



Hydraulic Calculations by HydraCALC

Jefferson Sprinkler, Inc
P.O. Box 129
Gretna, LA 70054
504-362-0198

Job Name : Three Peas in a Pod
Drawing : 1
Location : 2965 Gause Blvd Slidell, LA
Remote Area : 1
Contract : 20312
Data File : Three Peas in a Pod.WXF

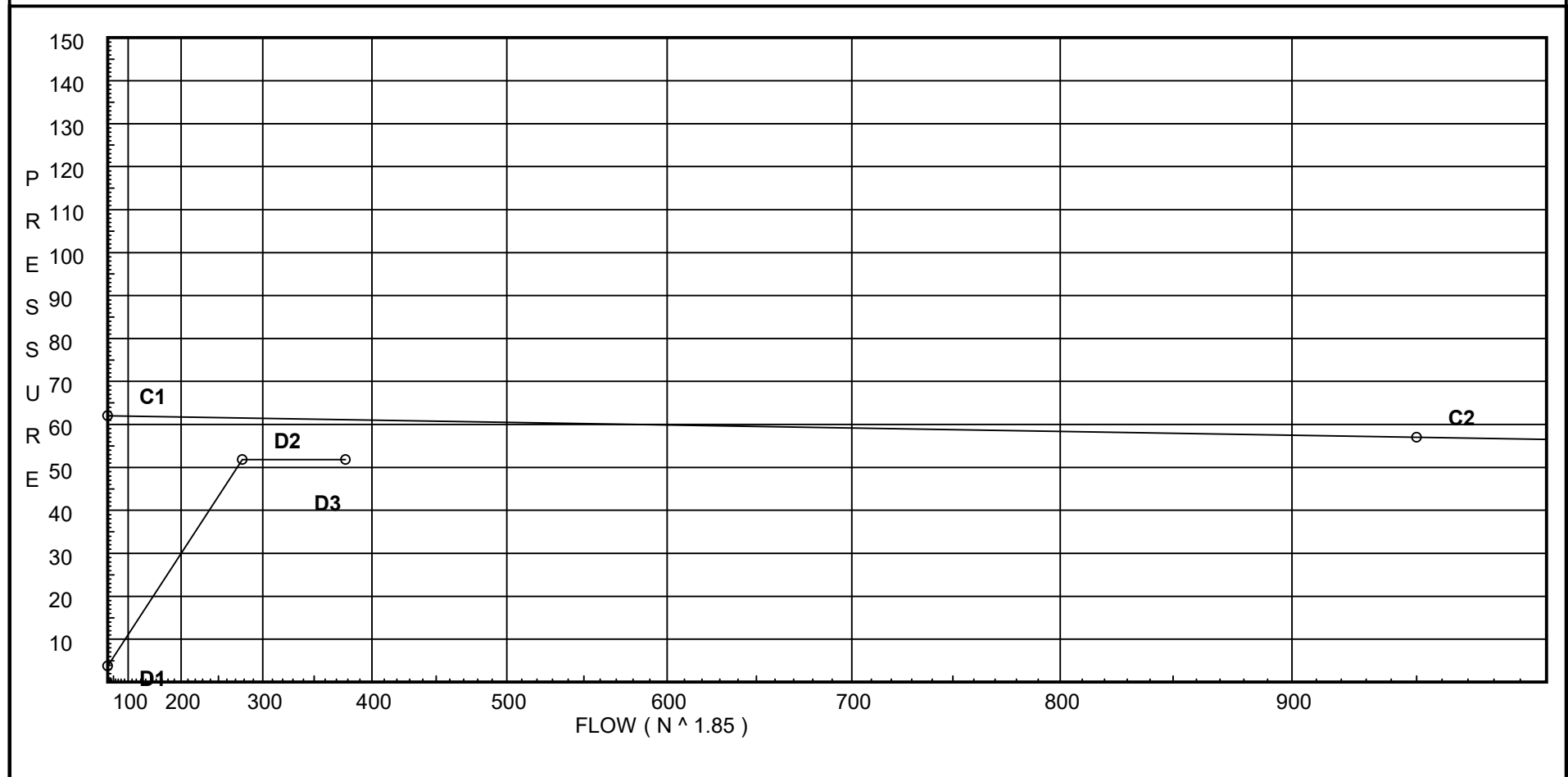
Water Supply Curve

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City Water Supply:
C1 - Static Pressure : 62
C2 - Residual Pressure: 57
C2 - Residual Flow : 950

Demand:
D1 - Elevation : 3.790
D2 - System Flow : 277.808
D2 - System Pressure : 51.811
Hose (Demand) : 100
D3 - System Demand : 377.808
Safety Margin : 9.281



Fittings Used Summary

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Fitting Legend

Abbrev.	Name	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Zwh	Watts 757DCDA Horiz	Fitting generates a Fixed Loss Based on Flow																			

Units Summary

Diameter Units Inches
Length Units Feet
Flow Units US Gallons per Minute
Pressure Units Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Flow Summary - NFPA

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SUPPLY ANALYSIS

<i>Node at Source</i>	<i>Static Pressure</i>	<i>Residual Pressure</i>	<i>Flow</i>	<i>Available Pressure</i>	<i>Total Demand</i>	<i>Required Pressure</i>
TEST	62.0	57	950.0	61.092	377.81	51.811

NODE ANALYSIS

<i>Node Tag</i>	<i>Elevation</i>	<i>Node Type</i>	<i>Pressure at Node</i>	<i>Discharge at Node</i>	<i>Notes</i>
D1	9.75	5.6	26.76	28.97	0.2 130
D2	9.75	11.2	12.81	40.08	0.1 400
D3	9.75	11.2	13.03	40.43	0.1 400
D4	9.75	11.2	12.8	40.07	0.1 400
D5	9.75	11.2	13.07	40.49	0.1 400
D6	9.75	11.2	15.33	43.86	0.1 400
D7	9.75	11.2	15.36	43.9	0.1 400
102A	11.0		25.92		
104A	11.0		25.91		
1	11.0		32.8		
101	11.0		28.68		
102	11.0		27.84		
103	11.0		27.81		
104	11.0		27.83		
105	11.0		27.89		
3	11.0		33.46		
106	11.0		32.59		
107	11.0		32.66		
5	11.0		33.96		
7	11.0		34.77		
9	11.0		34.93		
11	11.0		35.14		
13	11.0		35.19		
2	11.0		35.36		
4	11.0		35.52		
6	11.0		35.7		
8	11.0		36.28		
10	11.0		36.52		
12	11.0		37.22		
14	11.0		37.99		
TOR	11.0		39.21		
BOR	1.0		44.54		
UNDG	-3.0		46.68		
TEST	1.0		51.81	100.0	

Final Calculations : Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
D1 to 101	9.750 11	5.60	28.97 28.97	1 1.049	E T	2.0 5.0	2.500 7.000 9.500	120	26.763 -0.541 2.453		Vel = 10.75	
101			0.0 28.97						28.675		K Factor = 5.41	
D2 to 102A	9.750 11	11.20	40.08 40.08	1 1.049	2E	4.0	25.000 4.000 29.000	120	12.808 -0.541 13.655		Vel = 14.88	
102A			0.0 40.08						25.922		K Factor = 7.87	
D3 to 103	9.750 11	11.20	40.43 40.43	1 1.049	E T	2.0 5.0	25.000 7.000 32.000	120	13.033 -0.541 15.313		Vel = 15.01	
103			0.0 40.43						27.805		K Factor = 7.67	
D4 to 104A	9.750 11	11.20	40.07 40.07	1 1.049	2E	4.0	25.000 4.000 29.000	120	12.800 -0.541 13.649		Vel = 14.88	
104A			0.0 40.07						25.908		K Factor = 7.87	
D5 to 105	9.750 11	11.20	40.49 40.49	1 1.049	E T	2.0 5.0	25.000 7.000 32.000	120	13.071 -0.541 15.356		Vel = 15.03	
105			0.0 40.49						27.886		K Factor = 7.67	
D6 to 106	9.750 11	11.20	43.86 43.86	1 1.049	E T	2.0 5.0	25.000 7.000 32.000	120	15.334 -0.541 17.800		Vel = 16.28	
106			0.0 43.86						32.593		K Factor = 7.68	
D7 to 107	9.750 11	11.20	43.90 43.9	1 1.049	E T	2.0 5.0	25.000 7.000 32.000	120	15.365 -0.541 17.832		Vel = 16.30	
107			0.0 43.90						32.656		K Factor = 7.68	
102A to 102	11 11		40.08 40.08	1.25 1.38	T	6.0	9.500 6.000 15.500	120	25.922 0.0 1.920		Vel = 8.60	
102			0.0 40.08						27.842		K Factor = 7.60	
104A to 104	11 11		40.07 40.07	1.25 1.38	T	6.0	9.500 6.000 15.500	120	25.908 0.0 1.918		Vel = 8.60	
104			0.0 40.07						27.826		K Factor = 7.60	
1 to 101	11 11		-104.21 -104.21	1.5 1.682	T	9.9	5.000 9.900 14.900	120	32.798 0.0 -4.123		Vel = 15.05	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
101 to 102	11 11		28.97 -75.24	1.5 1.682			5.500 5.500	120 -0.1515	28.675 0.0 -0.833		Vel = 10.86	
102 to 103	11 11		40.08 -35.16	1.5 1.682			1.000 1.000	120 -0.0370	27.842 0.0 -0.037		Vel = 5.08	
103 to 104	11 11		40.43 5.27	1.5 1.682			19.000 19.000	120 0.0011	27.805 0.0 0.021		Vel = 0.76	
104 to 105	11 11		40.07 45.34	1.5 1.682			1.000 1.000	120 0.0600	27.826 0.0 0.060		Vel = 6.55	
105 to 2	11 11		40.50 85.84	1.5 1.682	T	9.9	28.750 9.900 38.650	120 0.1933	27.886 0.0 7.470		Vel = 12.39	
2			0.0 85.84						35.356		K Factor = 14.44	
3 to 106	11 11		-34.57 -34.57	1.5 1.682	T	9.9	14.200 9.900 24.100	120 -0.0359	33.459 0.0 -0.866		Vel = 4.99	
106 to 107	11 11		43.86 9.29	1.5 1.682			20.000 20.000	120 0.0032	32.593 0.0 0.063		Vel = 1.34	
107 to 4	11 11		43.90 53.19	1.5 1.682	T	9.9	26.000 9.900 35.900	120 0.0797	32.656 0.0 2.863		Vel = 7.68	
4			0.0 53.19						35.519		K Factor = 8.92	
5 to 6	11 11		26.28 26.28	1.5 1.682	2T	19.799	60.500 19.799 80.299	120 0.0216	33.961 0.0 1.737		Vel = 3.79	
6			0.0 26.28						35.698		K Factor = 4.40	
7 to 8	11 11		24.39 24.39	1.5 1.682	2T	19.799	60.500 19.799 80.299	120 0.0189	34.766 0.0 1.514		Vel = 3.52	
8			0.0 24.39						36.280		K Factor = 4.05	
9 to 10	11 11		25.05 25.05	1.5 1.682	2T	19.799	60.500 19.799 80.299	120 0.0198	34.930 0.0 1.591		Vel = 3.62	
10			0.0 25.05						36.521		K Factor = 4.15	
11 to 12	11 11		29.03 29.03	1.5 1.682	2T	19.799	60.500 19.799 80.299	120 0.0260	35.136 0.0 2.088		Vel = 4.19	
			0.0									

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
			29.03					37.224		K Factor = 4.76	
13 to 14	11 11		34.03	1.5	2T 19.799	60.500 19.799	120	35.193 0.0			
			34.03	1.682		80.299	0.0349	2.802		Vel = 4.91	
			0.0								
14			34.03					37.995		K Factor = 5.52	
1 to 3	11 11		104.21	2.5		21.250	120	32.798 0.0			
			104.21	2.635		21.250	0.0311	0.661		Vel = 6.13	
3 to 5	11 11		34.57	2.5		9.500	120	33.459 0.0			
			138.78	2.635		9.500	0.0528	0.502		Vel = 8.16	
5 to 7	11 11		-26.28	2.5		22.500	120	33.961 0.0			
			112.5	2.635		22.500	0.0358	0.805		Vel = 6.62	
7 to 9	11 11		-24.39	2.5		7.200	120	34.766 0.0			
			88.11	2.635		7.200	0.0228	0.164		Vel = 5.18	
9 to 11	11 11		-25.06	2.5		16.750	120	34.930 0.0			
			63.05	2.635		16.750	0.0123	0.206		Vel = 3.71	
11 to 13	11 11		-29.02	2.5		14.500	120	35.136 0.0			
			34.03	2.635		14.500	0.0039	0.057		Vel = 2.00	
			0.0								
13			34.03					35.193		K Factor = 5.74	
2 to 4	11 11		85.84	3		21.250	120	35.356 0.0			
			85.84	3.26		21.250	0.0077	0.163		Vel = 3.30	
4 to 6	11 11		53.19	3		9.500	120	35.519 0.0			
			139.03	3.26		9.500	0.0188	0.179		Vel = 5.34	
6 to 8	11 11		26.28	3		22.500	120	35.698 0.0			
			165.31	3.26		22.500	0.0259	0.582		Vel = 6.35	
8 to 10	11 11		24.39	3		7.200	120	36.280 0.0			
			189.7	3.26		7.200	0.0335	0.241		Vel = 7.29	
10 to 12	11 11		25.06	3		16.750	120	36.521 0.0			
			214.76	3.26		16.750	0.0420	0.703		Vel = 8.25	
12 to 14	11 11		29.02	3		14.500	120	37.224 0.0			
			243.78	3.26		14.500	0.0532	0.771		Vel = 9.37	
14 to TOR	11 11		34.03	3	E 9.408	8.500 9.408	120	37.995 0.0			
			277.81	3.26		17.908	0.0676	1.211		Vel = 10.68	
TOR to BOR	11 1		0.0	4	S B 28.968 15.8	10.000 44.768	120	39.206 4.331			
			277.81	4.26		54.768	0.0184	1.007		Vel = 6.25	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
BOR to UNDG	1 -3		0.0 277.81	4 4.1	E	14.534	10.000 14.534 24.534	140 0.0167	44.544 1.732 0.409		Vel = 6.75	
UNDG to TEST	-3 1		0.0 277.81	4 4.23	E T G Zwh	19.223 38.446 3.845 0.0	160.000 61.514 221.514	150 0.0126	46.685 2.337 2.789		* * Fixed Loss = 4.07 Vel = 6.34	
TEST			100.00 377.81						51.811		Qa = 100.00 K Factor = 52.49	

AutoPeaking Summary

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Auto Peaking Summary - List of Pipes for Area Calculated

Left Side			Right Side		
From	To	Length	From	To	Length
1	101	5.000	105	2	28.750
3	106	14.200	107	4	26.000
1	101	5.000	105	2	28.750
3	106	14.200	107	4	26.000

	Flow Required	Safety Margin	Pressure Differential
Area Calculated	377.808	9.281	0.000
Right	20.000 379.209	9.562	-0.281

- Typical Distance Between Heads = 20.000
- Split Point Used in Worst Area Peaked = D4
- Split Point Used in Area Calculated = D4