Horizontal Monotube Analysis

E = 29000 ksi (Young's Modulus)
k chord = 1.00

	Mvert	Mhortiz.	SHEAR Horizontal	SHEAR Vertical	Max Axial
	kip-ft	kip-ft	kips	kips	Kips
Section 1	44.18	90.66	4.97	2.54	5.29
Section 2	35.60	75.56	4.97	2.54	5.29

Local Buckling AASHTO 5.5

Section 1

Outside Dia. (inches)	Wall Thick. (inches)	Yield Str. (ksi)	λ	λp	λr	λmax	Result
4.000	0.23	42.0	17.70	86.9	180.6	309.5	Compact

Local Buckling AASHTO 5.5

Section 2

Outside Dia. (inches)	Wall Thick. (inches)	Yield Str. (ksi)	λ	λp	λr	λmax	Result
4.000	0.23	42.0	17.70	86.9	180.6	309.5	Compact

λ width-thickness ratio
λp compact width-thickness ratio
λr non-compact width-thickness ratio
λmax maximum width-thickness ratio
E 29000 ksi (Young's Modulus)

Section 1

Unbraced Length (in.)	Pipe Diameter (in.)	Wall Thickness (in.)	Pipe Area (in.^2)	Chord Yield Str. (ksi)	kL/Rmin
72.0	4.000	0.226	2.68	42.0	53.95

Section 2

Unbraced Length (in.)	Pipe Diameter (in.)	Wall Thickness (in.)	Pipe Area (in.^2)	Chord Yield Str. (ksi)	kL/Rmin
72.0	4.000	0.226	2.68	42.0	53.95

GROUP 1

BENDING AND SHEAR STRESSES

	Mmax kip-ft	S in^3	fb ksi	Shear kips	Pipe Area in^2	fv ksi	Axial kips	Area y in^2	fa ksi
Section 1	100.86	97.26	12.44	5.58	2.68	2.08	5.29	2.68	1.97
Section 2	83.52	97.26	10.31	5.58	2.68	2.08	5.29	2.68	1.97

RESULTS

	Fb ksi	Fv ksi	Fa ksi	Cc	R	KL/R	Fe'	Eqn. 5-17 CSR	Eqn. 5-18 CSR	Eqn. 5-19 CSR	**MAX CSR**
Section 1	27.72	13.86	21.75	116.75	1.33	53.95	51.30	0.550	0.607	0.562	0.607
Section 2	27.72	13.86	21.75	116.75	1.33	53.95	51.30	0.473	0.522	0.485	0.522

	Term 1	Term 2	Term 3	Fb Calculation: Compact (ksi)	Non-Compact (ksi)	Slender
Section 1						
Eqn. 5-17	0.078	0.449	0.023			
Eqn. 5-18	0.091	0.494	0.023			
Eqn. 5-19	0.091	0.449	0.023			
Section 2	Term 1	Term 2	Term 3			
Eqn. 5-17	0.078	0.372	0.023			
Eqn. 5-18	0.091	0.409	0.023	27.72	72.09	72.09
Eqn. 5-19	0.091	0.372	0.023	27.72	72.09	72.09

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