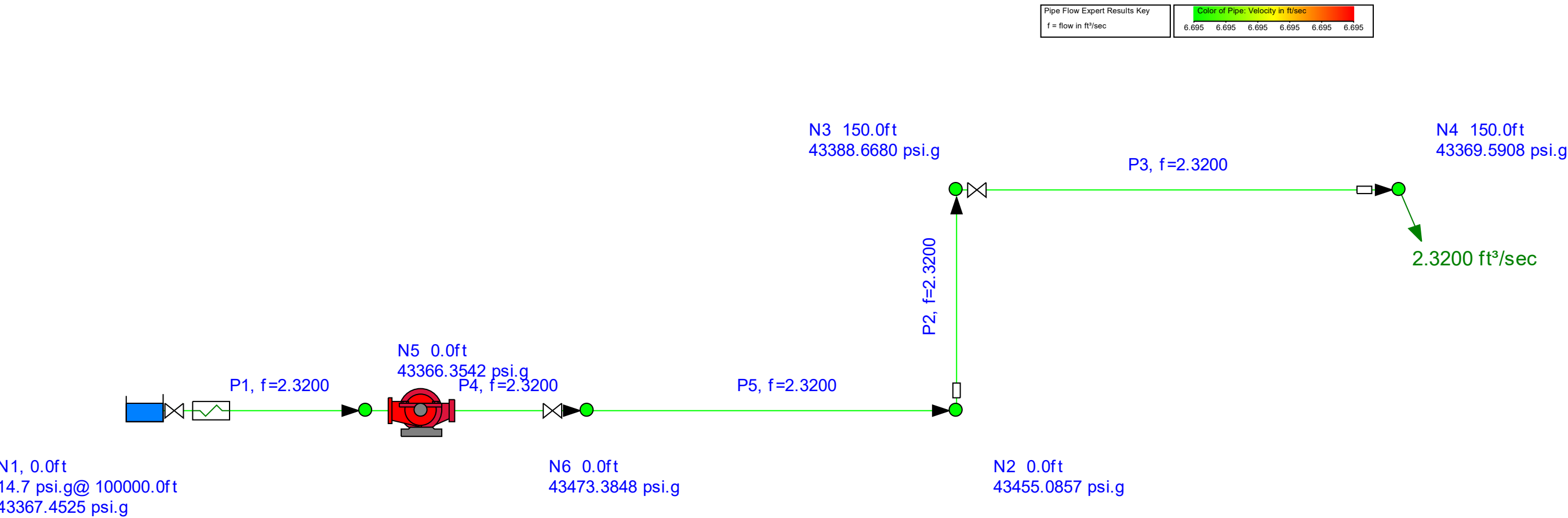




Pipe Flow Design 1

Results Data

Designed using Pipe Flow Expert from www.pipeflow.com

Page 2

Fluid Data

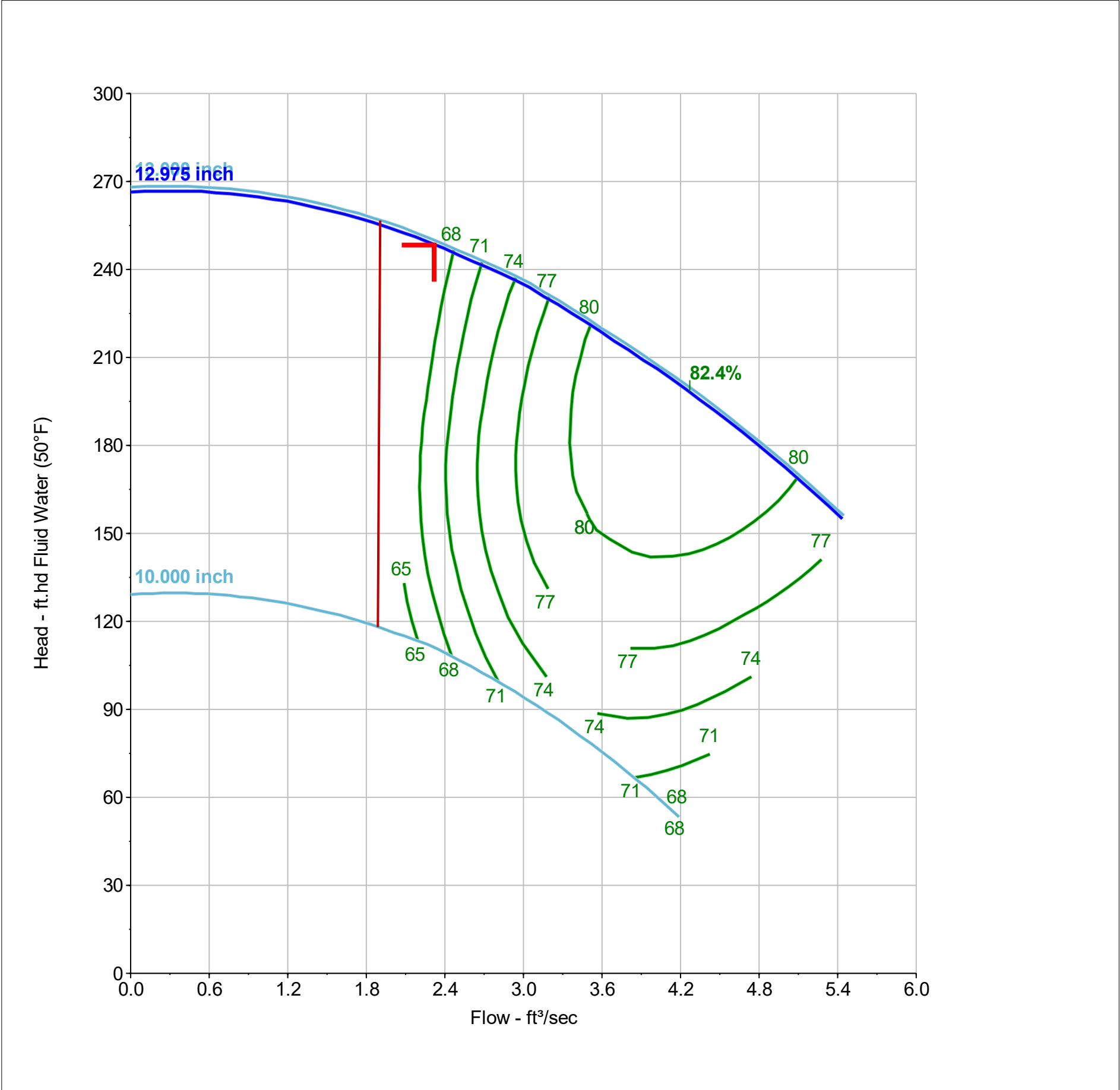
Zone	Fluid Name	Chemical Formula	Temperature °F	Pressure psi.g	Density lb/ft³	Centistokes	Centipoise	Vapour Pressure psi.a	State
1	Water	H2 O	50.000	0.0000	62.427961	1.306000	1.306000	0.178106	Liquid

Pump Data

Pipe Id	Pipe Name	Pump Name	Speed rpm	Pref. Op From ft³/sec	Pref. Op To ft³/sec	Flow In/Out ft³/sec	Velocity ft/sec	Suction Pressure psi.g	Discharge Pressure psi.g	Pump Head (+) ft.hd Fluid	Pump NPSHr ft.hd (absolute)	Pump NPSHa ft.hd (absolute)	Pump Efficiency Percentage	Pump Power Horsepower
4	P4	Pump	1770	2.9877	5.5487	2.3200	6.695	43366.3542	43474.0716	248.467	7.922	100064.86	65.73	99.5398

Pump Data Name: Pump Catalog: General Manufacturer: Generic Type: End suction Size: 8x6-13 A90 Stages: 0 Speed: 1770 Rpm Impeller Diam: 12.975 inch Min Speed: 900 Rpm Max Speed: 1780 Rpm Min Diam: 10.000 inch Max Diam: 13.000 inch	Fluid Data Fluid: Water Density: 62.427961 lb/ft³ Viscosity: 1.3060 cP Temperature: 50.000 °F Vapor Pressure: 0.1781 psi.a Atm Pressure: 14.6959 psi.a	Operating Notes Pref. Op. Region: 70% - 130% of BEP Pref. Flow Range:2.9877 - 5.5487 ft³/sec Notes: This pump performance is generally similar to certain ranges from these pump manufactures: Ansi Pro AP96, Goulds 3196, Peerless 8196, Griswold 811, Summit 2196 & Durco Mark III Series ANSI pumps
	Design Curve Shutoff Head: 266.38 ft.hd Fluid Shutoff dP: 115.4813 psi.g BEP: 82.4% @ 4.2682 ft³/sec Power at BEP: 116.57 HP NPSHr at BEP: 11.98 ft.hd Fluid Max Flow Power: 123.30 HP @ 5.4366 ft³/sec	Data Point Flow: 2.3200 ft³/sec Head: 248.47 ft.hd Fluid Efficiency: 65.73% Power: 99.54 HP NPSHr: 7.92 ft.hd Fluid

Pump graph is shown on next page (when document is in landscape format).



Pipe Data

Pipe Id	Pipe Name and Notes	Inner Diameter inch	Length inch	Mass Flow lb/sec	Vol Flow ft³/sec	Velocity ft/sec	dP Total Loss psi	Entry Pressure psi.g	Exit Pressure psi.g
1	P1	7.971	236.160	144.8329	2.3200	6.695	1.0984	43367.4525	43366.3542
2	P2	7.971	1800.000	144.8329	2.3200	6.695	66.4177	43455.0857	43388.6680
3	P3	7.971	25344.000	144.8329	2.3200	6.695	19.0772	43388.6680	43369.5908
4	P4	7.971	236.160	144.8329	2.3200	6.695	-107.0306	43366.3542	43473.3848
5	P5	7.971	24913.680	144.8329	2.3200	6.695	18.2991	43473.3848	43455.0857

Pipe Fittings

Pipe Id	Pipe	Fitting Position	Description	Imperial Size	Metric Size	Database Ref	K Value	Quantity	K Total	Entry K Total	Exit K Total
1	P1	Start of Pipe	Gate Valve	8"	200 mm	Gate	0.1100	1	0.1100		
1	P1	Start of Pipe	Pipe Entry Sharp	8"	200 mm	EntSharp	0.5000	1	0.5000		
										0.6100	0.0000
2	P2	Start of Pipe	Long Bend	8"	200 mm	LB	0.2200	1	0.2200		
										0.2200	0.0000
3	P3	Start of Pipe	Gate Valve	8"	200 mm	Gate	0.1100	1	0.1100		
3	P3	Start of Pipe	Standard Bend	8"	200 mm	SB	0.4200	1	0.4200		
3	P3	End of Pipe	Pipe Exit to Container	8"	200 mm	ExitCon	1.0000	1	1.0000		
										0.5300	1.0000
4	P4	End of Pipe	Wafer Check Valve	8"	200 mm	ChWaf	1.7000	1	1.7000		
										0.0000	1.7000
5	P5	No Fittings									

Components

Pipe Id	Pipe Name	Inner Diameter inch	Comp. Name	Comp. Type	Comp. Value	Flow ft³/sec	Mass Flow lb/sec	Comp. Loss ft.hd
1	P1	7.971		Sprinkler K imperial	1211.1000	2.3200	144.8329	1.7086

Flow Control Valves (FCVs)

Pipe Id	Pipe Name	Inner Diameter inch	FCV Name	FCV Mass Flow lb/sec	FCV Vol Flow ft ³ /sec	FCV Loss ft.hd
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Pressure Reducing Valves (PRVs)

Pipe Id	Pipe Name	Inner Diameter inch	PRV Name	PRV Pressure psi.g	PRV Loss ft.hd
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Back Pressure Valves (BPVs)

Pipe Id	Pipe Name	Inner Diameter inch	BPV Name	BPV Pressure psi.g	BPV Loss ft.hd
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Node Data

Node Id	Node Type	Node	Elevation ft	Liquid Level ft	Surface Press. psi.g	Press. at Node psi.g	HGL at Node ft.hd Fluid	Demand In (Mass) lb/sec	Demand Out (Mass) lb/sec	Demand In (Vol) @ Fluid Zone Density Downstream ft³/sec	Demand Out (Vol) @ Fluid Zone Density Downstrem ft³/sec
1	Tank	N1	0.000	100000.000	14.7000	43367.4525	100033.91	N/A	N/A	N/A	N/A
2	Join Point	N2	0.000	N/A	N/A	43455.0857	100236.05	0.0000	0.0000	0.0000	0.0000
3	Join Point	N3	150.000	N/A	N/A	43388.6680	100232.84	0.0000	0.0000	0.0000	0.0000
4	Join Point	N4	150.000	N/A	N/A	43369.5908	100188.84	0.0000	144.8329	0.0000	2.3200
5	Join Point	N5	0.000	N/A	N/A	43366.3542	100031.37	0.0000	0.0000	0.0000	0.0000
6	Join Point	N6	0.000	N/A	N/A	43473.3848	100278.26	0.0000	0.0000	0.0000	0.0000

Energy Data

Pipe Id	Pipe Name	Energy Loss To Pipe Friction	Energy Loss To Pipe Fittings	Energy Loss To Pipe Components	Energy Loss To Pipe Control Valves	Energy Loss To Pump Inefficiency	SUBTOTAL Loss Pipe Items +Pump	Energy Loss To Discharge Pressure	Energy Loss To Change in Elevation	TOTAL USED Sum of All Items
		Horsepower	Horsepower	Horsepower	Horsepower	Horsepower	Horsepower	Horsepower	Horsepower	Horsepower
1	P1	0.105363	0.111884	0.449924	0.000000	N/A	0.667171	0.000000	0.000000	0.667171
2	P2	0.803068	0.040352	0.000000	0.000000	N/A	0.843420	0.000000	39.499872	40.343292
3	P3	11.307198	0.280627	0.000000	0.000000	N/A	11.587825	0.000000	0.000000	11.587825
4	P4	0.105363	0.311808	0.000000	0.000000	34.110299	34.527469	0.000000	0.000000	34.527469
5	P5	11.115211	0.000000	0.000000	0.000000	N/A	11.115211	0.000000	0.000000	11.115211