

City of Sumas													
Node Demand Information:													
January 18, 2011													
Future 2030 System													
Node Number	Location	Downstream Nodes	Node Location	SMALL USERS					Residential User PHD	# of Large Users	LARGE USER (gpm)	Major User #	PHD NODE DEMAND (gpm)
				2030 # of Services	Demand (gpm) per Node	Cum. # of Services	Cum. MID	MID Node Demand (gpm)					
2030													
410	Edge View St, E of pumps		DE	9	7.2	9	31.0	31.0	29.2				29.23
412	Spring St, E of pumps		DE	3	2.4	3	19.0	19.0	17.9				17.91
257	Edge View & Spring St, E of pumps	410, 412	DE	0	0.0	12	37.0	-13.0	-12.3				-12.26
256	Border & Spring St, E of pumps	257, 410, 41	loop	1	0.8	13	10.4	-26.6	-25.1				-25.09
242	Kneuman, S of pumps		loop	0	0.0	0	0.0	0.0	0.0				0.00
117	pumps		loop	0	0.0	0	0.0	0.0	0.0				0.00
243	pumps		loop	0	0.0	0	0.0	0.0	0.0				0.00
115	Border, W of Arthur		loop	0	0.0	0	0.0	0.0	0.0	1.0	6.5	47	6.47
											additional 30 services 2030		
118	Border, W of Arthur		loop	31	24.8	31	24.8	24.8	23.4				23.36
250	Kneuman, E of Spring St		loop	2	1.6	2	1.6	1.6	1.5				1.51
119	Kneuman, S of Arthur		loop	7	5.6	7	5.6	5.6	5.3				5.27
374	E end of Arthur's Way		DE	3	2.4	3	19.0	19.0	17.9				17.91
373	W end of Arthur's Way		DE	4	3.2	4	21.0	21.0	19.8				19.80
372	Arthur's Way, W of tanks	373, 374	DE	2	1.6	9	31.0	-9.0	-8.5				-8.49
371	Border, W of tanks	372, 373, 37	loop	0	0.0	9	7.2	-23.8	-22.4				-22.45
120	Border, near tanks		loop	1	0.8	1	0.8	0.8	0.8				0.75
121	W Garfield, end of Wash Ave		loop	2	1.6	2	1.6	1.6	1.5				1.51
122	Barbo Rd and Front St	382, 383, 38	loop	4	3.2	4	3.2	3.2	3.0	1.0	30.0	1 Irq user 2010	33.01
123	Front St, Cedar Prime entrance		loop	2	1.6	2	1.6	1.6	1.5	1.0	30.0	1 Irq user 2016	31.51
248	Front St, W side of IKO		loop	0	0.0	0	0.0	0.0	0.0				0.00
400	IKO, hydrant W side		DE	0	0.0	0	0.0	0.0	0.0				0.00
398	IKO	400	loop	0	0.0	0	0.0	0.0	0.0	3.0	90.0	additional 3 Irq users	90.00
396	IKO		loop	1	0.8	1	0.8	0.8	0.8				0.75
247	Front St, E side of IKO		loop	0	0.0	0	0.0	0.0	0.0	4.0	178.9	55 + 3 Irq users	178.88
124	E end Wash Ave, near tanks		loop	1	0.8	1	0.8	0.8	0.8				0.75
378	Tank		loop	0	0.0	0	0.0	0.0	0.0				0.00
272	Just E of tanks		loop	0	0.0	0	0.0	0.0	0.0				0.00
274	Victoria Court, SE of tanks		loop	3	2.4	3	2.4	2.4	2.3				2.26
275	Victoria Court, SE of tanks		loop	0	0.0	0	0.0	0.0	0.0				0.00
125	Border, E of tanks		loop	0	0.0	0	0.0	0.0	0.0				0.00
126	Border @ RR tracks		loop	2	1.6	2	1.6	1.6	1.5				1.51
127	RR tracks N or W end of Cleveland		loop	0	0.0	0	0.0	0.0	0.0				0.00
128	S end of Barkley Ave, E of RR on Garfield		loop	3	2.4	3	2.4	2.4	2.3				2.26
263	W. Garfield & N end of Bob Mitchell Way		loop	0	0.0	0	0.0	0.0	0.0				0.00
129	N end of Bob Mitchell @ Garfield		loop	1	0.8	1	0.8	0.8	0.8				0.75
130	Bob Mitchell btwn 2nd and 3rd		loop	0	0.0	0	0.0	0.0	0.0				0.00
131	W 2nd St, E of Bob Mitchell		loop	3	2.4	3	2.4	2.4	2.3				2.26
132	Locust St, btwn 2nd and 3rd, E of Bob Mitchell		DE	4	3.2	4	21.0	21.0	19.8				19.80
133	Johnson St, N of W 3rd St	132	loop	3	2.4	7	5.6	-15.4	-14.5				-14.52
134	RR and Garfield		loop	0	0.0	0	0.0	0.0	0.0				0.00
251	Garfield, E of RR		loop	0	0.0	0	0.0	0.0	0.0	1.0	2.2	35	2.24
270	W end of First St, N		DE	1	0.8	1	15.0	15.0	14.1				14.14
269	W end of First St, S		DE	1	0.8	1	15.0	15.0	14.1				14.14
135	W end of First St	269, 270	DE	1	0.8	3	19.0	-11.0	-10.4				-10.37
252	First St btwn RR and Cherry	135, 269, 27	DE	0	0.0	3	19.0	0.0	0.0				0.00
142	Cherry & First St	252, 135, 26	loop	2	1.6	5	4.0	-15.0	-14.1	1.0	3.7	40	-10.41
116	RR and Second St	none	loop	0	0.0	0	0.0	0.0	0.0				0.00
271	N of 2nd St, W of RR		DE	2	1.6	2	17.0	17.0	16.0				16.03
136	2nd St btwn RR and Cherry	271	loop	2	1.6	4	3.2	-13.8	-13.0				-13.01
138	Cherry St & Harrison		loop	0	0.0	0	0.0	0.0	0.0				0.00
139	Cherry St & S of Harrison		loop	0	0.0	0	0.0	0.0	0.0	1.0	4.0	41	3.97
140	Cherry St & Garfield		loop	1	0.8	1	0.8	0.8	0.8	1.0	4.5	44	5.21
141	Cherry St & Cleveland	none	loop	3	2.4	3	2.4	2.4	2.3	1.0	4.2	42	6.50
143	Cherry St & Second St		loop	3	2.4	3	2.4	2.4	2.3	1.0	2.3	36	4.57
137	Boundary Ave, E of Cherry St		DE	2	1.6	2	17.0	17.0	16.0	1.0	3.6	38	19.65
144	Sumas Ave, N of Harrison St	137	DE	1	0.8	3	19.0	2.0	1.9				1.89
145	Sumas Ave & Harrison St	144, 137	loop	4	3.2	7	5.6	-13.4	-12.6				-12.64
146	Cleveland & Sumas Ave		loop	3	2.4	3	2.4	2.4	2.3				2.26
260	Cleveland & Sumas Ave		loop	2	1.6	2	1.6	1.6	1.5	1.0	11.7	50	13.24
147	Garfield & Sumas		loop	12	9.6	12	9.6	9.6	9.0				9.04
266	S of Garfield on Sumas		DE	2	1.6	2	17.0	17.0	16.0				16.03
148	Garfield & Sumas	266	loop	2	1.6	4	3.2	-13.8	-13.0				-13.01
149	First St & Sumas		loop	12	9.6	12	9.6	9.6	9.0				9.04
150	Second St btwn Cherry & Sumas		loop	2	1.6	2	1.6	1.6	1.5				1.51
151	Second St & Sumas		loop	4	3.2	4	3.2	3.2	3.0				3.01
152	Btwn 2nd & 3rd, Btwn Cherry & Sumas		loop	2	1.6	2	1.6	1.6	1.5				1.51
153	Sumas Ave, btwn 2nd & 3rd		loop	1	0.8	1	0.8	0.8	0.8				0.75
154b	N of Harrison & Fisk		DE	2	1.6	2	17.0	17.0	16.0				16.03
154n	N of Harrison & Fisk	154b	DE	0	0.0	2	17.0	0.0	0.0				0.00
154	Harrison & Fisk	154a, 154b	loop	6	4.8	8	6.4	-10.6	-10.0				-10.00
155	Cleveland & Fisk	none	loop	7	5.6	7	5.6	5.6	5.3				5.27
157	Garfield & Fisk		loop	6	4.8	6	4.8	4.8	4.5				4.52
158	Lawson & Harrison		loop	2	1.6	2	1.6	1.6	1.5				1.51
159	Lawson & Cleveland	none	loop	6	4.8	6	4.8	4.8	4.5				4.52
160	Lawson & Garfield		loop	8	6.4	8	6.4	6.4	6.0				6.03

City of Sumas		Future 2030 System											PHD
Node Demand Information:													NODE
January 18, 2011													DEMAND
Node Number	Location	Downstream Nodes	Node Location	SMALL USERS					Residential User PHD	# of Large Users	LARGE USER (gpm)	Major User #	PHD DEMAND (gpm)
				2030 # of Services	Demand (gpm) per Node	Cum # of Services	Cum MID	MID Node Demand (gpm)					
161	Lawson & First		loop	10	8.0	10	8.0	8.0	7.5				7.53
162	Lawson & Second		loop	18	14.4	18	14.4	14.4	13.6				13.56
168	E end of Harrison		DE	1	0.8	1	15.0	15.0	14.1				14.14
163	Harrison, E of Lawson St	168	loop	1	0.8	2	1.6	-13.4	-12.6				-12.64
164	Cleveland E of Lawson St		loop	4	3.2	4	3.2	3.2	3.0				3.01
165	Garfield & Gough St		loop	5	4.0	5	4.0	4.0	3.8				3.77
166	First St & Gough St		loop	5	4.0	5	4.0	4.0	3.8				3.77
167	Second St S of Gough St		loop	8	6.4	8	6.4	6.4	6.0				6.03
169	Garfield St, E of Gough		loop	1	0.8	1	0.8	0.8	0.8				0.75
368	S end of Roosevelt		DE	6	4.8	6	25.0	25.0	23.6				23.57
367	Garfield St & Roosevelt Ct.	368	loop	2	1.6	8	6.4	-18.6	-17.5				-17.54
170	Garfield & Jefferson Ct.		loop	0	0.0	0	0.0	0.0	0.0				0.00
175	S end of Jefferson Ct.		DE	5	4.0	5	23.0	23.0	21.7				21.68
171	Jefferson Ct & Lincoln Circle	175	loop	2	1.6	7	5.6	-17.4	-16.4				-16.41
173	E end Lincoln Circle		loop	6	4.8	6	4.8	4.8	4.5				4.52
172	Garfield & Wilson Lane		loop	3	2.4	3	2.4	2.4	2.3				2.26
265	E end Taylor Circle		DE	7	5.6	7	27.0	27.0	25.5				25.46
264	Wilson Lane & Taylor Circle	265	loop	7	5.6	14	11.2	-15.8	-14.9				-14.91
246	S end of Wilson Lane		DE	5	4.0	5	23.0	23.0	21.7				21.68
245	Wilson Lane	246	loop	6	4.8	11	8.8	-14.2	-13.4				-13.40
380	N of Garfield, E of Wilson Lane		DE	1	0.8	1	15.0	15.0	14.1				14.14
379	Garfield Rd, E of Wilson Lane	380	loop	0	0.0	1	0.8	-14.2	-13.4				-13.39
174	E end of Garfield		loop	2	1.6	2	1.6	1.6	1.5		183.9	SRWA Jones Road Connection 2030	185.37
176	E end of First St.		loop	4	3.2	4	3.2	3.2	3.0				3.01
177	E end of Second St-3 apt buildings		loop	1	0.8	1	0.8	0.8	0.8				0.75
268	E end of Victoria St & Heron Lane		DE	2	1.6	2	17.0	17.0	16.0				16.03
178	N end of Victoria St	268	DE	1	0.8	3	19.0	2.0	1.9				1.89
179	Victoria St, N of Mitchell	178, 268	DE	0	0.0	3	19.0	0.0	0.0				0.00
180	Victoria St & Mitchell St	179, 178, 268	loop	9	7.2	12	9.6	-9.4	-8.9			additional 7 services 2030	-8.87
182	E of Victoria St, S of Mitchell		DE	3	2.4	3	19.0	19.0	17.9				17.91
181	E of Victoria St, S of Mitchell	182	loop	0	0.0	3	2.4	-16.6	-15.7				-15.65
183	Victoria St & Morton		loop	3	2.4	3	2.4	2.4	2.3				2.26
184	Rock Rd & Swartwood rd		loop	2	1.6	2	1.6	1.6	1.5				1.51
346	S end of Swartwood Rd		DE	7	5.6	7	27.0	27.0	25.5				25.46
330	Swartwood Rd & Rock Rd	346	loop	0	0.0	7	5.6	-21.4	-20.2				-20.18
349	Swartwood Rd & Rock Rd		loop	0	0.0	0	0.0	0.0	0.0		425.8	SRWA Rock Road Connection 2030	425.83
185	Front St & Victoria St		loop	9	7.2	9	7.2	7.2	6.8			additional 5 services 2030	6.78
186	Mitchell Rd, W of Victoria St		loop	7	5.6	7	5.6	5.6	5.3				5.27
187	Morton Rd, W of Victoria St		loop	6	4.8	6	4.8	4.8	4.5			additional 30	4.52
188	Front St btwn Hovel and Victoria		loop	39	31.2	39	31.2	31.2	29.4				29.38
715	Hovel Rd at ball fields		loop	82	65.5	82	65.5	65.5	61.8		191.4	SRWA Hovel Road Connection	253.21
714	New Ballpark Sprinklers		DE	1	0.8	1	15.0	15.0	14.1	1.0	8.1	48	22.27
713		714	DE	0	0.0	1	15.0	0.0	0.0				0.00
712		#####	loop	104	83.1	105	83.9	68.9	65.0			additional 78 & 26 services	64.97
190	Hovel Rd N of ball field		loop	7	5.6	7	5.6	5.6	5.3				5.27
189	Front St & Hovel Rd		loop	6	4.8	6	4.8	4.8	4.5				4.52
191	S of Front St, S of S end of Lawson		loop	2	1.6	2	1.6	1.6	1.5				1.51
193	Lawson St S side Front St		loop	0	0.0	0	0.0	0.0	0.0				0.00
365	Boon St S side Front St	none	loop	10	8.0	10	8.0	8.0	7.5	1.0	3.7	39	11.23
194	Boon Street complex		loop	10	8.0	10	8.0	8.0	7.5				7.53
791	Boon Street complex		loop	0	0.0	0	0.0	0.0	0.0	1.0	4.4	43	4.44
726	Boon Street complex		loop	20	16.0	20	16.0	16.0	15.1				15.07
721	Noble & Lawson		DE	3	2.4	3	19.0	19.0	17.9				17.91
723	Noble & Lawson	721	loop	5	4.0	8	6.4	-12.6	-11.9				-11.89
724	Boon St N side Front St		DE	4	3.2	4	21.0	21.0	19.8				19.80
192	Lawson St N side Front St	724	loop	0	0.0	4	3.2	-17.8	-16.8				-16.79
195	Lawson St N of Front St		loop	3	2.4	3	2.4	2.4	2.3				2.26
196	Lawson & Morton		loop	3	2.4	3	2.4	2.4	2.3				2.26
197	Mitchell, E of Lawson		loop	1	0.8	1	0.8	0.8	0.8				0.75
198	Lawson & Mitchell		loop	3	2.4	3	2.4	2.4	2.3				2.26
255	Gough St N of Mitchell	end	DE	1	0.8	1	15.0	15.0	14.1				14.14
200	Gough St N of Mitchell	255	loop	3	2.4	4	3.2	-11.8	-11.1				-11.13
199	Lawson btwn Mitch&Vanc		loop	1	0.8	1	0.8	0.8	0.8				0.75
201	Lawson & Vancouver		loop	6	4.8	6	4.8	4.8	4.5				4.52
202	Lawson & Columbia		loop	3	2.4	3	2.4	2.4	2.3				2.26
204	E end of Third St		DE	5	4.0	5	23.0	23.0	21.7				21.68
203	Third St & Lawson	204	loop	7	5.6	12	9.6	-13.4	-12.6				-12.64
205	Third St btwn Lawson & Sumas		loop	3	2.4	3	2.4	2.4	2.3				2.26
206	Third St & Sumas		loop	3	2.4	3	2.4	2.4	2.3				2.26
207	Third St & Cherry		loop	1	0.8	1	0.8	0.8	0.8	1.0	15.2	52	15.95



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***** K Y P I P E 5 *****
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*
*           Copyrighted by KYPIPE LLC               *
*           Version 5 - February 2010               *
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Date & Time: Wed Feb 09 16:05:42 2011

Master File : P:\s\sums0001\0600info\water\Steady State\2011-01-25 2030 ss\2011-01-25 2030 ss.P2K

\*\*\*\*\*  
 SUMMARY OF ORIGINAL DATA  
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**Tank Diameter: 60 ft; Water Elevation 196 ft. – bottom of Standby Storage  
 No Pumps On**

EXISTING PIPE SYSTEM

UNITS SPECIFIED

FLOWRATE ..... = gallons/minute  
 HEAD (HGL) ..... = feet  
 PRESSURE ..... = psig

PIPELINE DATA

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

PIPE NAME	NODE NAMES #1	NODE NAMES #2	LENGTH (ft)	DIAMETER (in)	ROUGHNESS COEFF.	MINOR LOSS COEFF.
P-379	O-Pump 5	379B	2.00	6.00	130.0000	0.00
P-380	O-Pump 4R	380B	2.00	6.00	130.0000	0.00
P-382	146	155	343.00	6.00	130.0000	0.00
P-383	119	121	1154.00	2.00	130.0000	0.00
P-384	120	124	294.00	10.00	130.0000	0.00
P-385	125	126	390.00	6.00	100.0000	0.00
P-386	126	127	385.00	6.00	130.0000	0.00
P-387	127	139	418.00	6.00	130.0000	0.00
P-388	129	130	1244.00	8.00	130.0000	0.00
P-389	129	131	628.00	8.00	100.0000	0.00
P-390	133	131	137.00	8.00	100.0000	0.00
P-391	133	132	591.00	6.00	130.0000	0.00
P-392	237	133	530.00	8.00	100.0000	0.00
P-394	136	143	127.00	6.00	100.0000	0.00
P-395	144	137	325.00	2.00	130.0000	0.00
P-396	139	138	125.00	6.00	130.0000	0.00
P-397	138	145	367.00	4.00	100.0000	0.00
P-398	139	140	154.00	6.00	130.0000	0.00
P-399	140	141	300.00	6.00	130.0000	0.00
P-400	141	147	361.00	8.00	130.0000	0.00
P-401	141	142	313.00	6.00	130.0000	0.00
P-402	143	142	302.00	6.00	130.0000	0.00
P-403	145	144	144.00	6.00	130.0000	0.00

P I P E N A M E	N O D E N A M E S		L E N G T H (ft)	D I A M E T E R (in)	R O U G H N E S S C O E F F .	M I N O R L O S S C O E F F .
	#1	#2				
P-404	145	146	316.00	6.00	130.0000	0.00
P-405	147	146	268.00	6.00	130.0000	0.00
P-406	147	148	139.00	8.00	130.0000	0.00
P-407	148	157	255.00	8.00	130.0000	0.00
P-408	142	149	499.00	4.00	140.0000	0.00
P-409	143	150	286.00	4.00	100.0000	0.00
P-410	150	151	215.00	4.00	100.0000	0.00
P-411	150	152	158.00	2.00	80.0000	0.00
P-412	152	153	211.00	2.00	100.0000	0.00
P-413	153	206	144.00	6.00	100.0000	0.00
P-414	151	153	150.00	6.00	100.0000	0.00
P-415	145	154	354.00	4.00	100.0000	0.00
P-416	154	158	365.00	4.00	100.0000	0.00
P-417	155	159	380.00	6.00	130.0000	0.00
P-418	140	260	239.00	2.00	130.0000	0.00
P-419	157	160	326.00	8.00	130.0000	0.00
P-420	149	161	606.00	2.00	100.0000	0.00
P-421	151	162	611.00	4.00	100.0000	0.00
P-422	158	163	371.00	2.00	130.0000	0.00
P-423	158	159	286.00	4.00	100.0000	0.00
P-424	159	164	360.00	4.00	130.0000	0.00
P-425	159	160	288.00	4.00	100.0000	0.00
P-426	160	165	345.00	8.00	130.0000	0.00
P-427	161	160	329.00	4.00	100.0000	0.00
P-428	161	166	359.00	6.00	130.0000	0.00
P-429	162	161	284.00	4.00	100.0000	0.00
P-430	162	167	332.00	4.00	100.0000	0.00
P-431	203	162	291.00	4.00	100.0000	0.00
P-432	163	168	810.00	2.00	130.0000	0.00
P-433	379	380	156.00	2.00	130.0000	0.00
P-434	166	176	352.00	6.00	130.0000	0.00
P-435	167	177	370.00	4.00	100.0000	0.00
P-436	170	172	490.00	8.00	130.0000	0.00
P-437	172	379	182.00	8.00	130.0000	0.00
P-438	170	171	201.00	6.00	130.0000	0.00
P-439	171	175	140.00	6.00	130.0000	0.00
P-440	171	173	156.00	6.00	130.0000	0.00
P-441	179	178	321.00	4.00	100.0000	0.00
P-442	180	179	325.00	4.00	100.0000	0.00
P-443	180	181	169.00	6.00	130.0000	0.00
P-444	181	182	237.00	2.00	130.0000	0.00
P-445	181	183	148.00	6.00	130.0000	0.00
P-446	183	185	344.00	6.00	130.0000	0.00
P-447	185	184	373.00	8.00	100.0000	0.00
P-448	186	180	473.00	6.00	100.0000	0.00
P-449	186	187	320.00	4.00	100.0000	0.00
P-450	187	183	483.00	4.00	100.0000	0.00
P-451	188	185	540.00	6.00	100.0000	0.00
P-452	189	188	315.00	10.00	100.0000	0.00
P-453	189	190	428.00	8.00	100.0000	0.00
P-454	195	196	173.00	6.00	130.0000	0.00
P-455	196	198	341.00	6.00	130.0000	0.00
P-456	197	186	472.00	6.00	100.0000	0.00
P-457	198	197	490.00	6.00	100.0000	0.00
P-458	199	198	168.00	4.00	100.0000	0.00
P-459	199	200	493.00	4.00	100.0000	0.00
P-460	201	199	168.00	4.00	100.0000	0.00
P-461	202	201	390.00	4.00	100.0000	0.00
P-462	203	202	397.00	4.00	100.0000	0.00
P-463	203	204	504.00	6.00	80.0000	0.00

P I P E N A M E	N O D E N A M E S		L E N G T H (ft)	D I A M E T E R (in)	R O U G H N E S S C O E F F .	M I N O R L O S S C O E F F .
	#1	#2				
P-464	206	205	404.00	6.00	130.0000	0.00
P-465	205	203	203.00	6.00	130.0000	0.00
P-466	210	206	237.00	6.00	100.0000	0.00
P-467	379	174	699.00	8.00	130.0000	0.00
P-468	207	208	505.00	6.00	100.0000	0.00
P-469	208	214	234.00	6.00	100.0000	0.00
P-470	211	210	194.00	6.00	100.0000	0.00
P-471	212	211	311.00	6.00	100.0000	0.00
P-472	212	201	520.00	4.00	130.0000	0.00
P-473	214	220	510.00	6.00	100.0000	0.00
P-474	216	212	334.00	6.00	100.0000	0.00
P-475	216	198	516.00	4.00	100.0000	0.00
P-476	218	216	178.00	6.00	100.0000	0.00
P-477	218	217	134.00	1.00	130.0000	0.00
P-478	219	218	506.00	6.00	130.0000	0.00
P-479	244	220	328.00	6.00	130.0000	0.00
P-480	218	223	162.00	6.00	100.0000	0.00
P-481	229	191	527.00	2.00	120.0000	0.00
P-482	223	224	169.00	6.00	100.0000	0.00
P-483	200	197	166.00	4.00	120.0000	0.00
P-484	224	225	191.00	6.00	100.0000	0.00
P-485	225	193	522.00	10.00	100.0000	0.00
P-486	225	192	546.00	4.00	130.0000	0.00
P-487	226	225	553.00	10.00	100.0000	0.00
P-488	228	227	473.00	2.00	80.0000	0.00
P-489	225	229	112.00	8.00	80.0000	0.00
P-490	228	230	378.00	8.00	80.0000	0.00
P-491	229	228	152.00	8.00	80.0000	0.00
P-492	231	226	740.00	12.00	130.0000	0.00
P-493	232	414	486.00	8.00	130.0000	0.00
P-494	233	235	537.00	8.00	130.0000	0.00
P-495	234	231	265.00	8.00	100.0000	0.00
P-496	123	231	1252.00	10.00	130.0000	0.00
P-497	235	234	268.00	8.00	130.0000	0.00
P-498	234	236	489.00	8.00	100.0000	0.00
P-499	236	237	614.00	8.00	100.0000	0.00
P-500	238	235	333.00	8.00	130.0000	0.00
P-501	238	239	289.00	8.00	130.0000	0.00
P-502	240	238	310.00	8.00	130.0000	0.00
P-503	241	240	762.00	8.00	130.0000	0.00
P-504	130	241	940.00	8.00	130.0000	0.00
P-505	192	195	136.00	6.00	130.0000	0.00
P-506	124	T-1	104.00	10.00	100.0000	0.00
P-507	R-5	379A	24.00	10.00	130.0000	0.00
P-508	379B	117	80.00	10.00	130.0000	0.00
P-509	117	242	231.00	10.00	130.0000	0.00
P-510	242	122	3449.00	10.00	130.0000	0.00
P-511	243	117	206.00	10.00	130.0000	0.00
P-512	R-4R	380A	24.00	10.00	130.0000	0.00
P-513	380B	243	80.00	10.00	116.0000	0.00
P-514	226	244	195.00	6.00	100.0000	0.00
P-515	244	224	554.00	2.00	130.0000	0.00
P-516	177	176	279.00	6.00	130.0000	0.00
P-517	163	164	264.00	4.00	120.0000	0.00
P-518	223	196	514.00	2.00	120.0000	0.00
P-519	173	245	344.00	6.00	130.0000	0.00
P-520	245	246	196.00	6.00	120.0000	0.00
P-522	248	247	277.00	10.00	130.0000	0.00
P-523	131	136	662.00	8.00	100.0000	0.00
P-524	207	136	374.00	6.00	100.0000	0.00

P I P E N A M E	N O D E N A M E S		L E N G T H (ft)	D I A M E T E R (in)	R O U G H N E S S C O E F F .	M I N O R L O S S C O E F F .
	#1	#2				
P-525	118	250	677.00	4.00	130.0000	0.00
P-526	250	119	1439.00	2.00	130.0000	0.00
P-527	251	141	123.00	8.00	130.0000	0.00
P-528	134	251	143.00	8.00	140.0000	0.00
P-529	142	252	100.00	6.00	130.0000	0.00
P-530	252	135	57.00	2.00	100.0000	0.00
P-531	212	253	95.00	6.00	100.0000	0.00
P-532	253	213	369.00	4.00	140.0000	0.00
P-533	254	223	223.00	6.00	100.0000	0.00
P-534	222	254	137.00	4.00	130.0000	0.00
P-535	200	255	134.00	1.00	120.0000	0.00
P-536	191	193	103.00	2.00	130.0000	0.00
P-537	243	256	1476.00	10.00	130.0000	0.00
P-538	256	118	671.00	10.00	130.0000	0.00
P-539	256	257	148.00	6.00	130.0000	0.00
P-540	123	258	62.00	8.00	130.0000	0.00
P-541	258	232	838.00	8.00	130.0000	0.00
P-542	258	381	347.00	8.00	130.0000	0.00
P-543	260	146	132.00	6.00	130.0000	0.00
P-545	211	261	94.00	6.00	100.0000	0.00
P-546	261	209	296.00	4.00	140.0000	0.00
P-547	216	262	80.00	4.00	100.0000	0.00
P-548	262	215	226.00	2.00	100.0000	0.00
P-549	121	263	792.00	8.00	130.0000	0.00
P-550	128	263	136.00	8.00	130.0000	0.00
P-551	263	129	183.00	8.00	100.0000	0.00
P-552	245	264	233.00	6.00	120.0000	0.00
P-553	264	172	184.00	6.00	130.0000	0.00
P-554	264	265	202.00	6.00	130.0000	0.00
P-555	148	266	159.00	6.00	130.0000	0.00
P-556	178	268	809.00	2.00	130.0000	0.00
P-557	135	269	144.00	2.00	130.0000	0.00
P-558	135	270	134.00	2.00	130.0000	0.00
P-559	136	271	112.00	2.00	130.0000	0.00
P-560	124	272	288.00	10.00	100.0000	0.00
P-561	272	125	298.00	12.00	100.0000	0.00
P-562	258	417	740.00	10.00	130.0000	0.00
P-563	272	274	384.00	1.00	130.0000	0.00
P-564	274	128	246.00	1.00	130.0000	0.00
P-565	125	275	405.00	8.00	100.0000	0.00
P-566	275	128	326.00	8.00	100.0000	0.00
P-567	220	219	46.00	6.00	130.0000	0.00
P-568	414	233	435.00	8.00	130.0000	0.00
P-569	414	416	261.00	8.00	130.0000	0.00
P-570	417	273	429.00	10.00	130.0000	0.00
P-571	417	418	319.00	8.00	130.0000	0.00
P-637	330	349	180.00	8.00	130.0000	0.00
P-640	184	330	52.00	8.00	100.0000	0.00
P-645	330	346	648.00	8.00	130.0000	0.00
P-688	128	134	643.00	8.00	130.0000	0.00
P-689	165	169	351.00	8.00	130.0000	0.00
P-690	193	192	47.00	6.00	130.0000	0.00
P-691	365	189	385.00	10.00	130.0000	0.00
P-692	365	422	450.00	8.00	130.0000	0.00
P-693	193	365	210.00	10.00	100.0000	0.00
P-696	169	367	246.00	8.00	130.0000	0.00
P-697	367	170	355.00	8.00	130.0000	0.00
P-698	367	368	256.00	8.00	130.0000	0.00
P-699	122	369	569.00	10.00	130.0000	0.00
P-700	369	248	242.00	10.00	130.0000	0.00

P I P E N A M E	N O D E N A M E S		L E N G T H (ft)	D I A M E T E R (in)	R O U G H N E S S C O E F F .	M I N O R L O S S C O E F F .
	#1	#2				
P-701	369	276	722.00	10.00	130.0000	0.00
P-702	118	115	606.00	10.00	130.0000	0.00
P-703	371	120	804.00	10.00	130.0000	0.00
P-704	371	372	254.00	8.00	130.0000	0.00
P-705	372	374	258.00	4.00	130.0000	0.00
P-706	372	373	693.00	4.00	130.0000	0.00
P-707	257	410	476.00	6.00	130.0000	0.00
P-708	190	712	737.00	8.00	100.0000	0.00
P-709	712	713	1339.00	8.00	100.0000	0.00
P-710	713	714	427.00	4.00	100.0000	0.00
P-711	712	715	566.00	8.00	100.0000	0.00
P-712	276	277	713.00	10.00	130.0000	0.00
P-713	276	370	349.00	10.00	130.0000	0.00
P-714	370	278	206.00	10.00	130.0000	0.00
P-724	228	723	183.00	8.00	130.0000	0.00
P-725	723	721	331.00	8.00	130.0000	0.00
P-727	723	726	415.00	8.00	130.0000	0.00
P-728	115	371	1330.00	10.00	130.0000	0.00
P-732	154	154a	139.00	4.00	130.0000	0.00
P-734	154a	154b	184.00	4.00	130.0000	0.00
P-736	257	412	446.00	6.00	130.0000	0.00
P-756	247	386	168.00	10.00	130.0000	0.00
P-757	386	123	1486.00	10.00	130.0000	0.00
P-759	386	388	106.00	10.00	130.0000	0.00
P-761	388	390	457.00	10.00	130.0000	0.00
P-763	390	392	623.00	8.00	130.0000	0.00
P-765	392	394	365.00	8.00	130.0000	0.00
P-767	248	398	690.00	10.00	130.0000	0.00
P-768	398	400	25.00	6.00	130.0000	0.00
P-769	398	396	496.00	10.00	130.0000	0.00
P-770	396	247	662.00	10.00	130.0000	0.00
P-789	219	221	179.00	4.00	130.0000	0.00
P-790	221	222	148.00	4.00	130.0000	0.00
P-791	420	422	222.00	8.00	130.0000	0.00
P-792	422	194	265.00	8.00	130.0000	0.00
P-793	194	791	225.00	8.00	130.0000	0.00
P-794	726	791	327.00	8.00	130.0000	0.00
P-795	230	728	418.00	8.00	130.0000	0.00
P-796	728	729	250.00	2.00	130.0000	0.00
P-797	728	267	1263.00	8.00	100.0000	0.00
P-799	192	724	213.00	4.00	130.0000	0.00
P-379a	379A	I-Pump 5	2.00	6.00	130.0000	0.00
P 380a	380A	I-Pump 4R	2.00	6.00	130.0000	0.00

P U M P / L O S S E L E M E N T D A T A

THERE IS A DEVICE AT NODE Pump 4R DESCRIBED BY THE FOLLOWING DATA: (ID= 2)

HEAD (ft)	FLOWRATE (gpm)	EFFICIENCY (%)
320.00	0.00	65.00
240.00	600.00	74.00
160.00	800.00	73.50



THERE IS A DEVICE AT NODE Pump 5 DESCRIBED BY THE FOLLOWING DATA: (ID= 1)

HEAD (ft)	FLOWRATE (gpm)	EFFICIENCY (%)
317.00	0.00	63.00
215.00	600.00	43.00
145.00	900.00	59.00

N O D E D A T A

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	JUNCTION ELEVATION (ft)	EXTERNAL GRADE (ft)
115		6.47	140.00	
117		0.00	54.00	
118		23.36	115.00	
119		5.27	40.00	
120		0.75	174.00	
121		1.51	50.00	
122		33.01	46.00	
123		31.51	41.00	
124		0.75	184.00	
125		0.00	75.00	
126		1.51	42.00	
127		0.00	43.00	
128		2.26	45.00	
129		0.75	42.00	
130		0.00	44.00	
131		2.26	40.00	
132		19.80	43.00	
133		-14.52	39.00	
134		0.00	39.00	
135		-10.37	37.00	
136		-13.01	36.00	
137		19.65	37.00	
138		0.00	36.00	
139		3.97	38.00	
140		5.21	38.00	
141		6.50	38.00	
142		-10.41	37.00	
143		4.57	36.00	
144		1.89	37.00	
145		-12.64	37.00	
146		2.26	36.00	
147		9.04	36.00	
148		-13.01	36.00	
149		9.04	36.00	
150		1.51	36.00	
151		3.01	36.00	
152		1.51	36.00	
153		0.75	36.00	
154		-10.00	36.00	
155		5.27	36.00	
157		4.52	36.00	
158		1.51	34.00	
159		4.52	35.00	
160		6.03	37.00	
161		7.53	37.00	
162		13.56	35.00	
163		-12.64	33.00	
164		3.01	34.00	

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	JUNCTION ELEVATION (ft)	EXTERNAL GRADE (ft)
165		3.77	34.00	
166		3.77	35.00	
167		6.03	36.00	
168		14.14	34.00	
169		0.75	34.00	
170		0.00	35.00	
171		-16.41	35.00	
172		2.26	36.00	
173		4.52	35.00	
174		185.37	35.00	
175		21.68	36.00	
176		3.01	36.00	
177		0.75	36.00	
178		1.89	37.00	
179		0.00	38.00	
180		-8.87	37.00	
181		-15.65	38.00	
182		17.91	37.00	
183		2.26	39.00	
184		1.51	38.00	
185		6.78	39.00	
186		5.27	37.00	
187		4.52	37.00	
188		29.38	39.00	
189		4.52	38.00	
190		5.27	39.00	
191		1.51	39.00	
192		-16.79	39.00	
193		0.00	39.00	
194		7.53	38.00	
195		2.26	38.00	
196		2.26	38.00	
197		0.75	37.00	
198		2.26	36.00	
199		0.75	37.00	
200		-11.13	36.00	
201		4.52	37.00	
202		2.26	39.00	
203		-12.64	36.00	
204		21.68	36.00	
205		2.26	36.00	
206		2.26	36.00	
207		15.95	38.00	
208		13.82	39.00	
209		25.46	39.00	
210		0.75	39.00	
211		-18.67	37.00	
212		-12.26	36.00	
213		19.80	40.00	
214		0.75	39.00	
215		23.57	38.00	
216		-14.53	37.00	
217		14.14	37.00	
218		-10.37	37.00	
219		3.77	39.00	
220		6.07	39.00	
221		1.51	39.00	
222		2.26	38.00	
223		0.75	37.00	

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	JUNCTION ELEVATION (ft)	EXTERNAL GRADE (ft)
224		2.26	37.00	
225		3.01	38.00	
226		0.75	40.00	
227		16.03	40.00	
228		-13.77	39.00	
229		3.77	40.00	
230		2.26	41.00	
231		0.75	40.00	
232		2.26	42.00	
233		20.57	43.00	
234		1.51	40.00	
235		0.00	38.00	
236		0.75	40.00	
237		0.75	35.00	
238		-4.17	40.00	
239		14.14	40.00	
240		0.00	41.00	
241		0.75	44.00	
242		0.00	40.00	
243		0.00	50.00	
244		2.26	40.00	
245		-13.40	36.00	
246		21.68	36.00	
247		178.88	43.00	
248		0.00	42.00	
250		1.51	50.00	
251		2.24	37.00	
252		0.00	37.00	
253		0.00	36.00	
254		0.00	37.00	
255		14.14	37.00	
256		-25.09	84.00	
257		-12.26	84.00	
258		-23.94	41.00	
260		13.24	36.00	
261		0.00	37.00	
262		0.00	37.00	
263		0.00	41.00	
264		-14.91	36.00	
265		25.46	36.00	
266		16.03	36.00	
267		372.67	42.00	
268		16.03	38.00	
269		14.14	37.00	
270		14.14	37.00	
271		16.03	37.00	
272		0.00	144.00	
273		14.14	41.00	
274		2.26	92.00	
275		0.00	46.00	
276		0.00	44.00	
277		0.00	45.00	
278		0.00	45.00	
330		-20.18	35.00	
346		25.46	35.00	
349		425.83	35.00	
365		11.23	39.00	
367		-17.54	34.50	
368		23.57	36.00	

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	JUNCTION ELEVATION (ft)	EXTERNAL GRADE (ft)
369		-13.39	44.00	
370		14.14	45.00	
371		-22.45	180.00	
372		-8.49	153.00	
373		19.80	160.00	
374		17.91	150.00	
379		-13.39	36.00	
380		14.14	36.00	
381		14.14	41.00	
386		60.00	43.00	
388		0.00	43.00	
390		0.00	43.00	
392		0.00	42.00	
394		0.00	42.00	
396		0.75	43.00	
398		90.00	43.00	
400		0.00	43.00	
410		29.23	102.00	
412		17.91	54.00	
414		0.00	43.00	
416		0.00	43.00	
417		0.00	41.00	
418		0.00	41.00	
420		0.00	38.00	
422		0.00	38.00	
712		64.97	40.00	
713		0.00	40.00	
714		22.27	40.00	
715		253.21	40.00	
721		17.91	39.00	
723		-11.89	39.00	
724		19.80	39.00	
726		15.07	38.00	
728		-9.61	41.00	
729		16.03	41.00	
791		4.44	38.00	
154a		0.00	36.00	
154b		16.03	36.00	
379A		0.00	50.00	
379B		0.00	50.00	
380A		0.00	50.00	
380B		0.00	50.00	
O-Pump 4R		0.00	50.00	
O-Pump 5		0.00	50.00	
R-5		----	50.00	50.00
R-4R		----	50.00	50.00
T-1		----	186.00	196.00
I-Pump 5		0.00	50.00	
I-Pump 4R		0.00	50.00	

50.00  
50.00  
196.00

TANK WATER ELEVATION

OUTPUT OPTION DATA

OUTPUT SELECTION: ALL RESULTS ARE INCLUDED IN THE TABULATED OUTPUT  
 MAXIMUM AND MINIMUM PRESSURES = 5  
 MAXIMUM AND MINIMUM VELOCITIES = 5  
 MAXIMUM AND MINIMUM HEAD LOSS/1000 = 5

S Y S T E M   C O N F I G U R A T I O N

NUMBER OF PIPES .....(p) = 246  
 NUMBER OF END NODES .....(j) = 210  
 NUMBER OF PRIMARY LOOPS .....(l) = 34  
 NUMBER OF SUPPLY NODES .....(f) = 3  
 NUMBER OF SUPPLY ZONES .....(z) = 1

=====  
 Case: 0

RESULTS OBTAINED AFTER 5 TRIALS: ACCURACY = 0.00015

P I P E L I N E   R E S U L T S

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

P I P E N A M E	N O D E   N U M B E R S		F L O W R A T E (gpm)	H E A D L O S S (ft)	M I N O R L O S S (ft)	L I N E V E L O. (ft/s)	H L + M L / 1000 (ft/ft)	H L / 1000 (ft/ft)
	#1	#2						
P-379	O-Pump 5	379B	0.00	0.00	0.00	0.00	0.00	0.00
P-380	O-Pump 4R	380B	0.00	0.00	0.00	0.00	0.00	0.00
P-382	146	155	58.54	0.13	0.00	0.66	0.39	0.39
P-383	119	121	12.15	5.11	0.00	1.24	4.43	4.43
P-384	120	124	-846.46	1.33	0.00	3.46	4.53	4.53
P-385	125	126	413.56	9.16	0.00	4.69	23.50	23.50
P-386	126	127	412.05	5.53	0.00	4.68	14.36	14.36
P-387	127	139	412.05	6.00	0.00	4.68	14.36	14.36
P-388	129	130	322.62	2.80	0.00	2.06	2.25	2.25
P-389	129	131	367.90	2.93	0.00	2.35	4.66	4.66
P-390	133	131	-296.57	0.43	0.00	1.89	3.13	3.13
P-391	133	132	19.80	0.03	0.00	0.22	0.05	0.05
P-392	237	133	-291.29	1.60	0.00	1.86	3.02	3.02
P-394	136	143	-146.27	0.44	0.00	1.66	3.43	3.43
P-395	144	137	19.65	3.51	0.00	2.01	10.79	10.79
P-396	139	138	94.38	0.12	0.00	1.07	0.94	0.94
P-397	138	145	94.38	4.03	0.00	2.41	10.97	10.97
P-398	139	140	313.70	1.33	0.00	3.56	8.66	8.66
P-399	140	141	287.33	2.21	0.00	3.26	7.36	7.36
P-400	141	147	310.28	0.75	0.00	1.98	2.09	2.09
P-401	141	142	300.57	2.51	0.00	3.41	8.00	8.00
P-402	143	142	-269.60	1.98	0.00	3.06	6.54	6.54
P-403	145	144	21.54	0.01	0.00	0.24	0.06	0.06
P-404	145	146	65.13	0.15	0.00	0.74	0.47	0.47
P-405	147	146	-12.24	0.01	0.00	0.14	0.02	0.02
P-406	147	148	313.48	0.30	0.00	2.00	2.13	2.13
P-407	148	157	310.46	0.53	0.00	1.98	2.09	2.09
P-408	142	149	23.47	0.22	0.00	0.60	0.45	0.45
P-409	143	150	118.77	4.80	0.00	3.03	16.79	16.79
P-410	150	151	104.31	2.84	0.00	2.66	13.20	13.20
P-411	150	152	12.94	1.93	0.00	1.32	12.24	12.24
P-412	152	153	11.43	1.36	0.00	1.17	6.43	6.43
P-413	153	206	147.22	0.50	0.00	1.67	3.47	3.47
P-414	151	153	136.53	0.45	0.00	1.55	3.02	3.02
P-415	145	154	20.35	0.23	0.00	0.52	0.64	0.64
P-416	154	158	14.32	0.12	0.00	0.37	0.33	0.33
P-417	155	159	53.27	0.12	0.00	0.60	0.32	0.32
P-418	140	260	21.16	2.96	0.00	2.16	12.37	12.37
P-419	157	160	305.94	0.66	0.00	1.95	2.04	2.04
P-420	149	161	14.43	6.00	0.00	1.47	9.90	9.90

P I P E N A M E	N O D E N U M B E R S		F L O W R A T E (gpm)	H E A D L O S S (ft)	M I N O R L O S S (ft)	L I N E V E L O. (ft/s)	H L+M L/ 1000 (ft/ft)	H L/ 1000 (ft/ft)
	#1	#2						
P-421	151	162	-35.23	1.08	0.00	0.90	1.77	1.77
P-422	158	163	2.02	0.06	0.00	0.21	0.16	0.16
P-423	158	159	10.79	0.06	0.00	0.28	0.20	0.20
P-424	159	164	2.49	0.00	0.00	0.06	0.01	0.01
P-425	159	160	57.06	1.24	0.00	1.46	4.32	4.32
P-426	160	165	227.55	0.41	0.00	1.45	1.18	1.18
P-427	161	160	-129.42	6.48	0.00	3.30	19.68	19.68
P-428	161	166	55.89	0.13	0.00	0.63	0.35	0.35
P-429	162	161	-80.42	2.32	0.00	2.05	8.16	8.16
P-430	162	167	-42.33	0.82	0.00	1.08	2.48	2.48
P-431	203	162	-73.96	2.03	0.00	1.89	6.98	6.98
P-432	163	168	14.14	4.75	0.00	1.44	5.87	5.87
P-433	379	380	14.14	0.92	0.00	1.44	5.87	5.87
P-434	166	176	52.12	0.11	0.00	0.59	0.31	0.31
P-435	167	177	-48.36	1.18	0.00	1.23	3.18	3.18
P-436	170	172	158.55	0.30	0.00	1.01	0.60	0.60
P-437	172	379	186.12	0.15	0.00	1.19	0.01	0.01
P-438	170	171	58.45	0.08	0.00	0.66	0.39	0.39
P-439	171	175	21.68	0.01	0.00	0.25	0.06	0.06
P-440	171	173	53.18	0.05	0.00	0.60	0.32	0.32
P-441	179	178	17.92	0.16	0.00	0.46	0.51	0.51
P-442	180	179	17.92	0.16	0.00	0.46	0.51	0.51
P-443	180	181	137.31	0.32	0.00	1.56	1.88	1.88
P-444	181	182	17.91	2.15	0.00	1.83	9.09	9.09
P-445	181	183	135.05	0.27	0.00	1.53	1.82	1.82
P-446	183	185	175.66	1.02	0.00	1.99	2.96	2.96
P-447	185	184	432.62	2.35	0.00	2.76	6.29	6.29
P-448	186	180	146.36	1.62	0.00	1.66	3.43	3.43
P-449	186	187	47.40	0.98	0.00	1.21	3.06	3.06
P-450	187	183	42.88	1.23	0.00	1.09	2.54	2.54
P-451	188	185	263.74	5.52	0.00	2.99	10.21	10.21
P-452	189	188	293.12	0.33	0.00	1.20	1.03	1.03
P-453	189	190	345.72	1.78	0.00	2.21	4.15	4.15
P-454	195	196	-1.94	0.00	0.00	0.02	0.00	0.00
P-455	196	198	10.76	0.01	0.00	0.12	0.02	0.02
P-456	197	186	199.02	2.86	0.00	2.26	6.06	6.06
P-457	198	197	147.64	1.71	0.00	1.68	3.49	3.49
P-458	199	198	56.94	0.72	0.00	1.45	4.30	4.30
P-459	199	200	55.14	2.00	0.00	1.41	4.05	4.05
P-460	201	199	112.84	2.57	0.00	2.88	15.27	15.27
P-461	202	201	59.69	1.83	0.00	1.52	4.70	4.70
P-462	203	202	61.95	2.00	0.00	1.58	5.03	5.03
P-463	203	204	21.68	0.08	0.00	0.25	0.15	0.15
P-464	206	205	-0.71	0.00	0.00	0.01	0.00	0.00
P-465	205	203	-2.97	0.00	0.00	0.03	0.00	0.00
P-466	210	206	-145.67	0.81	0.00	1.65	3.40	3.40
P-467	379	174	185.37	0.56	0.00	1.18	0.81	0.81
P-468	207	206	196.37	2.99	0.00	2.23	5.91	5.91
P-469	208	214	182.55	1.21	0.00	2.07	5.17	5.17
P-470	211	210	-144.92	0.65	0.00	1.64	3.37	3.37
P-471	212	211	-138.13	0.96	0.00	1.57	3.08	3.08
P-472	212	201	57.67	1.41	0.00	1.47	2.71	2.71
P-473	214	220	181.80	2.62	0.00	2.06	5.13	5.13
P-474	216	212	-72.92	0.32	0.00	0.83	0.94	0.94
P-475	216	198	82.20	4.38	0.00	2.10	8.49	8.49
P-476	218	216	18.32	0.01	0.00	0.21	0.07	0.07
P-477	218	217	14.14	22.99	0.00	5.78	171.54	171.54
P-478	219	218	161.49	1.28	0.00	1.83	2.53	2.53
P-479	244	220	57.32	0.12	0.00	0.65	0.37	0.37
P-480	218	223	139.40	0.51	0.00	1.58	3.14	3.14
P-481	229	191	5.48	0.62	0.00	0.56	1.18	1.18
P-482	223	224	187.71	0.92	0.00	2.13	5.44	5.44
P-483	200	197	52.13	0.43	0.00	1.33	2.61	2.61
P-484	224	225	199.14	1.16	0.00	2.26	6.07	6.07
P-485	225	193	565.98	1.82	0.00	2.31	3.49	3.49
P-486	225	192	64.16	1.80	0.00	1.64	3.30	3.30
P-487	226	225	883.73	4.41	0.00	3.61	7.97	7.97

P I P E N A M E	N O D E N U M B E R S		F L O W R A T E (gpm)	H E A D L O S S (ft)	M I N O R L O S S (ft)	L I N E V E L O. (ft/s)	H L + M L / 1 0 0 0 (ft/ft)	H L / 1 0 0 0 (ft/ft)
	#1	#2						
P-488	228	227	16.03	8.60	0.00	1.64	18.19	18.19
P-489	225	229	449.72	1.14	0.00	2.87	10.22	10.22
P-490	228	230	381.35	2.85	0.00	2.43	7.53	7.53
P-491	229	228	440.47	1.49	0.00	2.81	9.83	9.83
P-492	231	226	957.75	1.73	0.00	2.72	2.34	2.34
P-493	232	414	-86.81	0.10	0.00	0.55	0.20	0.20
P-494	233	235	-107.38	0.16	0.00	0.69	0.29	0.29
P-495	234	231	492.81	2.12	0.00	3.15	8.01	8.01
P-496	123	231	465.70	1.87	0.00	1.90	1.50	1.50
P-497	235	234	204.53	0.26	0.00	1.31	0.97	0.97
P-498	234	236	-289.79	1.46	0.00	1.85	3.00	3.00
P-499	236	237	-290.54	1.85	0.00	1.85	3.01	3.01
P-500	238	235	311.90	0.70	0.00	1.99	2.11	2.11
P-501	238	239	14.14	0.00	0.00	0.09	0.01	0.01
P-502	240	238	321.87	0.69	0.00	2.05	2.24	2.24
P-503	241	240	321.87	1.71	0.00	2.05	2.24	2.24
P-504	130	241	322.62	2.11	0.00	2.06	2.25	2.25
P-505	192	195	0.32	0.00	0.00	0.00	0.00	0.00
P-506	124	T-1	-2278.18	4.79	0.00	9.31	46.03	46.03
P-507	R-5	379A	0.00	0.00	0.00	0.00	0.00	0.00
P-508	379B	117	0.00	0.00	0.00	0.00	0.00	0.00
P-509	117	242	780.39	0.90	0.00	3.19	3.89	3.89
P-510	242	122	780.39	13.43	0.00	3.19	3.89	3.89
P-511	243	117	780.39	0.80	0.00	3.19	3.89	3.89
P-512	R-4R	380A	0.00	0.00	0.00	0.00	0.00	0.00
P-513	380B	243	0.00	0.00	0.00	0.00	0.00	0.00
P-514	226	244	73.27	0.19	0.00	0.03	0.95	0.95
P-515	244	224	13.69	3.06	0.00	1.40	5.53	5.53
P-516	177	176	-49.11	0.08	0.00	0.56	0.28	0.28
P-517	163	164	0.52	0.00	0.00	0.01	0.00	0.00
P-518	223	196	14.96	3.88	0.00	1.53	7.55	7.55
P-519	173	245	48.66	0.09	0.00	0.55	0.27	0.27
P-520	245	246	21.68	0.01	0.00	0.25	0.07	0.07
P-522	248	247	511.04	0.49	0.00	2.09	1.78	1.78
P-523	131	136	69.07	0.14	0.00	0.44	0.21	0.21
P-524	207	136	-212.32	2.56	0.00	2.41	6.84	6.84
P-525	118	250	18.93	0.23	0.00	0.48	0.34	0.34
P-526	250	119	17.42	12.42	0.00	1.78	8.63	8.63
P-527	251	141	330.02	0.29	0.00	2.11	2.34	2.34
P-528	134	251	332.26	0.30	0.00	2.12	2.07	2.07
P-529	142	252	17.91	0.00	0.00	0.20	0.04	0.04
P-530	252	135	17.91	0.84	0.00	1.83	14.77	14.77
P-531	212	253	19.80	0.01	0.00	0.22	0.08	0.08
P-532	253	213	19.80	0.12	0.00	0.51	0.33	0.33
P-533	254	223	64.02	0.17	0.00	0.73	0.74	0.74
P-534	222	254	64.02	0.45	0.00	1.63	3.29	3.29
P-535	200	255	14.14	26.66	0.00	5.78	198.95	198.95
P-536	191	193	3.97	0.06	0.00	0.41	0.56	0.56
P-537	243	256	-780.39	5.75	0.00	3.19	3.89	3.89
P-538	256	118	-790.18	2.67	0.00	3.23	3.98	3.98
P-539	256	257	34.88	0.02	0.00	0.40	0.15	0.15
P-540	123	258	-80.21	0.01	0.00	0.51	0.17	0.17
P-541	258	232	-84.55	0.16	0.00	0.54	0.19	0.19
P-542	258	381	14.14	0.00	0.00	0.09	0.01	0.01
P-543	260	146	7.92	0.00	0.00	0.09	0.01	0.01
P-545	211	261	25.46	0.01	0.00	0.29	0.13	0.13
P-546	261	209	25.46	0.15	0.00	0.65	0.52	0.52
P-547	216	262	23.57	0.07	0.00	0.60	0.84	0.84
P-548	262	215	23.57	5.55	0.00	2.41	24.57	24.57
P-549	121	263	10.64	0.00	0.00	0.07	0.00	0.00
P-550	128	263	680.64	1.22	0.00	4.34	8.96	8.96
P-551	263	129	691.28	2.74	0.00	4.41	14.99	14.99
P-552	245	264	40.38	0.05	0.00	0.46	0.23	0.23
P-553	264	172	29.83	0.02	0.00	0.34	0.11	0.11
P-554	264	265	25.46	0.02	0.00	0.29	0.08	0.08
P-555	148	266	16.03	0.01	0.00	0.18	0.04	0.04
P-556	178	268	16.03	5.99	0.00	1.64	7.40	7.40

P I P E N A M E	N O D E N U M B E R S		F L O W R A T E (gpm)	H E A D L O S S (ft)	M I N O R L O S S (ft)	L I N E V E L O . (ft/s)	H L + M L / 1 0 0 0 (ft/ft)	H L / 1 0 0 0 (ft/ft)
	#1	#2						
P-557	135	269	14.14	0.84	0.00	1.44	5.87	5.87
P-558	135	270	14.14	0.79	0.00	1.44	5.87	5.87
P-559	136	271	16.03	0.83	0.00	1.64	7.40	7.40
P-560	124	272	1430.98	5.60	0.00	5.85	19.45	19.45
P-561	272	125	1423.83	2.36	0.00	4.04	7.93	7.93
P-562	258	417	14.14	0.00	0.00	0.06	0.00	0.00
P-563	272	274	7.14	18.60	0.00	2.92	48.43	48.43
P-564	274	128	4.88	5.89	0.00	1.99	23.94	23.94
P-565	125	275	1010.27	12.26	0.00	6.45	30.26	30.26
P-566	275	128	1010.27	9.87	0.00	6.45	30.26	30.26
P-567	220	219	233.05	0.23	0.00	2.64	5.00	5.00
P-568	414	233	-86.81	0.09	0.00	0.55	0.20	0.20
P-569	414	416	0.00	0.00	0.00	0.00	0.00	0.00
P-570	417	273	14.14	0.00	0.00	0.06	0.00	0.00
P-571	417	418	0.00	0.00	0.00	0.00	0.00	0.00
P-637	330	349	425.83	0.68	0.00	2.72	3.76	3.76
P-640	104	330	431.11	0.33	0.00	2.75	6.25	6.25
P-645	330	346	25.46	0.01	0.00	0.16	0.02	0.02
P-688	128	134	332.26	1.53	0.00	2.12	2.37	2.37
P-689	165	169	223.78	0.40	0.00	1.43	1.14	1.14
P-690	193	192	-60.83	0.02	0.00	0.69	0.42	0.42
P-691	365	189	643.36	1.05	0.00	2.63	2.72	2.72
P-692	365	422	-23.80	0.01	0.00	0.15	0.02	0.02
P-693	193	365	630.79	0.90	0.00	2.58	4.27	4.27
P-696	169	367	223.03	0.28	0.00	1.42	1.13	1.13
P-697	367	170	217.00	0.38	0.00	1.38	1.08	1.08
P-698	367	368	23.57	0.00	0.00	0.15	0.02	0.02
P-699	122	369	747.38	2.04	0.00	3.05	3.59	3.59
P-700	369	248	746.63	0.87	0.00	3.05	3.59	3.59
P-701	369	276	14.14	0.00	0.00	0.06	0.00	0.00
P-702	118	115	-832.47	2.66	0.00	3.40	4.39	4.39
P-703	371	120	-845.71	3.63	0.00	3.45	4.52	4.52
P-704	371	372	29.22	0.01	0.00	0.19	0.03	0.03
P-705	372	374	17.91	0.08	0.00	0.46	0.31	0.31
P-706	372	373	19.80	0.26	0.00	0.51	0.37	0.37
P-707	257	410	29.23	0.05	0.00	0.33	0.11	0.11
P-708	190	712	340.45	2.98	0.00	2.17	4.04	4.04
P-709	712	713	22.27	0.03	0.00	0.14	0.03	0.03
P-710	713	714	22.27	0.32	0.00	0.57	0.76	0.76
P-711	712	715	253.21	1.32	0.00	1.62	2.33	2.33
P-712	276	277	0.00	0.00	0.00	0.00	0.00	0.00
P-713	276	370	14.14	0.00	0.00	0.06	0.00	0.00
P-714	370	278	0.00	0.00	0.00	0.00	0.00	0.00
P-724	228	723	56.86	0.02	0.00	0.36	0.09	0.09
P-725	723	721	17.91	0.00	0.00	0.11	0.01	0.01
P-727	723	726	50.84	0.03	0.00	0.32	0.07	0.07
P-728	115	371	-838.94	5.92	0.00	3.43	4.45	4.45
P-732	154	154a	16.03	0.04	0.00	0.41	0.25	0.25
P-734	154a	154b	16.03	0.05	0.00	0.41	0.25	0.25
P-736	257	412	17.91	0.02	0.00	0.20	0.04	0.04
P-756	247	386	477.00	0.26	0.00	1.95	1.56	1.56
P-757	386	123	417.00	1.81	0.00	1.70	1.22	1.22
P-759	386	388	0.00	0.00	0.00	0.00	0.00	0.00
P-761	388	390	0.00	0.00	0.00	0.00	0.00	0.00
P-763	390	392	0.00	0.00	0.00	0.00	0.00	0.00
P-765	392	394	0.00	0.00	0.00	0.00	0.00	0.00
P-767	248	398	235.59	0.29	0.00	0.96	0.42	0.42
P-768	398	400	0.00	0.00	0.00	0.00	0.00	0.00
P-769	398	396	145.59	0.09	0.00	0.59	0.17	0.17
P-770	396	247	144.84	0.11	0.00	0.59	0.17	0.17
P-789	219	221	67.79	0.65	0.00	1.73	3.66	3.66
P-790	221	222	66.28	0.52	0.00	1.69	3.51	3.51
P-791	420	422	0.00	0.00	0.00	0.00	0.00	0.00
P-792	422	194	-23.80	0.00	0.00	0.15	0.02	0.02
P-793	194	791	-31.33	0.01	0.00	0.20	0.03	0.03
P-794	726	791	35.77	0.01	0.00	0.23	0.04	0.04
P-795	230	728	379.09	1.27	0.00	2.42	3.03	3.03



PIPE NAME	NODE NUMBERS		FLOWRATE (gpm)	HEAD LOSS (ft)	MINOR LOSS (ft)	LINE VELO. (ft/s)	HL+ML/ 1000 (ft/ft)	HL/ 1000 (ft/ft)
	#1	#2						
P-796	728	729	16.03	1.85	0.00	1.64	7.40	7.40
P-797	728	267	372.67	6.03	0.00	2.38	4.77	4.77
P-799	192	724	19.80	0.08	0.00	0.51	0.37	0.37
P-379a	379A	I-Pump 5	0.00	0.00	0.00	0.00	0.00	0.00
P-380a	380A	I-Pump 4R	0.00	0.00	0.00	0.00	0.00	0.00

PUMP/LOSS ELEMENT RESULTS

NAME	FLOWRATE (gpm)	INLET HEAD (ft)	OUTLET HEAD (ft)	PUMP HEAD (ft)	EFFIC- ENCY (%)	USEFUL POWER (Hp)	INCREMENTL COST (\$)	TOTAL COST (\$)	#PUMPS PARALLEL	#PUMPS SERIES	NPSH Avail. (ft)
Device "Pump 4R" is closed Pump 4R	0.00	0.00	119.25	0.0	75.00	0.	0.0	0.0	**	**	33.2
Device "Pump 5" is closed Pump 5	0.00	0.00	118.45	0.0	75.00	0.	0.0	0.0	**	**	33.2

NODE RESULTS

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	HYDRAULIC GRADE (ft)	NODE ELEVATION (ft)	PRESSURE HEAD (ft)	NODE PRESSURE (psi)
115		6.47	180.33	140.00	40.33	17.48
117		0.00	168.45	54.00	114.45	49.59
118		23.36	177.67	115.00	62.67	27.16
119		5.27	165.02	40.00	125.02	54.17
120		0.75	189.88	174.00	15.88	6.88
121		1.51	159.91	50.00	109.91	47.63
122		33.01	154.12	46.00	108.12	46.85
123		31.51	148.64	41.00	107.64	46.64
124		0.75	191.21	184.00	7.21	3.13
125		0.00	183.25	75.00	108.25	46.91
126		1.51	174.08	42.00	132.08	57.24
127		0.00	168.56	43.00	125.56	54.41
128		2.26	161.12	45.00	116.12	50.32
129		0.75	157.16	42.00	115.16	49.90
130		0.00	154.37	44.00	110.37	47.83
131		2.26	154.24	40.00	114.24	49.50
132		19.80	153.78	43.00	110.78	48.00
133		-14.52	153.81	39.00	114.81	49.75
134		0.00	159.60	39.00	120.60	52.26
135		-10.37	155.66	37.00	118.66	51.42
136		-13.01	154.10	36.00	118.10	51.17
137		19.65	154.90	37.00	117.90	51.09
138		0.00	162.44	36.00	126.44	54.79
139		3.97	162.56	38.00	124.56	53.97
140		5.21	161.22	38.00	123.22	53.40
141		6.50	159.01	38.00	121.01	52.44
142		-10.41	156.51	37.00	119.51	51.79
143		4.57	154.53	36.00	118.53	51.36
144		1.89	158.40	37.00	121.40	52.61
145		-12.64	158.41	37.00	121.41	52.61
146		2.26	158.26	36.00	122.26	52.98
147		9.04	158.26	36.00	122.26	52.98
148		-13.01	157.96	36.00	121.96	52.85

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	HYDRAULIC GRADE (ft)	NODE ELEVATION (ft)	PRESSURE HEAD (ft)	NODE PRESSURE (psi)
149		9.04	156.28	36.00	120.28	52.12
150		1.51	149.73	36.00	113.73	49.28
151		3.01	146.89	36.00	110.89	48.05
152		1.51	147.80	36.00	111.80	48.44
153		0.75	146.44	36.00	110.44	47.86
154		-10.00	158.19	36.00	122.19	52.95
155		5.27	158.13	36.00	122.13	52.92
157		4.52	157.43	36.00	121.43	52.62
158		1.51	158.06	34.00	124.06	53.76
159		4.52	158.01	35.00	123.01	53.30
160		6.03	156.76	37.00	119.76	51.90
161		7.53	150.29	37.00	113.29	49.09
162		13.56	147.97	35.00	112.97	48.95
163		-12.64	158.00	33.00	125.00	54.17
164		3.01	158.00	34.00	124.00	53.74
165		3.77	156.36	34.00	122.36	53.02
166		3.77	150.16	35.00	115.16	49.90
167		6.03	148.80	36.00	112.80	48.88
168		14.14	153.25	34.00	119.25	51.68
169		0.75	155.96	34.00	121.96	52.85
170		0.00	155.29	35.00	120.29	52.13
171		-16.41	155.22	35.00	120.22	52.09
172		2.26	155.00	36.00	119.00	51.57
173		4.52	159.17	35.00	120.17	52.07
174		185.37	154.29	35.00	119.29	51.69
175		21.68	155.21	36.00	119.21	51.66
176		3.01	150.05	36.00	114.05	49.42
177		0.75	149.97	36.00	113.97	49.39
178		1.89	132.30	37.00	95.30	41.30
179		0.00	132.46	38.00	94.46	40.93
180		-8.87	132.63	37.00	95.63	41.44
181		-15.65	132.31	38.00	94.31	40.87
182		17.91	130.16	37.00	93.16	40.37
183		2.26	132.04	39.00	93.04	40.32
184		1.51	128.68	38.00	90.68	39.29
185		6.78	131.02	39.00	92.02	39.88
186		5.27	134.25	37.00	97.25	42.14
187		4.52	133.27	37.00	96.27	41.72
188		29.38	136.54	39.00	97.54	42.27
189		4.52	136.86	38.00	98.86	42.84
190		5.27	135.09	39.00	96.09	41.64
191		1.51	138.87	39.00	99.87	43.27
192		-16.79	138.83	39.00	99.83	43.26
193		0.00	138.81	39.00	99.81	43.25
194		7.53	137.92	38.00	99.92	43.30
195		2.26	138.83	38.00	100.83	43.69
196		2.26	138.83	38.00	100.83	43.69
197		0.75	137.11	37.00	100.11	43.38
198		2.26	138.82	36.00	102.82	44.56
199		0.75	139.54	37.00	102.54	44.44
200		-11.13	137.55	36.00	101.55	44.00
201		4.52	142.11	37.00	105.11	45.55
202		2.26	143.94	39.00	104.94	45.47
203		-12.64	145.94	36.00	109.94	47.64
204		21.68	145.86	36.00	109.86	47.61
205		2.26	145.94	36.00	109.94	47.64
206		2.26	145.94	36.00	109.94	47.64
207		15.95	151.54	38.00	113.54	49.20
208		13.82	148.55	39.00	109.55	47.47

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	HYDRAULIC GRADE (ft)	NODE ELEVATION (ft)	PRESSURE HEAD (ft)	NODE PRESSURE (psi)
209		25.46	144.31	39.00	105.31	45.64
210		0.75	145.13	39.00	106.13	45.99
211		-18.67	144.48	37.00	107.48	46.57
212		-12.26	143.52	36.00	107.52	46.59
213		19.80	143.39	40.00	103.39	44.80
214		0.75	147.34	39.00	108.34	46.95
215		23.57	137.58	38.00	99.58	43.15
216		-14.53	143.20	37.00	106.20	46.02
217		14.14	120.23	37.00	83.23	36.07
218		-10.37	143.22	37.00	106.22	46.03
219		3.77	144.50	39.00	105.50	45.72
220		6.07	144.73	39.00	105.73	45.82
221		1.51	143.84	39.00	104.84	45.43
222		2.26	143.32	38.00	105.32	45.64
223		0.75	142.71	37.00	105.71	45.81
224		2.26	141.79	37.00	104.79	45.41
225		3.01	140.63	38.00	102.63	44.47
226		0.75	145.04	40.00	105.04	45.52
227		16.03	129.39	40.00	89.39	38.73
228		-13.77	137.99	39.00	98.99	42.90
229		3.77	139.49	40.00	99.49	43.11
230		2.26	135.14	41.00	94.14	40.80
231		0.75	146.77	40.00	106.77	46.27
232		2.26	148.81	42.00	106.81	46.28
233		20.57	148.99	43.00	105.99	45.93
234		1.51	148.89	40.00	108.89	47.19
235		0.00	149.15	38.00	111.15	48.16
236		0.75	150.36	40.00	110.36	47.82
237		0.75	152.20	35.00	117.20	50.79
238		-4.17	149.85	40.00	109.85	47.60
239		14.14	149.85	40.00	109.85	47.60
240		0.00	150.55	41.00	109.55	47.47
241		0.75	152.25	44.00	108.25	46.91
242		0.00	167.55	40.00	127.55	55.27
243		0.00	169.25	50.00	119.25	51.68
244		2.26	144.85	40.00	104.85	45.44
245		-13.40	155.07	36.00	119.07	51.60
246		21.68	155.06	36.00	119.06	51.59
247		178.88	150.72	43.00	107.72	46.68
248		0.00	151.21	42.00	109.21	47.32
250		1.51	177.44	50.00	127.44	55.22
251		2.24	159.30	37.00	122.30	53.00
252		0.00	156.50	37.00	119.50	51.78
253		0.00	143.51	36.00	107.51	46.59
254		0.00	142.87	37.00	105.87	45.88
255		14.14	110.89	37.00	73.89	32.02
256		-25.09	175.00	84.00	91.00	39.43
257		-12.26	174.98	84.00	90.98	39.42
258		-23.94	148.65	41.00	107.65	46.65
260		13.24	158.26	36.00	122.26	52.98
261		0.00	144.47	37.00	107.47	46.57
262		0.00	143.14	37.00	106.14	45.99
263		0.00	159.90	41.00	118.90	51.53
264		-14.91	155.02	36.00	119.02	51.58
265		25.46	155.00	36.00	119.00	51.57
266		16.03	157.96	36.00	121.96	52.85
267	SRWA	872.67	127.85	42.00	85.85	37.20
268		16.03	126.31	38.00	88.31	38.27
269		14.14	154.82	37.00	117.82	51.05

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	HYDRAULIC GRADE (ft)	NODE ELEVATION (ft)	PRESSURE HEAD (ft)	NODE PRESSURE (psi)
270		14.14	154.88	37.00	117.88	51.08
271		16.03	153.27	37.00	116.27	50.38
272		0.00	185.61	144.00	41.61	18.03
273		14.14	148.65	41.00	107.65	46.65
274		2.26	167.01	92.00	75.01	32.51
275		0.00	170.99	46.00	124.99	54.16
276		0.00	152.08	44.00	108.08	46.83
277		0.00	152.08	45.00	107.08	46.40
278		0.00	152.08	45.00	107.08	46.40
330		-20.18	128.35	35.00	93.35	40.45
346		25.46	128.34	35.00	93.34	40.45
349	SEWA	425.83	127.67	35.00	92.67	40.16
365		11.23	137.91	39.00	98.91	42.86
367		-17.54	155.68	34.50	121.18	52.51
368		23.57	155.67	36.00	119.67	51.86
369		-13.39	152.08	44.00	108.08	46.83
370		14.14	152.08	45.00	107.08	46.40
371		-22.45	186.25	180.00	6.25	2.71
372		-8.49	186.24	153.00	33.24	14.41
373		19.80	185.98	160.00	25.98	11.26
374		17.91	186.16	150.00	36.16	15.67
379		-13.39	154.85	36.00	118.85	51.50
380		14.14	153.94	36.00	117.94	51.11
381		14.14	148.65	41.00	107.65	46.65
386		60.00	150.45	43.00	107.45	46.56
388		0.00	150.45	43.00	107.45	46.56
390		0.00	150.45	43.00	107.45	46.56
392		0.00	150.45	42.00	108.45	47.00
394		0.00	150.45	42.00	108.45	47.00
396		0.75	150.83	43.00	107.83	46.73
398		90.00	150.92	43.00	107.92	46.76
400		0.00	150.92	43.00	107.92	46.76
410		29.23	174.92	102.00	72.92	31.60
412		17.91	174.96	54.00	120.96	52.41
414		0.00	148.91	43.00	105.91	45.89
416		0.00	148.91	43.00	105.91	45.89
417		0.00	148.65	41.00	107.65	46.65
418		0.00	148.65	41.00	107.65	46.65
420		0.00	137.92	38.00	99.92	43.30
422		0.00	137.92	38.00	99.92	43.30
712		64.97	132.11	40.00	92.11	39.91
713		0.00	132.08	40.00	92.08	39.90
714		22.27	131.75	40.00	91.75	39.76
715	SEWA	253.21	130.79	40.00	90.79	39.34
721		17.91	137.97	39.00	98.97	42.89
723		-11.89	137.97	39.00	98.97	42.89
724		19.80	138.75	39.00	99.75	43.22
726		15.07	137.94	38.00	99.94	43.31
728		-9.61	133.88	41.00	92.88	40.25
729		16.03	132.03	41.00	91.03	39.45
791		4.44	137.93	38.00	99.93	43.30
154a		0.00	158.15	36.00	122.15	52.93
154b		16.03	158.10	36.00	122.10	52.91
379A		0.00	50.00	50.00	0.00	0.00
379B		0.00	168.45	50.00	118.45	51.33
380A		0.00	50.00	50.00	0.00	0.00
380B		0.00	169.25	50.00	119.25	51.68
O-Pump 4R		0.00	169.25	50.00	119.25	51.68
O-Pump 5		0.00	168.45	50.00	118.45	51.33

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	HYDRAULIC GRADE (ft)	NODE ELEVATION (ft)	PRESSURE HEAD (ft)	NODE PRESSURE (psi)
R-5		----	50.00	50.00	0.00	0.00
R-4R		----	50.00	50.00	0.00	0.00
T-1		----	196.00	186.00	10.00	4.33
I-Pump 5		0.00	50.00	50.00	0.00	0.00
I-Pump 4R		0.00	50.00	50.00	0.00	0.00

MAXIMUM AND MINIMUM VALUES

P R E S S U R E S

JUNCTION NUMBER	MAXIMUM PRESSURES (psi)	JUNCTION NUMBER	MINIMUM PRESSURES (psi)
126	57.24	371	2.71
242	55.27	124	3.13
250	55.22	T-1	4.33
138	54.79	120	6.88
127	54.41	373	11.26

V E L O C I T I E S

PIPE NUMBER	MAXIMUM VELOCITY (ft/s)	PIPE NUMBER	MINIMUM VELOCITY (ft/s)
P-506	9.31	P-505	0.00
P-565	6.45	P-464	0.01
P-566	6.45	P-517	0.01
P-560	5.85	P-454	0.02
P-477	5.78	P-465	0.03

H L + M L / 1 0 0 0

PIPE NUMBER	MAXIMUM HL+ML/1000 (ft/ft)	PIPE NUMBER	MINIMUM HL+ML/1000 (ft/ft)
P-535	198.95	P-505	0.00
P-477	171.54	P-464	0.00
P-563	48.43	P-517	0.00
P-506	46.03	P-454	0.00
P-565	30.26	P-465	0.00

H L / 1 0 0 0

PIPE NUMBER	MAXIMUM HL/1000 (ft/ft)	PIPE NUMBER	MINIMUM HL/1000 (ft/ft)
P-535	198.95	P-505	0.00
P-477	171.54	P-464	0.00
P-563	48.43	P-517	0.00
P-506	46.03	P-454	0.00
P-565	30.26	P-465	0.00

S U M M A R Y   O F   I N F L O W S   A N D   O U T F L O W S

(+) INFLOWS INTO THE SYSTEM FROM SUPPLY NODES  
 (-) OUTFLOWS FROM THE SYSTEM INTO SUPPLY NODES

NODE NAME	FLOWRATE (gpm)	NODE TITLE
R-5	0.00	
R-4R	0.00	
T-1	2278.18	
NET SYSTEM INFLOW = 2278.18		
NET SYSTEM OUTFLOW = 0.00		
NET SYSTEM DEMAND = 2278.18		

\*\*\*\*\* HYDRAULIC ANALYSIS COMPLETED \*\*\*\*\*

SUMAS WATER SYSTEM

2030 Hydrant Fire Flow Analysis

No Pumps On

Fire flow/Hydrant Report:

Specified Minimum Pressure(psi or kPa): 20.0  
 Minimum Static Pressure(psi or kPa) : 26.7  
 Sp.Min Pres@FirePump Suctn(psi or kPa): 0.0

TANK DIAMETER: 60 ft. WATER ELEVATION 201 ft.

NO PUMPS ON

Flow-1: Flowrate to maintain the specified pressure at (hydrant) node  
 Node-2: Node that has a lower pressure than specified value at Flow-1  
 Flow-2: Flowrate to maintain the specified pressure at Node-2  
 Flow-3: Flowrate to maintain the specified pressure at Fire Pump Suction  
 (Flow-3 is based on combined value of hydrant and hose constants)

EXISTING PIPE SYSTEM

Hose Constant = 0.00

Required Flow GPM	Hydrant Node	Hydrant Constant	Elevation	Demand gpm	Static Pressure	Flow-1 gpm	Flow-2 gpm	Node-2	Flow-3 gpm	Flow Capacity	NFPA Color
500	H-001										
500	H-002										
500	H-003										
1,000	H-100	0.0	43.0	0.0	48.9	1165.5	729.4	255	1527.6	729.4	ORANGE
1,000	H-101	0.0	43.0	0.0	48.9	1187.8	727.9	255	1524.9	727.9	ORANGE
1,000	H-102	0.0	43.0	0.0	48.9	1203.4	726.6	255	1521.7	726.6	ORANGE
1,000	H-103	0.0	42.0	0.0	49.5	1232.6	731.2	255	1528.2	731.2	ORANGE
1,000	H-104	0.0	42.0	0.0	49.4	1215.9	730.8	255	1529.2	730.8	ORANGE
1,000	H-105	0.0	45.0	0.0	49.0	1222.4	757.1	255	1567.1	757.1	ORANGE
1,000	H-106	0.0	44.0	0.0	49.0	1189.5	743.5	255	1546.7	743.5	ORANGE
1,000	H-107	0.0	45.0	0.0	48.6	1059.7	743.6	255	1546.7	743.6	ORANGE

SUMAS WATER SYSTEM  
 2030 Hydrant Fire Flow Analysis  
 No Pumps On

Required Flow GPM	Hydrant Node	Hydrant Constant	Elevation	Demand gpm	Static Pressure	Flow-1 gpm	Flow-2 gpm	Node-2	Flow-3 gpm	Flow Capacity	NFPA Color
1,000	H-108	0.0	45.0	0.0	48.6	1064.9	743.6	255	1546.7	743.6	ORANGE
1,000	H-109	0.0	42.0	0.0	49.2	941.0	721.5	255	1377.3	721.5	ORANGE
1,000	H-200	0.0	40.0	0.0	52.7	1463.6	819.3	255	1686.6	819.3	ORANGE
1,000	H-201	0.0	42.0	0.0	51.4	1310.1	787.3	255	1637.0	787.3	ORANGE
1,000	H-202	0.0	40.0	0.0	51.8	1375.4	778.5	255	1617.3	778.5	ORANGE
1,000	H-203	0.0	44.0	0.0	50.0	1212.0	757.7	255	1597.6	757.7	ORANGE
1,000	H-204	0.0	44.0	0.0	49.6	1179.4	741.7	255	1571.4	741.7	ORANGE
1,000	H-205	0.0	44.0	0.0	49.2	1158.9	728.7	255	1547.5	728.7	ORANGE
1,000	H-206	0.0	42.0	0.0	49.5	1174.3	714.7	255	1518.5	714.7	ORANGE
1,000	H-207	0.0	40.0	0.0	49.8	1132.5	700.0	255	1483.4	700.0	ORANGE
1,000	H-208	0.0	40.0	0.0	49.8	1191.7	700.0	255	1483.4	700.0	ORANGE
1,000	H-209	0.0	40.0	0.0	48.8	1180.7	667.3	255	1410.4	667.3	ORANGE
1,000	H-210	0.0	40.0	0.0	48.5	1160.5	653.0	255	1386.6	653.0	ORANGE
1,000	H-211	0.0	43.0	0.0	48.1	1105.0	693.6	255	1467.6	693.6	ORANGE
1,000	H-212	0.0	43.0	0.0	48.1	1097.4	693.4	255	1467.0	693.4	ORANGE
1,000	H-213	0.0	43.0	0.0	48.1	1040.6	693.2	255	1466.6	693.2	ORANGE
1,000	H-214	0.0	42.0	0.0	48.4	1109.6	692.0	255	1462.6	692.0	ORANGE
1,000	H-215	0.0	40.0	0.0	49.3	1185.5	689.4	255	1451.7	689.4	ORANGE
1,000	H-216	0.0	41.0	0.0	48.8	1179.5	688.8	255	1448.9	688.8	ORANGE
1,000	H-217	0.0	41.0	0.0	48.8	1130.2	688.8	255	1448.9	688.8	ORANGE
1,000	H-218	0.0	41.0	0.0	48.8	1096.7	688.8	255	1448.9	688.8	ORANGE
1,000	H-219	0.0	41.0	0.0	48.8	1043.1	688.8	255	1448.9	688.8	ORANGE
1,000	H-220	0.0	41.0	0.0	48.8	1068.7	688.8	255	1448.9	688.8	ORANGE
500	H-221	0.0	42.0	0.0	49.2	1174.5	707.5	255	1502.1	707.5	ORANGE
750	H-302	0.0	37.0	0.0	54.8	1053.9	888.4	255	1422.9	888.4	ORANGE
750	H-303	0.0	36.0	0.0	57.0	1451.8	935.7	255	1916.4	935.7	ORANGE
750	H-304	0.0	38.0	0.0	55.7	1489.7	926.1	255	1889.4	926.1	ORANGE
500	H-305	0.0	36.0	0.0	55.1	1199.9	883.1	255	1663.2	883.1	ORANGE
500	H-306	0.0	35.0	0.0	55.5	1047.4	875.4	255	1414.1	875.4	ORANGE
500	H-307	0.0	34.0	0.0	55.2	1110.3	837.0	255	1511.5	837.0	ORANGE
500	H-308	0.0	37.0	0.0	54.1	1228.9	838.5	255	1724.3	838.5	ORANGE



SUMAS WATER SYSTEM  
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Required Flow GPM	Hydrant Node	Hydrant Constant	Elevation	Demand gpm	Static Pressure	Flow-1 gpm	Flow-2 gpm	Node-2	Flow-3 gpm	Flow Capacity	NFPA Color
750	H-309	0.0	36.0	0.0	54.9	1324.8	857.7	255	1756.2	857.7	ORANGE
750	H-310	0.0	36.0	0.0	55.2	1463.5	882.5	255	1782.3	882.5	ORANGE
750	H-311	0.0	37.0	0.0	55.1	1604.7	894.5	255	1822.4	894.5	ORANGE
500	H-312	0.0	37.0	0.0	54.0	1303.2	814.0	255	1683.4	814.0	ORANGE
500	H-313	0.0	37.0	0.0	51.3	709.9	665.4	255	989.3	665.4	ORANGE
500	H-314	0.0	36.0	0.0	51.6	655.6			907.1	655.6	ORANGE
500	H-315	0.0	36.0	0.0	51.1	528.9			728.0	528.9	ORANGE
500	H-317	0.0	36.0	0.0	50.3	667.6	608.3	255	940.9	608.3	ORANGE
750	H-318	0.0	36.0	0.0	53.4	1321.3	773.7	255	1583.4	773.7	ORANGE
750	H-319	0.0	38.0	0.0	51.1	957.6	679.1	255	1371.8	679.1	ORANGE
500	H-320	0.0	36.0	0.0	49.7	854.7	588.4	255	1241.7	588.4	ORANGE
500	H-321	0.0	36.0	0.0	49.7	668.0	572.1	255	952.1	572.1	ORANGE
500	H-322	0.0	37.0	0.0	54.7	703.1			941.2	703.1	ORANGE
500	H-323	0.0	36.0	0.0	49.8	533.4			750.2	533.4	ORANGE
500	H-324	0.0	35.0	0.0	54.5	915.8	837.0	255	1270.4	837.0	ORANGE
500	H-350	0.0	35.0	0.0	54.3	840.6			1169.7	840.6	ORANGE
500	H-351	0.0	36.0	0.0	53.7	813.0			1137.3	813.0	ORANGE
500	H-352	0.0	37.0	0.0	53.2	760.6			1075.7	760.6	ORANGE
500	H-353	0.0	36.0	0.0	53.7	801.4			1124.3	801.4	ORANGE
500	H-354	0.0	36.0	0.0	53.8	734.5			1023.3	734.5	ORANGE
500	H-355	0.0	36.0	0.0	53.8	782.5			1092.4	782.5	ORANGE
500	H-400	0.0	37.0	0.0	43.5	217.6	198.0	268	311.9	198.0	RED
500	H-401	0.0	37.0	0.0	43.6	522.1	465.8	268	809.4	465.8	RED
500	H-402	0.0	39.0	0.0	42.4	502.9	463.3	255	844.6	463.3	RED
500	H-403	0.0	39.0	0.0	43.8	640.2	505.9	255	1045.0	505.9	ORANGE
500	H-404	0.0	38.0	0.0	45.1	807.3	526.9	255	1130.3	526.9	ORANGE
500	H-405	0.0	37.0	0.0	44.2	548.1	443.4	255	857.3	443.4	RED
500	H-406	0.0	38.0	0.0	45.5	779.4	540.3	255	1166.6	540.3	ORANGE
500	H-407	0.0	36.0	0.0	46.7	757.6	460.9	255	961.8	460.9	RED
500	H-408	0.0	37.0	0.0	47.8	663.2	501.1	255	972.0	501.1	ORANGE
750	H-409	0.0	37.0	0.0	48.7	781.2	577.9	255	1132.5	577.9	ORANGE

SUMAS WATER SYSTEM  
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Required Flow GPM	Hydrant Node	Hydrant Constant	Elevation	Demand gpm	Static Pressure	Flow-1 gpm	Flow-2 gpm	Node-2	Flow-3 gpm	Flow Capacity	NFPA Color
750	H-410	0.0	36.0	0.0	48.8	827.2	567.0	255	1194.3	567.0	ORANGE
750	H-411	0.0	37.0	0.0	48.2	686.3	567.3	255	966.6	567.3	ORANGE
750	H-412	0.0	39.0	0.0	49.0	889.0	630.4	255	1301.8	630.4	ORANGE
750	H-413	0.0	39.0	0.0	48.0	982.3	608.6	255	1291.0	608.6	ORANGE
750	H-414	0.0	37.0	0.0	48.0	895.5	575.5	255	1235.8	575.5	ORANGE
750	H-416	0.0	40.0	0.0	47.7	1031.8	619.0	255	1317.7	619.0	ORANGE
750	H-417	0.0	40.0	0.0	46.4	969.3	577.3	255	1234.8	577.3	ORANGE
500	H-418	0.0	38.0	0.0	46.6	939.1	555.1	255	1191.1	555.1	ORANGE
500	H-419	0.0	39.0	0.0	45.1	810.5	541.0	255	1179.7	541.0	ORANGE
500	H-420	0.0	39.0	0.0	45.5	870.9	533.3	255	1146.9	533.3	ORANGE
500	H-421	0.0	38.0	0.0	45.5	817.2	533.5	255	1148.8	533.5	ORANGE
500	H-422	0.0	38.0	0.0	45.5	800.3	533.5	255	1148.8	533.5	ORANGE
500	H-423	0.0	35.0	0.0	42.6	433.1			723.0	433.1	RED
500	H-424	0.0	41.0	0.0	40.5	381.3	364.0	267	648.5	364.0	RED
750	H-425	0.0	41.0	0.0	42.8	575.0	500.6	267	892.9	500.6	ORANGE
500	H-426	0.0	38.0	0.0	45.5	814.0	538.6	255	1162.2	538.6	ORANGE
500	H-427	0.0	38.0	0.0	45.5	813.6	537.1	255	1158.5	537.1	ORANGE
500	H-428	0.0	38.0	0.0	45.5	816.5	535.5	255	1154.5	535.5	ORANGE
500	H-429	0.0	39.0	0.0	43.3	569.5	531.6	715	908.2	531.6	ORANGE

