

AFT Fathom Model

General

Title: AFT Fathom Model

Analysis run on: 12/5/2011 3:59:16 PM

Application version: AFT Fathom Version 7.0 (2008.02.22)

Input File: H:\Projects\University of Wisconsin\10723-00 Platteville Master Plan\Mechanical\Flow Modeling\UWP Chilled Water Phase 1.fth

Execution Time= 0.17 seconds

Total Number Of Head/Pressure Iterations= 0

Total Number Of Flow Iterations= 2

Total Number Of Temperature Iterations= 0

Number Of Pipes= 97

Number Of Junctions= 92

Matrix Method= Gaussian Elimination

Pressure/Head Tolerance= 0.0001 relative change

Flow Rate Tolerance= 0.0001 relative change

Flow Relaxation= (Automatic)

Pressure Relaxation= (Automatic)

Constant Fluid Property Model

Fluid Database: AFT Standard

Fluid: Water at 1 atm

Max Fluid Temperature Data= 212 deg. F

Min Fluid Temperature Data= 32 deg. F

Temperature= 40 deg. F

Density= 62.42849 lbm/ft³

Viscosity= 3.74836 lbm/hr-ft

Vapor Pressure= 0.12037 psia

Viscosity Model= Newtonian

Atmospheric Pressure= 1 atm

Gravitational Acceleration= 1 g

Turbulent Flow Above Reynolds Number= 4000

Laminar Flow Below Reynolds Number= 2300

Total Inflow= 438.0 gal/min

Total Outflow= 438.0 gal/min

Maximum Pressure is 60.69 psia at Junction 12 Outlet

Minimum Pressure is 14.26 psia at Junction 79 Inlet

Pump Summary

Jct	Name	Vol. Flow (gal/min)	Mass Flow (lbm/sec)	dP (psid)	dH (feet)	Overall Efficiency (Percent)	Speed (Percent)	Overall Power (hp)	BEP (gal/min)	% of BEP (Percent)	NPSHA (feet)	NPSHR (feet)
12	Russell Hall Chilled Water Plant Pump	2,400	333.8	46.36	106.9	100.0	N/A	64.89	N/A	N/A	33.71	N/A

AFT Fathom Model

Valve Summary

Jct	Name	Valve Type	Vol. Flow (gal/min)	Mass Flow (lbm/sec)	dP Stag. (psid)	dH (feet)	P Inlet Static (psia)	Cv	K	Valve State
26	Karrmann Library Load	FCV	230.0	31.99	5.6529	13.0393	43.08	96.78	110.9407	Open
27	Karrmann Library Head Loss	PDCV	230.0	31.99	19.9424	46.0000	37.42	51.53	391.3778	Open
58	Center for the Arts Head Loss	PDCV	384.0	53.41	19.9424	46.0000	38.43	86.03	140.4072	Open
59	Center for the Arts Load	FCV	384.0	53.41	3.4837	8.0355	41.92	205.83	24.5271	Open
62	Russell Hall Head Loss	PDCV	878.0	122.12	19.9424	46.0000	34.99	196.69	77.1321	Open
63	Russell Hall/Pioneer Tower Load	FCV	878.0	122.12	10.0974	23.2910	45.09	276.42	39.0540	Open
72	Boebel Hall Head Loss	PDCV	584.0	81.23	19.9424	46.0000	37.74	130.83	60.7052	Open
73	Boebel Hall Load	FCV	584.0	81.23	4.4305	10.2196	42.39	277.57	38.7324	Open
136	AR1 Load	FCV	248.0	34.49	4.3194	9.9633	42.39	119.38	72.9112	Open
137	AR1 Head Loss	PDCV	248.0	34.49	19.9424	46.0000	38.07	55.56	336.6267	Open
164	A1 Load	FCV	514.0	71.49	0.1820	0.4198	40.14	1,205.38	0.7152	Open
165	A1 Head Loss	PDCV	514.0	71.49	19.9424	46.0000	39.95	115.15	78.3656	Open
180	Russell Hall Chilled Water Plant Head Loss	PDCV	2,838.0	394.74	15.1736	35.0000	60.44	728.88	26.8417	Open

Pipe Output Table

Pipe	Name	Pipe Nominal Size	Length (feet)	Vol. Flow Rate (gal/min)	Velocity (feet/sec)	dP Stag. Total (ft. H2O std.)	P Stag. In (ft. H2O std. (g))	P Stag. Out (ft. H2O std. (g))	P Static In (ft. H2O std. (g))	P Static Out (ft. H2O std. (g))	dP Static Total (ft. H2O std.)
10	R	12 inch	69.000	1,960.0	6.3262	0.6444562	70.7171	70.07269	70.09520	69.4507	0.6444562
11	S 12"	12 inch	42.000	1,960.0	6.3262	0.3922777	69.9902	69.59796	69.36829	68.9760	0.3922777
12	S 12"	12 inch	60.000	1,960.0	6.3262	0.5603967	69.5155	68.95512	68.89358	68.3332	0.5603967
13	S 12"	12 inch	21.000	1,960.0	6.3262	0.1961388	68.8727	68.67654	68.25073	68.0546	0.1961388
14	S 12"	12 inch	62.000	1,960.0	6.3262	0.5790766	68.5941	68.01502	67.97215	67.3931	0.5790766
15	S 12"	12 inch	27.000	1,446.0	4.6672	0.1452281	67.1013	66.95610	66.76280	66.6176	0.1452281
16	S 12"	12 inch	109.000	1,446.0	4.6672	0.5862911	66.8639	66.27762	66.52539	65.9391	0.5862911
17	S 12"	12 inch	22.000	1,446.0	4.6672	0.1183340	66.2142	66.09589	65.87571	65.7574	0.1183340
19	Pipe	12 inch	69.000	1,960.0	6.3262	0.6444562	2.0270	1.38256	1.40508	0.7606	0.6444562
21	R 12"	12 inch	22.000	1,446.0	4.6672	0.1183340	6.0227	5.90437	5.68419	5.5659	0.1183340
22	R 12"	12 inch	109.000	1,446.0	4.6672	0.5862911	5.8410	5.25470	5.50247	4.9162	0.5862911
23	R 12"	12 inch	27.000	1,446.0	4.6672	0.1452281	5.1625	5.01728	4.82400	4.6788	0.1452281
24	R 12"	12 inch	62.000	1,960.0	6.3262	0.5790766	4.0847	3.50561	3.46275	2.8837	0.5790766
25	R 12"	12 inch	21.000	1,960.0	6.3262	0.1961388	3.4232	3.22702	2.80122	2.6051	0.1961388
26	R 12"	12 inch	42.000	1,960.0	6.3262	0.3922777	2.5017	2.10946	1.87980	1.4875	0.3922777
27	R 12"	12 inch	60.000	1,960.0	6.3262	0.5603967	3.1446	2.58419	2.52264	1.9622	0.5603967
28	S 6"	6 inch	22.000	230.0	2.7501	0.1003244	66.0500	65.94966	65.93245	65.8321	0.1003244
29	R 6"	6 inch	22.000	230.0	2.7501	0.1003228	6.1689	6.06862	6.05141	5.9511	0.1003228

AFT Fathom Model

Pipe	Name	Pipe Nominal Size	Length (feet)	Vol. Flow Rate (gal/min)	Velocity (feet/sec)	dP Stag. Total (ft. H2O std.)	P Stag. In (ft. H2O std. (g))	P Stag. Out (ft. H2O std. (g))	P Static In (ft. H2O std. (g))	P Static Out (ft. H2O std. (g))	dP Static Total (ft. H2O std.)
30	S 6"	6 inch	35.000	230.0	2.7501	0.1596070	65.9320	65.77240	65.81448	65.6549	0.1596070
31	R 6"	6 inch	35.000	230.0	2.7501	0.1596070	6.3462	6.18660	6.22867	6.0691	0.1596070
32	S 6"	6 inch	38.000	230.0	2.7501	0.1732876	65.7547	65.58146	65.63721	65.4639	0.1732876
33	R 6"	6 inch	38.000	230.0	2.7501	0.1732876	6.5371	6.36386	6.41961	6.2463	0.1732876
35	Pipe	6 inch	1.000	230.0	2.7501	0.0045602	52.5421	52.53754	52.42456	52.4200	0.0045602
37	S 10"	10 inch	209.000	384.0	1.7432	0.2343343	66.0500	65.81565	66.00275	65.7684	0.2343343
38	R 10"	10 inch	209.000	384.0	1.7432	0.2343339	6.3030	6.06862	6.25573	6.0214	0.2343339
39	S 10"	10 inch	87.000	384.0	1.7432	0.0975459	65.8064	65.70885	65.75917	65.6616	0.0975459
40	R 10"	10 inch	87.000	384.0	1.7432	0.0975459	6.4098	6.31221	6.36253	6.2650	0.0975459
41	S 10"	10 inch	172.000	384.0	1.7432	0.1928493	65.6996	65.50674	65.65237	65.4595	0.1928493
42	R 10"	10 inch	172.000	384.0	1.7432	0.1928493	6.6119	6.41901	6.56464	6.3718	0.1928493
50	S 10"	10 inch	64.000	384.0	1.7432	0.0717579	65.5067	65.43499	65.45952	65.3878	0.0717579
52	R 10"	10 inch	64.000	384.0	1.7432	0.0717579	6.6836	6.61186	6.63640	6.5646	0.0717579
53	S 10"	10 inch	30.000	384.0	1.7432	0.0336365	65.4284	65.39479	65.38121	65.3476	0.0336365
54	R 10"	10 inch	30.000	384.0	1.7432	0.0336365	6.7238	6.69017	6.67658	6.6429	0.0336365
56	S 10"	10 inch	48.000	384.0	1.7432	0.0538184	65.3882	65.33442	65.34102	65.2872	0.0538184
57	S 10"	10 inch	20.000	384.0	1.7432	0.0224243	6.8132	6.79073	6.76593	6.7435	0.0224243
59	S 10"	10 inch	85.000	384.0	1.7432	0.0953034	6.9150	6.81971	6.86779	6.7725	0.0953034
60	R 10"	10 inch	85.000	384.0	1.7432	0.0953034	65.2989	65.20360	65.25167	65.1564	0.0953034
61	S 6"	6 inch	116.000	384.0	4.5915	1.3272700	8.3925	7.06525	8.06490	6.7376	1.3272700
62	R 6"	6 inch	116.000	384.0	4.5915	1.3272700	65.1136	63.78633	64.78599	63.4587	1.3272700
63	Pipe	6 inch	1.000	384.0	4.5915	0.0114420	55.0775	55.06610	54.74993	54.7385	0.0114420
64	S 6"	6 inch	50.000	384.0	4.5915	0.5720991	9.0657	8.49361	8.73809	8.1660	0.5720991
65	R 6"	6 inch	50.000	384.0	4.5915	0.5720991	63.6852	63.11314	63.35763	62.7855	0.5720991
66	Pipe	12 inch	70.000	2,838.0	9.1600	1.2825632	1.3826	0.10000	0.07861	-1.2040	1.2825632
67	Pipe	12 inch	1.000	2,400.0	7.7463	0.0134990	107.0135	107.00000	106.08098	106.0675	0.0134990
69	Pipe	8 inch	1.000	878.0	6.1948	0.0143214	1.3969	1.38256	0.80050	0.7862	0.0143214
70	Pipe	8 inch	1.000	878.0	6.1948	0.0143225	70.7171	70.70283	70.12076	70.1064	0.0143225
71	Pipe	8 inch	1.000	878.0	6.1948	0.0143225	47.4116	47.39728	46.81522	46.8009	0.0143225
72	S 12"	12 inch	150.000	832.0	2.6854	0.2973216	65.9651	65.66776	65.85301	65.5557	0.2973216
73	R 12"	12 inch	150.000	832.0	2.6854	0.2973216	6.3854	6.08812	6.27337	5.9761	0.2973216
74	R 12"	12 inch	10.000	832.0	2.6854	0.0198214	6.4201	6.40030	6.30805	6.2882	0.0198214
75	S 12"	12 inch	10.000	832.0	2.6854	0.0198214	65.6529	65.63307	65.54083	65.5210	0.0198214
76	R 8"	8 inch	67.000	584.0	4.1205	0.4593844	6.8795	6.42012	6.61565	6.1563	0.4593844
77	S 8"	8 inch	67.000	584.0	4.1205	0.4593836	65.6331	65.17370	65.36922	64.9098	0.4593836
78	R 8"	8 inch	75.000	584.0	4.1205	0.5142354	7.4309	6.91662	7.16701	6.6528	0.5142354
79	S 8"	8 inch	75.000	584.0	4.1205	0.5142354	65.1366	64.62234	64.87272	64.3585	0.5142354
81	S 8"	8 inch	14.000	584.0	4.1205	0.0959906	64.2448	64.14882	63.98095	63.8850	0.0959906
83	S 8"	8 inch	42.000	584.0	4.1205	0.2879718	64.5852	64.29724	64.32136	64.0334	0.2879718

AFT Fathom Model

Pipe	Name	Pipe Nominal Size	Length (feet)	Vol. Flow Rate (gal/min)	Velocity (feet/sec)	dP Stag. Total (ft. H2O std.)	P Stag. In (ft. H2O std. (g))	P Stag. Out (ft. H2O std. (g))	P Static In (ft. H2O std. (g))	P Static Out (ft. H2O std. (g))	dP Static Total (ft. H2O std.)
84	R 8"	8 inch	42.000	584.0	4.1205	0.2879718	7.7560	7.46798	7.49210	7.2041	0.2879718
85	R 8"	8 inch	14.000	584.0	4.1205	0.0959906	7.9044	7.80839	7.64053	7.5445	0.0959906
86	Pipe	10 inch	20.000	384.0	1.7432	0.0224243	65.3279	65.30544	65.28065	65.2582	0.0224243
87	Pipe	10 inch	48.000	384.0	1.7432	0.0538184	6.7842	6.73036	6.73695	6.6831	0.0538184
88	Pipe	12 inch	1.000	2,400.0	7.7463	0.0134990	0.1000	0.08650	-0.83252	-0.8460	0.0134990
91	Pipe	6 inch	1.000	584.0	6.9829	0.0243785	53.9291	53.90477	53.17138	53.1470	0.0243785
103	Pipe	10 inch	72.000	384.0	1.7432	0.0807276	65.2036	65.12286	65.15637	65.0756	0.0807276
104	Pipe	10 inch	72.000	384.0	1.7432	0.0807276	6.9957	6.91501	6.94852	6.8678	0.0807276
122	Pipe	12 inch	66.000	832.0	2.6854	0.1308215	66.0959	65.96508	65.98383	65.8530	0.1308215
123	Pipe	12 inch	33.000	832.0	2.6854	0.0654108	6.0881	6.02271	5.97605	5.9106	0.0654108
127	S 12"	12 inch	40.000	614.0	1.9818	0.0459129	66.0959	66.04998	66.03487	65.9890	0.0459129
128	R 12"	12 inch	40.000	614.0	1.9818	0.0459129	6.0686	6.02271	6.00758	5.9617	0.0459129
136	Pipe	16 inch	92.000	248.0	0.5083	0.0070805	65.6331	65.62600	65.62907	65.6220	0.0070805
137	Pipe	16 inch	92.000	248.0	0.5083	0.0070823	6.4272	6.42012	6.42318	6.4161	0.0070823
138	Pipe	16 inch	260.000	248.0	0.5083	0.0200101	6.4477	6.42772	6.44371	6.4237	0.0200101
139	Pipe	16 inch	260.000	248.0	0.5083	0.0200101	65.6255	65.60547	65.62147	65.6015	0.0200101
140	Pipe	20 inch	301.000	248.0	0.3253	0.0079941	65.6049	65.59695	65.60331	65.5953	0.0079941
141	Pipe	20 inch	301.000	248.0	0.3253	0.0079941	6.4559	6.44793	6.45427	6.4463	0.0079941
142	Pipe	20 inch	7.000	248.0	0.3253	0.0001859	65.5967	65.59649	65.59504	65.5948	0.0001859
143	Pipe	20 inch	7.000	248.0	0.3253	0.0001859	6.4564	6.45620	6.45474	6.4546	0.0001859
147	Pipe	20 inch	157.000	248.0	0.3253	0.0041697	65.5965	65.59232	65.59484	65.5907	0.0041697
148	Pipe	20 inch	157.000	248.0	0.3253	0.0041697	6.4606	6.45639	6.45891	6.4547	0.0041697
149	Pipe	6 inch	303.000	248.0	2.9653	1.5813847	65.5923	64.01093	65.45567	63.8743	1.5813847
150	Pipe	6 inch	303.000	248.0	2.9653	1.5813847	8.0419	6.46056	7.90529	6.3239	1.5813847
151	Pipe	6 inch	1.000	248.0	2.9653	0.0052191	54.0476	54.04233	53.91090	53.9057	0.0052191
169	Pipe	12 inch	60.000	2,838.0	9.1600	1.0993395	71.8165	70.71714	70.51253	69.4132	1.0993395
170	R 12"	12 inch	62.000	1,960.0	6.3262	0.5790766	4.6638	4.08469	4.04182	3.4627	0.5790766
171	S 12"	12 inch	62.000	1,960.0	6.3262	0.5790766	68.0150	67.43594	67.39307	66.8140	0.5790766
172	Pipe	6 inch	98.000	514.0	6.1459	1.8969613	67.1013	65.20436	66.51433	64.6174	1.8969613
173	Pipe	6 inch	98.000	514.0	6.1459	1.8969620	6.9142	5.01728	6.32725	4.4303	1.8969620
174	R 12"	12 inch	27.000	1,960.0	6.3262	0.2521785	5.0173	4.76510	4.39534	4.1432	0.2521785
175	S 12"	12 inch	27.000	1,960.0	6.3262	0.2521785	67.3535	67.10132	66.73156	66.4794	0.2521785
176	Pipe	6 inch	245.000	514.0	6.1459	4.7424035	65.1162	60.37379	64.52920	59.7868	4.7424035
177	Pipe	6 inch	245.000	514.0	6.1459	4.7424035	11.7448	7.00241	11.15782	6.4154	4.7424035
178	Pipe	6 inch	1.000	514.0	6.1459	0.0193567	58.8593	58.83992	58.27229	58.2529	0.0193567
179	Pipe	6 inch	52.000	514.0	6.1459	1.0065509	60.2856	59.27907	59.69863	58.6921	1.0065509
180	Pipe	6 inch	52.000	514.0	6.1459	1.0065509	12.8395	11.83298	12.25254	11.2460	1.0065509
181	Pipe	12 inch	10.000	2,838.0	9.1600	0.1832233	107.0000	106.81678	105.69604	105.5128	0.1832233
182	Pipe	20 inch	1.000	0.0	0.0000	0.0000000	65.5923	65.59232	65.59232	65.5923	0.0000000

AFT Fathom Model

Pipe	Name	Pipe Nominal Size	Length (feet)	Vol. Flow Rate (gal/min)	Velocity (feet/sec)	dP Stag. Total (ft. H2O std.)	P Stag. In (ft. H2O std. (g))	P Stag. Out (ft. H2O std. (g))	P Static In (ft. H2O std. (g))	P Static Out (ft. H2O std. (g))	dP Static Total (ft. H2O std.)
183	Pipe	20 inch	1.000	0.0	0.0000	0.0000000	6.4606	6.46056	6.46056	6.4606	0.0000000

All Junction Table

Jct	Name	P Static In (ft. H2O std. (g))	P Static Out (ft. H2O std. (g))	P Stag. In (ft. H2O std. (g))	P Stag. Out (ft. H2O std. (g))	Vol. Flow Rate Thru Jct (gal/min)	dP Stag. Total (ft. H2O std.)	dP Static Total (ft. H2O std.)
3	Bend	1.9622	1.8798	2.58419	2.5017	1,960.0	0.0824440	0.0824439
4	Bend	1.4875	1.4051	2.10946	2.0270	1,960.0	0.0824440	0.0824439
5	Bend	2.6051	2.5226	3.22702	3.1446	1,960.0	0.0824440	0.0824439
6	Bend	2.8837	2.8012	3.50561	3.4232	1,960.0	0.0824440	0.0824439
7	Bend	4.1432	4.0418	4.76510	4.6638	1,960.0	0.1013410	0.1013410
8	Bend	4.9162	4.8240	5.25470	5.1625	1,446.0	0.0921853	0.0921853
9	Bend	5.5659	5.5025	5.90437	5.8410	1,446.0	0.0633864	0.0633864
10	Tee or Wye	5.8723	5.8723	6.02271	6.0227	N/A	0.0000000	0.0000000
11	Tee or Wye	5.9962	5.9962	6.06862	6.0686	N/A	0.0000000	0.0000000
12	Russell Hall Chilled Water Plant Pump	-0.8460	106.0810	0.08650	107.0135	2,400.0	-106.9269943	-106.9269943
13	Bend	69.4507	69.3683	70.07269	69.9902	1,960.0	0.0824440	0.0824439
14	Bend	68.9760	68.8936	69.59796	69.5155	1,960.0	0.0824440	0.0824439
15	Bend	68.3332	68.2507	68.95512	68.8727	1,960.0	0.0824440	0.0824439
16	Bend	68.0546	67.9722	68.67654	68.5941	1,960.0	0.0824440	0.0824439
17	Bend	66.6176	66.5254	66.95610	66.8639	1,446.0	0.0921853	0.0921853
18	Bend	65.9391	65.8757	66.27762	66.2142	1,446.0	0.0633864	0.0633864
19	Tee or Wye	65.9454	65.9454	66.09589	66.0959	N/A	0.0000000	0.0000000
20	Tee or Wye	65.9776	65.9776	66.04998	66.0500	N/A	0.0000000	0.0000000
21	Bend	66.8140	66.7316	67.43594	67.3535	1,960.0	0.0824440	0.0824439
22	Bend	65.8321	65.8145	65.94966	65.9320	230.0	0.0176537	0.0176537
23	Bend	6.0691	6.0514	6.18660	6.1689	230.0	0.0176537	0.0176537
24	Bend	65.6549	65.6372	65.77240	65.7547	230.0	0.0176537	0.0176537
25	Bend	6.2463	6.2287	6.36386	6.3462	230.0	0.0176537	0.0176537
26	Karrmann Library Load	65.4639	52.4246	65.58146	52.5421	230.0	13.0393620	13.0393620
27	Karrmann Library Head Loss	52.4200	6.4196	52.53754	6.5371	230.0	46.0003891	46.0003891
28	Bend	6.2650	6.2557	6.31221	6.3030	384.0	0.0092562	0.0092562
29	Bend	65.7684	65.7592	65.81565	65.8064	384.0	0.0092562	0.0092562
30	Bend	65.6616	65.6524	65.70885	65.6996	384.0	0.0092562	0.0092562
31	Bend	6.3718	6.3625	6.41901	6.4098	384.0	0.0092562	0.0092562
40	Bend	6.6429	6.6364	6.69017	6.6836	384.0	0.0065527	0.0065527
41	Bend	65.3878	65.3812	65.43499	65.4284	384.0	0.0065527	0.0065527
42	Bend	65.3476	65.3410	65.39479	65.3882	384.0	0.0065527	0.0065527

AFT Fathom Model

Jct	Name	P Static In (ft. H2O std. (g))	P Static Out (ft. H2O std. (g))	P Stag. In (ft. H2O std. (g))	P Stag. Out (ft. H2O std. (g))	Vol. Flow Rate Thru Jct (gal/min)	dP Stag. Total (ft. H2O std.)	dP Static Total (ft. H2O std.)
43	Bend	6.6831	6.6766	6.73036	6.7238	384.0	0.0065527	0.0065527
45	Bend	65.2872	65.2806	65.33442	65.3279	384.0	0.0065527	0.0065527
52	Bend	65.2582	65.2517	65.30544	65.2989	384.0	0.0065527	0.0065527
53	Bend	6.7725	6.7659	6.81971	6.8132	384.0	0.0065527	0.0065527
56	Bend	8.1660	8.0649	8.49361	8.3925	384.0	0.1010931	0.1010931
57	Bend	63.4587	63.3576	63.78633	63.6852	384.0	0.1010931	0.1010931
58	Center for the Arts Head Loss	54.7385	8.7381	55.06610	9.0657	384.0	46.0003891	46.0003891
59	Center for the Arts Load	62.7855	54.7499	63.11314	55.0775	384.0	8.0355978	8.0355978
60	Branch	0.5709	0.5709	1.38256	1.3826	N/A	0.0000000	0.0000000
61	Branch	69.9055	69.9055	70.71714	70.7171	N/A	0.0000000	0.0000000
62	Russell Hall Head Loss	46.8009	0.8005	47.39728	1.3969	878.0	46.0003891	46.0003891
63	Russell Hall/Pioneer Tower Load	70.1064	46.8152	70.70283	47.4116	878.0	23.2912216	23.2912216
64	Bend	6.2882	6.2734	6.40030	6.3854	832.0	0.0148557	0.0148557
65	Bend	65.5557	65.5408	65.66776	65.6529	832.0	0.0148557	0.0148557
68	Bend	6.6528	6.6156	6.91662	6.8795	584.0	0.0371218	0.0371218
69	Bend	64.9098	64.8727	65.17370	65.1366	584.0	0.0371218	0.0371218
70	Bend	7.2041	7.1670	7.46798	7.4309	584.0	0.0371218	0.0371218
71	Bend	64.3585	64.3214	64.62234	64.5852	584.0	0.0371218	0.0371218
72	Boebel Hall Head Loss	53.1470	7.6405	53.90477	7.9044	584.0	46.0003891	45.5064774
73	Boebel Hall Load	63.8850	53.1714	64.14882	53.9291	584.0	10.2196674	10.7135792
74	Bend	7.5445	7.4921	7.80839	7.7560	584.0	0.0524375	0.0524375
75	Bend	64.0334	63.9810	64.29724	64.2448	584.0	0.0524375	0.0524375
76	Bend	6.7435	6.7370	6.79073	6.7842	384.0	0.0065527	0.0065527
79	Assigned Pressure	-1.0105	-1.0105	0.10000	0.1000	N/A	0.0000000	-0.3714301
122	Tee or Wye	6.3277	6.3277	6.42012	6.4201	N/A	0.0000000	0.0000000
123	Tee or Wye	65.5407	65.5407	65.63307	65.6331	N/A	0.0000000	0.0000000
124	Bend	6.4237	6.4232	6.42772	6.4272	248.0	0.0005173	0.0005173
125	Bend	65.6220	65.6215	65.62600	65.6255	248.0	0.0005173	0.0005173
128	Bend	6.4546	6.4543	6.45620	6.4559	248.0	0.0002803	0.0002803
129	Bend	65.5953	65.5950	65.59695	65.5967	248.0	0.0002803	0.0002803
136	AR1 Load	63.8743	53.9109	64.01093	54.0476	248.0	9.9633865	9.9633865
137	AR1 Head Loss	53.9057	7.9053	54.04233	8.0419	248.0	46.0003891	46.0003891
155	Assigned Pressure	105.8895	105.8895	107.00000	107.0000	N/A	0.0000000	0.3714301
158	Tee or Wye	4.5100	4.5100	5.01728	5.0173	N/A	0.0000000	0.0000000
159	Tee or Wye	66.5941	66.5941	67.10132	67.1013	N/A	0.0000000	0.0000000
160	Bend	6.4154	6.3272	7.00241	6.9142	514.0	0.0881672	0.0881672
161	Bend	64.6174	64.5292	65.20436	65.1162	514.0	0.0881672	0.0881672
162	Bend	59.7868	59.6986	60.37379	60.2856	514.0	0.0881672	0.0881672
163	Bend	11.2460	11.1578	11.83298	11.7448	514.0	0.0881672	0.0881672

AFT Fathom Model

Jct	Name	P Static In (ft. H2O std. (g))	P Static Out (ft. H2O std. (g))	P Stag. In (ft. H2O std. (g))	P Stag. Out (ft. H2O std. (g))	Vol. Flow Rate Thru Jct (gal/min)	dP Stag. Total (ft. H2O std.)	dP Static Total (ft. H2O std.)
164	A1 Load	58.6921	58.2723	59.27907	58.8593	514.0	0.4197932	0.4197932
165	A1 Head Loss	58.2529	12.2525	58.83992	12.8395	514.0	46.0003891	46.0003891
166	Bend	65.6015	65.6033	65.60547	65.6049	248.0	0.0005173	-0.0018532
167	Bend	6.4463	6.4437	6.44793	6.4477	248.0	0.0001984	0.0025689
168	Branch	65.5948	65.5948	65.59649	65.5965	248.0	0.0000000	0.0000000
169	Branch	6.4547	6.4547	6.45639	6.4564	248.0	0.0000000	0.0000000
170	Bend	6.7376	6.9485	7.06525	6.9957	384.0	0.0695114	-0.2108843
171	Bend	65.0756	64.7860	65.12286	65.1136	384.0	0.0092562	0.2896519
172	Branch	65.1564	65.1564	65.20360	65.2036	384.0	0.0000000	0.0000000
173	Branch	6.8678	6.8678	6.91501	6.9150	384.0	0.0000000	0.0000000
174	Branch	3.4627	3.4627	4.08469	4.0847	1,960.0	0.0000000	0.0000000
175	Branch	67.3931	67.3931	68.01502	68.0150	1,960.0	0.0000000	0.0000000
176	Branch	5.9761	5.9761	6.08812	6.0881	832.0	0.0000000	0.0000000
177	Branch	65.8530	65.8530	65.96508	65.9651	832.0	0.0000000	0.0000000
178	Branch	6.5646	6.5646	6.61186	6.6119	384.0	0.0000000	0.0000000
179	Branch	65.4595	65.4595	65.50674	65.5067	384.0	0.0000000	0.0000000
180	Russell Hall Chilled Water Plant Head Loss	105.5128	70.5125	106.81678	71.8165	2,838.0	35.0002975	35.0002975
183	Tee or Wye	65.5736	65.5736	65.59232	65.5923	N/A	0.0000000	0.0000000
184	Tee or Wye	6.4419	6.4419	6.46056	6.4606	N/A	0.0000000	0.0000000
185	Dead End	6.4606	6.4606	6.46056	6.4606	0.0	0.0000000	0.0000000
186	Dead End	65.5923	65.5923	65.59232	65.5923	0.0	0.0000000	0.0000000