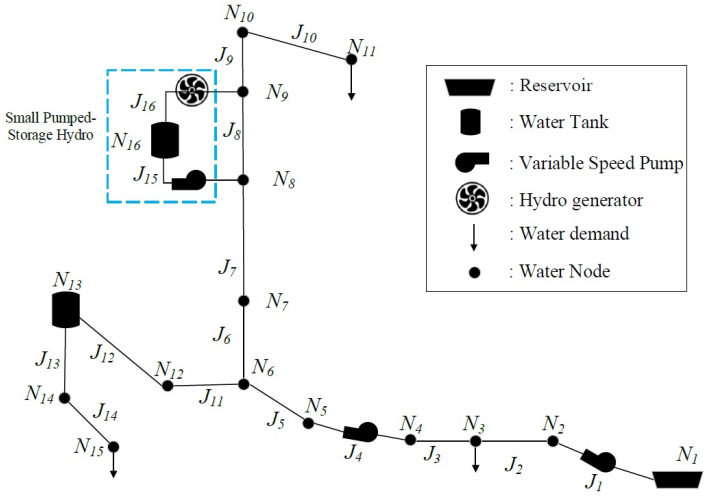
16-Node Water Distribution Test System with Small Pumped-Storage Hydro



Water Demand Data

Hour	Node N3 (m^3/sec)	Node N11 (m^3/sec)	Node N15 (m^3/sec)
1	0.0225	0.0225	0.0225
2	0.0195	0.0195	0.0195
3	0.0150	0.0150	0.0150
4	0.0225	0.0225	0.0225
5	0.0300	0.0300	0.0300
6	0.0525	0.0525	0.0525
7	0.0450	0.0450	0.0450
8	0.0300	0.0300	0.0300
9	0.0450	0.0450	0.0450
10	0.0600	0.0600	0.0600
11	0.0750	0.0750	0.0750
12	0.0900	0.0900	0.0900
13	0.0600	0.0600	0.0600
14	0.0600	0.0600	0.0600
15	0.0750	0.0750	0.0750
16	0.0825	0.0825	0.0825
17	0.0825	0.0825	0.0825
18	0.0750	0.0750	0.0750
19	0.0600	0.0600	0.0600
20	0.0525	0.0525	0.0525
21	0.0450	0.0450	0.0450
22	0.0375	0.0375	0.0375
23	0.0300	0.0300	0.0300
24	0.0225	0.0225	0.0225

Pump Performance Characteristic Function Data

Pumps	a	b	c
P1	305	120	2
P2	273	210	2
PSH	747	120	2

Water Storage Tank Characteristic Data

Tanks	Volume (m^3)	Maximum Charge/Discharge Flow Rate (m^3/hour)
T1	5000	720
T2	5000	720

Water Node Data

Nodes	Elevation (m)	Minimum Pressure (m)	Maximum Pressure (m)
I1	10.6	0	300
I2	9.7	20	300
I3	0	20	300
I4	5	20	300
I5	55	20	300
I6	126	20	300
I7	121	20	300
I8	126	20	300
I9	157	20	300
I10	156	20	300
I11	156.65	20	300
I12	128	20	300
I13	124.13	20	300
I14	123	20	300
I15	106.42	20	300
I16	150	20	300

Water Pipes Data

Pipes	Length (m)	Diameter (m)	Minimum Flow Rate (m^3/s)	Maximum Flow Rate (m^3/s)
P1	18	0.15	0	0.9
P2	401	0.15	0	0.9
P3	18	0.30	0	0.9
P4	1087	0.25	0	0.9
P5	1002	0.15	0	0.9
P6	846	0.10	0	0.9
P7	44	0.25	0	0.9
P8	18	0.25	0	0.9
P9	23	0.25	0	0.9
P10	16	0.10	0	0.9
P11	1003	0.20	0	0.9
P12	30	0.15	0	0.9
P13	6	0.23	0	0.9
P14	13	0.30	0	0.9
P15	50	0.25	0	0.9
P16	50	0.25	0	0.9