

Network	WQTS (s)	MBR		Injection nodes (%) with imbalances			
		Max.	Min.	> 1 %	> 5 %	> 10 %	> 50 %
N1	1	1.00	1.00	0	0	0	0
	60	1.02	> 0.99	2	0	0	0
	300	1.15	0.97	38	6	1	0
	900	1.77	0.83	65	46	31	5
N2	1	1.05	0.08	2	1	1	1
	60	6.49	0.06	39	29	18	5
	300	23.45	< 0.01	47	39	32	17
	900	31.16	< 0.01	52	49	44	24
N3	1	1.03	0.99	1	0	0	0
	60	1.39	0.92	7	1	^a	0
	300	4.88	0.22	35	15	8	1
	900	15.74	0.08	57	36	25	6
N4	1	1.01	0.83	^b	^c	^d	0
	60	1.04	0.67	1	^e	^c	0
	300	1.21	0.61	21	4	2	0
	900	2.60	0.09	44	28	19	1

WQTS: water-quality time step; MBR: mass-balance ratio. Results do not include cases with MBR = 0, which occurs for nodes with no flow at the time of injection. In addition, for Network N4, two nodes also are excluded that are in dead-end areas with no demands, but that have small flows at the beginning of the simulation. A total of three nodes are excluded for Network N1 (3%), 92 or 93 for Network N2 (6%), depending on the time step, 55 or 56 for Network N3 (1%), again depending on the time step, and 404 for network N4 (3%). See text for discussion. ^a 13 nodes. ^b 11 nodes. ^c 2 nodes. ^d 1 node. ^e 3 nodes.