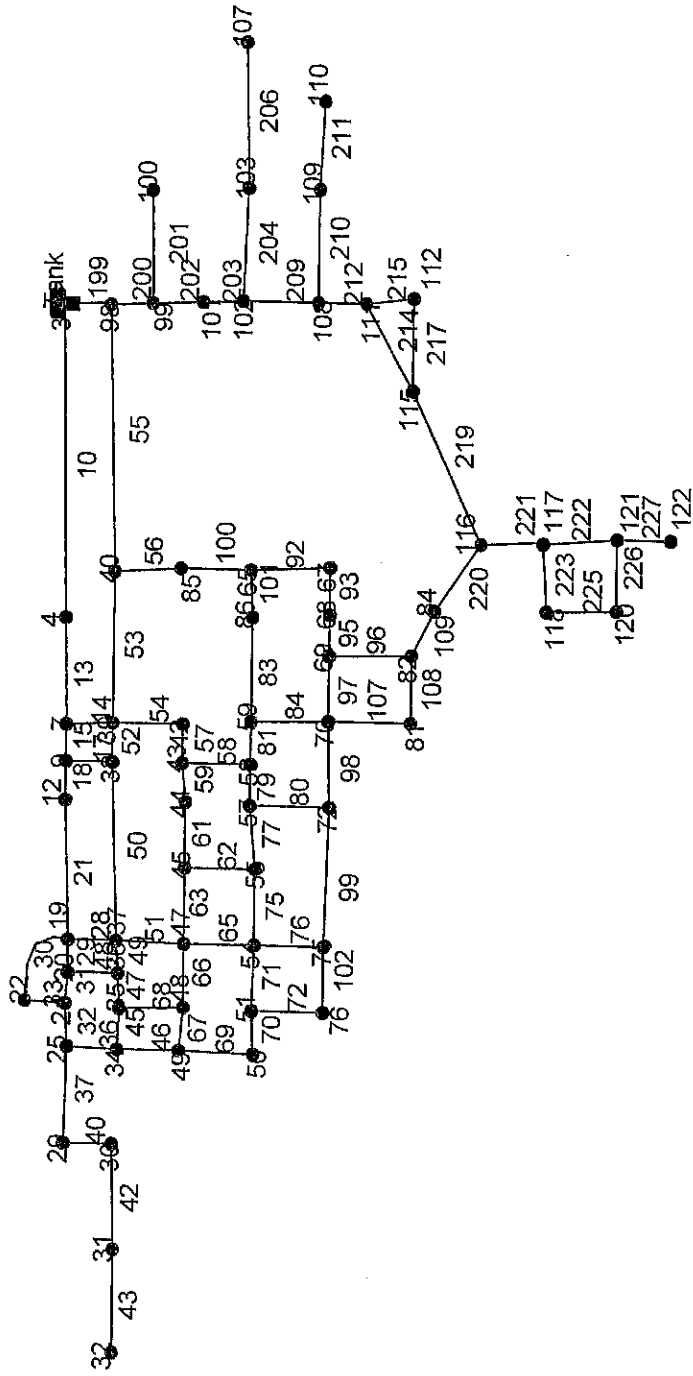


APPENDIX D

Hydraulic Analyses

Day 1, 12:



"Calibration, 150, 2014 ADD.net"
 Demand = 54,232 gpd
 Multiplier 359 cmts
 = 0.10

Network Table - Nodes

Node ID	Demand GPM	Head ft	Pressure psi	Quality
June 98	0.00	328.00	19.06	0.00
June 40	0.20	327.99	32.06	0.00
June 39	0.50	327.99	61.52	0.00
June 7	0.40	327.99	63.26	0.00
June 4	0.40	327.99	57.19	0.00
June 9	1.10	327.99	64.99	0.00
June 12	0.60	327.99	68.02	0.00
June 19	1.30	327.99	69.32	0.00
June 22	0.80	327.99	71.06	0.00
June 24	0.40	327.99	70.62	0.00
June 20	0.00	327.99	70.19	0.00
June 25	0.20	327.99	72.36	0.00
June 29	0.00	327.99	80.59	0.00
June 30	0.60	327.99	79.72	0.00
June 31	0.00	327.99	81.45	0.00
June 32	0.90	327.99	81.45	0.00
June 34	0.60	327.99	71.06	0.00

Node ID	Demand GPM	Head ft	Pressure psi	Quality
June 35	0.00	327.99	70.19	0.00
June 48	0.20	327.99	70.19	0.00
June 49	0.80	327.99	70.62	0.00
June 36	0.70	327.99	69.76	0.00
June 37	0.60	327.99	69.32	0.00
June 38	0.00	327.99	61.52	0.00
June 47	0.50	327.99	70.19	0.00
June 45	0.80	327.99	64.99	0.00
June 44	0.00	327.99	56.32	0.00
June 43	0.90	327.99	54.59	0.00
June 42	0.00	327.99	54.59	0.00
June 58	0.00	327.99	51.12	0.00
June 59	1.50	327.99	49.82	0.00
June 65	0.10	327.99	45.92	0.00
June 57	0.80	327.99	54.59	0.00
June 55	0.20	327.99	64.99	0.00
June 54	0.90	327.99	69.76	0.00
June 51	0.60	327.99	72.36	0.00

Node ID	Demand GPM	Head ft	Pressure psi	Quality
June 50	1.30	327.99	73.66	0.00
June 76	0.80	327.99	77.99	0.00
June 75	1.20	327.99	71.49	0.00
June 72	0.80	327.99	64.99	0.00
June 70	0.30	327.99	55.46	0.00
June 69	0.30	327.99	48.52	0.00
June 68	1.30	327.99	47.66	0.00
June 67	0.60	327.99	51.12	0.00
June 81	0.90	327.99	64.12	0.00
June 82	0.80	327.99	59.79	0.00
June 102	0.00	327.98	43.76	0.00
June 99	0.20	327.99	40.73	0.00
June 100	0.40	327.99	59.79	0.00
June 103	0.70	327.98	59.35	0.00
June 108	1.00	327.98	45.06	0.00
June 107	0.60	327.98	98.78	0.00
June 109	0.60	327.98	46.36	0.00
June 110	1.00	327.97	45.05	0.00

Node ID	Demand GPM	Head ft	Pressure psi	Quality
June 111	1.40	327.98	47.22	0.00
June 112	0.50	327.98	46.79	0.00
June 115	1.90	327.98	55.45	0.00
June 116	0.00	327.98	71.05	0.00
June 84	0.30	327.99	64.12	0.00
June 117	0.10	327.98	77.12	0.00
June 118	0.50	327.98	95.32	0.00
June 120	0.00	327.98	98.35	0.00
June 121	0.00	327.98	96.19	0.00
June 122	0.50	327.98	98.79	0.00
June 101	0.40	327.98	43.76	0.00
June 85	0.20	327.99	41.59	0.00
June 86	0.60	327.99	48.52	0.00
Tank 3	-35.80	328.00	5.63	0.00

"System 150, 2020 P&ID, net"
 $\text{Multiplier} = \frac{134 \text{ gpm}}{359} = 0.37 \text{ gpm/unit}$

Network Table - Nodes

Node ID	Demand GPM	Head ft	Pressure psi	Quality
Junc 98	0.00	327.96	19.05	0.00
Junc 40	0.74	327.86	32.01	0.00
Junc 39	1.85	327.86	61.47	0.00
Junc 7	1.48	327.87	63.21	0.00
Junc 4	1.48	327.91	57.16	0.00
Junc 9	4.07	327.87	64.94	0.00
Junc 12	2.22	327.86	67.97	0.00
Junc 19	4.81	327.86	69.27	0.00
Junc 22	2.96	327.86	71.00	0.00
Junc 24	1.48	327.86	70.57	0.00
Junc 20	0.00	327.86	70.13	0.00
Junc 25	0.74	327.85	72.30	0.00
Junc 29	0.00	327.85	80.53	0.00
Junc 30	2.22	327.85	79.66	0.00
Junc 31	0.00	327.85	81.40	0.00
Junc 32	3.33	327.85	81.40	0.00
Junc 34	2.22	327.85	71.00	0.00

1/27/14

Node ID	Demand GPM	Head ft	Pressure psi	Quality
June 35	0.00	327.85	70.13	0.00
June 48	0.74	327.85	70.13	0.00
June 49	2.96	327.85	70.56	0.00
June 36	2.59	327.85	69.70	0.00
June 37	2.22	327.85	69.26	0.00
June 38	0.00	327.86	61.47	0.00
June 47	1.85	327.85	70.13	0.00
June 45	2.96	327.85	64.93	0.00
June 44	0.00	327.85	56.26	0.00
June 43	3.33	327.85	54.53	0.00
June 42	0.00	327.86	54.53	0.00
June 58	0.00	327.85	51.06	0.00
June 59	5.55	327.85	49.76	0.00
June 65	0.37	327.85	45.86	0.00
June 57	2.96	327.85	54.53	0.00
June 55	0.74	327.85	64.93	0.00
June 54	3.33	327.85	69.70	0.00
June 51	2.22	327.85	72.30	0.00

Node ID	Demand GPM	Head ft	Pressure psi	Quality
June 50	4.81	327.85	73.60	0.00
June 76	2.96	327.85	77.93	0.00
June 75	4.44	327.85	71.43	0.00
June 72	2.96	327.85	64.93	0.00
June 70	1.11	327.85	55.40	0.00
June 69	1.11	327.84	48.46	0.00
June 68	4.81	327.85	47.60	0.00
June 67	2.22	327.85	51.06	0.00
June 81	3.33	327.84	64.06	0.00
June 82	2.96	327.84	59.73	0.00
June 102	0.00	327.81	43.68	0.00
June 99	0.74	327.94	40.70	0.00
June 100	1.48	327.94	59.77	0.00
June 103	2.59	327.81	59.28	0.00
June 108	3.70	327.80	44.98	0.00
June 107	2.22	327.80	98.71	0.00
June 109	2.22	327.80	46.28	0.00
June 110	3.70	327.61	44.89	0.00

Node ID	Demand GPM	Head ft	Pressure psi	Quality
June 111	5.18	327.80	47.14	0.00
June 112	1.85	327.80	46.71	0.00
June 115	7.03	327.81	55.38	0.00
June 116	0.00	327.82	70.98	0.00
June 84	1.11	327.84	64.06	0.00
June 117	0.37	327.82	77.05	0.00
June 118	1.85	327.82	95.25	0.00
June 120	0.00	327.82	98.28	0.00
June 121	0.00	327.82	96.11	0.00
June 122	1.85	327.82	98.71	0.00
June 101	1.48	327.82	43.68	0.00
June 85	0.74	327.86	41.53	0.00
June 86	2.22	327.85	48.46	0.00
Tank 3	-132.46	328.00	5.63	0.00

"System 150, 2034 PHD.net"

$$\text{Multiplier} = \frac{150 \text{ gpm}}{359} = 0.42$$

Network Table - Nodes

Node ID	Demand GPM	Head ft	Pressure psi	Quality
June 98	0.00	327.95	19.04	0.00
June 40	0.84	327.83	31.99	0.00
June 39	2.10	327.83	61.45	0.00
June 7	1.68	327.84	63.19	0.00
June 4	1.68	327.88	57.14	0.00
June 9	4.62	327.83	64.92	0.00
June 12	2.52	327.83	67.95	0.00
June 19	5.46	327.82	69.25	0.00
June 22	3.36	327.82	70.98	0.00
June 24	1.68	327.82	70.55	0.00
June 20	0.00	327.82	70.12	0.00
June 25	0.84	327.82	72.28	0.00
June 29	0.00	327.82	80.51	0.00
June 30	2.52	327.81	79.65	0.00
June 31	0.00	327.81	81.38	0.00
June 32	3.78	327.81	81.38	0.00
June 34	2.52	327.81	70.98	0.00

1127114

Node ID	Demand GPM	Head ft	Pressure psi	Quality
June 35	0.00	327.81	70.11	0.00
June 48	0.84	327.81	70.11	0.00
June 49	3.36	327.81	70.55	0.00
June 36	2.94	327.82	69.68	0.00
June 37	2.52	327.82	69.25	0.00
June 38	0.00	327.83	61.45	0.00
June 47	2.10	327.81	70.11	0.00
June 45	3.36	327.81	64.91	0.00
June 44	0.00	327.81	56.25	0.00
June 43	3.78	327.81	54.51	0.00
June 42	0.00	327.82	54.52	0.00
June 58	0.00	327.81	51.05	0.00
June 59	6.30	327.81	49.75	0.00
June 65	0.42	327.81	45.85	0.00
June 57	3.36	327.81	54.51	0.00
June 55	0.84	327.81	64.91	0.00
June 54	3.78	327.81	69.68	0.00
June 51	2.52	327.81	72.28	0.00

Node ID	Demand GPM	Head ft	Pressure psi	Quality
June 50	5.46	327.81	73.58	0.00
June 76	3.36	327.81	77.91	0.00
June 75	5.04	327.81	71.41	0.00
June 72	3.36	327.81	64.91	0.00
June 70	1.26	327.81	55.38	0.00
June 69	1.26	327.80	48.44	0.00
June 68	5.46	327.81	47.58	0.00
June 67	2.52	327.81	51.05	0.00
June 81	3.78	327.80	64.04	0.00
June 82	3.36	327.80	59.71	0.00
June 102	0.00	327.76	43.66	0.00
June 99	0.84	327.92	40.70	0.00
June 100	1.68	327.92	59.76	0.00
June 103	2.94	327.76	59.26	0.00
June 108	4.20	327.75	44.95	0.00
June 107	2.52	327.75	98.68	0.00
June 109	2.52	327.75	46.25	0.00
June 110	4.20	327.51	44.85	0.00

Node ID	Demand GPM	Head ft	Pressure psi	Quality
June 111	5.88	327.75	47.12	0.00
June 112	2.10	327.75	46.69	0.00
June 115	7.98	327.76	55.36	0.00
June 116	0.00	327.77	70.96	0.00
June 84	1.26	327.80	64.04	0.00
June 117	0.42	327.77	77.03	0.00
June 118	2.10	327.77	95.23	0.00
June 120	0.00	327.77	98.26	0.00
June 121	0.00	327.77	96.09	0.00
June 122	2.10	327.77	98.69	0.00
June 101	1.68	327.77	43.66	0.00
June 85	0.84	327.82	41.52	0.00
June 86	2.52	327.81	48.45	0.00
Tank 3	-150.36	328.00	5.63	0.00