	Y	-.0088	-.0088	0	0

Member Distributed Loads (BLC 5 : Wind on Iced Members)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	1	X	.0023	.0023	0	0
2	2	X	.0023	.0023	0	0
3	3	X	.0023	.0023	0	0
4	4	X	.0023	.0023	0	0
5	5	X	.0023	.0023	0	0

Envelope Joint Reactions

	Joint		X [k]	lc	Y [k]	lc	Z [k]	lc	MX [k-ft]	lc	MY [k-ft]	lc	MZ [k-ft]	lc
1	G1	max	.002	5	-.697	9	-.706	9	0	1	0	1	0	1
2		min	0	4	-1.157	1	-1.158	1	0	1	0	1	0	1
3	G2	max	1.158	1	-.378	5	0	8	0	1	0	1	0	1
4		min	.432	5	-1.157	1	0	5	0	1	0	1	0	1
5	G3	max	.002	5	-.697	9	1.158	1	0	1	0	1	0	1
6		min	0	4	-1.157	1	.706	9	0	1	0	1	0	1
7	G4	max	-.754	6	-.754	6	0	5	0	1	0	1	0	1
8		min	-1.96	3	-2.577	3	0	4	0	1	0	1	0	1
9	1	max	0	7	6.449	8	0	7	0	1	0	1	0	1
10		min	-.051	5	3.39	6	0	3	0	1	0	1	0	1
11	Totals:	max	0	7	2.668	8	0	3						
12		min	-1.364	3	.415	5	0	9						

Envelope Member Section Forces

	Member	Sec		Axial[k]	lc	y Shear[k]	lc	z Shear[k]	lc	Torque...	lc	y-y Momen...	lc	z-z Moment[k...	lc
1	1	1	max	6.449	8	.052	3	0	1	0	1	0	1	0	1
2			min	3.39	6	0	1	0	1	0	1	0	1	0	1
9		5	max	6.212	8	0	4	0	1	0	1	0	1	.232	5
10			min	3.311	6	-.083	5	0	1	0	1	0	1	0	4
11	2	1	max	5.317	8	.069	5	0	1	0	1	0	1	.189	3
12			min	2.83	6	0	4	0	1	0	1	0	1	0	4
19		5	max	5.08	8	0	1	0	1	0	1	0	1	.159	3
20			min	2.751	6	-.065	3	0	1	0	1	0	1	0	1
21	3	1	max	3.817	8	.06	3	0	1	0	1	0	1	.107	3
22			min	2.016	6	0	1	0	1	0	1	0	1	0	1
29		5	max	3.699	3	0	4	0	1	0	1	0	1	.239	5
30			min	1.937	6	-.076	5	0	1	0	1	0	1	0	4
31	4	1	max	2.604	3	.008	8	0	1	0	1	0	1	.193	5
32			min	1.079	6	-.067	3	0	1	0	1	0	1	0	6
39		5	max	2.499	3	0	1	0	1	0	1	0	1	2.175	3
40			min	1.001	6	-.201	3	0	1	0	1	0	1	0	1
41	5	1	max	.184	8	.69	3	0	1	0	1	0	1	3.336	3
42			min	.067	5	0	1	0	1	0	1	0	1	0	1
49		5	max	.105	8	.645	3	0	1	0	1	0	1	0	1
50			min	.041	5	0	1	0	1	0	1	0	1	0	1
51	GUY1	1	max	-.281	9	0	8	.002	5	.009	5	0	1	0	6
52			min	-.447	1	0	6	0	1	0	1	-.039	5	0	3
59		5	max	-.281	9	0	8	.002	5	.009	5	.022	5	0	6
60			min	-.447	1	0	6	0	1	0	1	0	1	0	8
61	GUY2	1	max	-.191	5	0	1	0	1	0	1	0	1	0	2
62			min	-.447	1	0	9	0	1	0	1	0	1	-.005	8
69		5	max	-.191	5	0	1	0	1	0	1	0	1	.002	9
70			min	-.447	1	0	9	0	1	0	1	0	1	0	1
71	GUY3	1	max	-.281	9	0	8	0	1	0	1	.039	5	0	6
72			min	-.447	1	0	6	-.002	5	-.009	5	0	1	0	3
79		5	max	-.281	9	0	8	0	1	0	1	0	1	0	6
80			min	-.447	1	0	6	-.002	5	-.009	5	-.022	5	0	8
81	GUY4	1	max	-.29	6	.003	5	0	1	0	1	0	1	.073	5
82			min	-.472	3	0	6	0	1	0	1	0	1	0	1
89		5	max	-.29	6	.003	5	0	1	0	1	0	1	0	6
90			min	-.472	3	0	6	0	1	0	1	0	1	-.039	5
91	GUY5	1	max	-.255	9	0	8	.002	5	.006	3	0	1	0	8
92			min	-.421	1	0	6	0	1	0	1	-.051	5	0	6
99		5	max	-.255	9	0	8	.002	5	.006	3	.026	5	0	6
100			min	-.421	1	0	6	0	1	0	1	0	6	0	8
101	GUY6	1	max	-.158	5	0	2	0	1	0	1	0	1	.003	2
102			min	-.421	1	0	9	0	1	0	1	0	1	-.003	9
109		5	max	-.158	5	0	2	0	1	0	1	0	1	0	6
110			min	-.421	1	0	9	0	1	0	1	0	1	-.004	2
111	GUY7	1	max	-.255	9	0	8	0	1	0	1	.051	5	0	8
112			min	-.421	1	0	6	-.002	5	-.006	3	0	1	0	6
119		5	max	-.255	9	0	8	0	1	0	1	0	6	0	6
120			min	-.421	1	0	6	-.002	5	-.006	3	-.026	5	0	8
121	GUY8	1	max	-.274	6	.002	5	0	1	0	1	0	1	.059	5
122			min	-.453	3	0	6	0	1	0	1	0	1	0	6
129		5	max	-.274	6	.002	5	0	1	0	1	0	1	0	9
130			min	-.453	3	0	6	0	1	0	1	0	1	-.029	5
131	GUY9	1	max	-.243	9	0	8	.001	3	.004	5	0	1	0	5
132			min	-.409	1	0	6	0	1	0	1	-.047	3	0	9
139		5	max	-.243	9	0	8	.001	3	.004	5	.024	3	0	6
140			min	-.409	1	0	6	0	1	0	1	0	1	0	8

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	lc	y Shear[k]	lc	z Shear[k]	lc	Torque...	lc	y-y Momen...	lc	z-z Moment[k...	lc
141	GUY10	1	max	-.165	9	0	5	0	1	0	1	0	1	.002	5
142			min	-.409	1	0	2	0	1	0	1	0	1	-.003	2
149		5	max	-.165	9	0	5	0	1	0	1	0	1	.009	2
150			min	-.409	1	0	2	0	1	0	1	0	1	-.004	5
151	GUY11	1	max	-.243	9	0	8	0	1	0	1	.047	3	0	5
152			min	-.409	1	0	6	-.001	3	-.004	5	0	1	0	9
159		5	max	-.243	9	0	8	0	1	0	1	0	1	0	6
160			min	-.409	1	0	6	-.001	3	-.004	5	-.024	3	0	8
161	GUY12	1	max	-.254	5	.001	3	0	1	0	1	0	1	.046	3
162			min	-.409	1	0	7	0	1	0	1	0	1	0	7
169		5	max	-.254	5	.001	3	0	1	0	1	0	1	0	6
170			min	-.409	1	0	7	0	1	0	1	0	1	-.024	3
171	GUY13	1	max	-.243	9	0	5	0	1	.029	5	.133	5	0	6
172			min	-.409	1	0	1	-.008	5	0	1	0	1	0	8
179		5	max	-.243	9	0	5	0	1	.029	5	0	1	0	6
180			min	-.409	1	0	1	-.008	5	0	1	-.388	5	0	3
181	GUY14	1	max	0	2	0	8	0	1	0	1	0	1	.011	9
182			min	-.409	1	0	1	0	1	0	1	0	1	0	1
189		5	max	0	2	0	8	0	1	0	1	0	1	0	2
190			min	-.409	1	0	1	0	1	0	1	0	1	-.03	8
191	GUY15	1	max	-.243	9	0	5	.008	5	0	1	0	1	0	6
192			min	-.409	1	0	1	0	1	-.029	5	-.133	5	0	8
199		5	max	-.243	9	0	5	.008	5	0	1	.388	5	0	6
200			min	-.409	1	0	1	0	1	-.029	5	0	1	0	3
201	GUY16	1	max	-.268	6	0	1	0	1	0	1	0	1	0	7
202			min	-2.064	3	-.009	5	0	1	0	1	0	1	-.177	5
209		5	max	-.268	6	0	1	0	1	0	1	0	1	.464	5
210			min	-2.064	3	-.009	5	0	1	0	1	0	1	0	1

Envelope Member Section Deflections

	Member	Sec		x [in]	lc	y [in]	lc	z [in]	lc	x Rotate [r...	lc	(n) L/y Ratio	lc	(n) L/z Ratio	lc
1	1	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
2			min	0	1	0	1	0	1	0	1	NC	1	NC	1
9		5	max	-.012	6	0	1	0	1	0	1	NC	1	NC	1
10			min	-.023	8	-.043	5	0	1	0	1	NC	5	NC	1
11	2	1	max	-.012	6	0	1	0	1	0	1	NC	1	NC	1
12			min	-.023	8	-.043	5	0	1	0	1	NC	5	NC	1
19		5	max	-.022	6	0	1	0	1	0	1	NC	1	NC	1
20			min	-.042	8	-.073	3	0	1	0	1	NC	3	NC	1
21	3	1	max	-.022	6	0	1	0	1	0	1	NC	1	NC	1
22			min	-.042	8	-.073	3	0	1	0	1	NC	3	NC	1
29		5	max	-.03	6	.001	2	0	1	0	1	NC	2	NC	1
30			min	-.055	8	-.087	9	0	1	0	1	NC	9	NC	1
31	4	1	max	-.03	6	.001	2	0	1	0	1	NC	2	NC	1
32			min	-.055	8	-.087	9	0	1	0	1	NC	9	NC	1
39		5	max	-.033	6	0	1	0	1	0	1	NC	1	NC	1
40			min	-.063	8	-3.033	5	0	1	0	1	59.508	5	NC	1
41	5	1	max	-.033	6	0	1	0	1	0	1	NC	1	NC	1
42			min	-.063	8	-3.033	5	0	1	0	1	NC	5	NC	1
49		5	max	-.033	6	0	1	0	1	0	1	NC	1	NC	1
50			min	-.063	8	-7.068	5	0	1	0	1	14.87	5	NC	1
51	GUY1	1	max	0	1	0	1	0	1	4.085e-3	5	NC	1	NC	1
52			min	0	1	0	1	0	1	-1.493e-6	6	NC	1	NC	1
59		5	max	-.005	6	-.011	6	0	1	8.556e-5	3	NC	6	NC	1
60			min	-.01	8	-.021	8	-.043	5	-4.811e-6	6	NC	8	NC	5
61	GUY2	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	lc	y [in]	lc	z [in]	lc	x Rotate [r...	lc	(n) L/y Ratio	lc	(n) L/z Ratio	lc
62			min	0	1	0	1	0	1	0	1	NC	1	NC	1
69		5	max	-.006	6	.003	5	0	1	0	1	NC	5	NC	1
70			min	-.048	3	-.017	1	0	1	0	1	NC	1	NC	1
71	GUY3	1	max	0	1	0	1	0	1	1.493e-6	6	NC	1	NC	1
72			min	0	1	0	1	0	1	-4.085e-3	5	NC	1	NC	1
79		5	max	-.005	6	-.011	6	.043	5	4.811e-6	6	NC	6	NC	5
80			min	-.01	8	-.021	8	0	1	-8.556e-5	3	NC	8	NC	1
81	GUY4	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
82			min	0	1	0	1	0	1	0	1	NC	1	NC	1
89		5	max	.033	5	-.012	6	0	1	0	1	NC	6	NC	1
90			min	-.008	1	-.036	3	0	1	0	1	NC	3	NC	1
91	GUY5	1	max	0	1	0	1	0	1	3.365e-3	3	NC	1	NC	1
92			min	0	1	0	1	0	1	-1.112e-6	6	NC	1	NC	1
99		5	max	-.015	6	-.017	6	0	1	0	1	NC	6	NC	1
100			min	-.028	8	-.031	8	-.073	3	-1.592e-4	9	NC	8	NC	3
101	GUY6	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
102			min	0	1	0	1	0	1	0	1	NC	1	NC	1
109		5	max	-.017	6	.025	5	0	1	0	1	NC	5	NC	1
110			min	-.079	3	-.026	1	0	1	0	1	NC	1	NC	1
111	GUY7	1	max	0	1	0	1	0	1	1.112e-6	6	NC	1	NC	1
112			min	0	1	0	1	0	1	-3.365e-3	3	NC	1	NC	1
119		5	max	-.015	6	-.017	6	.073	3	1.592e-4	9	NC	6	NC	3
120			min	-.028	8	-.031	8	0	1	0	1	NC	8	NC	1
121	GUY8	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
122			min	0	1	0	1	0	1	0	1	NC	1	NC	1
129		5	max	.032	5	-.018	6	0	1	0	1	NC	6	NC	1
130			min	-.023	1	-.077	3	0	1	0	1	NC	3	NC	1
131	GUY9	1	max	0	1	0	1	0	1	2.726e-3	3	NC	1	NC	1
132			min	0	1	0	1	0	1	-8.076e-7	6	NC	1	NC	1
139		5	max	-.024	6	-.017	6	.001	2	4.284e-4	2	NC	6	NC	2
140			min	-.045	8	-.033	8	-.087	9	-1.542e-4	5	NC	8	7718.417	9
141	GUY10	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
142			min	0	1	0	1	0	1	0	1	NC	1	NC	1
149		5	max	-.026	6	.043	9	0	1	0	1	NC	9	NC	1
150			min	-.096	8	-.029	3	0	1	0	1	NC	3	NC	1
151	GUY11	1	max	0	1	0	1	0	1	8.076e-7	6	NC	1	NC	1
152			min	0	1	0	1	0	1	-2.726e-3	3	NC	1	NC	1
159		5	max	-.024	6	-.017	6	.087	9	1.542e-4	5	NC	6	7718.417	9
160			min	-.045	8	-.033	8	-.001	2	-4.284e-4	2	NC	8	NC	2
161	GUY12	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
162			min	0	1	0	1	0	1	0	1	NC	1	NC	1
169		5	max	.015	9	-.021	6	0	1	0	1	NC	6	NC	1
170			min	-.041	3	-.103	8	0	1	0	1	6530.877	8	NC	1
171	GUY13	1	max	0	1	0	1	0	1	2.251e-3	3	NC	1	NC	1
172			min	0	1	0	1	0	1	-5.921e-7	6	NC	1	NC	1
179		5	max	-.029	6	-.016	6	0	1	0	1	NC	6	NC	1
180			min	-.055	8	-.03	8	-3.033	5	-2.377e-2	5	NC	8	NC	5
181	GUY14	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
182			min	0	1	0	1	0	1	0	1	NC	1	NC	1
189		5	max	-.033	6	2.633	5	0	1	0	1	NC	5	NC	1
190			min	-1.507	5	-.025	1	0	1	0	1	NC	1	NC	1
191	GUY15	1	max	0	1	0	1	0	1	5.921e-7	6	NC	1	NC	1
192			min	0	1	0	1	0	1	-2.251e-3	3	NC	1	NC	1
199		5	max	-.029	6	-.016	6	3.033	5	2.377e-2	5	NC	6	NC	5
200			min	-.055	8	-.03	8	0	1	0	1	NC	8	NC	1
201	GUY16	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
202			min	0	1	0	1	0	1	0	1	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	lc	y [in]	lc	z [in]	lc	x Rotate [r...	lc	(n) L/y Ratio	lc	(n) L/z Ratio	lc
209		5	max	1.417	5	-.023	6	0	1	0	1	NC	6	NC	1
210			min	-.045	1	-2.682	5	0	1	0	1	NC	5	NC	1

Basic Load Cases

	BLC Description	Category	X Gr...	Y Grav..	Z Grav...	Joint	Point	Distributed	Area (...	Surfac...
1	Dead	DL		-1		9		16		
2	Wind	WL				9		5		
3	Earthquake	EL				6				
4	Ice Weight	DL				9		5		
5	Wind on Iced Members	WL				9		5		

Load Combinations

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	Comb 1	Yes	Y		1	1.4														
2	Comb 2	Yes	Y		1	1.2	2	.8												
3	Comb 3	Yes	Y		1	1.2	2	1.6												
4	Comb 4	Yes	Y		1	1.2	3	1												
5	Comb 5	Yes	Y		1	.9	2	1.6												
6	Comb 6	Yes	Y		1	.9	3	1												
7	Comb 7	Yes	Y		1	1.2	4	.2												
8	Comb 8	Yes	Y		1	1.2	4	1	5	1										
9	Comb 9	Yes	Y		1	.9	4	1	5	1										

General Material Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]
1	gen_Conc3NW	3155	1372	.15	.6	.145
2	gen_Conc4NW	3644	1584	.15	.6	.145
3	gen_Conc3LW	2085	906	.15	.6	.11
4	gen_Conc4LW	2408	1047	.15	.6	.11
5	gen_Alum	10600	4077	.3	1.29	.173
6	gen_Steel	29000	11154	.3	.65	.49
7	RIGID	1e+7		0	0	0
8	Guy E=26800	26800	11154	.3	1.17	0

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	1	0	0	0	0	
2	2	0	15	0	0	
3	3	0	30	0	0	
4	4	0	45	0	0	
5	5	0	60	0	0	
6	6	0	65	0	0	
7	G1	0	0	-33	0	
8	G2	33	0	0	0	
9	G3	0	0	33	0	
10	G4	-33	0	0	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
1	G1	Reaction	Reaction	Reaction				
2	G2	Reaction	Reaction	Reaction				
3	G3	Reaction	Reaction	Reaction				
4	G4	Reaction	Reaction	Reaction				
5	1	Reaction	Reaction	Reaction				

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design Rules
1	1	1	2			PIPE_2.5	Column	Pipe	A572 Gr.50	Typical
2	2	2	3			PIPE_2.5	Column	Pipe	A572 Gr.50	Typical
3	3	3	4			PIPE_2.5	Column	Wide Flan...	A572 Gr.50	Typical
4	4	4	5			PIPE_2.5	Column	Wide Flan...	A572 Gr.50	Typical
5	5	5	6			PIPE_2.5	Beam	Pipe	A572 Gr.50	Typical
6	GUY1	G1	2			1/4" EHS	None	None	Guy E=26800	Typical
7	GUY2	G2	2			1/4" EHS	None	None	Guy E=26800	Typical
8	GUY3	G3	2			1/4" EHS	None	None	Guy E=26800	Typical
9	GUY4	G4	2			1/4" EHS	None	None	Guy E=26800	Typical
10	GUY5	G1	3			1/4" EHS	None	None	Guy E=26800	Typical
11	GUY6	G2	3			1/4" EHS	None	None	Guy E=26800	Typical
12	GUY7	G3	3			1/4" EHS	None	None	Guy E=26800	Typical
13	GUY8	G4	3			1/4" EHS	None	None	Guy E=26800	Typical
14	GUY9	G1	4			1/4" EHS	None	None	Guy E=26800	Typical
15	GUY10	G2	4			1/4" EHS	None	None	Guy E=26800	Typical
16	GUY11	G3	4			1/4" EHS	None	None	Guy E=26800	Typical
17	GUY12	G4	4			1/4" EHS	None	None	Guy E=26800	Typical
18	GUY13	G1	5			1/4" EHS	None	None	Guy E=26800	Typical
19	GUY14	G2	5			1/4" EHS	None	None	Guy E=26800	Typical
20	GUY15	G3	5			1/4" EHS	None	None	Guy E=26800	Typical
21	GUY16	G4	5			1/4" EHS	None	None	Guy E=26800	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	TOM	Inactive
1	1						Yes		
2	2						Yes		
3	3						Yes		
4	4						Yes		
5	5						Yes		
6	GUY1					Tension Only	Yes		
7	GUY2					Tension Only	Yes		
8	GUY3					Tension Only	Yes		
9	GUY4					Tension Only	Yes		
10	GUY5					Tension Only	Yes		
11	GUY6					Tension Only	Yes		
12	GUY7					Tension Only	Yes		
13	GUY8					Tension Only	Yes		
14	GUY9					Tension Only	Yes		
15	GUY10					Tension Only	Yes		
16	GUY11					Tension Only	Yes		
17	GUY12					Tension Only	Yes		
18	GUY13					Tension Only	Yes		
19	GUY14					Tension Only	Yes		
20	GUY15					Tension Only	Yes		
21	GUY16					Tension Only	Yes		

Joint Loads and Enforced Displacements (BLC 1 : Dead)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	Y	-.046
2	2	L	Y	-.0034
3	2	L	Y	-.0034
4	3	L	Y	-.0042
5	3	L	Y	-.0042
6	4	L	Y	-.0052

Joint Loads and Enforced Displacements (BLC 1 : Dead) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
7	4	L	Y	-.0052
8	5	L	Y	-.0064
9	5	L	Y	-.0064

Joint Loads and Enforced Displacements (BLC 2 : Wind)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	X	.4
2	2	L	X	.0134
3	2	L	X	.0134
4	3	L	X	.0191
5	3	L	X	.0191
6	4	L	X	.0261
7	4	L	X	.0261
8	5	L	X	.034
9	5	L	X	.034

Joint Loads and Enforced Displacements (BLC 3 : Earthquake)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	1	L	X	.017
2	2	L	X	.035
3	3	L	X	.035
4	4	L	X	.035
5	5	L	X	.023
6	6	L	X	.006

Joint Loads and Enforced Displacements (BLC 4 : Ice Weight)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	Y	-.05
2	2	L	Y	-.0186
3	2	L	Y	-.0186
4	3	L	Y	-.0229
5	3	L	Y	-.0229
6	4	L	Y	-.0286
7	4	L	Y	-.0286
8	5	L	Y	-.0351
9	5	L	Y	-.0351

Joint Loads and Enforced Displacements (BLC 5 : Wind on Iced Members)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	X	.05
2	2	L	X	.0038
3	2	L	X	.0038
4	3	L	X	.0054
5	3	L	X	.0054
6	4	L	X	.0073
7	4	L	X	.0073
8	5	L	X	.0096
9	5	L	X	.0096

Member Distributed Loads (BLC 1 : Dead)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	GUY1	T	-27.91	-27.91	0	0
2	GUY2	T	-27.91	-27.91	0	0
3	GUY3	T	-27.91	-27.91	0	0

Member Distributed Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
4	GUY4	T	-27.91	-27.91	0	0
5	GUY5	T	-27.91	-27.91	0	0
6	GUY6	T	-27.91	-27.91	0	0
7	GUY7	T	-27.91	-27.91	0	0
8	GUY8	T	-27.91	-27.91	0	0
9	GUY9	T	-27.91	-27.91	0	0
10	GUY10	T	-27.91	-27.91	0	0
11	GUY11	T	-27.91	-27.91	0	0
12	GUY12	T	-27.91	-27.91	0	0
13	GUY13	T	-27.91	-27.91	0	0
14	GUY14	T	-27.91	-27.91	0	0
15	GUY15	T	-27.91	-27.91	0	0
16	GUY16	T	-27.91	-27.91	0	0

Member Distributed Loads (BLC 2 : Wind)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	1	X	.0116	.0116	0	0
2	2	X	.0116	.0116	0	0
3	3	X	.0116	.0116	0	0
4	4	X	.0116	.0116	0	0
5	5	X	.0116	.0116	0	0

Member Distributed Loads (BLC 4 : Ice Weight)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	1	Y	-.0022	-.0022	0	0
2	2	Y	-.0022	-.0022	0	0
3	3	Y	-.0022	-.0022	0	0
4	4	Y	-.0022	-.0022	0	0
5	5	Y	-.0022	-.0022	0	0

Member Distributed Loads (BLC 5 : Wind on Iced Members)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	1	X	.00085	.00085	0	0
2	2	X	.00085	.00085	0	0
3	3	X	.00085	.00085	0	0
4	4	X	.00085	.00085	0	0
5	5	X	.00085	.00085	0	0

Envelope Joint Reactions

	Joint		X [k]	lc	Y [k]	lc	Z [k]	lc	MX [k-ft]	lc	MY [k-ft]	lc	MZ [k-ft]	lc
1	G1	max	.002	5	-.694	5	-.705	5	0	1	0	1	0	1
2		min	0	4	-1.157	1	-1.158	1	0	1	0	1	0	1
3	G2	max	1.158	1	-.122	5	0	8	0	1	0	1	0	1
4		min	.154	5	-1.157	1	0	3	0	1	0	1	0	1
5	G3	max	.002	5	-.694	5	1.158	1	0	1	0	1	0	1
6		min	0	4	-1.157	1	.705	5	0	1	0	1	0	1
7	G4	max	-.811	6	-.818	6	0	2	0	1	0	1	0	1
8		min	-2.405	3	-3.137	3	0	9	0	1	0	1	0	1
9	1	max	0	7	5.883	3	0	5	0	1	0	1	0	1
10		min	-.106	5	3.39	6	0	2	0	1	0	1	0	1
11	Totals:	max	0	7	.957	8	0	2						
12		min	-2.143	5	.415	5	0	4						

Envelope Member Section Forces

	Member	Sec		Axial[k]	lc	y Shear[k]	lc	z Shear[k]	lc	Torque...	lc	y-y Momen...	lc	z-z Moment[k...	lc
1	1	1	max	5.883	3	.108	3	0	1	0	1	0	1	0	1
2			min	3.39	6	0	1	0	1	0	1	0	1	0	1
9		5	max	5.779	3	0	4	0	1	0	1	0	1	.468	5
10			min	3.311	6	-.17	5	0	1	0	1	0	1	0	4
11	2	1	max	5.147	3	.144	5	0	1	0	1	0	1	.404	3
12			min	2.83	6	0	4	0	1	0	1	0	1	0	4
19		5	max	5.043	3	0	1	0	1	0	1	0	1	.326	3
20			min	2.751	6	-.134	3	0	1	0	1	0	1	0	1
21	3	1	max	4.098	3	.128	3	0	1	0	1	0	1	.279	3
22			min	2.015	6	0	1	0	1	0	1	0	1	0	1
29		5	max	3.993	3	0	4	0	1	0	1	0	1	.473	5
30			min	1.937	6	-.152	5	0	1	0	1	0	1	-.003	6
31	4	1	max	2.91	3	.02	5	0	1	0	1	0	1	.474	5
32			min	1.079	6	-.004	8	0	1	0	1	0	1	-.004	6
39		5	max	2.806	3	0	1	0	1	0	1	0	1	2.274	3
40			min	1.001	6	-.261	3	0	1	0	1	0	1	0	1
41	5	1	max	.151	8	.738	3	0	1	0	1	0	1	3.457	3
42			min	.067	6	0	1	0	1	0	1	0	1	0	1
49		5	max	.105	8	.645	3	0	1	0	1	0	1	0	1
50			min	.041	6	0	1	0	1	0	1	0	1	0	1
51	GUY1	1	max	-.282	5	0	1	.002	5	.008	5	0	1	0	6
52			min	-.447	1	0	6	0	1	0	1	-.042	5	0	3
59		5	max	-.282	5	0	1	.002	5	.008	5	.027	5	0	6
60			min	-.447	1	0	6	0	1	0	1	0	1	0	3
61	GUY2	1	max	-.088	5	0	4	0	1	0	1	0	1	0	7
62			min	-.447	1	0	5	0	1	0	1	0	1	-.006	5
69		5	max	-.088	5	0	4	0	1	0	1	0	1	.01	5
70			min	-.447	1	0	5	0	1	0	1	0	1	0	4
71	GUY3	1	max	-.282	5	0	1	0	1	0	1	.042	5	0	6
72			min	-.447	1	0	6	-.002	5	-.008	5	0	1	0	3
79		5	max	-.282	5	0	1	0	1	0	1	0	1	0	6
80			min	-.447	1	0	6	-.002	5	-.008	5	-.027	5	0	3
81	GUY4	1	max	-.298	9	.003	5	0	1	0	1	0	1	.078	5
82			min	-.573	3	0	6	0	1	0	1	0	1	0	1
89		5	max	-.298	9	.003	5	0	1	0	1	0	1	0	6
90			min	-.573	3	0	6	0	1	0	1	0	1	-.046	5
91	GUY5	1	max	-.257	5	0	3	.002	5	.006	3	0	1	0	3
92			min	-.421	1	0	6	0	1	0	1	-.051	5	0	6
99		5	max	-.257	5	0	3	.002	5	.006	3	.026	5	0	6
100			min	-.421	1	0	6	0	1	0	1	0	6	0	3
101	GUY6	1	max	-.043	5	0	2	0	1	0	1	0	1	.002	2
102			min	-.421	1	0	9	0	1	0	1	0	1	-.003	9
109		5	max	-.043	5	0	2	0	1	0	1	0	1	0	9
110			min	-.421	1	0	9	0	1	0	1	0	1	-.005	2
111	GUY7	1	max	-.257	5	0	3	0	1	0	1	.051	5	0	3
112			min	-.421	1	0	6	-.002	5	-.006	3	0	1	0	6
119		5	max	-.257	5	0	3	0	1	0	1	0	6	0	6
120			min	-.421	1	0	6	-.002	5	-.006	3	-.026	5	0	3
121	GUY8	1	max	-.284	9	.002	5	0	1	0	1	0	1	.059	5
122			min	-.564	3	0	6	0	1	0	1	0	1	0	7
129		5	max	-.284	9	.002	5	0	1	0	1	0	1	0	6
130			min	-.564	3	0	6	0	1	0	1	0	1	-.028	5
131	GUY9	1	max	-.243	5	0	3	.001	3	.005	5	0	1	0	5
132			min	-.409	1	0	6	0	1	0	1	-.043	3	0	9
139		5	max	-.243	5	0	3	.001	3	.005	5	.014	2	0	6
140			min	-.409	1	0	6	0	1	0	1	0	1	0	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	lc	y Shear[k]	lc	z Shear[k]	lc	Torque...	lc	y-y Momen...	lc	z-z Moment[k...	lc
141	GUY10	1	max	-.07	5	0	5	0	1	0	1	0	1	.007	5
142			min	-.409	1	0	9	0	1	0	1	0	1	-.004	8
149		5	max	-.07	5	0	5	0	1	0	1	0	1	.003	9
150			min	-.409	1	0	9	0	1	0	1	0	1	-.018	5
151	GUY11	1	max	-.243	5	0	3	0	1	0	1	.043	3	0	5
152			min	-.409	1	0	6	-.001	3	-.005	5	0	1	0	9
159		5	max	-.243	5	0	3	0	1	0	1	0	1	0	6
160			min	-.409	1	0	6	-.001	3	-.005	5	-.014	2	0	3
161	GUY12	1	max	-.272	9	0	3	0	1	0	1	0	1	.041	3
162			min	-.498	3	0	7	0	1	0	1	0	1	0	7
169		5	max	-.272	9	0	3	0	1	0	1	0	1	0	7
170			min	-.498	3	0	7	0	1	0	1	0	1	-.014	2
171	GUY13	1	max	-.239	5	0	5	0	1	.03	5	.131	5	0	6
172			min	-.409	1	0	1	-.008	5	0	1	0	1	0	1
179		5	max	-.239	5	0	5	0	1	.03	5	0	1	0	6
180			min	-.409	1	0	1	-.008	5	0	1	-.395	5	0	3
181	GUY14	1	max	0	2	0	8	0	1	0	1	0	1	.011	9
182			min	-.409	1	0	1	0	1	0	1	0	1	0	1
189		5	max	0	2	0	8	0	1	0	1	0	1	0	2
190			min	-.409	1	0	1	0	1	0	1	0	1	-.029	8
191	GUY15	1	max	-.239	5	0	5	.008	5	0	1	0	1	0	6
192			min	-.409	1	0	1	0	1	-.03	5	-.131	5	0	1
199		5	max	-.239	5	0	5	.008	5	0	1	.395	5	0	6
200			min	-.409	1	0	1	0	1	-.03	5	0	1	0	3
201	GUY16	1	max	-.295	6	0	1	0	1	0	1	0	1	0	7
202			min	-2.424	3	-.009	5	0	1	0	1	0	1	-.177	5
209		5	max	-.295	6	0	1	0	1	0	1	0	1	.474	5
210			min	-2.424	3	-.009	5	0	1	0	1	0	1	0	1

Envelope Member Section Deflections

	Member	Sec		x [in]	lc	y [in]	lc	z [in]	lc	x Rotate [r...	lc	(n) L/y Ratio	lc	(n) L/z Ratio	lc
1	1	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
2			min	0	1	0	1	0	1	0	1	NC	1	NC	1
9		5	max	-.012	6	0	1	0	1	0	1	NC	1	NC	1
10			min	-.021	3	-.091	3	0	1	0	1	NC	3	NC	1
11	2	1	max	-.012	6	0	1	0	1	0	1	NC	1	NC	1
12			min	-.021	3	-.091	3	0	1	0	1	NC	3	NC	1
19		5	max	-.022	6	0	1	0	1	0	1	NC	1	NC	1
20			min	-.04	3	-.153	3	0	1	0	1	NC	3	NC	1
21	3	1	max	-.022	6	0	1	0	1	0	1	NC	1	NC	1
22			min	-.04	3	-.153	3	0	1	0	1	NC	3	NC	1
29		5	max	-.03	6	0	1	0	1	0	1	NC	1	NC	1
30			min	-.055	3	-.192	5	0	1	0	1	NC	5	NC	1
31	4	1	max	-.03	6	0	1	0	1	0	1	NC	1	NC	1
32			min	-.055	3	-.192	5	0	1	0	1	NC	5	NC	1
39		5	max	-.033	6	0	1	0	1	0	1	NC	1	NC	1
40			min	-.065	3	-3.643	5	0	1	0	1	52.15	5	NC	1
41	5	1	max	-.033	6	0	1	0	1	0	1	NC	1	NC	1
42			min	-.065	3	-3.643	5	0	1	0	1	NC	5	NC	1
49		5	max	-.033	6	0	1	0	1	0	1	NC	1	NC	1
50			min	-.065	3	-7.82	5	0	1	0	1	14.366	5	NC	1
51	GUY1	1	max	0	1	0	1	0	1	3.937e-3	5	NC	1	NC	1
52			min	0	1	0	1	0	1	-1.591e-5	6	NC	1	NC	1
59		5	max	-.005	6	-.011	6	0	1	3.503e-4	3	NC	6	NC	1
60			min	-.009	3	-.019	3	-.091	3	-3.363e-5	6	NC	3	4778.161	3
61	GUY2	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	lc	y [in]	lc	z [in]	lc	x Rotate [r...	lc	(n) L/y Ratio	lc	(n) L/z Ratio	lc
62			min	0	1	0	1	0	1	0	1	NC	1	NC	1
69		5	max	-.007	7	.022	5	0	1	0	1	NC	5	NC	1
70			min	-.092	3	-.017	1	0	1	0	1	NC	1	NC	1
71	GUY3	1	max	0	1	0	1	0	1	1.591e-5	6	NC	1	NC	1
72			min	0	1	0	1	0	1	-3.937e-3	5	NC	1	NC	1
79		5	max	-.005	6	-.011	6	.091	3	3.363e-5	6	NC	6	4778.161	3
80			min	-.009	3	-.019	3	0	1	-3.503e-4	3	NC	3	NC	1
81	GUY4	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
82			min	0	1	0	1	0	1	0	1	NC	1	NC	1
89		5	max	.076	5	-.015	9	0	1	0	1	NC	9	NC	1
90			min	-.008	1	-.057	3	0	1	0	1	NC	3	NC	1
91	GUY5	1	max	0	1	0	1	0	1	3.248e-3	3	NC	1	NC	1
92			min	0	1	0	1	0	1	-1.26e-5	6	NC	1	NC	1
99		5	max	-.015	6	-.017	6	0	1	0	1	NC	6	NC	1
100			min	-.027	3	-.029	3	-.153	3	-3.277e-4	3	NC	3	NC	3
101	GUY6	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
102			min	0	1	0	1	0	1	0	1	NC	1	NC	1
109		5	max	-.02	7	.078	5	0	1	0	1	6898.041	5	NC	1
110			min	-.14	3	-.026	1	0	1	0	1	NC	1	NC	1
111	GUY7	1	max	0	1	0	1	0	1	1.26e-5	6	NC	1	NC	1
112			min	0	1	0	1	0	1	-3.248e-3	3	NC	1	NC	1
119		5	max	-.015	6	-.017	6	.153	3	3.277e-4	3	NC	6	NC	3
120			min	-.027	3	-.029	3	0	1	0	1	NC	3	NC	1
121	GUY8	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
122			min	0	1	0	1	0	1	0	1	NC	1	NC	1
129		5	max	.09	5	-.022	7	0	1	0	1	NC	7	NC	1
130			min	-.023	1	-.132	3	0	1	0	1	NC	3	NC	1
131	GUY9	1	max	0	1	0	1	0	1	2.635e-3	3	NC	1	NC	1
132			min	0	1	0	1	0	1	-9.807e-6	6	NC	1	NC	1
139		5	max	-.024	6	-.017	6	0	1	5.207e-5	8	NC	6	NC	1
140			min	-.044	3	-.032	3	-.192	5	-9.78e-4	5	NC	3	NC	5
141	GUY10	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
142			min	0	1	0	1	0	1	0	1	NC	1	NC	1
149		5	max	-.032	7	.127	5	0	1	0	1	NC	5	NC	1
150			min	-.153	3	-.027	1	0	1	0	1	NC	1	NC	1
151	GUY11	1	max	0	1	0	1	0	1	9.807e-6	6	NC	1	NC	1
152			min	0	1	0	1	0	1	-2.635e-3	3	NC	1	NC	1
159		5	max	-.024	6	-.017	6	.192	5	9.78e-4	5	NC	6	NC	5
160			min	-.044	3	-.032	3	0	1	-5.207e-5	8	NC	3	NC	1
161	GUY12	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
162			min	0	1	0	1	0	1	0	1	NC	1	NC	1
169		5	max	.076	5	-.024	7	0	1	0	1	NC	7	NC	1
170			min	-.037	1	-.182	5	0	1	0	1	NC	5	NC	1
171	GUY13	1	max	0	1	0	1	0	1	2.179e-3	3	NC	1	NC	1
172			min	0	1	0	1	0	1	-7.776e-6	6	NC	1	NC	1
179		5	max	-.029	6	-.016	6	0	1	0	1	NC	6	NC	1
180			min	-.057	3	-.031	3	-3.643	5	-2.467e-2	5	NC	3	NC	5
181	GUY14	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
182			min	0	1	0	1	0	1	0	1	NC	1	NC	1
189		5	max	-.04	7	3.165	5	0	1	0	1	NC	5	NC	1
190			min	-1.805	5	-.025	1	0	1	0	1	NC	1	NC	1
191	GUY15	1	max	0	1	0	1	0	1	7.776e-6	6	NC	1	NC	1
192			min	0	1	0	1	0	1	-2.179e-3	3	NC	1	NC	1
199		5	max	-.029	6	-.016	6	3.643	5	2.467e-2	5	NC	6	NC	5
200			min	-.057	3	-.031	3	0	1	0	1	NC	3	NC	1
201	GUY16	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
202			min	0	1	0	1	0	1	0	1	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	lc	y [in]	lc	z [in]	lc	x Rotate [r...	lc	(n) L/y Ratio	lc	(n) L/z Ratio	lc
209		5	max	1.707	5	-.022	7	0	1	0	1	NC	7	NC	1
210			min	-.045	1	-3.219	5	0	1	0	1	NC	5	NC	1

Basic Load Cases

	BLC Description	Category	X Gr...	Y Grav..	Z Grav...	Joint	Point	Distributed	Area (...	Surfac...
1	Dead	DL		-1		9		16		
2	Wind	WL				9		5		
3	Earthquake	EL				6				
4	Ice Weight	DL				9		5		
5	Wind on Iced Members	WL				9		5		

Load Combinations

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	Comb 1	Yes	Y		1	1.4														
2	Comb 2	Yes	Y		1	1.2	2	.8												
3	Comb 3	Yes	Y		1	1.2	2	1.6												
4	Comb 4	Yes	Y		1	1.2	3	1												
5	Comb 5	Yes	Y		1	.9	2	1.6												
6	Comb 6	Yes	Y		1	.9	3	1												
7	Comb 7	Yes	Y		1	1.2	4	.2												
8	Comb 8	Yes	Y		1	1.2	4	1	5	1										
9	Comb 9	Yes	Y		1	.9	4	1	5	1										

General Material Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]
1	gen_Conc3NW	3155	1372	.15	.6	.145
2	gen_Conc4NW	3644	1584	.15	.6	.145
3	gen_Conc3LW	2085	906	.15	.6	.11
4	gen_Conc4LW	2408	1047	.15	.6	.11
5	gen_Alum	10600	4077	.3	1.29	.173
6	gen_Steel	29000	11154	.3	.65	.49
7	RIGID	1e+7		0	0	0
8	Guy E=26800	26800	11154	.3	1.17	0

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	1	0	0	0	0	
2	2	0	15	0	0	
3	3	0	30	0	0	
4	4	0	45	0	0	
5	5	0	60	0	0	
6	6	0	65	0	0	
7	G1	0	0	-33	0	
8	G2	33	0	0	0	
9	G3	0	0	33	0	
10	G4	-33	0	0	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
1	G1	Reaction	Reaction	Reaction				
2	G2	Reaction	Reaction	Reaction				
3	G3	Reaction	Reaction	Reaction				
4	G4	Reaction	Reaction	Reaction				
5	1	Reaction	Reaction	Reaction				

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design Rules
1	1	1	2			PIPE_2.5	Column	Pipe	A572 Gr.50	Typical
2	2	2	3			PIPE_2.5	Column	Pipe	A572 Gr.50	Typical
3	3	3	4			PIPE_2.5	Column	Wide Flan...	A572 Gr.50	Typical
4	4	4	5			PIPE_2.5	Column	Wide Flan...	A572 Gr.50	Typical
5	5	5	6			PIPE_2.5	Beam	Pipe	A572 Gr.50	Typical
6	GUY1	G1	2			1/4" EHS	None	None	Guy E=26800	Typical
7	GUY2	G2	2			1/4" EHS	None	None	Guy E=26800	Typical
8	GUY3	G3	2			1/4" EHS	None	None	Guy E=26800	Typical
9	GUY4	G4	2			1/4" EHS	None	None	Guy E=26800	Typical
10	GUY5	G1	3			1/4" EHS	None	None	Guy E=26800	Typical
11	GUY6	G2	3			1/4" EHS	None	None	Guy E=26800	Typical
12	GUY7	G3	3			1/4" EHS	None	None	Guy E=26800	Typical
13	GUY8	G4	3			1/4" EHS	None	None	Guy E=26800	Typical
14	GUY9	G1	4			1/4" EHS	None	None	Guy E=26800	Typical
15	GUY10	G2	4			1/4" EHS	None	None	Guy E=26800	Typical
16	GUY11	G3	4			1/4" EHS	None	None	Guy E=26800	Typical
17	GUY12	G4	4			1/4" EHS	None	None	Guy E=26800	Typical
18	GUY13	G1	5			1/4" EHS	None	None	Guy E=26800	Typical
19	GUY14	G2	5			1/4" EHS	None	None	Guy E=26800	Typical
20	GUY15	G3	5			1/4" EHS	None	None	Guy E=26800	Typical
21	GUY16	G4	5			1/4" EHS	None	None	Guy E=26800	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	TOM	Inactive
1	1						Yes		
2	2						Yes		
3	3						Yes		
4	4						Yes		
5	5						Yes		
6	GUY1					Tension Only	Yes		
7	GUY2					Tension Only	Yes		
8	GUY3					Tension Only	Yes		
9	GUY4					Tension Only	Yes		
10	GUY5					Tension Only	Yes		
11	GUY6					Tension Only	Yes		
12	GUY7					Tension Only	Yes		
13	GUY8					Tension Only	Yes		
14	GUY9					Tension Only	Yes		
15	GUY10					Tension Only	Yes		
16	GUY11					Tension Only	Yes		
17	GUY12					Tension Only	Yes		
18	GUY13					Tension Only	Yes		
19	GUY14					Tension Only	Yes		
20	GUY15					Tension Only	Yes		
21	GUY16					Tension Only	Yes		

Joint Loads and Enforced Displacements (BLC 1 : Dead)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	Y	-.046
2	2	L	Y	-.0034
3	2	L	Y	-.0034
4	3	L	Y	-.0042
5	3	L	Y	-.0042
6	4	L	Y	-.0052

Joint Loads and Enforced Displacements (BLC 1 : Dead) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
7	4	L	Y	-.0052
8	5	L	Y	-.0064
9	5	L	Y	-.0064

Joint Loads and Enforced Displacements (BLC 2 : Wind)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	X	.4
2	2	L	X	.0057
3	2	L	X	.0057
4	3	L	X	.0082
5	3	L	X	.0082
6	4	L	X	.0111
7	4	L	X	.0111
8	5	L	X	.0145
9	5	L	X	.0145

Joint Loads and Enforced Displacements (BLC 3 : Earthquake)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	1	L	X	.017
2	2	L	X	.035
3	3	L	X	.035
4	4	L	X	.035
5	5	L	X	.023
6	6	L	X	.006

Joint Loads and Enforced Displacements (BLC 4 : Ice Weight)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	Y	0
2	2	L	Y	0
3	2	L	Y	0
4	3	L	Y	0
5	3	L	Y	0
6	4	L	Y	0
7	4	L	Y	0
8	5	L	Y	0
9	5	L	Y	0

Joint Loads and Enforced Displacements (BLC 5 : Wind on Iced Members)

	Joint Label	L,D,M	Direction	Magnitude[k,k-ft in,rad k*s^2/ft]
1	6	L	X	0
2	2	L	X	0
3	2	L	X	0
4	3	L	X	0
5	3	L	X	0
6	4	L	X	0
7	4	L	X	0
8	5	L	X	0
9	5	L	X	0

Member Distributed Loads (BLC 1 : Dead)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	GUY1	T	-27.91	-27.91	0	0
2	GUY2	T	-27.91	-27.91	0	0
3	GUY3	T	-27.91	-27.91	0	0

Member Distributed Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
4	GUY4	T	-27.91	-27.91	0	0
5	GUY5	T	-27.91	-27.91	0	0
6	GUY6	T	-27.91	-27.91	0	0
7	GUY7	T	-27.91	-27.91	0	0
8	GUY8	T	-27.91	-27.91	0	0
9	GUY9	T	-27.91	-27.91	0	0
10	GUY10	T	-27.91	-27.91	0	0
11	GUY11	T	-27.91	-27.91	0	0
12	GUY12	T	-27.91	-27.91	0	0
13	GUY13	T	-27.91	-27.91	0	0
14	GUY14	T	-27.91	-27.91	0	0
15	GUY15	T	-27.91	-27.91	0	0
16	GUY16	T	-27.91	-27.91	0	0

Member Distributed Loads (BLC 2 : Wind)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	1	X	.005	.005	0	0
2	2	X	.005	.005	0	0
3	3	X	.005	.005	0	0
4	4	X	.005	.005	0	0
5	5	X	.005	.005	0	0

Member Distributed Loads (BLC 4 : Ice Weight)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	1	Y	0	0	0	0
2	2	Y	0	0	0	0
3	3	Y	0	0	0	0
4	4	Y	0	0	0	0
5	5	Y	0	0	0	0

Member Distributed Loads (BLC 5 : Wind on Iced Members)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitud...	Start Location[...	End Location[ft,%]
1	1	X	0	0	0	0
2	2	X	0	0	0	0
3	3	X	0	0	0	0
4	4	X	0	0	0	0
5	5	X	0	0	0	0

Envelope Joint Reactions

	Joint		X [k]	lc	Y [k]	lc	Z [k]	lc	MX [k-ft]	lc	MY [k-ft]	lc	MZ [k-ft]	lc
1	G1	max	.002	5	-.705	5	-.714	5	0	1	0	1	0	1
2		min	0	4	-1.157	1	-1.158	1	0	1	0	1	0	1
3	G2	max	1.158	1	-.404	5	0	4	0	1	0	1	0	1
4		min	.46	5	-1.157	1	0	3	0	1	0	1	0	1
5	G3	max	.002	5	-.705	5	1.158	1	0	1	0	1	0	1
6		min	0	4	-1.157	1	.714	5	0	1	0	1	0	1
7	G4	max	-.744	9	-.744	9	0	3	0	1	0	1	0	1
8		min	-1.916	3	-2.521	3	0	4	0	1	0	1	0	1
9	1	max	0	9	5.57	3	0	3	0	1	0	1	0	1
10		min	-.045	5	3.39	6	0	2	0	1	0	1	0	1
11	Totals:	max	0	9	.646	1	0	5						
12		min	-1.286	3	.415	5	0	4						

Envelope Member Section Forces

	Member	Sec		Axial[k]	lc	y Shear[k]	lc	z Shear[k]	lc	Torque...	lc	y-y Momen...	lc	z-z Moment[k...	lc
1	1	1	max	5.57	3	.046	3	0	1	0	1	0	1	0	1
2			min	3.39	6	0	1	0	1	0	1	0	1	0	1
9		5	max	5.465	3	0	4	0	1	0	1	0	1	.208	5
10			min	3.311	6	-.074	5	0	1	0	1	0	1	0	4
11	2	1	max	4.832	3	.062	5	0	1	0	1	0	1	.167	3
12			min	2.83	6	0	4	0	1	0	1	0	1	0	4
19		5	max	4.727	3	0	1	0	1	0	1	0	1	.142	3
20			min	2.751	6	-.058	3	0	1	0	1	0	1	0	1
21	3	1	max	3.774	3	.053	3	0	1	0	1	0	1	.09	3
22			min	2.015	6	0	1	0	1	0	1	0	1	0	1
29		5	max	3.67	3	0	4	0	1	0	1	0	1	.215	5
30			min	1.937	6	-.069	5	0	1	0	1	0	1	-.003	6
31	4	1	max	2.573	3	0	1	0	1	0	1	0	1	.165	5
32			min	1.079	6	-.076	3	0	1	0	1	0	1	-.011	2
39		5	max	2.469	3	0	1	0	1	0	1	0	1	2.165	3
40			min	1.001	6	-.196	3	0	1	0	1	0	1	0	1
41	5	1	max	.105	1	.685	3	0	1	0	1	0	1	3.324	3
42			min	.067	6	0	1	0	1	0	1	0	1	0	1
49		5	max	.064	1	.645	3	0	1	0	1	0	1	0	1
50			min	.041	6	0	1	0	1	0	1	0	1	0	1
51	GUY1	1	max	-.283	5	0	1	.002	5	.009	5	0	1	0	6
52			min	-.447	1	0	6	0	1	0	1	-.039	5	0	3
59		5	max	-.283	5	0	1	.002	5	.009	5	.021	5	0	6
60			min	-.447	1	0	6	0	1	0	1	0	1	0	3
61	GUY2	1	max	-.201	5	0	2	0	1	0	1	0	1	.001	2
62			min	-.447	1	0	5	0	1	0	1	0	1	-.001	5
69		5	max	-.201	5	0	2	0	1	0	1	0	1	.001	5
70			min	-.447	1	0	5	0	1	0	1	0	1	0	4
71	GUY3	1	max	-.283	5	0	1	0	1	0	1	.039	5	0	6
72			min	-.447	1	0	6	-.002	5	-.009	5	0	1	0	3
79		5	max	-.283	5	0	1	0	1	0	1	0	1	0	6
80			min	-.447	1	0	6	-.002	5	-.009	5	-.021	5	0	3
81	GUY4	1	max	-.287	9	.003	5	0	1	0	1	0	1	.073	5
82			min	-.462	3	0	6	0	1	0	1	0	1	0	1
89		5	max	-.287	9	.003	5	0	1	0	1	0	1	0	6
90			min	-.462	3	0	6	0	1	0	1	0	1	-.038	5
91	GUY5	1	max	-.26	5	0	3	.002	5	.006	3	0	1	0	3
92			min	-.421	1	0	6	0	1	0	1	-.051	5	0	6
99		5	max	-.26	5	0	3	.002	5	.006	3	.026	5	0	6
100			min	-.421	1	0	6	0	1	0	1	0	6	0	3
101	GUY6	1	max	-.17	5	0	2	0	1	0	1	0	1	.003	2
102			min	-.421	1	0	5	0	1	0	1	0	1	0	5
109		5	max	-.17	5	0	2	0	1	0	1	0	1	0	9
110			min	-.421	1	0	5	0	1	0	1	0	1	-.004	2
111	GUY7	1	max	-.26	5	0	3	0	1	0	1	.051	5	0	3
112			min	-.421	1	0	6	-.002	5	-.006	3	0	1	0	6
119		5	max	-.26	5	0	3	0	1	0	1	0	6	0	6
120			min	-.421	1	0	6	-.002	5	-.006	3	-.026	5	0	3
121	GUY8	1	max	-.271	9	.002	5	0	1	0	1	0	1	.059	5
122			min	-.442	3	0	6	0	1	0	1	0	1	0	9
129		5	max	-.271	9	.002	5	0	1	0	1	0	1	0	6
130			min	-.442	3	0	6	0	1	0	1	0	1	-.03	5
131	GUY9	1	max	-.247	5	0	3	.001	3	.004	5	0	1	0	5
132			min	-.409	1	0	6	0	1	0	1	-.047	3	0	6
139		5	max	-.247	5	0	3	.001	3	.004	5	.025	3	0	6
140			min	-.409	1	0	6	0	1	0	1	0	1	0	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	lc	y Shear[k]	lc	z Shear[k]	lc	Torque...	lc	y-y Momen...	lc	z-z Moment[k...	lc
141	GUY10	1	max	-.235	6	0	5	0	1	0	1	0	1	.001	5
142			min	-.409	1	0	2	0	1	0	1	0	1	-.004	2
149		5	max	-.235	6	0	5	0	1	0	1	0	1	.009	2
150			min	-.409	1	0	2	0	1	0	1	0	1	-.002	5
151	GUY11	1	max	-.247	5	0	3	0	1	0	1	.047	3	0	5
152			min	-.409	1	0	6	-.001	3	-.004	5	0	1	0	6
159		5	max	-.247	5	0	3	0	1	0	1	0	1	0	6
160			min	-.409	1	0	6	-.001	3	-.004	5	-.025	3	0	3
161	GUY12	1	max	-.238	5	.001	3	0	1	0	1	0	1	.047	3
162			min	-.409	1	0	9	0	1	0	1	0	1	0	9
169		5	max	-.238	5	.001	3	0	1	0	1	0	1	0	9
170			min	-.409	1	0	9	0	1	0	1	0	1	-.026	3
171	GUY13	1	max	-.244	5	0	5	0	1	.029	5	.133	5	0	6
172			min	-.409	1	0	1	-.008	5	0	1	0	1	0	1
179		5	max	-.244	5	0	5	0	1	.029	5	0	1	0	6
180			min	-.409	1	0	1	-.008	5	0	1	-.388	5	0	3
181	GUY14	1	max	0	2	0	4	0	1	0	1	0	1	0	6
182			min	-.409	1	0	1	0	1	0	1	0	1	0	1
189		5	max	0	2	0	4	0	1	0	1	0	1	0	2
190			min	-.409	1	0	1	0	1	0	1	0	1	-.003	4
191	GUY15	1	max	-.244	5	0	5	.008	5	0	1	0	1	0	6
192			min	-.409	1	0	1	0	1	-.029	5	-.133	5	0	1
199		5	max	-.244	5	0	5	.008	5	0	1	.388	5	0	6
200			min	-.409	1	0	1	0	1	-.029	5	0	1	0	3
201	GUY16	1	max	-.263	9	0	1	0	1	0	1	0	1	0	9
202			min	-2.028	3	-.009	5	0	1	0	1	0	1	-.177	5
209		5	max	-.263	9	0	1	0	1	0	1	0	1	.463	5
210			min	-2.028	3	-.009	5	0	1	0	1	0	1	0	1

Envelope Member Section Deflections

	Member	Sec		x [in]	lc	y [in]	lc	z [in]	lc	x Rotate [r...	lc	(n) L/y Ratio	lc	(n) L/z Ratio	lc
1	1	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
2			min	0	1	0	1	0	1	0	1	NC	1	NC	1
9		5	max	-.012	6	0	1	0	1	0	1	NC	1	NC	1
10			min	-.02	3	-.039	5	0	1	0	1	NC	5	NC	1
11	2	1	max	-.012	6	0	1	0	1	0	1	NC	1	NC	1
12			min	-.02	3	-.039	5	0	1	0	1	NC	5	NC	1
19		5	max	-.022	6	0	1	0	1	0	1	NC	1	NC	1
20			min	-.038	3	-.065	3	0	1	0	1	NC	3	NC	1
21	3	1	max	-.022	6	0	1	0	1	0	1	NC	1	NC	1
22			min	-.038	3	-.065	3	0	1	0	1	NC	3	NC	1
29		5	max	-.03	6	.017	3	0	1	0	1	NC	3	NC	1
30			min	-.051	3	-.031	6	0	1	0	1	NC	6	NC	1
31	4	1	max	-.03	6	.017	3	0	1	0	1	NC	3	NC	1
32			min	-.051	3	-.031	6	0	1	0	1	NC	6	NC	1
39		5	max	-.033	6	0	1	0	1	0	1	NC	1	NC	1
40			min	-.06	3	-2.972	5	0	1	0	1	60.359	5	NC	1
41	5	1	max	-.033	6	0	1	0	1	0	1	NC	1	NC	1
42			min	-.06	3	-2.972	5	0	1	0	1	NC	5	NC	1
49		5	max	-.033	6	0	1	0	1	0	1	NC	1	NC	1
50			min	-.06	3	-6.993	5	0	1	0	1	14.923	5	NC	1
51	GUY1	1	max	0	1	0	1	0	1	4.101e-3	5	NC	1	NC	1
52			min	0	1	0	1	0	1	-1.591e-5	6	NC	1	NC	1
59		5	max	-.005	6	-.011	6	0	1	5.909e-5	3	NC	6	NC	1
60			min	-.008	3	-.018	3	-.039	5	-3.363e-5	6	NC	3	NC	5
61	GUY2	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	lc	y [in]	lc	z [in]	lc	x Rotate [r...	lc	(n) L/y Ratio	lc	(n) L/z Ratio	lc
62			min	0	1	0	1	0	1	0	1	NC	1	NC	1
69		5	max	-.005	9	0	5	0	1	0	1	NC	5	NC	1
70			min	-.043	3	-.017	1	0	1	0	1	NC	1	NC	1
71	GUY3	1	max	0	1	0	1	0	1	1.591e-5	6	NC	1	NC	1
72			min	0	1	0	1	0	1	-4.101e-3	5	NC	1	NC	1
79		5	max	-.005	6	-.011	6	.039	5	3.363e-5	6	NC	6	NC	5
80			min	-.008	3	-.018	3	0	1	-5.909e-5	3	NC	3	NC	1
81	GUY4	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
82			min	0	1	0	1	0	1	0	1	NC	1	NC	1
89		5	max	.028	5	-.011	9	0	1	0	1	NC	9	NC	1
90			min	-.008	1	-.034	3	0	1	0	1	NC	3	NC	1
91	GUY5	1	max	0	1	0	1	0	1	3.377e-3	3	NC	1	NC	1
92			min	0	1	0	1	0	1	-1.26e-5	6	NC	1	NC	1
99		5	max	-.015	6	-.017	6	0	1	0	1	NC	6	NC	1
100			min	-.025	3	-.028	3	-.065	3	-1.445e-4	2	NC	3	NC	3
101	GUY6	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
102			min	0	1	0	1	0	1	0	1	NC	1	NC	1
109		5	max	-.015	9	.02	5	0	1	0	1	NC	5	NC	1
110			min	-.073	3	-.026	1	0	1	0	1	NC	1	NC	1
111	GUY7	1	max	0	1	0	1	0	1	1.26e-5	6	NC	1	NC	1
112			min	0	1	0	1	0	1	-3.377e-3	3	NC	1	NC	1
119		5	max	-.015	6	-.017	6	.065	3	1.445e-4	2	NC	6	NC	3
120			min	-.025	3	-.028	3	0	1	0	1	NC	3	NC	1
121	GUY8	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
122			min	0	1	0	1	0	1	0	1	NC	1	NC	1
129		5	max	.026	5	-.017	9	0	1	0	1	NC	9	NC	1
130			min	-.023	1	-.071	3	0	1	0	1	NC	3	NC	1
131	GUY9	1	max	0	1	0	1	0	1	2.735e-3	3	NC	1	NC	1
132			min	0	1	0	1	0	1	-9.807e-6	6	NC	1	NC	1
139		5	max	-.024	6	-.017	6	.017	3	4.691e-4	2	NC	6	NC	3
140			min	-.041	3	-.03	3	-.031	6	-7.16e-5	5	NC	3	NC	6
141	GUY10	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
142			min	0	1	0	1	0	1	0	1	NC	1	NC	1
149		5	max	-.024	9	.008	6	0	1	0	1	NC	6	NC	1
150			min	-.05	4	-.044	3	0	1	0	1	NC	3	NC	1
151	GUY11	1	max	0	1	0	1	0	1	9.807e-6	6	NC	1	NC	1
152			min	0	1	0	1	0	1	-2.735e-3	3	NC	1	NC	1
159		5	max	-.024	6	-.017	6	.031	6	7.16e-5	5	NC	6	NC	6
160			min	-.041	3	-.03	3	-.017	3	-4.691e-4	2	NC	3	NC	3
161	GUY12	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
162			min	0	1	0	1	0	1	0	1	NC	1	NC	1
169		5	max	-.005	6	-.016	2	0	1	0	1	NC	2	NC	1
170			min	-.051	3	-.048	4	0	1	0	1	NC	4	NC	1
171	GUY13	1	max	0	1	0	1	0	1	2.259e-3	3	NC	1	NC	1
172			min	0	1	0	1	0	1	-7.776e-6	6	NC	1	NC	1
179		5	max	-.029	6	-.016	6	0	1	0	1	NC	6	NC	1
180			min	-.053	3	-.029	3	-2.972	5	-2.368e-2	5	NC	3	NC	5
181	GUY14	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
182			min	0	1	0	1	0	1	0	1	NC	1	NC	1
189		5	max	-.029	9	2.579	5	0	1	0	1	NC	5	NC	1
190			min	-1.477	5	-.025	1	0	1	0	1	NC	1	NC	1
191	GUY15	1	max	0	1	0	1	0	1	7.776e-6	6	NC	1	NC	1
192			min	0	1	0	1	0	1	-2.259e-3	3	NC	1	NC	1
199		5	max	-.029	6	-.016	6	2.972	5	2.368e-2	5	NC	6	NC	5
200			min	-.053	3	-.029	3	0	1	0	1	NC	3	NC	1
201	GUY16	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
202			min	0	1	0	1	0	1	0	1	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	lc	y [in]	lc	z [in]	lc	x Rotate [r...	lc	(n) L/y Ratio	lc	(n) L/z Ratio	lc
209		5	max	1.387	5	-.016	9	0	1	0	1	NC	9	NC	1
210			min	-.045	1	-2.629	5	0	1	0	1	NC	5	NC	1