

Appendixes

- 1.** Selected water-quality characteristics of samples collected at site LH1 by the City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003.
- 2.** Selected water-quality characteristics of samples collected at site LH2 by the City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003.
- 3.** Selected water-quality characteristics of samples collected at site LH3 by the City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003.
- 4.** Selected water-quality characteristics of samples collected monthly from the raw-water withdrawal by the City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003.
- 5.** Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by the City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003.
- 6.** Selected water-quality characteristics of samples collected at site HM1 by the City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003.
- 7.** Selected water-quality characteristics of samples collected at site HM2 by the City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003.
- 8.** Selected water-quality characteristics of samples collected at site HM3 by the City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003.
- 9.** Selected water-quality characteristics of samples collected from the raw-water withdrawal by the City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003.
- 10.** Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by the City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003.
- 11.** Metals concentrations in bed-sediment grab samples, Lee Hall and Harwoods Mill Reservoirs, Virginia.
- 12.** Nutrient concentrations in bed-sediment grab samples, Harwoods Mill Reservoir, Virginia.
- 13.** Metals concentrations in box-core samples of bed sediment from sites LH1 and LH3, Lee Hall Reservoir, Virginia.
- 14.** Nutrient concentrations in box-core samples of bed sediment from sites LH1 and LH3, Lee Hall Reservoir, Virginia.
- 15.** Metals concentrations in filtered interstitial water from box-core samples of bed sediment from sites LH1 and LH3, Lee Hall Reservoir, Virginia.
- 16.** Metals concentrations in unfiltered interstitial water from box-core samples of bed sediment from sites LH1 and LH3, Lee Hall Reservoir, Virginia.

Appendix 1. Selected water-quality characteristics of samples collected at site LH1 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003.

Project site number	Date	Time	Depth below water surface (feet)	Color (platinum units)	Temperature, water, field (degrees Celsius)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Secchi depth, (feet)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
LH1	1/5/00	1033	1	55	9.1	152	6.8	7.9	--	0.3	<0.02	<0.02	0.001
LH1	2/10/00	1110	1	40	6.2	198	12.4	7.4	--	.3	<0.02	<0.02	.002
LH1	3/7/00	1000	1	20	12.4	247	10.1	7.2	--	.5	<0.02	<0.02	.002
LH1	4/6/00	1033	1	30	14.8	201	12.1	7.0	--	.3	<0.02	<0.02	--
LH1	5/3/00	1015	1	40	17.7	182	8.2	7.7	--	.6	<0.02	<0.02	.004
LH1	6/8/00	1000	1	30	21.9	177	8.6	7.7	--	.3	--	.02	.004
LH1	7/11/00	1039	1	30	28.5	148	7.3	7.2	--	.6	.14	<0.02	.002
LH1	8/8/00	1016	1	30	28.8	184	7.0	7.1	--	.4	.13	<0.02	.003
LH1	9/12/00	1025	1	20	25.6	167	8.9	8.0	--	.5	.02	<0.02	.001
LH1	10/10/00	1030	1	55	16.9	172	8.4	7.5	--	.6	<0.02	<0.02	.001
LH1	11/7/00	1017	1	40	14.1	129	9.2	7.1	--	.3	.03	--	.001
LH1	12/5/00	1020	1	35	6.0	132	11.4	6.8	--	.3	.04	.02	.001
LH1	1/11/01	1001	1	20	3.7	152	12.9	7.2	--	.4	<0.02	<0.02	.003
LH1	2/7/01	1035	1	30	6.4	174	10.6	6.8	--	.3	<0.02	<0.02	.002
LH1	3/8/01	1008	1	25	7.7	188	10.9	7.6	--	.3	<0.02	<0.02	.001
LH1	4/4/01	1020	1	30	11.8	196	9.4	6.8	--	.4	<0.02	.60	.001
LH1	5/8/01	1027	1	30	20.4	151	8.2	7.2	--	.3	<0.02	<0.02	.001
LH1	6/5/01	1015	1	30	23.4	154	8.5	7.6	--	.4	<0.02	<0.02	--
LH1	7/3/01	1054	1	40	26.9	156	6.2	7.1	--	--	<0.02	<0.02	.001
LH1	8/7/01	1015	1	30	28.4	151	9.1	7.7	--	.4	<0.02	<0.02	.001
LH1	9/4/01	1013	1	20	26.6	164	6.5	6.8	--	.4	<0.02	<0.02	.001
LH1	10/1/01	1040	1	20	19.3	139	8.2	7.6	--	.5	<0.02	<0.02	--
LH1	11/5/01	958	1	10	15.5	183	8.9	7.5	--	--	.02	<0.02	--
LH1	12/3/01	945	1	10	14.2	180	9.4	7.3	--	.5	<0.02	<0.02	.001
LH1	1/7/02	1054	1	10	3.7	254	11.8	7.4	--	.3	.02	.03	.002
LH1	3/5/02	1030	1	25	8.3	148	9.2	7.7	--	.3	<0.02	--	<.005
LH1	4/8/02	1057	1	--	14.8	146	9.5	7.6	--	.4	<0.02	<0.02	<.001
LH1	6/3/02	1020	1	30	26.0	143	6.0	7.6	--	.2	.02	.02	.001
LH1	7/8/02	1046	1	30	28.2	140	7.0	7.5	--	.5	<0.02	<0.02	<.001
LH1	8/6/02	955	1	20	29.1	142	7.0	7.2	--	--	.03	<0.02	<.001
LH1	9/18/02	1106	1	20	26.0	490	8.0	7.6	--	.4	.07	<0.02	.001

[µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than; µg/L, microgram per liter]

Appendix 1. Selected water-quality characteristics of samples collected at site LH1 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Time	Depth below water surface (feet)	Color (platinum units)	Temperature, water, field (degrees Celsius)	Specific conductance, field ($\mu\text{S}/\text{cm}$)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Secchi depth, (feet)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
LH1	10/8/02	1100	1	20	23.7	520	8.0	8.0	--	0.4	0.08	<0.02	--
LH1	11/5/02	1033	1	20	12.8	611	10.3	7.9	--	.3	<.04	<.02	<0.001
LH1	12/2/02	1015	1	20	7.4	232	10.7	8.0	--	.6	.05	<.02	.001
LH1	1/14/03	1014	1	20	5.2	195	11.4	7.9	--	.4	--	.05	<.001
LH1	2/5/03	1040	1	30	5.4	178	13.4	7.6	--	--	<.02	--	--
LH1	3/4/03	1029	1	30	7.6	211	11.5	7.5	--	1.7	<.02	.02	.006
LH1	4/15/03	1035	1	40	14.7	206	7.6	7.6	--	1.1	<.02	.06	.002
LH1	5/7/03	1036	1	40	12.6	186	7.2	7.2	--	.7	.98	.08	.004
LH1	6/5/03	1030	1	40	22.1	193	9.8	8.3	--	.9	.03	.03	.003
LH1	7/8/03	1027	1	40	28.2	146	7.5	7.9	--	2.5	<.02	<.02	.003
LH1	8/12/03	1020	1	40	26.6	122	6.0	7.2	2.3	1.4	.68	.03	.009
LH1	9/8/03	1050	1	50	26.8	159	6.2	7.5	2.0	.3	.11	.03	.006
LH1	10/15/03	1045	1	50	19.2	188	8.0	7.6	2.5	.5	--	<.02	.004
LH1	11/12/03	1112	1	30	14.9	198	9.1	7.7	3.0	.4	<.02	<.02	.003
LH1	12/3/03	1040	1	30	9.5	198	9.9	7.9	3.0	.4	.02	.09	.003
LH1	1/6/04	1029	1	30	9.7	219	11.3	7.7	3.3	.2	.02	.08	.003
Summary of samples collected 1 foot below the water surface													
LH1	Median	--	1	30	14.9	178	8.9	7.6	2.8	0.4	<0.02	<0.02	0.002
LH1	Maximum	--	1	55	29.1	611	13.4	8.3	3.3	2.5	.14	.59	.009
LH1	Minimum	--	1	10	3.7	122	6.0	6.8	2.0	.2	<.02	<.02	<.001
LH1	Number of samples	--	47	46	47	47	47	47	6	43	44	44	41

[$\mu\text{S}/\text{cm}$, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than; $\mu\text{g}/\text{L}$, microgram per liter]

Appendix 1. Selected water-quality characteristics of samples collected at site LH1 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Time	Depth below water surface (feet)	Color (platinum units)	Temperature, water, field (degrees Celsius)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Secchi depth, (feet)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
LH1	5/3/00	1015	11	--	15.6	218	0.1	7.1	--	0.5	0.036	<0.02	0.002
LH1	6/8/00	1000	11	--	19.7	212	.2	6.7	--	.3	--	.028	.004
LH1	7/11/00	1039	11	--	25.6	189	.1	6.6	--	.5	.142	.036	.002
LH1	8/8/00	1016	10	--	25.9	181	.1	6.8	--	.5	.201	<.02	.003
LH1	9/12/00	1025	10	--	23.4	183	.5	7.0	--	.6	.11	<.02	.005
LH1	10/10/00	1030	11	--	17.3	194	.2	7.1	--	.6	<.02	.0885	.001
LH1	5/8/01	1027	11	--	18.5	188	2.8	6.5	--	.3	<.02	<.02	.002
LH1	6/5/01	1015	11	--	21.4	163	.1	7.1	--	.4	.085	<.040	.003
LH1	7/3/01	1054	10	--	26.0	220	.1	6.5	--	--	<.02	<.02	.001
LH1	8/7/01	1015	11	--	24.9	169	.1	6.8	--	.7	.082	.506	.002
LH1	9/4/01	1013	10	--	25.7	326	.1	6.4	--	.4	<.02	<.02	.001
LH1	10/1/01	1040	11	--	19.2	140	5.9	7.2	--	.4	<.02	<.02	--
LH1	5/21/02	945	11	--	19.7	139	2.9	7.2	--	--	<.02	<.02	.001
LH1	6/3/02	1020	10	--	22.5	217	1.2	6.8	--	.2	<.002	<.02	.001
LH1	7/8/02	1046	12	--	27.6	220	.4	6.7	--	.5	<.02	.124	<.001
LH1	8/20/02	1020	24	--	13.7	97	.2	7.0	--	--	.285	<.02	<.0010
LH1	9/18/02	1106	11	20	25.1	475	.3	6.9	--	.7	.248	<.02	.001
LH1	10/8/02	1100	10	20	23.6	524	.3	7.3	--	.5	.08	<.02	--
LH1	5/7/03	1036	11	--	17.7	193	.3	6.8	--	1.5	.166	.082	.005
LH1	6/5/03	1030	10	--	20.6	203	.4	7.6	--	1.0	<.02	.04	.004
LH1	7/8/03	1027	10	--	24.0	160	.4	7.3	--	1.3	.036	.028	.003
LH1	8/12/03	1020	13	--	24.9	189	.4	6.9	--	.9	.18	.034	.004
LH1	9/8/03	1050	12	--	25.6	240	.4	6.9	--	.3	.141	.025	.006
LH1	10/15/03	1045	11	--	19.3	279	.4	7.0	--	.4	--	.02	.004
LH1	11/12/03	1112	12	--	14.9	224	.5	7.2	--	.2	.02	.03	.003

[µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than; µg/L, microgram per liter]

Appendix 1. Selected water-quality characteristics of samples collected at site LH1 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Phosphorus,		Phosphorus, whole water (mg/L)	Organic carbon, whole water (mg/L)	Trihalomethane potential, whole water (µg/L)	Calcium, whole water (mg/L)	Magnesium, whole water (mg/L)	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)
		ortho, whole water (mg/L)	whole water (mg/L)								
LH1	1/5/00	0.023	0.051	8.2	414	18	1.5	5.3	--	--	39
LH1	2/10/00	.021	.053	6.6	244	43	1.5	8.5	--	--	--
LH1	3/7/00	<.010	.045	5.6	266	23	1.4	10	--	--	60
LH1	4/6/00	<.010	.016	5.5	314	35	1.5	7.5	299	299	23
LH1	5/3/00	--	.042	7.5	409	37	2.1	6.0	383	383	39
LH1	6/8/00	<.010	.018	7.4	445	--	--	--	380	380	100
LH1	7/11/00	<.010	.038	8.2	345	21	1.9	7.5	346	346	1204
LH1	8/8/00	<.010	.031	7.4	386	--	--	--	308	308	1463
LH1	9/12/00	<.010	.021	7.9	391	22	1.6	6.2	240	240	240
LH1	10/10/00	<.010	.036	8.9	378	21	1.6	5.9	364	364	126
LH1	11/7/00	<.010	.019	6.8	375	16	1.5	5.8	378	378	141
LH1	12/5/00	<.010	.028	5.7	332	17	1.6	5.7	686	686	270
LH1	1/11/01	<.010	.032	5.9	396	20	1.8	6.2	554	554	45
LH1	2/7/01	.010	.026	4.7	333	17	1.6	9.5	485	485	43
LH1	3/8/01	<.010	.024	4.8	358	22	1.6	8.7	386	386	33
LH1	4/4/01	<.010	<.010	4.8	350	16	1.5	9.6	240	240	49
LH1	5/8/01	<.010	.023	7.3	463	16	2.5	9.4	514	514	53
LH1	6/5/01	<.010	.018	6.3	369	19	3.1	7.4	367	367	227
LH1	7/3/01	<.010	.021	6.6	456	20	1.6	6.4	440	440	210
LH1	8/7/01	<.010	.014	7.0	335	16	1.7	7.4	310	310	262
LH1	9/4/01	<.010	.019	7.2	468	20	2.1	6.2	388	388	201
LH1	10/1/01	<.010	.024	7.0	413	14	2.4	8.7	213	213	76
LH1	11/5/01	<.010	.018	5.7	404	14	3.2	17	219	219	56
LH1	12/3/01	<.010	.016	5.3	253	13	2.2	14	457	457	85
LH1	1/7/02	<.010	.026	5.2	296	15	4.3	30	250	250	45
LH1	3/5/02	.010	.020	6.2	259	14	2.1	13	211	211	40
LH1	4/8/02	<.010	<.010	6.4	--	18	1.7	9.9	225	225	46
LH1	6/3/02	.010	.030	7.9	--	16	1.8	9.6	489	489	249
LH1	7/8/02	<.010	.028	6.4	--	14	2.1	11	274	274	198
LH1	8/6/02	<.010	.028	6.8	--	--	--	--	--	--	--
LH1	9/18/02	<.010	.022	5.5	285	15	6.6	61	157	157	343

[µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than; µg/L, microgram per liter]

Appendix 1. Selected water-quality characteristics of samples collected at site LH1 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Phosphorus,		Phosphorus, whole water (mg/L)	Organic carbon, whole water (mg/L)	Trihalomethane formation potential, whole water (µg/L)	Calcium, whole water (mg/L)	Magnesium, whole water (mg/L)	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	
		ortho, whole water (mg/L)	whole water (mg/L)									
LH1	10/8/02	<0.010	0.022	5.8	255	17	7.1	59	513	255		
LH1	11/5/02	<0.010	.021	5.0	443	21	9.0	76	210	81		
LH1	12/2/02	<0.010	.020	6.9	389	18	3.4	24	400	77		
LH1	1/14/03	<0.010	.023	6.2	--	--	--	--	258	47		
LH1	2/5/03	<0.010	.024	6.5	344	--	--	--	--	--		
LH1	3/4/03	.016	.014	6.4	593	29	1.5	9.5	436	44		
LH1	4/15/03	<0.010	.026	7.2	544	29	1.4	9.7	346	35		
LH1	5/7/03	<0.010	.032	8.4	714	23	1.2	8.3	404	147		
LH1	6/5/03	<0.010	<.010	8.2	291	27	1.4	7.6	546	165		
LH1	7/8/03	<0.010	.023	8.9	515	26	1.8	8.2	582	87		
LH1	8/12/03	<0.010	.034	11	--	23	1.0	3.8	521	207		
LH1	9/8/03	<0.010	.021	11	1,002	23	1.2	6.6	809	184		
LH1	10/15/03	<0.010	.028	11	417	22	1.3	11	864	142		
LH1	11/12/03	<0.010	.018	8.0	--	26	1.4	5.8	448	62		
LH1	12/3/03	.014	.013	6.8	602	30	1.5	6.1	87	55		
LH1	1/6/04	.018	.030	6.1	483	30	1.1	7.0	335	25		
Summary for samples collected 1 foot below the water surface												
LH1	Median	<0.010	0.023	6.8	388	20	1.6	8.4	379	83		
LH1	Maximum	.023	.053	11	1,002	43	9.0	76	864	1,463		
LH1	Minimum	<0.010	<.010	4.7	244	13	1.0	3.8	87	23		
LH1	Number of samples	46	47	47	40	42	42	42	42	42	44	

[µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than; µg/L, microgram per liter]

Appendix 1. Selected water-quality characteristics of samples collected at site LH1 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Phosphorus,		Phosphorus, whole water (mg/L)	Organic carbon, whole water (mg/L)	Trihalomethane potential, whole water (µg/L)	Calcium, whole water (mg/L)	Magnesium, whole water (mg/L)	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)
		ortho, whole water (mg/L)	whole water (mg/L)								
LH1	5/3/00	<.010	0.031	--	--	37	2.1	5.5	406	80	
LH1	6/8/00	<.010	.028	--	--	23	1.7	8.7	512	182	
LH1	7/11/00	<.010	.024	--	--	21	1.9	7.4	351	475	
LH1	8/8/00	<.010	.030	--	--	22	1.6	5.3	551	398	
LH1	9/12/00	<.010	.032	--	--	23	1.6	6.2	753	584	
LH1	10/10/00	<.010	.020	--	--	22	1.5	6.4	342	102	
LH1	5/8/01	<.010	.022	--	--	17	2.6	9.9	542	45	
LH1	6/5/01	<.010	.020	--	--	19	3.1	7.3	415	200	
LH1	7/3/01	<.010	.018	--	--	21	1.6	6.4	472	212	
LH1	8/7/01	<.010	.024	--	--	16	1.8	7.3	377	246	
LH1	9/4/01	<.010	.023	--	--	20	2.2	6.4	338	163	
LH1	10/1/01	<.010	.020	--	--	15	2.5	9.0	224	64	
LH1	5/21/02	<.010	--	--	--	--	--	--	--	--	--
LH1	6/3/02	<.010	.040	--	--	15	1.8	9.1	726	508	
LH1	7/8/02	<.010	.028	--	--	14	2.1	11	355	252	
LH1	8/20/02	<.010	--	--	--	--	--	--	--	--	--
LH1	9/18/02	<.010	.030	--	--	15	6.7	63	493	934	
LH1	10/8/02	<.010	.022	--	--	17	7.1	58	236	194	
LH1	5/7/03	.041	.036	--	--	23	1.2	8.0	469	245	
LH1	6/5/03	<.010	.012	--	--	26	1.4	7.6	600	263	
LH1	7/8/03	<.010	.041	--	--	27	1.8	8.0	2335	1,611	
LH1	8/12/03	<.010	.028	--	--	24	1.4	6.9	2445	1,687	
LH1	9/8/03	<.010	.020	--	--	23	1.2	6.3	911	341	
LH1	10/15/03	.010	.032	--	--	22	1.3	11	775	142	
LH1	11/12/03	<.010	.022	--	--	26	1.5	6.7	460	66	

[µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than; µg/L, microgram per liter]

Appendix 2. Selected water-quality characteristics of samples collected at site LH2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003.

Project site number	Date	Time	Depth below water surface (feet)	Chlorophyll a (µg/L)	Color (platinum units)	Temperature, water field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Secchi depth (feet)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
LH2	1/5/00	1009	1	6.2	60	9.8	152	8.2	8.2	--	0.18	<0.02	<0.020	0.001
LH2	2/10/00	1125	1	3.6	40	5.8	206	12.6	7.4	--	.55	.02	.03	.002
LH2	3/7/00	1015	1	1.4	25	12.4	252	10.3	7.2	--	.66	<0.02	<0.02	.002
LH2	4/6/00	1043	1	2.3	30	14.9	200	11.9	7.0	--	.20	<0.02	.02	--
LH2	5/3/00	1035	1	1.2	40	18.4	185	8.2	7.7	--	.48	<0.02	<0.02	.003
LH2	6/8/00	1020	1	7.9	50	21.8	173	8.4	7.6	--	.29	--	<0.02	.004
LH2	7/11/00	1056	1	5.5	30	28.0	141	7.8	7.5	--	.29	.02	.05	.001
LH2	8/8/00	1032	1	7.4	40	28.0	168	7.2	7.4	--	.18	.02	<0.02	.002
LH2	9/12/00	1040	1	8.4	30	25.7	163	9.5	8.3	--	.38	<0.02	<0.02	.001
LH2	10/10/00	1050	1	14	55	17.3	166	8.2	7.6	--	.62	<0.02	<0.02	.001
LH2	11/6/00	1018	1	4.8	30	13.7	106	9.7	6.9	--	.26	<0.02	--	.002
LH2	11/7/00	1030	1	6.6	40	14.0	120	9.2	7.2	--	.23	<0.02	--	.001
LH2	12/5/00	1035	1	3.9	40	5.8	131	11.2	7.0	--	.13	<0.02	.02	.002
LH2	1/11/01	1026	1	10	30	3.4	148	12.8	7.2	--	.43	<0.02	<0.02	.003
LH2	2/7/01	1055	1	2.9	30	6.7	175	10.7	6.9	--	.22	<0.02	<0.02	.003
LH2	3/8/01	1021	1	2.8	30	7.5	195	10.9	7.7	--	.21	<0.02	<0.02	.002
LH2	4/4/01	1035	1	3.3	30	11.9	199	9.5	7.3	--	.24	<0.02	<0.02	<.001
LH2	5/8/01	1046	1	3.6	35	20.3	146	7.9	7.1	--	.43	<0.02	<0.02	.001
LH2	6/5/01	1035	1	6.0	30	23.4	150	7.3	7.6	--	.29	<0.040	<0.04	.003
LH2	7/3/01	1111	1	6.1	40	27.0	148	5.5	7.1	--	--	<0.02	<0.02	.002
LH2	8/7/01	1030	1	6.4	30	28.8	144	9.1	8.4	--	.30	<0.02	.07	.001
LH2	9/4/01	1049	1	12	30	26.6	153	6.5	6.8	--	.44	<0.02	<0.02	.002
LH2	10/1/01	1115	1	7.7	15	19.5	137	8.2	7.5	--	.33	<0.02	<0.02	--
LH2	10/1/01	1115	1	7.7	15	19.5	137	8.2	7.5	--	.33	<0.02	<0.02	--
LH2	11/5/01	1017	1	4.8	10	15.8	158	9.1	7.6	--	--	.03	<0.02	--
LH2	12/3/01	1002	1	6.5	10	14.4	206	9.3	7.4	--	.46	<0.02	<0.02	.001
LH2	1/7/02	1113	1	2.6	10	3.5	244	11.5	7.5	--	.36	<0.02	.06	.002
LH2	3/5/02	1055	1	2.6	20	8.8	147	7.8	7.6	--	.26	<0.02	--	.001
LH2	4/8/02	1109	1	4.2	--	14.8	149	9.6	7.6	--	.35	<0.02	<0.02	<.001
LH2	5/21/02	1000	1	--	50	19.9	119	7.2	7.9	--	--	<0.02	<0.02	.001
LH2	6/3/02	1105	1	5.7	30	25.0	138	6.7	7.4	--	.15	<0.02	<0.02	.001

[µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than]

Appendix 2. Selected water-quality characteristics of samples collected at site LH2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Time	Depth below water surface (feet)	Chlorophyll <i>a</i> (µg/L)	Color (platinum units)	Temperature, water, field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Secchi depth (feet)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
LH2	7/8/02	1105	1	7.8	30	28.4	135	7.4	7.5	--	0.50	<0.02	<0.02	<0.001
LH2	8/6/02	1015	1	--	20	29.4	151	7.4	7.3	--	--	.07	<0.02	<0.001
LH2	9/18/02	1152	1	9.2	20	25.8	430	7.3	7.6	--	.48	.05	<0.02	.001
LH2	10/8/02	1207	1	8.7	20	23.7	540	7.9	7.7	--	.45	.07	<0.02	--
LH2	11/5/02	1055	1	11	15	12.8	588	10.1	7.7	--	.38	<0.04	.04	<0.001
LH2	12/2/02	1035	1	5.2	30	7.6	220	--	7.8	--	.64	.03	<0.02	<0.001
LH2	1/14/03	1030	1	--	25	4.9	184	11.8	7.7	--	.41	--	.08	.002
LH2	2/5/03	1100	1	4.7	30	5.6	173	12.7	7.4	--	--	<0.02	--	--
LH2	3/4/03	1041	1	2.2	30	7.8	208	11.2	7.3	--	.57	<0.02	.02	.006
LH2	4/15/03	1052	1	2.0	45	13.5	192	8.0	7.4	--	.96	<0.02	.05	.002
LH2	5/7/03	1021	1	1.1	50	19.6	183	7.2	7.4	--	1.00	.07	.12	.005
LH2	6/5/03	1045	1	14	50	22.0	188	10.0	8.0	--	.77	<0.02	.03	.002
LH2	7/8/03	1051	1	4.0	50	28.0	141	7.7	7.8	--	.80	<0.02	<0.02	.002
LH2	8/12/03	1110	1	6.0	40	27.6	107	4.8	7.1	1.75	1.30	.02	.03	.003
LH2	9/8/03	1111	1	7.0	60	26.0	178	5.4	7.1	2.30	.29	.07	<0.02	.004
LH2	10/15/03	1110	1	4.1	60	19.4	177	7.2	7.2	2.00	.40	--	<0.02	.004
LH2	11/12/03	1133	1	5.3	30	14.9	194	8.8	7.2	2.90	.39	<0.02	.02	.003
LH2	12/3/03	1055	1	3.6	30	9.5	197	9.9	7.7	3.25	.32	.02	.05	.003
LH2	1/6/04	1042	1	1.8	20	9.7	216	11.1	7.5	3.60	.23	<0.02	.08	.004
LH2	2/5/04	1015	1	2.3	30	3.8	193	13.7	7.7	5.00	.27	<0.02	<0.02	.003
Summary for samples collected 1 foot below the water surface														
LH2	Median	--	1	5.3	30	16	173	8.6	7.5	2.90	0.37	<0.02	<0.02	0.002
LH2	Maximum	--	1	14	60	29	588	13.7	8.4	5.00	1.3	.07	.12	.006
LH2	Minimum	--	1	1.1	10	3.4	106	4.8	6.8	1.75	.13	<0.02	<0.02	<0.001
LH2	Number of samples	--	51	48	50	51	51	50	51	7	46	48	47	45

[µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than]

Appendix 2. Selected water-quality characteristics of samples collected at site LH2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Time	Depth below water surface (feet)	Chlorophyll a (µg/L)	Color (platinum units)	Temperature, water field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Secchi depth (feet)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
LH2	8/12/03	1110	3	--	--	26.2	--	4.5	--	--	--	--	--	--
LH2	9/8/03	1111	3	5.0	--	--	--	--	--	--	--	--	--	--
LH2	10/15/03	1110	3	5.9	--	--	--	--	--	--	--	--	--	--
LH2	11/12/03	1133	3	6.3	--	--	--	--	--	--	--	--	--	--
LH2	5/3/00	1035	12	--	--	16.5	185	6.9	7.6	--	0.40	<0.02	<0.02	0.004
LH2	6/8/00	1020	11	--	--	20.7	174	4.9	7.4	--	0.34	--	.04	.004
LH2	7/11/00	1056	11	--	--	26.3	143	2.7	7.0	--	0.38	.08	.04	.002
LH2	8/8/00	1032	11	--	--	25.8	168	0.6	6.9	--	0.50	.13	<0.02	.003
LH2	9/12/00	1040	11	--	--	23.2	164	2.6	7.1	--	0.46	.05	<0.02	.006
LH2	10/10/00	1050	12	--	--	17.1	169	7.5	7.6	--	0.48	<0.02	.03	.001
LH2	5/8/01	1046	11	--	--	19.7	146	7.3	7.1	--	0.32	<0.02	<0.02	.002
LH2	6/5/01	1035	11	--	--	22.0	150	3.3	7.2	--	0.35	.07	<0.04	.003
LH2	7/3/01	1111	11	--	--	26.5	153	4.2	7.1	--	--	<0.02	.03	.001
LH2	8/7/01	1030	11	--	--	25.2	146	1.5	7.6	--	0.48	.02	.51	.002
LH2	9/4/01	1049	11	--	--	26.2	152	5.2	6.7	--	0.39	.03	<0.02	<.002
LH2	10/1/01	1115	11	--	--	19.1	135	8.0	7.5	--	0.34	<0.02	<0.02	--
LH2	5/21/02	1000	11	--	--	19.9	123	0.6	7.5	--	--	<0.02	<0.02	.001
LH2	6/3/02	1105	11	--	--	21.7	141	1.1	7.0	--	0.26	<0.02	<0.02	<.001
LH2	7/8/02	1105	12	--	--	27.6	147	0.0	6.9	--	0.43	<0.02	<0.02	.001
LH2	8/6/02	955	10	--	--	28.7	168	0.2	6.7	--	--	.08	<0.02	<.001
LH2	9/18/02	1152	12	--	--	25.1	464	2.4	7.2	--	0.40	.05	<0.02	<.001
LH2	10/8/02	1207	11	--	--	23.5	562	7.0	7.5	--	0.54	.08	.02	--
LH2	5/7/03	1021	17	--	--	17.5	189	0.4	7.1	--	1.17	.14	.10	.005
LH2	6/5/03	1045	11	--	--	19.9	192	2.4	7.6	--	1.02	.02	.02	.002
LH2	7/8/03	1051	12	--	--	24.0	168	0.4	7.3	--	1.47	<0.02	<0.02	.003
LH2	8/12/03	1110	13	6.0	--	25.6	116	0.9	7.1	--	1.01	.05	.02	.002
LH2	9/8/03	1111	12	5.1	--	25.7	182	0.5	6.8	--	0.43	.08	.61	.050
LH2	10/15/03	1110	11	4.2	--	19.1	179	6.9	7.8	--	0.41	--	<0.02	.004
LH2	11/12/03	1133	11	4.4	--	14.6	207	5.5	7.1	--	0.29	<0.02	.03	.003

[µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than]

Appendix 2. Selected water-quality characteristics of samples collected at site LH2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Phosphorus, ortho, whole water (mg/L)	Phosphorus, whole water (mg/L)	Organic carbon, whole water (mg/L)	Trihalomethane potential, whole water (µg/L)	Calcium, whole water (mg/L)	Magnesium, whole water (mg/L)	Potassium, whole water (mg/L)	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)
LH2	5/21/02	<0.010	--	7.9	--	--	--	--	--	--	--
LH2	6/3/02	<0.010	0.032	8.5	--	16	1.8	2.1	9.1	657	132
LH2	7/8/02	<0.010	.027	7.0	--	13	2.1	2.2	10	314	136
LH2	8/6/02	<0.010	.033	6.8	--	--	--	--	--	--	--
LH2	9/18/02	<0.010	.034	5.6	262	15	6.0	3.8	54	373	172
LH2	10/8/02	<0.010	.024	6.1	157	17	7.1	4.6	61	275	137
LH2	11/5/02	<0.010	.023	5.4	133	21	8.8	4.8	73	249	74
LH2	12/2/02	<0.010	.022	7.3	408	19	3.3	3.0	23	340	41
LH2	1/14/03	<0.010	.024	6.2	--	--	--	--	--	334	41
LH2	2/5/03	<0.010	.022	6.9	--	--	--	--	--	--	--
LH2	3/4/03	.018	.024	6.9	485	30	1.5	1.9	9.1	324	34
LH2	4/15/03	<0.010	.030	9.5	640	26	1.2	2.0	9.5	495	29
LH2	5/7/03	<0.010	.059	8.8	705	23	1.3	1.5	8.5	491	138
LH2	6/5/03	<0.010	.017	8.3	321	28	1.4	1.8	7.3	635	97
LH2	7/8/03	<0.010	.023	9.3	463	26	1.8	1.9	8.3	717	58
LH2	8/12/03	<0.010	.012	15	--	22	.9	1.6	3.0	858	131
LH2	9/8/03	<0.010	.023	12	--	24	1.2	1.5	8.9	748	111
LH2	10/15/03	.027	.028	11	210	22	1.4	2.4	10	1,014	104
LH2	11/12/03	<0.010	.035	8.8	--	29	1.6	2.3	6.5	532	56
LH2	12/3/03	<0.010	.020	7.3	550	38	1.9	3.1	7.8	708	65
LH2	1/6/04	.013	.021	5.8	311	31	1.2	1.6	6.2	370	24
LH2	2/5/04	<0.010	.016	4.4	465	27	1.3	1.6	10	421	25

Summary for samples collected 1 foot below the water surface

LH2	Median	<0.010	0.025	7.0	371	20	2	2	9	383	58
LH2	Maximum	.027	.060	15	705	38	16	5	73	1,014	198
LH2	Minimum	<0.010	<.010	4.4	133	12.6	.9	1.2	3.0	115	21
LH2	Number of samples	51	50	51	41	43	43	43	42	44	46

[µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than]

Appendix 2. Selected water-quality characteristics of samples collected at site LH2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

[µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than]

Project site number	Date	Phosphorus, ortho, whole water (mg/L)	Phosphorus, whole water (mg/L)	Organic carbon, whole water (mg/L)	Trihalomethane formation potential, whole water (µg/L)	Calcium, whole water (mg/L)	Magnesium, whole water (mg/L)	Potassium, whole water (mg/L)	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)
LH2	8/12/03	--	--	--	--	--	--	--	--	--	--
LH2	9/8/03	--	--	--	--	--	--	--	--	--	--
LH2	10/15/03	--	--	--	--	--	--	--	--	--	--
LH2	11/12/03	--	--	--	--	--	--	--	--	--	--
LH2	5/3/00	<0.010	0.027	--	--	22	2.1	1.4	5.2	462	37
LH2	6/8/00	<.010	.028	--	--	23	1.6	1.3	7.9	679	107
LH2	7/11/00	0.013	.036	--	--	20	1.8	1.2	7.0	687	392
LH2	8/8/00	<.010	.038	--	--	22	1.9	1.3	5.2	512	198
LH2	9/12/00	<.010	.034	--	--	22	1.6	1.2	5.9	655	283
LH2	10/10/00	<.010	.038	--	--	23	1.6	1.6	6.7	466	82
LH2	5/8/01	<.010	.034	--	--	17	2.6	2.4	8.8	891	53
LH2	6/5/01	<.010	.032	--	--	19	3.0	2.0	7.2	526	246
LH2	7/3/01	<.010	.028	--	--	20	1.6	1.6	6.4	528	153
LH2	8/7/01	<.010	.028	--	--	17	1.8	1.6	7.5	309	135
LH2	9/4/01	0.01	.029	--	--	19	2.2	2.6	6.5	448	126
LH2	10/1/01	<.010	.025	--	--	14	2.5	1.6	8.9	229	55
LH2	5/21/02	<.010	--	--	--	--	--	--	--	--	--
LH2	6/3/02	<.010	.045	--	--	16	1.8	2.1	9.3	744	156
LH2	7/8/02	<.010	.029	--	--	13	2.0	2.3	10	381	148
LH2	8/6/02	<.010	.030	--	--	--	--	--	--	--	--
LH2	9/18/02	<.010	.032	--	--	16	6.5	4.6	59	271	128
LH2	10/8/02	<.010	.026	--	--	17	7.3	4.7	63	401	163
LH2	5/7/03	<.010	.040	--	--	23	1.3	1.5	8.1	622	249
LH2	6/5/03	<.010	.017	--	--	27	1.3	1.6	6.7	658	136
LH2	7/8/03	<.010	.040	--	--	26	1.8	1.9	8.2	1,267	504
LH2	8/12/03	0.026	.014	--	--	22	.9	1.5	2.8	876	168
LH2	9/8/03	0.01	.019	--	--	24	1.2	1.7	8.6	812	131
LH2	10/15/03	0.021	.031	--	--	22	1.3	2.3	10	1,011	104
LH2	11/12/03	<.010	.035	--	--	28	1.4	2.1	6.1	478	50

Appendix 3. Selected water-quality characteristics of samples collected at site LH3 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003.

Project site number	Date	Time	Depth below water surface (ft)	Chlorophyll <i>a</i> (µg/L)	Color (platinum units)	Temperature, water, field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Secchi depth (ft)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
LH3	1/5/00	958	1	7.4	40	10.3	260	10.3	8.2	--	0.218	<0.020	<0.020	0.001
LH3	2/10/00	1045	1	2.6	40	5.	234	12.1	7.1	--	3.1	<0.020	--	.020
LH3	3/7/00	935	1	1.0	25	12.6	250	10.1	7.6	--	.8	<0.020	<0.020	.002
LH3	4/6/00	1001	1	1.5	50	15.	191	11.8	7.0	--	.2	<0.020	<0.020	--
LH3	5/3/00	950	1	1.9	50	18.3	180	8.5	7.8	--	.5	<0.020	<0.020	.002
LH3	6/8/00	940	1	7.3	30	22.3	226	9.1	8.1	--	.4	--	<0.020	.001
LH3	7/11/00	956	1	1.5	30	28.7	205	8.6	8.1	--	.6	.042	.035	.001
LH3	8/8/00	944	1	6.8	40	28.4	200	7.8	7.5	--	.4	<0.020	<0.020	.001
LH3	9/12/00	950	1	9.3	40	25.5	210	9.1	8.2	--	.7	<0.020	<0.020	.001
LH3	10/10/00	1000	1	14	55	16.5	214	8.3	7.9	--	.5	<0.020	<0.020	.001
LH3	11/6/00	1126	1	2.8	30	14.5	89	9.2	6.8	--	.4	.037	--	.001
LH3	12/5/00	1045	1	2.9	40	5.3	226	12.4	7.5	--	.2	<0.020	.020	.001
LH3	2/7/01	1000	1	1.3	30	6.7	266	10.5	7.3	--	.3	.034	<0.020	.001
LH3	3/8/01	937	1	1.3	30	6.6	265	11.0	7.8	--	.2	<0.020	<0.020	.001
LH3	4/4/01	945	1	2.7	30	11.9	240	9.3	7.6	--	.3	<0.020	<0.020	.001
LH3	5/8/01	943	1	2.8	30	20.6	207	8.4	7.8	--	.3	<0.020	<0.020	.010
LH3	6/5/01	945	1	5.8	30	24.1	206	8.4	8.3	--	.2	.040	.040	.001
LH3	7/3/01	1008	1	5.3	40	28.1	208	5.9	7.6	--	--	<0.020	<0.020	.001
LH3	8/7/01	945	1	12	25	29.3	200	9.9	8.7	--	.4	<0.020	<0.020	.001
LH3	9/4/01	936	1	17	20	26.9	196	8.3	7.6	--	--	<0.020	<0.020	.002
LH3	10/1/01	1005	1	18	20	18.7	181	9.1	8.4	--	.5	<0.020	<0.020	--
LH3	11/5/01	928	1	6.9	10	15.4	191	9.7	8.1	--	--	<0.020	<0.020	--
LH3	12/3/01	910	1	4.9	10	14.6	206	8.9	7.7	--	.5	<0.020	<0.020	.001
LH3	1/7/02	1011	1	1.4	10	3.1	178	11.6	7.8	--	.5	<0.020	<0.020	.001
LH3	3/5/02	955	1	1.8	20	7.9	192	9.3	7.9	--	.3	<0.020	--	<.001
LH3	4/8/02	1019	1	4.0	--	14.8	172	9.4	7.8	--	.1	<0.020	<0.020	<.001
LH3	5/15/02	1021	1	--	25	21.7	143	8.6	8.4	--	--	<0.020	<0.020	<.001

[ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; --, no data; <, less than]

Appendix 3. Selected water-quality characteristics of samples collected at site LH3 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Time	Depth below water surface (ft)	Chlorophyll <i>a</i> (µg/L)	Color (platinum units)	Temperature, water, field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Secchi depth (ft)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
LH3	6/3/02	940	1	14	40	27.3	186	7.0	8.6	--	0.3	<0.020	<0.020	<0.001
LH3	7/8/02	1012	1	12	30	29.2	182	7.3	8.6	--	.5	.034	<0.020	<.001
LH3	8/6/02	925	1	--	20	30.1	116	7.6	8.0	--	--	.024	<0.020	<.001
LH3	9/18/02	950	1	22	30	25.7	255	8.1	8.2	--	.4	.031	<0.020	<.001
LH3	10/8/02	930	1	23	20	23.4	305	8.6	8.5	--	.6	.026	<0.020	--
LH3	11/5/02	1001	1	11	15	11.8	301	10.7	8.2	--	.5	<.040	.028	<.001
LH3	12/2/02	945	1	5.0	30	6.4	258	11.5	8.2	--	.6	.030	<0.020	<.001
LH3	1/14/03	942	1	--	30	4.3	234	12.6	8.0	--	.4	--	<0.020	.002
LH3	2/5/03	1005	1	1.8	35	5.7	247	12.7	7.5	--	--	<0.020	--	--
LH3	3/4/03	957	1	2.2	40	7.5	194	11.6	7.4	--	2.1	<0.020	<0.020	.006
LH3	4/15/03	915	1	1.6	70	14.3	133	7.2	7.5	--	.8	<0.020	.026	.003
LH3	5/7/03	940	1	1.3	50	20.2	181	7.8	7.5	--	.7	.081	.044	.004
LH3	6/5/03	955	1	3.8	30	22.5	226	9.5	8.4	--	.9	<0.020	.020	.001
LH3	7/8/03	952	1	3.1	30	29.2	188	7.0	8.0	--	.8	<0.020	<0.020	.002
LH3	8/12/03	930	1	6.6	60	26.2	92	5.4	6.6	1.50	1.4	<0.020	<0.020	.005
LH3	9/8/03	1010	1	10	60	26.1	184	6.3	7.4	1.90	.2	.029	<0.020	.002
LH3	10/15/03	955	1	7.9	50	19.6	231	8.1	7.5	2.75	.3	--	<0.020	.003
LH3	11/12/03	1021	1	6.0	30	14.7	242	9.2	7.6	2.90	.2	<0.020	<0.020	.001
LH3	12/3/03	1008	1	3.2	30	8.2	230	10.7	7.8	3.00	.3	.049	.028	.002
LH3	1/6/04	957	1	2.6	30	10.3	218	11.6	7.7	3.30	.3	<0.020	.020	.002
Summary for samples collected 1 foot below the water surface														
LH3	Median	--	1	4.9	30	16.5	206	9.1	7.8	2.83	0.4	<0.020	<0.020	0.001
LH3	Maximum	--	1	23	70	30.1	305	12.7	8.7	3.30	3.1	.081	.044	.020
LH3	Minimum	--	1	1.0	10	3.1	89	5.4	6.6	1.50	.1	<0.020	<0.020	<.001
LH3	Number of samples	--	47	44	46	47	47	47	47	6	41	44	43	42

[ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than]

Appendix 3. Selected water-quality characteristics of samples collected at site LH3 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Time	Depth below water surface (ft)	Chlorophyll <i>a</i> (µg/L)	Color (platinum units)	Temperature, water, field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Secchi depth (ft)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
LH3	5/3/00	950	8	--	--	15.7	183	5.0	7.5	--	0.6	<0.020	<0.020	0.002
LH3	6/8/00	940	8	--	--	21.8	232	6.8	7.9	--	.4	--	<.020	.001
LH3	7/11/00	956	8	--	--	27.8	209	.4	7.4	--	.4	.045	.023	.001
LH3	8/8/00	944	8	--	--	26.4	204	1.2	7.0	--	.4	<.020	<.020	.002
LH3	9/12/00	950	7	--	--	25.1	212	6.7	7.9	--	.6	<.020	<.020	.001
LH3	10/10/00	1000	8	--	--	16.5	215	8.2	7.9	--	.5	<.020	.022	.001
LH3	5/8/01	943	8	--	--	20.4	207	.3	7.6	--	.3	<.020	<.020	.001
LH3	6/5/01	945	8	--	--	23.6	203	5.3	7.8	--	.4	<.040	<.040	.001
LH3	7/3/01	1008	7	--	--	28.	206	4.7	7.5	--	--	<.020	.059	.001
LH3	8/7/01	945	8	--	--	26.9	206	1.7	7.6	--	.1	<.020	.298	.001
LH3	10/1/01	1005	9	--	--	18.5	180	8.3	8.4	--	.4	<.020	<.020	--
LH3	5/15/02	1021	8	--	--	21.6	144	.9	7.4	--	--	--	<.020	<.001
LH3	7/8/02	1012	8	--	--	28.7	182	.8	7.2	--	.5	<.020	<.020	<.001
LH3	8/6/02	1015	12	--	--	26.8	145	.2	6.8	--	--	.020	.020	.001
LH3	9/18/02	950	26	--	--	25.5	268	.4	7.3	--	.7	.089	<.020	.001
LH3	10/8/02	930	8	--	--	23.3	302	.3	7.6	--	.6	.023	<.020	--
LH3	5/7/03	940	9	--	--	18.5	200	.4	7.2	--	1.0	.096	.074	.004
LH3	6/5/03	955	8	--	--	22.	231	5.5	7.9	--	1.3	.026	.020	.001
LH3	7/8/03	952	8	--	--	28.4	191	1.2	7.4	--	.8	.020	<.020	.002
LH3	8/12/03	930	9	2.7	--	23.9	103	.4	6.7	--	1.3	.128	.034	.005
LH3	9/8/03	1010	9	7.4	--	25.8	196	.5	6.9	--	.3	.066	.023	.002
LH3	10/15/03	955	8	7.0	--	19.4	229	7.1	7.4	--	.5	--	<.020	.003
LH3	11/12/03	1021	8	6.3	--	14.6	243	8.7	7.5	--	.3	.020	<.020	.003

[ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; --, no data; <, less than]

Appendix 3. Selected water-quality characteristics of samples collected at site LH2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Phosphorus, ortho, whole water (mg/L)	Phosphorus, whole water (mg/L)	Organic carbon, whole water (mg/L)	Trihalomethane formation potential, whole water (µg/L)	Calcium, whole water (mg/L)	Magnesium, whole water (mg/L)	Potassium, whole water (mg/L)	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)
LH3	1/5/00	<.010	0.023	6.4	351	43	1.4	1.4	3.9	--	18
LH3	2/10/00	.015	.031	5.9	295	34	1.3	1.3	7.8	--	30
LH3	3/7/00	<.010	.020	5.6	269	36	1.2	1.0	6.8	--	12
LH3	4/6/00	.011	.025	7.3	230	39	1.4	1.2	5.3	307	22
LH3	5/3/00	.011	.047	8.8	442	41	1.9	1.4	4.3	481	15
LH3	6/8/00	<.010	.018	6.8	415	--	--	--	--	299	32
LH3	7/11/00	<.010	.061	7.4	214	--	--	--	--	196	72
LH3	8/8/00	<.010	.039	7.9	506	--	--	--	--	373	29
LH3	9/12/00	<.010	.040	7.2	397	36	1.4	1.0	4.0	224	61
LH3	10/10/00	<.010	.045	7.3	209	35	1.4	1.3	4.1	359	65
LH3	11/6/00	.012	.032	7.3	393	--	--	--	--	--	--
LH3	12/5/00	<.010	.025	5.9	311	40	1.6	1.3	4.7	146	22
LH3	2/7/01	<.010	.023	5.1	292	39	1.5	2.0	5.3	196	13
LH3	3/8/01	<.010	.032	4.6	281	43	1.5	1.6	5.8	165	13
LH3	4/4/01	<.010	.014	5.1	401	--	--	--	--	--	--
LH3	5/8/01	<.010	.028	5.5	337	34	2.0	1.9	6.6	198	23
LH3	6/5/01	<.010	.023	5.3	256	32	3.9	1.3	5.7	445	61
LH3	7/3/01	<.010	.032	5.9	332	33	1.4	1.3	5.2	331	126
LH3	8/7/01	<.010	.018	6.7	166	30	1.5	1.3	5.1	116	34
LH3	9/4/01	<.010	.042	6.8	374	30	1.9	1.7	4.5	370	74
LH3	10/1/01	<.010	.050	7.1	--	28	2.0	1.5	6.8	442	70
LH3	11/5/01	<.010	.022	6.5	332	28	3.2	1.8	9.9	224	48
LH3	12/3/01	<.010	.013	6.0	237	29	1.5	1.7	7.9	89	18
LH3	1/7/02	<.010	.022	5.3	254	30	1.9	3.5	10	168	22
LH3	3/5/02	<.010	.019	5.4	75	31	1.9	3.8	9.0	131	13
LH3	4/8/02	<.010	.010	7.1	--	26	1.5	1.7	6.6	194	18
LH3	5/15/02	<.010	--	7.8	--	32	4.8	1.9	6.3	360	68
LH3	6/3/02	<.010	.037	8.2	--	31	1.5	1.8	6.4	276	87
LH3	7/8/02	<.010	.052	8.1	--	26	1.7	1.9	8.0	308	92

[ft. foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than]

Appendix 3. Selected water-quality characteristics of samples collected at site LH2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Phosphorus, ortho, whole water (mg/L)	Phosphorus, whole water (mg/L)	Organic carbon, whole water (mg/L)	Trihalomethane potential, whole water (µg/L)	Calcium, whole water (mg/L)	Magnesium, whole water (mg/L)	Potassium, whole water (mg/L)	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)
LH3	8/6/02	<0.010	0.060	7.4	--	--	--	--	--	--	--
LH3	9/18/02	<0.010	.040	7.2	303	22	2.7	2.6	20	286	111
LH3	10/8/02	<0.010	.037	6.5	329	26	3.2	3.0	24	290	79
LH3	11/5/02	<0.010	.034	6.0	240	30	3.5	3.0	27	224	51
LH3	12/2/02	<0.010	.019	6.7	363	34	2.7	2.8	18	263	25
LH3	1/14/03	<0.010	.028	6.3	--	--	--	--	--	211	17
LH3	2/5/03	<0.010	.019	6.5	340	--	--	--	--	--	--
LH3	3/4/03	.017	.015	4.0	616	31	1.3	1.6	6.1	619	164
LH3	4/15/03	.010	.038	12	679	22	.9	1.2	3.8	683	35
LH3	5/7/03	.014	.059	9.6	823	29	1.0	1.1	4.4	390	68
LH3	6/5/03	<0.010	<0.010	6.9	401	39	1.2	1.4	4.9	211	31
LH3	7/8/03	.012	.017	8.1	575	42	1.3	1.5	2.2	172	68
LH3	8/12/03	<0.010	.014	18	--	19	.8	1.5	2.3	783	55
LH3	9/8/03	<0.010	.025	11	978	32	1.0	1.5	3.4	599	86
LH3	10/15/03	<0.010	.013	11	340	35	1.4	1.8	7.7	461	61
LH3	11/12/03	<0.010	.026	7.7	--	38	1.4	2.0	5.5	272	31
LH3	12/3/03	<0.010	.022	7.5	790	49	1.8	2.4	6.8	394	32
LH3	1/6/04	.025	.025	5.8	465	34	1.1	1.2	4.3	235	11
Summary for samples collected 1 foot below the water surface											
LH3	Median	0.012	0.025	6.8	339	32	1.5	1.6	5.8	281	34
LH3	Maximum	.025	.061	18	978	49	4.8	3.8	27	783	164
LH3	Minimum	<.001	<.010	4.0	75	19	.8	1.0	2.2	89	11
LH3	Number of samples	9	45	47	38	39	39	39	39	40	43

[ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than]

Appendix 3. Selected water-quality characteristics of samples collected at site LH2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Phosphorus, ortho, whole water (mg/L)	Phosphorus, whole water (mg/L)	Organic carbon, whole water (mg/L)	Trihalomethane formation potential, whole water (µg/L)	Calcium, whole water (mg/L)	Magnesium, whole water (mg/L)	Potassium, whole water (mg/L)	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)
LH3	5/3/00	<.010	0.035	--	-	40	1.9	1.3	4.3	493	20
LH3	6/8/00	<.010	--	--	--	38	1.5	1.1	5.1	254	58
LH3	7/11/00	<.010	.041	--	--	37	1.6	1.0	6.0	249	122
LH3	8/8/00	<.010	--	--	--	30	1.6	1.0	3.4	469	154
LH3	9/12/00	<.010	.029	--	--	35	1.4	1.0	4.0	254	97
LH3	10/10/00	<.010	.029	--	--	35	1.5	1.3	4.1	281	57
LH3	5/8/01	<.010	.023	--	--	32	2.4	1.5	6.4	224	37
LH3	6/5/01	<.010	.022	--	--	32	2.8	1.9	5.4	318	55
LH3	7/3/01	<.010	.031	--	--	33	1.4	1.3	5.3	347	125
LH3	8/7/01	<.010	.047	--	--	30	1.5	1.9	5.3	129	102
LH3	10/1/01	<.010	.029	--	--	28	2.0	1.3	5.3	205	64
LH3	5/15/02	<.010	--	--	--	31	4.8	1.7	6.2	396	73
LH3	7/8/02	<.010	.050	--	--	27	1.7	2.6	8.3	292	96
LH3	8/6/02	<.010	.046	--	--	--	--	--	--	--	--
LH3	9/18/02	<.010	--	--	--	22	2.5	2.5	19	482	187
LH3	10/8/02	<.010	.027	--	--	26	3.6	2.8	27	333	86
LH3	5/7/03	.024	.034	--	--	29	1.0	1.2	4.6	342	56
LH3	6/5/03	<.010	<.010	--	--	39	1.1	1.4	4.7	228	37
LH3	7/8/03	<.010	.017	--	--	43	1.4	1.6	5.5	227	79
LH3	8/12/03	.016	.036	--	--	19	.8	1.4	2.0	1,686	199
LH3	9/8/03	<.010	.030	--	--	32	1.0	1.4	3.3	952	108
LH3	10/15/03	<.010	.026	--	--	35	1.4	1.9	7.6	398	55
LH3	11/12/03	<.010	.021	--	--	38	1.4	1.9	5.5	298	33

[ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemen per centimeter; mg/L, milligram per liter; --, no data; <, less than]

Appendix 4. Selected water-quality characteristics of samples collected monthly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003.

Date	Color (units)	Specific conductance, field (µS/cm)	pH (standard units)	Turbidity (nephelometric turbidity units)	Light absorbance at 254 nanometers (cm ⁻¹)	Total Kjeldahl nitrogen (mg/L)	Ammonia nitrogen (mg/L)	Nitrate nitrogen (mg/L)	Nitrite nitrogen (mg/L)	Phosphorus, ortho, dissolved (mg/L)	Phosphorus, whole water (mg/L)
1/1/1999	25	213	7.5	2.7	0.153	0.9	0.133	0.041	0.001	<0.010	0.015
2/1/1999	30	191	7.5	2.3	.173	.6	.081	<.020	.003	<.010	.022
3/1/1999	45	179	7.9	5.9	.208	.5	.038	<.020	.001	<.010	.023
4/1/1999	40	191	7.4	2.7	.206	.5	.015	<.020	.001	<.010	.014
5/1/1999	40	178	7.7	1.9	.246	.2	<.020	<.020	.001	<.010	.022
6/1/1999	40	161	7.7	1.4	.240	.3	.034	<.020	.001	<.010	.018
7/1/1999	30	145	7.3	1.6	.205	--	.042	.028	.001	<.010	.016
8/1/1999	35	130	7.2	3.5	.207	1.0	<.020	<.020	.003	<.010	.025
9/1/1999	30	211	7.3	3.3	.172	.5	<.020	<.020	.001	<.010	.022
10/1/1999	100	100	7.0	3.3	.436	.9	.030	<.020	.002	.006	.032
11/1/1999	80	139	7.4	4.4	.310	.4	<.020	<.020	.003	<.010	.021
12/1/1999	70	132	7.3	3.2	.350	--	.022	<.020	.002	.012	.036
1/10/2000	50	146	7.3	4.2	.282	.5	.049	<.020	.009	.023	.043
2/7/2000	50	197	7.4	4.4	.207	.2	<.020	<.020	.002	.018	.039
3/6/2000	35	247	7.7	2.3	.152	.4	<.020	<.020	.002	<.010	.014
4/3/2000	30	203	7.7	2.2	.083	.1	.026	<.020	.004	<.010	.014
5/1/2000	50	184	7.6	2.4	.280	.9	<.020	<.020	.003	<.010	.017
6/5/2000	55	167	7.5	2.7	.235	.8	<.020	<.020	.002	<.010	.017
7/10/2000	30	164	7.4	2.5	.130	.6	.020	<.020	.002	<.010	.019
8/7/2000	40	166	7.2	3.0	.174	.6	.036	.088	.004	<.010	.017
9/11/2000	35	161	7.4	2.4	.203	.5	.030	.045	.001	<.010	.017
10/9/2000	35	161	7.3	3.3	.200	.4	.033	<.020	.001	<.010	.027
11/6/2000	40	125	7.2	2.9	.186	.3	.038	.055	.001	<.010	.031
12/4/2000	30	110	7.0	2.6	.147	.3	<.020	<.020	.001	<.010	.018
1/2/2001	--	165	--	--	--	.5	.033	<.020	.003	<.010	.024
2/5/2001	35	164	7.1	2.9	--	.3	.050	<.020	.002	.010	.023
3/5/2001	35	162	7.3	2.6	--	.2	.064	<.020	.002	<.010	.015

[µS/cm, microsiemens per centimeter; cm⁻¹, per centimeter; mg/L, milligram per liter; <, less than; --, no data; µg/L, microgram per liter]

Appendix 4. Selected water-quality characteristics of samples collected monthly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Color (units)	Specific conductance, field ($\mu\text{S}/\text{cm}$)	pH (standard units)	Turbidity (nephelometric turbidity units)	Light absorbance at 254 nanometers (cm^{-1})	Total Kjeldahl nitrogen (mg/L)	Ammonia nitrogen (mg/L)	Nitrate nitrogen (mg/L)	Nitrite nitrogen (mg/L)	Phosphorus, ortho, dissolved (mg/L)	Phosphorus, whole water (mg/L)
4/2/2001	25	176	7.3	1.7	--	0.1	0.035	<0.020	0.001	<0.010	0.031
5/7/2001	35	155	7.1	1.2	--	.4	--	<.040	.004	<0.010	.034
6/4/2001	25	152	7.4	1.8	--	.3	.043	<.040	.002	<0.010	.020
7/2/2001	30	153	--	--	--	.5	.036	<.020	.001	<0.010	.029
8/6/2001	35	137	--	--	--	.4	<.020	.136	.001	<0.010	.014
9/4/2001	35	147	--	--	--	.5	.045	.085	.001	<0.010	.021
10/1/2001	35	129	--	--	--	.3	.027	<.020	.001	<0.010	.018
11/5/2001	--	199	--	--	--	.3	.058	<.020	.001	<0.010	.015
12/3/2001	--	--	--	--	--	.2	.034	.033	.002	<0.010	.017
1/7/2002	25	300	6.7	2.7	--	.5	.035	.069	.001	<0.010	.016
2/5/2002	30	181	7.0	3.6	--	.4	<.020	<.020	.001	<0.010	.023
3/4/2002	20	169	6.7	2.8	--	.4	<.020	<.020	.001	<0.010	.012
4/8/2002	--	164	--	--	--	.2	<.020	<.020	.001	<0.010	<.010
5/6/2002	45	167	7.7	3.7	--	.5	.046	<.020	.001	<0.010	.018
6/3/2002	55	153	7.4	3.6	--	.2	<.020	--	.001	<0.010	.023
7/1/2002	50	163	7.3	2.5	--	.1	.37	<.020	.001	<0.010	.021
8/5/2002	30	221	7.0	1.3	--	.3	.056	<.020	.001	.043	.020
9/3/2002	30	391	7.2	3.9	--	.5	.075	.038	.002	<0.010	.078
10/7/2002	--	--	--	--	--	.5	.079	.088	.003	<0.010	.016
11/4/2002	--	--	--	--	--	--	.036	<.020	.001	<0.010	.017
12/2/2002	--	--	--	--	--	.7	.086	<.020	.001	<0.010	.029
1/6/2003	35	208	7.2	7.2	--	.7	.044	.044	--	<0.010	--
2/3/2003	--	171	--	--	--	1.1	<.020	.076	.002	<0.010	.011
3/3/2003	--	200	--	--	--	--	--	.057	.008	.014	.058

[$\mu\text{S}/\text{cm}$, microsiemen per centimeter; cm^{-1} , per centimeter; mg/L, milligram per liter; <, less than; --, no data; $\mu\text{g}/\text{L}$, microgram per liter]

Appendix 4. Selected water-quality characteristics of samples collected monthly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Color (units)	Specific conductance, field ($\mu\text{S}/\text{cm}$)	pH (standard units)	Turbidity (nephelometric turbidity units)	Light absorbance at 254 nanometers (cm^{-1})	Total Kjeldahl nitrogen (mg/L)	Ammonia nitrogen (mg/L)	Nitrate nitrogen (mg/L)	Nitrite nitrogen (mg/L)	Phosphorus, ortho, dissolved (mg/L)	Phosphorus, whole water (mg/L)
4/7/2003	--	196	--	--	--	0.3	<0.020	<0.020	0.001	<0.010	0.021
5/5/2003	--	190	--	--	--	.4	.069	.103	.008	<0.010	.025
6/2/2003	60	198	7.3	2.1	--		.036	.063	.003	.048	.027
7/7/2003	--	172	--	--	--		<.020	.020	--	--	.030
8/4/2003	--	168	--	--	--	.7	<.020	.053	.003	<.010	.030
9/2/2003	--	153	--	--	--	.4	.029	.19	.003	.011	.038
10/8/2003	--	176	--	--	--	.5		.11	--	.026	.015
11/3/2003	--	180	--	--	--	.3	<.020	.063	--	.012	--
12/1/2003	--	212	--	--	--	.3	.024	.056	.002	.018	.028
Summary for samples collected 1 foot below the water surface											
Median	35	168	7.3	2.7	0.206	0.4	0.037	<0.020	0.002	<0.010	0.021
Maximum	100	391	7.9	7.2	.436	1.1	.37	.19	.009	.048	.078
Minimum	20	100	6.7	1.2	.083	.1	.015	<.020	.001	.006	<.010
Number of samples	43	56	39	39	24	54	38	22	56	12	57

[$\mu\text{S}/\text{cm}$, microsiemens per centimeter; cm^{-1} , per centimeter; mg/L, milligram per liter; <, less than; --, no data; $\mu\text{g}/\text{L}$, microgram per liter]

Appendix 4. Selected water-quality characteristics of samples collected monthly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium, whole water (mg/L)	Potassium, whole water (mg/L)	Calcium, whole water (mg/L)	Magnesium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Total hardness (mg/L as CaCO ₃)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Fluoride, whole water (mg/L)	Bromide (mg/L)
1/1/1999	23	2.7	28	3.9	306	65	60	45	34	0.090	--
2/1/1999	8.4	2.0	24	1.6	241	29	69	51	23	.060	--
3/1/1999	11	1.6	17	1.4	402	26	55	39	21	.10	--
4/1/1999	14	1.4	24	1.4	316	43	72	58	16	.090	--
5/1/1999	9.4	1.4	21	1.4	532	81	62	50	18	.10	--
6/1/1999	9.3	1.6	15	1.7	293	49	53	42	16	.13	--
7/1/1999	8.1	1.7	13	1.6	129	28	47	44	16	.23	--
8/1/1999	--	1.4	13	1.7	506	274	43	36	13	.11	--
9/1/1999	7.7	2.2	17	2.4	99	107	54	37	33	.17	--
10/1/1999	16	2.1	10	2.2	626	116	34	20	10	.098	--
11/1/1999	20	1.9	19	1.1	--	84	59	52	8.5	.049	--
12/1/1999	20	2.8	13	1.6	--	--	46	37	12	.090	--
1/10/2000	6.1	11	17	1.5	2,099	50	58	46	11	<.050	--
2/7/2000	9.4	14	24	1.6	811	34	64	56	18	<.050	--
3/6/2000	12	17	31	1.6	234	27	81	74	26	<.050	--
4/3/2000	8.7	17	29	1.3	232	18	83	70	20	<.050	--
5/1/2000	5.6	16	29	1.2	514	62	79	72	8.0	<.050	--
6/5/2000	8.4	14	23	2.1	412	85	84	59	19	<.050	--
7/10/2000	7.8	13	22	1.5	94	151	88	50	13	<.050	0.043
8/7/2000	5.6	13	23	1.4	150	61	63	55	9.4	<.050	.038
9/11/2000	6.9	14	23	1.4	40	44	58	51	11	<.050	.080
10/9/2000	7.4	13	23	1.3	141	39	57	52	12	<.050	.082
11/6/2000	6.9	2.4	15	1.7	475	82	42	39	11	<.050	.086
12/4/2000	6.1	1.9	15	1.7	270	51	38	37	11	<.050	.073
1/2/2001	5.3	3.0	21	1.8	440	41	60	48	13	.18	.075
2/5/2001	10	2.9	18	1.6	520	30	42	40	15	.080	.041
3/5/2001	8.6	2.3	22	1.7	294	31	59	50	16	.13	.041

[µS/cm, microsiemens per centimeter; cm⁻¹, per centimeter; mg/L, milligram per liter; <, less than; --, no data; µg/L, microgram per liter]

Appendix 4. Selected water-quality characteristics of samples collected monthly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium,	Potassium,	Calcium,	Magnesium,	Iron,	Manganese,	Total	Total	Total	Chloride,	Fluoride,	Bromide
	whole water (mg/L)	whole water (mg/L)	whole water (mg/L)	whole water (mg/L)	whole water (µg/L)	whole water (µg/L)	hardness (mg/L as CaCO ₃)	alkalinity (mg/L as CaCO ₃)	whole water (mg/L)	whole water (mg/L)	whole water (mg/L)	(mg/L)
4/2/2001	10	2.0	21	1.5	255	22	52	46	19	0.090	0.041	
5/7/2001	12	2.1	23	1.9	386	24	50	47	16	--	.053	
6/4/2001	7.7	2.2	20	3.5	497	39	54	46	13	.11	.054	
7/2/2001	6.7	1.7	17	1.8	354	116	62	54	11	.19	.047	
8/6/2001	7.3	1.7	15	1.7	121	45	47	43	12	.16	.034	
9/4/2001	--	--	--	--	--	--	48	44	10	--	.037	
10/1/2001	8.8	1.8	14	2.4	134	34	44	31	15	--	.050	
11/5/2001	18	2.3	15	3.5	132	23	42	30	36	.15	.11	
12/3/2001	21	2.6	16	3.1	94	18	--	--	44	.15	.14	
1/7/2002	34	3.0	15	4.1	256	40	--	33	69	.28	.38	
2/5/2002	14	3.0	18	2.1	348	80	51	43	19	.40	.108	
3/4/2002	12	4.0	15	1.8	182	25	48	30	23	.40	.109	
4/8/2002	11	3.4	19	1.7	200	34	43	--	17	.30	--	
5/6/2002	10	2.6	24	1.7	301	77	62	57	16	.17	.036	
6/3/2002	9.7	2.8	17	1.7	481	139	46	47	14	.14	.039	
7/1/2002	13	2.6	15	2.1	183	75	44	36	22	.17	.045	
8/5/2002	21	2.4	13	2.6	61	27	40	36	41	.14	.11	
9/3/2002	52	3.8	16	5.7	178	178	--	38	90	.19	.28	
10/7/2002	59	4.1	16	6.5	147	54	44	--	120	.33	.37	
11/4/2002	78	5.3	19	9.3	201	68	84	--	163	.20	.40	
12/2/2002	24	2.9	18	3.3	222	30	44	--	45	.26	.100	
1/6/2003	17	2.0	22	2.0	172	34	60	46	28	.24	.047	
2/3/2003	9.4	1.4	18	1.2	229	50	49	--	19	.090	<10	
3/3/2003	8.7	1.0	27	1.4	330	37	72	--	19	.23	.049	

[µS/cm, microsiemen per centimeter; cm⁻¹, per centimeter; mg/L, milligram per liter; <, less than; --, no data; µg/L, microgram per liter]

Appendix 4. Selected water-quality characteristics of samples collected monthly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003.

Date	Sodium, whole water (mg/L)		Potassium, whole water (mg/L)		Calcium, whole water (mg/L)		Magnesium, whole water (mg/L)		Iron, whole water (µg/L)		Manganese, whole water (µg/L)		Total hardness (mg/L as CaCO ₃)		Total alkalinity (mg/L as CaCO ₃)		Chloride, whole water (mg/L)		Fluoride, whole water (mg/L)		Bromide (mg/L)		
4/7/2003	7.9	1.4	29	1.4	264	49	81	70	17	.33	.063												
5/5/2003	7.7	1.4	23	1.2	334	89	64	40	16	.42	.038												
6/2/2003	8.0	1.7	27	1.5	521	85	76	--	15	.14	.032												
7/7/2003	7.6	1.8	25	1.7	732	226	59	60	12	.11	.029												
8/4/2003	5.9	1.6	22	1.2	338	156	62	--	10	.14	.032												
9/2/2003	5.4	1.6	23	1.2	700	118	62	--	8.0	.17	.036												
10/8/2003	6.5	1.9	21	1.2	476	94	72	--	15	.17	.057												
11/3/2003	6.9	2.3	23	1.4	332	40	76	--	15	.21	.066												
12/1/2003	6.0	2.5	29	1.5	399	44	100	--	12	.15	.050												
Summary for samples collected 1 foot below the water surface																							
Median	9.1	2.3	20	1.7	294	49	58	46	16	.15	.052												
Maximum	78	17	31	9.29	2,099	274	100	74	163	.42	.40												
Minimum	5.3	0.95	10	1.05	40	18	34	20	8.0	.049	.029												
Number of samples	58	59	59	59	57	58	57	47	60	45	40												

[µS/cm, microsiemen per centimeter; cm⁻¹, per centimeter; mg/L, milligram per liter; <, less than; --, no data; µg/L, microgram per liter]

Appendix 4. Selected water-quality characteristics of samples collected monthly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sulfate (mg/L)	Silica (mg/L)	Total		Organic carbon, total (mg/L)	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)
			dissolved solids (mg/L)	suspended solids (mg/L)							
1/1/1999	6.7	5.9	129	2	5.2	--	--	--	--	--	<1.0
2/1/1999	7.2	5.5	117	2	5.0	--	--	--	--	--	<1.0
3/1/1999	7.8	4.1	85	4	6.6	--	--	--	--	--	--
4/1/1999	5.8	2.8	176	3	6.4	--	--	--	--	--	--
5/1/1999	5.4	2.7	87	2	6.2	303	--	--	--	--	2.3
6/1/1999	<5.0	3.0	97	1	7.7	150	--	--	--	--	<1.0
7/1/1999	<5.0	3.9	93	2	7.2	46	--	--	--	--	<1.0
8/1/1999	<5.0	7.3	89	3	8.5	106	--	--	--	--	<1.0
9/1/1999	5.2	3.7	122	12	7.3	26	--	--	--	--	<1.0
10/1/1999	5.6	5.6	58	3	11	115	--	<5.0	--	--	3.3
11/1/1999	<5.0	5.8	88	2	11	215	--	<5.0	--	--	<1.0
12/1/1999	<5.0	7.7	73	2	8.3	58	--	<5.0	--	--	--
1/10/2000	3.2	3.8	111	3	7.1	189	4.2	<3.8	19	<0.03	2.6
2/7/2000	3.6	5.5	110	3	6.0	127	<2.7	<3.8	20	<0.03	7.8
3/6/2000	4.4	4.1	147	2	4.9	108	<2.7	<3.8	21	<0.03	12.2
4/3/2000	6.9	2.8	125	2	5.2	67	<2.7	<3.8	18	<0.03	.6
5/1/2000	6.0	3.1	118	4	7.5	99	<2.7	<3.8	17	<0.03	.8
6/5/2000	5.7	3.5	160	3	7.6	364	<2.7	<3.8	19	<0.03	.3
7/10/2000	11	6.5	--	2	7.4	191	<2.7	<3.8	21	<0.03	<20
8/7/2000	11	--	110	2	6.3	165	<2.7	<3.8	16	<0.03	.3
9/11/2000	8.4	7.7	80	3	7.5	148	<2.7	<3.8	19	<0.03	<20
10/9/2000	11	5.5	116	3	8.1	114	<2.7	<3.8	26	<0.03	.2
11/6/2000	11	6.9	94	2	7.5	286	<2.7	<3.8	25	<0.03	.3
12/4/2000	9.4	6.2	--	3	6.3	176	<2.7	<3.8	20	<0.03	<20
1/2/2001	12	6.5	93	--	--	152	3.8	<2.0	22	<0.03	<1.0
2/5/2001	11	5.9	105	--	--	141	<4.0	<2.0	22	<0.03	<1.0
3/5/2001	12	4.0	106	--	--	78	<4.0	<2.0	22	<0.03	<1.0

[µS/cm, microsiemen per centimeter; cm⁻¹, per centimeter; mg/L, milligram per liter; <, less than; --, no data; µg/L, microgram per liter]

Appendix 4. Selected water-quality characteristics of samples collected monthly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sulfate (mg/L)	Silica (mg/L)	Total dissolved solids (mg/L)	Total suspended solids (mg/L)	Organic carbon, total (mg/L)	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)
4/2/2001	11	2.5	116	--	--	34	<4.0	<2.0	21	<0.03	<1.0
5/7/2001	9.1	2.2	110	--	--	80	<4.0	<2.0	20	<.03	<1.0
6/4/2001	5.8	3.5	105	--	--	--	--	--	--	<.03	<1.0
7/2/2001	6.7	6.2	118	--	--	--	--	--	--	<.03	<1.0
8/6/2001	6.9	5.6	96	--	--	--	--	--	--	<.03	<1.0
9/4/2001	13	8.2	--	--	--	--	--	--	--	--	--
10/1/2001	11	6.1	100	--	--	<50	<4.0	<2.0	25	<.03	<1.0
11/5/2001	12	4.2	--	--	--	<50	<4.0	<2.0	24	<.03	<1.0
12/3/2001	11	3.0	132	--	--	37	<4.0	<2.0	28	<.03	<1.0
1/7/2002	13	3.1	192	--	--	151	<4.0	<2.0	26	<.03	<1.0
2/5/2002	12	4.0	138	--	--	204	<4.0	<2.0	26	<.03	<1.0
3/4/2002	12	2.6	118	--	--	55	<4.0	<2.0	22	<.03	<1.0
4/8/2002	8.2	1.8	99	--	--	55	<4.0	<2.0	20	<.03	<1.0
5/6/2002	8.3	2.2	91	--	--	90	<4.0	<2.0	19	<.03	<1.0
6/3/2002	7.0	4.2	126	--	--	111	<4.0	<2.0	22	<.03	1.9
7/1/2002	8.8	4.1	102	--	--	183	<4.0	<2.0	21	<.03	<1.0
8/5/2002	8.2	3.9	--	--	--	32	<4.0	<2.0	17	<.03	<1.0
9/3/2002	15	4.6	233	--	--	<50	<4.0	<2.0	43	<.03	<1.0
10/7/2002	26	4.7	298	--	--	67	<4.0	<2.0	37	<.03	<1.0
11/4/2002	27	4.3	342	--	--	58	<4.0	<2.0	42	<.03	<1.0
12/2/2002	16	4.5	182	--	--	<50	<4.0	<2.0	27	<.03	<1.0
1/6/2003	18	--	169	--	--	44	<4.0	<1.0	24	<.03	<1.0
2/3/2003	15	4.8	108	--	--	103	<4.0	<1.0	19	<.03	<1.0
3/3/2003	17	3.1	156	--	--	306	<4.0	<1.0	22	<.03	<1.0

Appendix 4. Selected water-quality characteristics of samples collected monthly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

[µS/cm, microsiemen per centimeter; cm⁻¹, per centimeter; mg/L, milligram per liter; <, less than; --, no data; µg/L, microgram per liter]

Date	Sulfate (mg/L)	Silica (mg/L)	Total dissolved solids (mg/L)	Total suspended solids (mg/L)	Organic carbon, total (mg/L)	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)
4/7/2003	12	1.9	153	--	--	<50	<4.0	<1.0	22	<0.03	<1.0
5/5/2003	11	4.6	112	--	--	131	<4.0	<1.0	19	<.03	<1.0
6/2/2003	11	4.2	142	--	--	135	<4.0	<1.0	31	<.03	<1.0
7/7/2003	7.7	6.9	140	--	--	66	<4.0	<1.0	26	<.03	<1.0
8/4/2003	7.9	--	114	--	--	111	<4.0	<1.0	23	<.03	<1.0
9/2/2003	8.8	8.2	114	--	--	93	<4.0	<1.0	17	<.03	<1.0
10/8/2003	14	5.1	154	--	--	75	<4.0	<1.0	27	<.03	<1.0
11/3/2003	8.7	6.6	200	--	--	<50	<4.0	<1.0	24	<.03	<1.0
12/1/2003	9.6	5.1	180	--	--	230	<4.0	<1.0	26	<.03	<1.0

Summary for samples collected 1 foot below the water surface

Median	9.4	4.3	116	3	7.2	111	<4.0	<2.0	22	<.03	<1.0
Maximum	27	8.2	342	12	11	364	NA	NA	43	<.03	12.2
Minimum	3.2	1.8	58	1.0	4.9	26	NA	NA	16	<.03	.2
Number of samples	55	57	55	24	24	46	2	46	44	47	56

Appendix 4. Selected water-quality characteristics of samples collected monthly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Chromium ($\mu\text{g/L}$)	Copper ($\mu\text{g/L}$)	Lead ($\mu\text{g/L}$)	Nickel ($\mu\text{g/L}$)	Selenium ($\mu\text{g/L}$)	Silver ($\mu\text{g/L}$)	Thallium ($\mu\text{g/L}$)	Vanadium ($\mu\text{g/L}$)	Zinc ($\mu\text{g/L}$)
1/1/1999	7.3	36	<1.0	--	--	--	--	--	--
2/1/1999	2.1	26	<1.0	--	--	--	--	--	--
3/1/1999	--	--	--	--	--	--	--	--	--
4/1/1999	--	132	1.9	--	--	--	--	--	--
5/1/1999	2.9	74	2.4	--	--	<0.5	--	--	--
6/1/1999	<1.0	112	<1.0	--	--	<0.5	--	--	--
7/1/1999	<1.0	70	<1.0	--	<5.0	<0.5	--	--	--
8/1/1999	<1.0	208	<1.0	--	<5.0	<0.5	--	--	--
9/1/1999	<1.0	--	<1.0	--	<5.0	<0.5	--	--	--
10/1/1999	<1.0	133	1.6	--	<5.0	1.6	--	--	--
11/1/1999	<1.0	118	<1.0	--	<5.0	<0.5	--	--	--
12/1/1999	--	--	--	--	<5.0	<0.5	--	--	--
1/10/2000	2.4	75	2.6	1.0	<5.6	<1.0	<8.0	<1.0	<3.6
2/7/2000	<1.3	74	2.9	2.5	<5.6	<1.0	<8.0	1.4	<3.6
3/6/2000	<1.3	33	2.9	2.6	<5.6	<1.0	<8.0	<1.0	<3.6
4/3/2000	8.8	42	1.1	1.7	<5.6	<1.0	<8.0	<1.0	<3.6
5/1/2000	3.4	60	<1.0	2.2	<5.6	<1.0	<8.0	<1.0	<3.6
6/5/2000	<1.3	21	<1.0	<0.7	<5.6	<1.0	<8.0	<1.0	<3.6
7/10/2000	<1.3	44	<1.0	<0.7	<5.6	<1.0	<8.0	<1.0	<3.6
8/7/2000	<1.3	53	<1.0	.8	<5.6	<1.0	<8.0	<1.0	<3.6
9/11/2000	<1.3	46	1.4	<0.7	<5.6	<1.0	<8.0	<1.0	<3.6
10/9/2000	<1.3	64	<1.0	3.9	<5.6	<1.0	<8.0	<1.0	<3.6
11/6/2000	1.7	89	<1.0	1.6	<5.6	1.7	<8.0	<1.0	24
12/4/2000	1.6	94	<1.0	1.4	<5.6	<1.0	<8.0	<1.0	7.0
1/2/2001	1.8	33	<1.0	<1.0	<5.6	<1.0	<8.0	<1.0	6.3
2/5/2001	2.8	80	<1.0	<1.0	<5.6	<1.0	<8.0	<1.0	5.1
3/5/2001	<1.0	95	<1.0	<1.0	<5.6	<1.0	2.1	<1.0	2.5

[$\mu\text{S/cm}$, microsiemens per centimeter; cm^{-2} , _____; mg/L, milligram per liter; <, less than; --, no data; $\mu\text{g/L}$, microgram per liter]

Appendix 4. Selected water-quality characteristics of samples collected monthly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Chromium (µg/L)	Copper (µg/L)	Lead (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
4/2/2001	<1.0	76	<1.0	<1.0	<5.6	<1.0	<8.0	<1.0	7.3
5/7/2001	<1.0	60	<1.0	<1.0	<5.6	<1.0	<8.0	<1.0	2.9
6/4/2001	<1.0	71	<1.0	<1.0	<5.6	<1.0	4.8	<1.0	11
7/2/2001	<1.0	85	<1.0	<1.0	2.8	<1.0	<8.0	<1.0	6.5
8/6/2001	<1.0	54	<1.0	<1.0	<2.0	<1.0	<8.0	<1.0	5.4
9/4/2001	--	--	<1.0	<1.0	--	--	--	--	--
10/1/2001	<1.0	38	<1.0	<1.0	3.4	<1.0	<8.0	<1.0	5.3
11/5/2001	<1.0	46	<1.0	<1.0	--	<1.0	<8.0	<1.0	10
12/3/2001	<1.0	128	<1.0	<1.0	2.0	<1.0	<8.0	<1.0	23
1/7/2002	2.7	145	<1.0	<1.0	3.3	<1.0	<8.0	<1.0	13
2/5/2002	2.0	137	<1.0	<1.0	<2.0	<1.0	<8.0	<1.0	17
3/4/2002	2.4	180	<1.0	3.1	<2.0	<1.0	<8.0	<1.0	14
4/8/2002	1.4	185	<1.0	4.2	<2.0	<1.0	<8.0	<1.0	11
5/6/2002	2.0	128	<1.0	4.5	<2.0	<1.0	<8.0	<1.0	12
6/3/2002	<1.0	48	<1.0	9.3	<2.0	<1.0	<8.0	<1.0	2.8
7/1/2002	<1.0	57	<1.0	<1.0	<2.0	<1.0	<8.0	<1.0	4.1
8/5/2002	<1.0	33	2.2	<1.0	<2.0	<1.0	<8.0	<1.0	12
9/3/2002	<1.0	174	<1.0	2.6	<2.0	<1.0	<8.0	<1.0	4.4
10/7/2002	<1.0	25	<1.0	<1.0	<2.0	<1.0	<8.0	<1.0	16
11/4/2002	<1.0	48	1.6	<1.0	<2.0	<1.0	<8.0	<1.0	20
12/2/2002	<1.0	27	1.4	<1.0	<2.0	<1.0	<8.0	<1.0	7.7
1/6/2003	<1.0	35	<1.0	<1.0	4.6	<1.0	<6.0	<1.0	12
2/3/2003	<1.0	94	<1.0	<1.0	<2.0	<1.0	<6.0	<1.0	62
3/3/2003	<1.0	55	<1.0	3.3	<2.0	<1.0	<6.0	<1.0	37

[µS/cm, microsiemen per centimeter; cm⁻², mg/L, milligram per liter; <, less than; --, no data; µg/L, microgram per liter]

Appendix 4. Selected water-quality characteristics of samples collected monthly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Chromium ($\mu\text{g/L}$)	Copper ($\mu\text{g/L}$)	Lead ($\mu\text{g/L}$)	Nickel ($\mu\text{g/L}$)	Selenium ($\mu\text{g/L}$)	Silver ($\mu\text{g/L}$)	Thallium ($\mu\text{g/L}$)	Vanadium ($\mu\text{g/L}$)	Zinc ($\mu\text{g/L}$)
4/7/2003	<1.0	81	<1.0	<1.0	<2.0	<1.0	<6.0	<1.0	4.9
5/5/2003	1.5	43	<1.0	<1.0	--	<1.0	<6.0	<1.0	6.5
6/2/2003	<1.0	38	<1.0	<1.0	<2.0	<1.0	<6.0	<1.0	6.2
7/7/2003	1.5	292	<1.0	1.5	<2.0	<1.0	<6.0	<1.0	5.6
8/4/2003	<1.0	155	<1.0	2.4	<2.0	<1.0	<6.0	<1.0	5.3
9/2/2003	<1.0	72	<1.0	<1.0	2.2	<1.0	<6.0	<1.0	4.7
10/8/2003	1.1	58	<1.0	4.0	2.4	<1.0	<6.0	--	7.6
11/3/2003	2.4	124	<1.0	<1.0	<2.0	<1.0	<6.0	--	15
12/1/2003	1.3	107	--	1.2	<2.0	<1.0	<6.0	--	8.6
Summary for samples collected 1 foot below the water surface									
Median	<1.0	71	<1.0	<1.0	<2.0	<1.0	3.4	<1.0	7.6
Maximum	8.8	292	2.9	9.3	4.6	1.7	4.8	1.4	62
Minimum	<1.0	21	<1.0	.8	<2.0	<1.0	2.1	<1.0	2.5
Number of samples	56	56	57	48	51	55	57	44	37

[$\mu\text{S/cm}$, microsiemen per centimeter; cm^{-2} , _____; mg/L , milligram per liter; <, less than; --, no data; $\mu\text{g/L}$, microgram per liter]

Appendix 5. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003.

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalo-methane formation potential (µg/L)
1/2/96	--	218	73	--	--	--	5.9	--	0.146	376
1/10/96	--	387	122	--	--	--	5.7	--	.159	368
1/16/96	--	276	112	--	--	--	6.4	--	.159	350
1/23/96	--	222	49	--	--	--	6.2	--	.155	367
1/30/96	--	329	69	--	--	--	5.9	--	.191	376
2/6/96	--	462	77	--	--	--	6.5	--	.211	419
2/13/96	--	309	--	--	--	--	6.4	--	.186	371
2/22/96	--	303	49	--	--	--	7.5	--	.172	362
2/27/96	--	240	128	--	--	--	9.2	--	.187	398
3/5/96	--	258	106	--	--	--	6.3	--	.168	399
3/12/96	--	243	108	--	--	--	5.6	--	.176	330
3/19/96	--	223	84	--	--	--	6.3	--	.154	314
3/27/96	--	163	60	--	--	--	5.8	--	.140	396
4/2/96	--	174	80	--	--	--	5.8	--	.155	399
4/9/96	--	208	134	--	--	--	6.8	--	.138	405
4/16/96	--	130	29	--	--	--	7.0	--	.134	428
4/23/96	--	--	34	--	--	--	6.2	--	.136	--
4/30/96	--	169	188	--	--	--	7.1	--	.143	378
5/7/96	--	--	154	--	--	--	6.7	--	.162	401
5/14/96	--	238	68	--	--	--	6.1	--	.199	--
5/21/96	--	257	86	--	--	--	6.1	--	.198	--
5/28/96	--	1,084	512	--	--	--	--	--	.220	--
6/3/96	--	--	166	--	--	--	--	--	.176	--
6/10/96	--	184	395	--	--	--	5.6	--	.166	--
6/17/96	--	219	663	--	--	--	6.5	--	.201	421
6/24/96	--	193	118	--	--	--	6.0	--	.190	451
7/1/96	--	267	161	--	--	--	6.9	--	.217	321
7/8/96	--	162	--	--	--	--	7.1	--	.216	470
7/15/96	--	150	84	--	--	--	6.3	--	.182	434
7/22/96	--	127	65	--	--	--	7.5	--	.189	446
7/29/96	--	342	68	--	--	--	7.5	--	.241	507
8/5/96	--	554	354	--	--	--	8.8	--	.309	558
8/13/96	--	603	210	--	--	--	8.1	--	.277	494
8/20/96	--	331	197	--	--	--	9.3	--	.272	488
8/27/96	--	579	273	--	--	--	8.2	--	.273	527
9/3/96	--	323	229	--	--	--	7.0	--	.246	481
9/11/96	--	172	59	--	--	--	7.1	--	.232	489
9/17/96	--	582	105	--	--	--	7.0	--	.294	447
9/24/96	--	294	186	--	--	--	9.1	--	.347	531
10/1/96	--	771	177	--	--	--	11	--	.407	733
10/8/96	--	617	97	--	--	--	9.2	--	.388	673
10/16/96	--	312	55	--	--	--	8.0	--	.308	492
10/22/96	--	171	47	--	--	--	7.2	--	.260	503
10/29/96	--	483	--	--	--	--	7.7	--	.314	578
11/7/96	--	--	112	--	--	--	9.0	--	.330	699
11/13/96	--	677	112	--	--	--	8.8	--	.345	515
11/19/96	--	1,306	340	--	--	--	6.9	--	.430	507
11/26/96	--	1,020	141	--	--	--	9.5	--	.365	576
12/4/96	--	855	81	--	--	--	8.7	--	.348	531
12/10/96	--	644	49	--	--	--	7.8	--	.302	500

110 Processes Affecting Phosphorus and Copper in Two Supply Reservoirs, Lower Coastal Plain, Virginia, 2002–2003

Appendix 5. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalo-methane formation potential (µg/L)
12/17/96	--	659	64	--	--	--	7.5	--	0.297	532
12/31/96	--	692	84	--	--	--	7.4	--	.326	492
1/7/97	--	298	42	--	--	--	6.8	--	.264	463
1/16/97	--	374	66	--	--	--	7.0	--	.237	524
1/21/97	--	701	90	--	--	--	8.3	--	.261	649
1/28/97	--	399	29	--	--	--	6.0	--	.214	422
2/4/97	--	428	35	--	--	--	6.4	--	.196	425
2/11/97	--	361	43	--	--	--	5.6	--	.184	419
2/18/97	--	326	44	--	--	--	6.1	--	.187	426
2/25/97	--	265	29	--	--	--	6.2	--	.181	430
3/4/97	--	272	33	--	--	--	5.5	--	.171	394
3/11/97	--	208	30	--	--	--	4.9	--	.166	375
3/18/97	--	141	26	--	--	--	5.7	--	.169	379
3/25/97	--	180	26	--	--	--	5.2	--	.154	380
4/1/97	--	288	46	--	--	--	6.0	--	.162	379
4/9/97	--	323	10	--	--	--	4.9	--	.160	292
4/15/97	--	296	10	--	--	--	5.6	--	.181	308
4/22/97	--	302	10	--	--	--	6.1	--	.195	474
4/29/97	--	329	30	--	--	--	6.6	--	.215	459
5/6/97	--	220	10	--	--	--	6.1	--	.204	552
5/13/97	--	222	23	--	--	--	6.8	--	.215	488
5/20/97	--	303	49	--	--	--	6.7	--	.219	472
5/27/97	--	393	49	--	--	--	6.9	--	.233	466
6/3/97	--	330	47	--	--	--	7.5	--	.231	432
6/10/97	--	301	69	--	--	--	7.0	--	.236	384
6/17/97	--	146	82	--	--	--	6.9	--	.191	324
6/24/97	--	147	28	--	--	--	5.9	--	.174	--
7/1/97	--	123	48	--	--	--	7.7	--	.166	318
7/8/97	--	138	36	--	--	--	6.8	--	.189	363
7/15/97	--	--	87	--	--	--	6.4	--	.154	352
7/22/97	--	--	106	--	--	--	5.9	--	.170	340
7/29/97	--	--	201	--	--	--	6.3	--	.167	302
8/5/97	--	--	72	--	--	--	5.6	--	.170	304
8/11/97	--	--	59	--	--	--	6.8	--	.157	383
8/19/97	--	--	82	--	--	--	7.7	--	.203	374
8/26/97	--	--	78	--	--	--	7.7	--	.172	390
9/2/97	--	--	73	--	--	--	8.6	--	.162	395
9/8/97	--	75	--	--	--	--	7.4	--	.169	411
9/16/97	--	124	--	--	--	--	8.0	--	.162	312
9/23/97	--	119	--	--	--	--	6.2	--	.124	285
9/30/97	--	202	242	--	--	--	5.8	--	.121	256
10/7/97	--	139	54	--	--	--	5.9	--	.106	266
10/13/97	--	167	68	--	--	--	6.3	--	.128	--
10/21/97	--	215	115	--	--	--	6.6	--	.190	--
10/28/97	--	203	159	--	--	--	6.9	--	.124	--
11/4/97	--	119	52	--	--	--	7.9	--	.144	--
11/13/97	--	157	43	--	--	--	7.2	--	--	389
11/18/97	--	182	53	--	--	--	9.3	--	.172	377
11/25/97	--	133	30	--	--	--	7.6	--	.156	--
12/2/97	--	309	102	--	--	--	7.5	--	.160	355

Appendix 5. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalo-methane formation potential (µg/L)
12/8/97	--	169	26	--	--	--	7.7	--	0.177	--
12/16/97	--	--	--	--	--	--	7.1	--	--	--
12/23/97	--	--	--	--	--	--	6.6	--	.137	--
12/30/97	--	--	--	--	--	--	6.6	--	.160	--
1/5/98	--	211	19	--	34	--	6.1	--	.150	377
1/13/98	--	244	53	--	34	--	6.5	--	.146	310
1/20/98	--	--	86	--	--	--	7.1	--	.162	418
1/27/98	--	--	48	--	--	--	6.4	--	.168	283
2/2/98	--	--	46	--	--	--	7.6	--	.222	392
2/9/98	--	--	37	--	--	--	12	--	.383	812
2/16/98	--	--	54	--	--	--	9.9	--	.405	699
2/23/98	--	--	--	--	--	--	11	--	.472	761
3/2/98	--	--	--	--	--	--	13	--	.429	763
3/9/98	--	--	--	--	--	--	9.4	--	.315	596
3/16/98	--	242	30	--	--	--	5.9	--	.282	507
3/23/98	--	233	18	--	--	--	6.6	--	.268	503
3/30/98	--	194	30	--	--	--	6.0	--	.279	523
4/6/98	--	241	50	--	--	--	6.1	--	.258	519
4/13/98	--	226	53	--	--	--	6.4	--	.240	502
4/20/98	--	215	53	--	--	--	7.3	--	.261	564
4/27/98	--	88	26	--	--	--	7.8	--	.285	577
5/5/98	--	335	69	--	--	--	6.8	--	.237	511
5/12/98	--	443	53	--	--	--	6.1	--	.235	484
5/19/98	--	364	49	--	--	--	6.3	--	.230	462
5/26/98	--	471	26	--	--	--	6.3	--	.280	535
6/2/98	--	501	44	--	--	--	6.6	--	.281	585
6/8/98	--	512	100	--	--	--	6.3	--	.258	533
6/16/98	--	541	147	--	--	--	6.2	--	.250	484
6/19/98	--	--	80	--	--	--	--	--	--	--
6/23/98	--	365	52	--	--	--	7.4	--	.235	475
6/25/98	--	--	--	--	--	--	--	--	--	--
6/30/98	--	444	--	--	--	--	6.2	--	.225	496
7/7/98	--	285	53	--	--	--	6.9	--	.208	397
7/13/98	--	271	94	--	--	--	5.9	--	.219	366
7/21/98	--	1,936	1,120	--	--	--	6.6	--	.222	443
7/28/98	--	105	39	--	--	--	6.0	--	.184	407
8/4/98	--	135	59	--	--	--	6.1	--	.181	420
8/11/98	--	237	352	--	--	--	5.8	--	.173	364
8/18/98	--	181	132	--	--	--	6.5	--	.199	512
8/25/98	--	118	85	--	--	--	6.3	--	.171	427
9/1/98	--	146	100	--	--	--	6.0	--	.187	421
9/8/98	--	140	94	--	--	--	5.5	--	.180	372
9/14/98	--	174	86	--	--	--	6.4	--	.173	332
9/22/98	--	172	73	--	--	--	5.7	--	.180	374
9/29/98	--	229	98	--	--	--	5.3	--	.183	393
10/6/98	--	225	103	--	--	--	6.9	--	.181	455
10/12/98	--	143	120	--	--	--	6.9	--	.158	393
10/20/98	--	406	71	--	--	--	7.6	--	.209	386
10/27/98	--	145	53	--	--	--	6.1	--	.168	370
11/3/98	--	133	75	--	--	--	6.7	--	.143	379

Appendix 5. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalo-methane formation potential (µg/L)
11/9/98	--	136	61	--	--	--	4.8	--	0.111	275
11/17/98	--	159	62	--	--	--	5.0	--	.101	305
11/24/98	--	116	36	--	--	--	6.3	--	.120	390
12/1/98	--	133	42	--	--	--	5.3	--	.139	446
12/8/98	--	271	106	--	--	--	5.1	--	.149	350
12/14/98	--	222	41	--	--	--	4.5	--	.115	296
12/17/98	--	--	--	--	--	--	--	--	--	--
12/22/98	--	191	21	--	--	--	5.1	--	.104	304
12/29/98	--	160	32	--	--	--	5.2	--	.118	302
1/5/99	--	--	--	--	48	--	5.2	5.2	.137	314
1/12/99	--	282	53	--	30	--	5.3	4.9	.149	404
1/19/99	--	518	143	--	24	--	6.0	4.9	.162	438
1/26/99	--	346	55	--	32	--	4.9	4.9	.146	402
2/2/99	--	207	35	--	50	--	4.9	5.0	--	362
2/9/99	--	189	28	--	52	--	5.2	5.5	--	425
2/16/99	--	218	30	--	28	--	5.7	--	--	468
2/23/99	--	293	35	--	25	--	5.8	5.5	.202	481
3/2/99	--	261	17	--	33	--	6.5	6.4	.208	391
3/10/99	--	401	25	--	34	--	6.6	5.6	.208	341
3/16/99	--	480	71	--	34	--	5.7	5.2	.174	336
3/23/99	--	370	25	--	37	--	5.9	5.8	.192	345
3/30/99	--	251	75	--	46	--	6.3	6.0	.171	383
4/6/99	--	212	40	--	60	--	6.4	5.5	.177	417
4/13/99	--	200	84	--	53	--	6.4	6.2	.188	399
4/20/99	--	172	92	--	53	--	7.8	7.0	.198	399
4/27/99	--	--	104	--	53	--	6.8	6.6	.195	406
5/4/99	--	--	56	--	47	--	6.2	6.1	.246	387
5/11/99	--	558	23	--	49	--	7.3	6.8	.240	410
5/18/99	--	361	43	--	50	--	7.5	7.1	.269	353
5/25/99	--	317	106	--	44	--	8.3	7.4	.259	415
6/1/99	--	229	125	--	43	--	8.2	8.2	.244	459
6/8/99	--	205	39	--	47	--	7.7	7.8	.240	418
6/15/99	--	247	82	--	42	--	7.8	7.4	.230	305
6/22/99	--	192	39	--	45	--	7.0	7.1	.219	325
6/29/99	--	--	95	--	36	--	7.4	6.9	.199	327
7/6/99	--	122	57	--	35	--	7.2	6.9	.204	286
7/13/99	--	234	144	--	31	--	6.6	6.4	.176	272
7/20/99	--	246	93	--	30	--	7.0	6.5	.211	280
7/27/99	--	281	209	--	31	--	7.5	5.6	.243	364
8/3/99	--	357	289	--	31	--	8.5	9.0	.207	549
8/10/99	--	214	116	--	33	--	8.2	8.4	.259	502
8/17/99	--	114	209	--	32	--	8.0	7.3	.217	417
8/24/99	--	106	67	--	32	--	7.6	7.1	.171	356
8/31/99	--	183	95	--	28	--	6.0	5.9	.128	292
9/7/99	--	231	113	--	34	--	6.1	6.0	.143	337
9/14/99	--	122	80	--	38	--	7.3	5.5	.172	365
9/21/99	--	526	235	--	10	--	12	11	.282	816
9/27/99	--	650	195	--	19	--	13	11	.319	879
9/30/99	--	--	--	--	19	--	12	11	.410	--
10/1/99	--	--	--	--	19	--	12	12	.283	--

Appendix 5. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalo-methane formation potential (µg/L)
10/4/99	--	--	--	--	19	--	9.9	12	0.466	--
10/5/99	--	632	84	--	21	--	12	11	.436	728
10/6/99	--	--	--	--	22	--	13	12	.435	--
10/7/99	--	--	--	--	20	--	12	12	.435	--
10/8/99	--	--	--	--	20	--	12	12	.485	--
10/12/99	--	884	78	--	22	--	12	11	.372	768
10/14/99	--	--	--	--	--	--	12	12	.506	--
10/15/99	--	--	--	--	--	--	11	11	.462	--
10/18/99	--	--	--	--	--	--	11	11	.496	--
10/19/99	--	1,119	82	--	23	--	12	11	.499	772
10/20/99	--	--	--	--	--	--	11	11	.494	--
10/21/99	--	--	--	--	--	--	13	13	.461	--
10/22/99	--	--	--	--	--	--	12	12	.452	--
10/26/99	--	632	69	--	42	--	11	10	.411	697
10/27/99	--	--	--	--	--	--	10	9.7	--	--
10/28/99	--	--	--	--	--	--	9.6	9.0	--	--
10/29/99	--	--	--	--	--	--	10	--	--	--
11/2/99	--	539	66	--	55	--	11	8.3	.310	678
11/3/99	--	--	--	--	--	--	--	--	--	--
11/9/99	--	694	63	--	40	--	11	8.6	.291	597
11/16/99	--	935	137	--	32	--	10	7.7	.303	539
11/23/99	--	760	47	--	33	--	9.4	7.8	.265	551
11/30/99	--	763	--	--	34	--	8.5	7.3	.231	523
12/7/99	--	743	46	--	34	--	8.3	7.6	.350	514
12/14/99	--	825	51	--	34	--	8.5	7.8	.307	496
12/21/99	--	788	69	--	--	--	8.8	7.9	.295	--
12/28/99	--	1,045	63	--	--	--	8.4	6.0	.290	--
1/4/00	--	--	--	--	44	--	7.1	6.7	.306	401
1/10/00	--	--	--	--	42	--	7.5	7.0	.282	--
1/18/00	--	--	--	--	40	--	6.4	6.2	.242	--
1/24/00	--	--	--	--	44	--	6.9	6.1	.216	--
1/31/00	--	--	--	--	42	--	6.8	6.1	.224	379
2/7/00	--	--	--	--	56	--	6.0	5.1	.207	366
2/14/00	--	--	--	--	66	--	6.1	6.0	.191	187
2/22/00	--	--	--	--	68	--	6.3	4.9	.179	280
2/28/00	--	--	--	--	72	--	5.9	4.9	.296	176
3/6/00	12	234	27	33	74	--	4.9	4.2	.152	253
3/13/00	14	247	30	27	65	--	4.7	4.1	.143	218
3/20/00	14	316	32	80	64	--	5.3	4.9	.157	266
3/27/00	11	244	22	56	66	--	4.9	4.4	.165	237
4/3/00	9	232	18	42	70	--	5.2	4.9	.183	251
4/10/00	8	256	23	37	78	--	5.7	5.9	.189	234
4/17/00	8	252	27	120	81	--	5.7	5.2	.218	378
4/24/00	7	334	25	76	75	--	6.7	6.6	.266	391
5/1/00	6	514	62	60	72	--	7.5	6.1	.280	382
5/8/00	5	330	40	53	73	--	7.4	6.3	.270	197
5/15/00	7	600	68	87	62	--	7.9	6.4	.293	331
5/22/00	7	521	63	47	53	--	8.2	7.1	.276	336
5/30/00	8	498	98	31	52	--	8.2	7.2	.270	358
6/5/00	8	412	85	21	59	--	7.6	7.0	.235	370

Appendix 5. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalo-methane formation potential (µg/L)
6/12/00	10	285	93	95	54	--	7.3	6.3	0.199	393
6/19/00	9	201	56	48	50	--	6.9	6.0	.102	505
6/26/00	8	173	92	39	51	--	7.2	6.2	.152	313
7/5/00	--	--	--	--	--	--	7.1	6.7	.130	393
7/10/00	8	94	151	44	54	--	7.4	7.1	.155	391
7/17/00	8	254	88	65	51	--	7.4	6.9	.210	514
7/25/00	7	364	159	45	53	--	6.8	6.4	.201	493
7/26/00	--	--	--	--	--	--	6.5	--	.208	--
7/27/00	--	--	--	--	--	--	6.8	--	.192	--
7/28/00	--	--	--	--	--	--	6.3	--	.198	--
7/31/00	6	101	68	33	59	--	7.2	6.4	.179	405
8/7/00	6	150	61	53	55	--	6.3	6.6	.174	416
8/14/00	6	141	69	48	58	--	8.2	6.5	.198	410
8/21/00	7	153	119	40	60	--	8.1	6.8	.188	448
8/28/00	--	--	--	--	60	--	7.8	6.6	.196	280
9/5/00	--	--	--	--	50	--	8.3	6.7	.206	531
9/11/00	7	40	44	46	51	--	7.5	6.5	.203	515
9/18/00	6	491	285	87	55	--	8.8	7.0	.231	577
9/25/00	7	240	67	75	50	--	7.9	6.9	.230	450
10/2/00	--	--	--	--	60	--	8.1	7.5	.202	405
10/10/00	7	141	39	64	51	--	8.4	7.4	.200	411
10/16/00	7	194	46	54	56	--	7.0	6.8	.212	458
10/23/00	8	240	64	46	44	--	7.1	6.5	.199	447
10/30/00	7	213	52	94	39	--	6.5	6.6	.174	441
11/6/00	7	475	82	89	37	--	7.5	7.2	.186	360
11/13/00	5	227	45	53	29	--	6.6	6.4	.188	390
11/20/00	5	445	299	52	34	--	7.1	6.3	.167	347
11/27/00	6	208	42	34	36	--	6.8	6.7	.164	341
12/4/00	6	270	51	93	37	--	6.3	6.2	.147	354
12/11/00	5	291	44	74	42	--	5.6	5.3	.153	589
12/20/00	5	430	57	47	41	--	5.2	4.9	.151	348
1/2/01	5	440	41	32	48	13	4.6	4.7	.139	376
1/8/01	6	465	44	37	48	--	5.6	5.6	.151	375
1/16/01	6	545	86	80	41	--	6.6	6.2	.159	324
1/22/01	7	515	36	29	38	--	6.1	5.9	.157	378
1/29/01	8	396	30	21	39	--	5.3	5.2	.149	335
2/5/01	10	520	30	80	40	15	5.0	4.8	.125	331
2/12/01	11	479	31	65	42	--	4.8	5.0	.132	334
2/20/01	10	430	34	48	36	--	4.8	4.9	.128	319
2/26/01	10	329	29	36	44	--	4.5	4.6	.131	330
3/5/01	9	294	30	95	50	16	4.8	4.5	.123	329
3/12/01	9	319	28	66	57	--	4.8	5.0	.130	291
3/19/01	9	196	21	39	49	--	5.0	5.0	.130	308
3/26/01	11	169	21	96	36	--	4.8	4.3	.115	399
4/2/01	10	255	22	76	46	19	4.8	4.7	.113	358
4/16/01	10	116	101	70	51	--	5.0	5.1	.128	287
4/23/01	10	208	28	59	52	--	5.8	6.0	.156	400
4/30/01	9	290	18	51	46	--	6.4	6.2	.192	478
5/7/01	12	386	24	60	47	16	7.2	7.0	.201	488
5/14/01	10	268	14	44	45	--	6.9	7.1	.209	439

Appendix 5. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalo-methane formation potential (µg/L)
5/21/01	10	253	70	108	46	--	--	--	0.192	475
5/29/01	7	145	30	66	44	--	6.2	5.5	.178	414
6/4/01	8	497	39	71	46	13	6.6	6.4	.198	433
6/11/01	8	288	66	98	50	--	6.0	6.2	.181	443
6/18/01	8	284	47	71	46	--	5.9	6.0	.176	390
6/25/01	8	280	62	60	50	--	5.8	6.3	.184	401
7/2/01	7	354	116	85	--	10	6.2	5.8	.196	386
7/9/01	7	394	166	94	48	--	6.2	5.8	.192	418
7/16/01	8	199	70	46	44	--	6.5	6.4	.184	401
7/23/01	7	314	92	69	40	--	6.2	5.6	.171	419
7/30/01	8	161	59	97	43	--	5.8	5.7	.157	405
8/6/01	7	121	44	54	41	12	6.5	6.4	.154	378
8/13/01	8	116	52	83	41	--	6.9	6.2	.162	394
8/20/01	8	64	27	51	38	--	6.2	5.6	.146	316
8/27/01	7	136	64	98	45	--	6.5	6.2	.146	344
9/4/01	7	190	61	79	44	10	6.9	6.5	.168	542
9/10/01	7	237	91	69	44	--	7.5	7.0	.191	481
9/17/01	7	288	80	74	37	--	6.8	5.1	.218	513
9/24/01	9	164	55	56	38	--	7.2	6.7	.209	--
10/1/01	9	134	34	38	31	15	6.6	5.7	.194	432
10/8/01	13	151	48	74	32	--	6.8	6.5	.188	429
10/15/01	20	95	25	51	30	--	6.5	5.4	.181	397
10/22/01	22	99	35	141	29	--	6.3	5.3	.168	379
10/29/01	24	127	32	66	30	--	6.4	6.0	.158	414
11/5/01	18	132	23	46	30	35	5.5	5.8	.128	343
11/13/01	13	91	21	66	26	23	5.2	4.9	.107	297
11/19/01	12	94	30	76	33	27	5.5	4.6	.103	284
11/26/01	15	104	19	72	32	30	4.8	4.6	.094	244
12/3/01	18	117	27	66	31	--	5.0	4.4	.065	247
12/10/01	21	218	32	630	34	44	6.0	5.4	.106	292
12/17/01	27	82	17	102	--	--	4.9	4.9	.103	289
1/2/02	--	--	--	--	32	69	6.0	5.5	--	--
1/7/02	34	256	40	145	30	68	5.5	5.4	.116	379
1/14/02	33	193	34	87	34	57	5.4	4.7	.128	403
1/22/02	23	297	60	165	36	29	5.7	5.4	.133	394
1/28/02	15	382	37	131	35	23	6.0	5.2	.139	332
2/5/02	14	348	80	137	43	19	5.5	5.3	.124	290
2/11/02	14	301	35	108	40	23	6.3	4.6	.124	286
2/19/02	14	260	50	91	33	24	4.9	4.5	.117	267
2/25/02	14	224	29	112	30	25	5.1	4.8	.122	281
3/5/02	12	182	25	180	30	23	5.3	4.4	.119	298
3/11/02	14	160	29	161	32	27	5.2	4.6	.121	305
3/18/02	14	207	38	222	36	24	5.4	4.9	.114	280
3/25/02	13	146	34	200	41	20	5.2	5.0	.107	260
4/3/02	12	202	49	224	44	19	6.2	4.9	.131	322
4/8/02	11	200	34	185	32	26	5.6	5.5	.146	331
4/15/02	10	94	44	162	56	19	5.6	4.9	.142	354
4/22/02	9	126	74	143	58	17	5.6	5.0	.145	349
4/29/02	10	189	132	183	56	17	6.1	5.4	.163	301
5/6/02	10	301	77	128	56	16	6.4	6.3	.183	347

Appendix 5. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalo-methane formation potential (µg/L)
5/15/02	10	300	129	38	46	17	6.6	5.9	0.185	366
5/20/02	10	406	210	36	48	16	7.8	7.1	.212	397
5/28/02	10	388	127	71	43	17	7.5	6.5	.223	388
6/3/02	10	480	139	48	45	--	8.1	7.2	.247	460
6/10/02	10	201	90	26	42	--	7.8	7.5	.230	437
6/17/02	12	204	71	49	37	--	7.5	7.3	.212	422
6/24/02	13	143	53	24	35	27	7.5	7.4	.199	411
7/1/02	13	183	75	57	34		6.9	6.8	.182	374
7/8/02	11	114	68	32	34	19	5.7	5.4	.128	186
7/15/02	11	97	48	20	32	17	5.5	5.1	.114	243
7/22/02	9	858	996	448	31	17	5.2	4.5	.097	284
7/29/02	11	204	716	6,609	36	20	4.5	4.1	.083	173
8/5/02	21	61	27	33	34		5.8	5.1	.126	264
8/12/02	35	94	42	61	36	54	6.1	5.4	.137	294
8/19/02	49	43	44	60	24	74	6.3	5.6	.134	322
8/23/02	--	--	--	--	--	79	--	--	--	--
8/26/02	41	53	45	45	35	77	6.6	5.9	.130	344
9/3/02	52	178	178	174	34	--	5.7	5.1	.115	297
9/9/02	60	74	89	44	36	98	5.6	4.9	.115	282
9/16/02	70	94	93	18	37	106	5.3	4.7	.106	323
9/23/02	60	82	108	80	38	94	5.1	4.8	.094	314
9/30/02	70	52	41	27	38	105	5.7	5.0	.124	348
10/7/02	59	147	54	25	24	--	5.9	5.5	.121	384
10/15/02	86	73	54	45	38	140	5.7	5.0	.106	370
10/21/02	87	70	34	52	35	150	5.3	5.0	--	455
10/28/02	94	67	46	36	33	160	5.2	4.6	.099	441
11/4/02	78	201	68	48	38	132	5.4	4.9	.103	430
11/12/02	63	126	47	18	39	127	5.9	5.2	.105	432
11/18/02	48	207	62	24	34	90	6.7	5.6	.136	362
11/25/02	31	196	34	21	38	77	6.6	5.8	.148	357
12/2/02	35	222	30	27	36	42	6.1	5.7	.156	393
12/9/02	16	171	21	18	32	31	6.4	6.1	.171	427
12/16/02	18	229	28	30	36	29	6.3	6.0	.170	413
1/7/03	16	172	34	35	46	28	6.7	5.7	.144	315
1/13/03	15	208	41	122	46	26	6.5	5.6	.147	364
1/21/03	14	187	38	89	44	25	7.0	5.7	.143	332
1/27/03	12	168	32	59	40	24	6.3	5.7	.138	349
2/3/03	9	229	50	94	41	23	6.6	5.8	.153	369
2/11/03	14	275	49	91	37	21	6.1	5.7	.153	385
2/18/03	9	257	34	96	46	24	6.1	5.6	.170	408
2/25/03	11	349	62	93	55	20	6.3	5.4	.170	393
3/3/03	9	330	37	54	60	22	6.6	5.9	.176	582
3/10/03	10	345	55	67	66	19	6.9	6.6	.202	714
3/17/03	10	298	54	75	62	18	6.7	6.0	.194	217
3/24/03	9	272	56	62	71	18	7.1	6.4	.196	468
3/31/03	11	333	90	152	66	15	6.6	5.0	.193	402
4/7/03	8	264	49	81	70	16	7.1	6.1	.192	472
4/14/03	10	387	40	63	62	16	8.4	7.7	.269	280
4/21/03	9	279	45	58	58	20	8.9	8.9	.306	607
4/29/03	8	289	72	58	54	16	9.0	8.1	.300	782

Appendix 5. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Lee Hall Reservoir, Virginia, January 1999–August 2003. — Continued

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalo-methane formation potential (µg/L)
5/5/03	8	334	89	42	40	18	8.2	7.8	0.300	741
5/12/03	10	426	112	116	44	18	7.9	7.9	.283	722
5/19/03	9	386	71	77	60	17	8.3	8.0	.288	386
5/27/03	9	562	40	36	60	18	8.1	7.8	.311	361
6/2/03	8	521	85	38	69	16	7.4	7.0	.261	620
6/11/03	7	391	37	22	69	13	7.9	8.0	.282	679
6/16/03	7	310	91	91	68	10	7.7	7.4	.264	597
6/23/03	7	552	132	105	68	12	8.1	7.9	.279	358
6/30/03	7	742	152	62	64	12	9.3	8.3	.326	793
7/7/03	8	732	226	292	60	14	9.3	8.9	.322	759
7/14/03	7	464	61	119	60	14	9.5	9.1	.338	589
7/21/03	9	283	64	78	57	13	8.7	8.2	.284	877
7/28/03	7	128	53	48	63	11	7.7	7.2	.239	599
8/5/03	6	338	156	154	59	12	7.7	7.2	.244	696
8/12/03	4	470	151	76	48	8	11	11	.418	869
8/18/03	3	1,156	340	86	39	7	13	13	.538	1,086
8/25/03	3	784	225	169	54	--	12	11	.495	334
9/2/03	5	700	118	72	52	--	11	9.9	.402	--
9/8/03	7	574	78	59	54	--	11	10	.409	758
9/17/03	--	--	--	--	--	--	10	9.9	.336	--
9/22/03	--	--	--	--	--	--	9.8	8.9	.346	--
9/23/03	6	398	63	51	57	--	9.2	--	--	416
9/29/03	7	308	72	45	57	--	9.7	9.4	.327	479
10/8/03	6	476	94	58	52	--	9.5	9.2	.330	472
10/13/03	12	544	40	152	56	--	9.7	9.9	.365	853
10/21/03	NS	NS	NS	NS	51	--	9.2	9.0	.346	--
10/27/03	NS	NS	NS	NS	56	--	8.8	8.4	.308	744
11/3/03	8	332	40	124	54	--	8.5	8.4	.279	452
11/10/03	7	447	66	102	60	--	8.1	7.4	.242	359
11/17/03	7	304	39	70	68	--	7.7	7.4	.215	531
11/24/03	7	375	38	58	67	--	6.9	6.3	.201	681
12/1/03	6	399	44	107	70	--	7.0	6.7	.203	627
12/8/03	7	454	39	80	70	--	6.9	6.4	.195	560
12/15/03	8	496	33	59	63	--	6.5	6.2	.203	464
12/22/03	--	--	--	--	65	--	6.4	6.0	.203	456
Summary for samples collected 1 foot below the water surface										
Median	9	255	59	65	44	20	6.6	6.2	0.191	398
Maximum	94	1,936	1,120	6,609	81	160	13	13	.538	1,086
Minimum	3	40	10	18	10	7.0	4.5	4.1	.065	173
Number of samples	185	366	379	185	257	93	427	267	419	385

Appendix 6. Selected water-quality characteristics of samples collected at site HM1 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Con

Project site number	Date	Time	Depth below water surface (ft)	Chlorophyll <i>a</i> (µg/L)	Color (platinum units)	Temperature, water, field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
HM1	1/4/99	1050	1	9.8	20	5.9	167	12.4	7.2	0.24	<0.02	<0.02	0.001
HM1	2/1/99	1025	1	6.2	50	8.6	164	9.8	6.9	.59	0.02	<0.02	.003
HM1	3/8/99	1035	1	4.6	15	8.2	161	10.7	6.9	.39	<0.02	<0.02	.001
HM1	4/5/99	1043	1	3.5	20	15.9	169	9.8	7.3	2.216	<0.02	<0.02	.001
HM1	5/3/99	1033	1	5.1	20	15.1	177	8.4	7.1	.26	<0.02	<0.02	.001
HM1	6/7/99	937	1	1.8	30	25.5	165	7.6	7.3	.21	<0.02	<0.02	.001
HM1	7/6/99	1035	1	1.8	20	32.2	155	7.6	7.7	.48	<0.02	<0.02	.001
HM1	8/2/99	1030	1	3.5	15	31.2	138	7.0	7.5	.45	<0.02	<0.02	.001
HM1	9/13/99	1027	1	16	30	23.9	167	7.8	7.2	.37	<0.02	<0.02	.028
HM1	10/4/99	1040	1	7.5	70	22.4	70	7.9	6.7	1.924	<0.02	<0.02	.002
HM1	11/1/99	1025	1	6.7	70	17.4	101	11.2	7.1	.36	<0.02	<0.02	.005
HM1	12/7/99	1025	1	5.8	70	10.1	129	9.7	6.9	.34	<0.02	<0.02	.003
HM1	1/4/00	1042	1	11	40	8.6	149	11.4	8.0	.29	<0.02	<0.02	.001
HM1	2/7/00	1045	1	5.3	70	4.0	135	12.4	6.7	.34	<0.02	<0.02	.002
HM1	3/6/00	1020	1	4.9	30	11.6	205	10.6	6.9	.37	<0.02	<0.02	.002
HM1	4/5/00	1028	1	4.8	30	14.7	171	11.7	6.6	.31	.03	<0.02	--
HM1	5/1/00	1040	1	1.2	50	16.2	150	9.0	7.5	.62	<0.02	<0.02	.001
HM1	6/7/00	1000	1	2.3	40	21.1	149	8.3	7.4	.26	<0.02	--	.002
HM1	7/10/00	1027	1	2.6	40	27.2	123	7.1	7.0	.28	.04	.03	.001
HM1	8/7/00	1045	1	4.6	40	27.1	118	7.8	7.1	--	<0.02	<0.02	.001
HM1	9/11/00	1049	1	4.8	40	24.7	127	8.5	7.5	1.41	<0.02	<0.02	.001
HM1	10/9/00	1045	1	14	50	18.9	128	6.7	7.1	.52	.03	<0.02	.002
HM1	11/6/00	1044	1	4.6	30	14.8	133	8.0	7.0	.36	.06	--	.002
HM1	11/8/00	1100	1	1.9	60	13.2	144	8.3	6.8	.22	<0.02	--	.003
HM1	12/4/00	1040	1	2.9	20	7.0	115	9.9	6.7	.38	<0.02	.03	.002
HM1	1/10/01	1030	1	5.6	50	3.1	115	11.9	6.9	.59	<0.02	<0.02	.001
HM1	2/6/01	1050	1	4.3	30	5.8	133	10.2	6.4	.24	.02	<0.02	.001
HM1	3/7/01	1035	1	5.4	30	7.2	144	10.4	7.0	.18	<0.02	<0.02	.001
HM1	4/2/01	1025	1	4.6	25	11.5	160	9.4	7.0	.22	.03	<0.02	.001
HM1	5/7/01	1026	1	2.6	30	19.6	145	8.3	7.1	.26	.02	<0.02	.001
HM1	6/4/01	959	1	4.6	30	23.8	138	8.1	7.5	.31	<0.04	<0.04	.001

[ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data]

Appendix 6. Selected water-quality characteristics of samples collected at site HM1 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Time	Depth below water surface (ft)	Chlorophyll <i>a</i> (µg/L)	Color (platinum units)	Temperature, water, field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
HM1	7/2/01	1039	1	6.4	30	28.4	129	7.2	7.3	--	<0.02	<0.02	0.001
HM1	8/6/01	1345	1	8.6	35	29.4	127	9.8	8.8	0.31	<0.02	<0.02	.001
HM1	9/5/01	955	1	7.3	20	26.4	134	6.3	6.7	.4	<0.02	<0.02	.001
HM1	10/3/01	1040	1	16	20	20.0	136	7.6	7.3	.43	<0.02	<0.02	.001
HM1	11/6/01	1036	1	9.6	15	15.0	186	8.1	7.3	--	.022	<0.02	.001
HM1	12/4/01	1040	1	6.6	20	14.2	198	8.5	7.2	.24	<0.02	<0.02	.001
HM1	1/8/02	1052	1	5.7	10	3.9	247	11.5	7.3	.37	<0.02	<0.02	.001
HM1	3/6/02	1040	1	4.5	--	9.1	176	11.2	7.5	.29	<0.02	<0.02	.001
HM1	4/9/02	1018	1	2.7	--	15.7	152	9.7	7.4	.24	<0.02	<0.02	<.001
HM1	5/21/02	1133	1	--	--	19.8	122	7.7	7.8	--	.05	<0.02	.001
HM1	6/4/02	1020	1	3.6	--	26.1	145	7.3	7.8	.18	<0.02	<0.02	.001
HM1	7/9/02	1035	1	6.1	--	28.5	150	6.9	7.3	.3	<0.02	<0.02	<.001
HM1	8/5/02	1125	1	--	--	30.9	134	7.3	7.2	--	.04	<0.02	<.001
HM1	9/17/02	1016	1	6.8	--	25.4	489	8.0	7.8	.41	.03	<0.02	--
HM1	10/7/02	1001	1	4.2	--	24.2	577	6.4	7.8	.45	.15	<0.02	.004
HM1	11/4/02	949	1	3.7	--	13.7	651	8.1	7.6	.41	.15	.08	.017
HM1	12/3/02	1042	1	4.5	--	8.0	545	10.1	7.6	.45	.04	0.1	.003
HM1	1/13/03	1008	1	--	--	5.4	291	10.4	7.6	.42	.04	.09	.002
HM1	2/3/03	1045	1	1.9	--	3.9	224	11.7	7.2	--	<0.02	.07	--
HM1	3/3/03	1046	1	2.3	--	7.4	193	11.4	7.5	1.34	.03	.12	.007
HM1	4/14/03	1028	1	2.0	--	13.0	177	8.1	7.5	1.46	<0.02	.05	.002
HM1	5/5/03	1041	1	1.2	--	17.9	175	8.1	7.5	.78	<0.02	.03	.003
HM1	6/3/03	1015	1	2.9	50	20.9	169	8.6	7.9	1.28	<0.02	.08	.002
HM1	7/7/03	1034	1	3.1	30	29.0	135	7.3	7.8	1.46	<0.02	.81	.002
HM1	8/11/03	935	1	7.3	50	25.6	89	5.6	7.3	1.07	<0.02	<0.02	.003
Summary for samples collected 1 foot below the water surface													
HM1	Median	--	1	4.6	30	16.1	15	8.4	7.3	0.37	<0.02	<0.02	0.001
HM1	Maximum	--	1	16	70	32.2	651	12.4	8.8	2.216	.15	.81	.028
HM1	Minimum	--	1	1.2	10	3.1	70	5.6	6.4	.18	<0.02	<0.02	<.001
HM1	Number of samples	--	56	53	41	56	56	56	56	50	56	53	53

[ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data]

Appendix 6. Selected water-quality characteristics of samples collected at site HM1 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Time	Depth below water surface (ft)	Chlorophyll <i>a</i> (µg/L)	Color (platinum units)	Temperature, water, field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
HM1	5/3/99	1033	17	--	--	14.9	180	7.8	7.1	0.18	<0.02	<0.02	0.001
HM1	6/7/99	937	15	--	--	16.8	187	0.7	6.6	0.38	.217	<0.02	.002
HM1	7/6/99	1035	18	--	--	16.1	285	0.1	6.9	3.1	.217	<0.02	.002
HM1	8/2/99	1030	18	--	--	17.9	256	0.1	6.8	1.5	.576	<0.02	.001
HM1	9/13/99	1027	17	--	--	21.7	181	1.3	6.8	0.71	.244	.127	.382
HM1	10/4/99	1040	16	--	--	19.7	67	0.1	6.1	0.70	<0.02	<0.02	.010
HM1	5/1/00	1040	17	--	--	14.5	160	6.3	7.2	0.91	<0.02	<0.02	.001
HM1	6/7/00	1000	17	--	--	15.2	197	0.4	6.8	0.47	<0.02	.022	.001
HM1	7/10/00	1027	17	--	--	16.8	188	0.7	6.7	1.0	.606	.021	.002
HM1	8/7/00	1045	18	--	--	18.3	237	0.2	6.8	0.48	1.036	<0.02	.004
HM1	9/11/00	1049	19	--	--	17.5	381	0.3	7.1	2.7	.894	<0.02	.002
HM1	10/9/00	1045	18	--	--	18.6	129	6.6	7.2	0.45	.028	.653	.002
HM1	5/7/01	1026	17	--	--	14.5	150	1.8	6.5	0.37	<0.02	<0.02	.001
HM1	6/4/01	959	17	--	--	15.9	208	0.3	7.0	0.31	.048	<0.02	.003
HM1	7/2/01	1039	16	--	--	16.6	199	0.1	6.7	--	<0.02	<0.02	.002
HM1	8/6/01	1345	16	--	--	18.1	254	0.2	7.2	0.87	.224	.130	.002
HM1	9/5/01	955	18	--	--	17.1	464	0.1	6.7	3.3	3.02	<0.02	.002
HM1	10/3/01	1040	18	--	--	19.1	138	4.6	7.0	0.60	<0.02	<0.02	.001
HM1	5/21/02	1133	17	--	--	17.5	64	0.4	7.3	--	.484	<0.02	.001
HM1	6/4/02	1020	17	--	--	17.9	198	0.3	7.0	0.56	<0.02	<0.02	.001
HM1	7/9/02	1035	16	--	--	19.0	200	0.4	7.0	0.86	.386	<0.02	.001
HM1	9/17/02	1016	18	--	--	21.0	416	0.2	7.3	4.7	5.29	<0.02	.002
HM1	10/7/02	1001	18	--	--	21.5	502	0.4	7.4	1.7	1.153	<0.02	<.001
HM1	5/5/03	1041	17	--	--	12.4	172	1.2	7.2	1.3	.175	.058	.003
HM1	6/3/03	1015	18	--	--	14.7	199	1.2	7.4	1.1	.203	.034	.001
HM1	7/7/03	1034	17	--	--	15.6	222	0.4	7.4	1.8	.649	0.02	.003
HM1	8/11/03	935	18	8.5	--	17.2	205	0.3	7.2	2.0	1.039	.080	.002

[ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data]

Appendix 6. Selected water-quality characteristics of samples collected at site HM1 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 1003. — Continued

[ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data]

Project site number	Date	Phosphorus, ortho, whole water (mg/L)		Phosphorus, whole water (mg/L)		Organic carbon, whole water (mg/L)		Tri-halomethane formation potential, whole water (µg/L)		Calcium, whole water (mg/L)		Magnesium, whole water (mg/L)		Potassium, whole water (mg/L)		Sodium, whole water (mg/L)		Iron, whole water (µg/L)		Manganese, whole water (µg/L)	
HM1	1/4/99	<0.010	--	6.0	198	--	--	--	--	--	--	--	--	--	--	394	168				
HM1	2/1/99	.002	0.036	4.6	285	--	--	--	--	--	--	--	--	--	371	128					
HM1	3/8/99	.001	.046	5.3	248	--	--	--	--	--	--	--	--	--	547	137					
HM1	4/5/99	<0.010	.014	4.8	334	--	--	--	--	--	--	--	--	--	283	93					
HM1	5/3/99	<0.010	.025	5.8	258	--	--	--	--	--	--	--	--	--	228	100					
HM1	6/7/99	--	.013	6.7	--	--	--	--	--	--	--	--	--	--	185	50					
HM1	7/6/99	<0.010	.019	7.3	262	--	--	--	--	--	--	--	--	--	130	94					
HM1	8/2/99	<0.010	.019	6.9	147	--	--	--	--	--	--	--	--	--	162	88					
HM1	9/13/99	<0.010	.025	6.7	405	--	--	--	--	--	--	--	--	--	414	193					
HM1	10/4/99	<0.010	.031	11	527	--	--	--	--	--	--	--	--	--	610	296					
HM1	11/1/99	<0.010	.020	9.0	578	--	--	--	--	--	--	--	--	--	673	232					
HM1	12/7/99	.013	.046	8.0	403	--	--	--	--	--	--	--	--	--	947	156					
HM1	1/4/00	<0.010	.046	7.5	400	17	1.5	2.3	5.6	104	--	--	--	--	--	104					
HM1	2/7/00	<0.010	.052	6.2	210	16	1.5	2.1	6.1	92	--	--	--	--	--	92					
HM1	3/6/00	<0.010	.041	5.5	300	22	1.5	2.2	11	91	--	--	--	--	--	91					
HM1	4/5/00	<0.010	.028	5.4	209	63	2.6	2.1	11	160	605	160	605	160	605	160					
HM1	5/1/00	<0.010	.044	6.6	337	24	1.6	2.0	7.8	60	422	60	422	60	422	60					
HM1	6/7/00	<0.010	.021	7.3	375	25	2.4	1.8	7.6	75	413	75	413	75	413	75					
HM1	7/10/00	<0.010	.023	8.4	482	--	--	--	--	40	273	40	273	40	273	40					
HM1	8/7/00	<0.010	.027	7.1	493	--	--	--	--	74	378	74	378	74	378	74					
HM1	9/11/00	<0.010	.024	7.7	365	16	1.6	1.3	5.5	188	394	188	394	188	394	188					
HM1	10/9/00	<0.010	.028	8.5	367	16	1.7	1.2	5.6	320	654	320	654	320	654	320					
HM1	11/6/00	<0.010	.038	7.0	346	13	1.6	1.5	5.9	205	733	205	733	205	733	205					
HM1	11/8/00	.043	.068	5.6	370	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HM1	12/4/00	.012	.034	6.3	364	13	1.6	1.5	5.9	170	403	170	403	170	403	170	403	170	403	170	
HM1	1/10/01	.011	.034	6.0	--	12	1.8	2.7	6.5	82	588	82	588	82	588	82	588	82	588	82	
HM1	2/6/01	.012	.030	5.3	360	12	1.6	3.1	7.7	79	490	79	490	79	490	79	490	79	490	79	
HM1	3/7/01	.011	.028	4.7	333	13	1.6	2.5	8.1	79	436	79	436	79	436	79	436	79	436	79	
HM1	4/2/01	<0.010	.026	4.3	339	13	1.5	2.4	9.1	87	354	87	354	87	354	87	354	87	354	87	
HM1	5/7/01	<0.010	.019	6.7	174	15	2.5	2.6	9.0	72	419	72	419	72	419	72	419	72	419	72	

Appendix 6. Selected water-quality characteristics of samples collected at site HM1 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 1003. — Continued

Project site number	Date	Phosphorus, ortho, whole water (mg/L)		Phosphorus, whole water (mg/L)		Organic carbon, whole water (mg/L)	Tri-halomethane formation potential, whole water (µg/L)		Calcium, whole water (mg/L)		Magnesium, whole water (mg/L)		Potassium, whole water (mg/L)		Sodium, whole water (mg/L)		Iron, whole water (µg/L)		Manganese, whole water (µg/L)		
		<0.010	0.020	<0.010	0.020		--	452	16	3.7	2.4	8.5	334	85							
HM1	6/4/01	<0.010	0.020	--	452	16	3.7	2.4	8.5	334	85										
HM1	7/2/01	<0.010	.026	6.7	388	14	1.7	1.7	7.4	213	63										
HM1	8/6/01	<0.010	.021	7.6	472	12	1.8	1.6	7.3	160	85										
HM1	9/5/01	<0.010	.028	7.5	474	13	2.5	2.3	7.8	323	218										
HM1	10/3/01	<0.010	--	7.6	469	17	3.3	2.6	11	485	290										
HM1	11/6/01	.010	.031	6.6	408	14	6.3	2.1	20	443	253										
HM1	12/4/01	<0.010	.015	5.5	241	14	2.4	2.6	16	253	150										
HM1	1/8/02	<0.010	.021	4.7	323	15	4.2	2.6	30	277	158										
HM1	3/6/02	.010	.022	5.4	322	13	2.8	--	--	233	71										
HM1	4/9/02	<0.010	.015	5.6	--	15	2.1	--	--	220	103										
HM1	5/21/02	<0.010	--	7.4	--	--	--	--	--	--	--										
HM1	6/4/02	<0.010	.028	7.9	--	15	1.9	--	--	277	104										
HM1	7/9/02	<0.010	.020	7.2	--	12	2.2	--	--	252	201										
HM1	8/5/02	<0.010	.025	6.1	--	--	--	--	--	--	--										
HM1	9/17/02	<0.010	.024	--	302	15	6.7	--	--	181	177										
HM1	10/7/02	<0.010	.020	5.4	255	17	8.2	--	--	282	409										
HM1	11/4/02	--	.027	5.2	217	17	8.2	--	--	389	348										
HM1	12/3/02	<0.010	.022	5.3	--	20	7.7	--	--	364	239										
HM1	1/13/03	<0.010	.028	5.7	--	18	3.9	--	--	288	135										
HM1	2/3/03	<0.010	.026	5.7	280	19	2.2	--	--	317	82										
HM1	3/3/03	.016	.024	5.8	473	21	2.0	--	--	441	111										
HM1	4/14/03	<0.010	.032	7.8	573	20	1.6	--	--	499	89										
HM1	5/5/03	<0.010	.029	7.7	426	21	1.5	--	--	427	138										
HM1	6/3/03	<0.010	.012	8.5	410	20	1.9	1.92	11	605	146										
HM1	7/7/03	<0.010	.030	--	857	22	2.1	2.21	9.8	2071	3,965										
HM1	8/11/03	.016	.034	11	--	13	1.2	1.37	4.1	417	69										
Summary for samples collected 1 foot below the water surface																					
HM1	Median	<0.001	0.026	6.6	362	16	2.0	2.175	7.8	391	111										
HM1	Maximum	0.043	.068	11	857	63	8.2	3.13	30	2071	3,965										
HM1	Minimum	<.001	.012	4.3	147	12	1.2	1.2	4.1	130	40										
HM1	Number of samples	0	53	53	46	39	39	26	26	50	53										

[ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data]

Appendix 6. Selected water-quality characteristics of samples collected at site HM1 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 1003. — Continued

[ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data]

Project site number	Date	Phosphorus, ortho, whole water (mg/L)		Phosphorus, whole water (mg/L)		Organic carbon, whole water (mg/L)	Tri-halomethane formation potential, whole water (µg/L)		Calcium, whole water (mg/L)		Magnesium, whole water (mg/L)		Potassium, whole water (mg/L)		Sodium, whole water (mg/L)		Iron, whole water (µg/L)		Manganese, whole water (µg/L)		
		<0.010	0.021	<0.010	0.021		<0.010	<0.010	0.021	<0.010	0.021	<0.010	0.021	<0.010	0.021	<0.010	0.021	<0.010	0.021	<0.010	0.021
HM1	5/3/99																				
HM1	6/7/99	--	.018	--	.018	--	442	--	--	--	--	--	--	--	--	--	--	245	517	270	98
HM1	7/6/99	.206	.213	.206	.213	--	--	--	--	--	--	--	--	--	--	--	7,080	7,080	4,483	4,483	4,483
HM1	8/2/99	.013	.032	.013	.032	--	--	--	--	--	--	--	--	--	--	--	577	577	3,343	3,343	3,343
HM1	9/13/99	.048	.048	.048	.048	--	--	--	--	--	--	--	--	--	--	--	357	357	2,020	2,020	2,020
HM1	10/4/99	.010	.036	.010	.036	--	--	--	--	--	--	--	--	--	--	--	1,260	1,260	494	494	494
HM1	5/1/00	.019	.099	.019	.099	--	--	--	25	25	1.6	1.6	2.2	2.2	8.0	8.0	465	465	91	91	91
HM1	6/7/00	.066	.115	.066	.115	--	--	--	29	29	2.5	2.5	2.0	2.0	8.0	8.0	1,182	1,182	1,810	1,810	1,810
HM1	7/10/00	.040	.074	.040	.074	--	--	--	21	21	1.9	1.9	1.5	1.5	8.6	8.6	4,004	4,004	2,033	2,033	2,033
HM1	8/7/00	<0.010	.026	<0.010	.026	--	--	--	22	22	2.1	2.1	1.6	1.6	7.9	7.9	4,204	4,204	3,868	3,868	3,868
HM1	9/11/00	<0.010	.032	<0.010	.032	--	--	--	20	20	1.9	1.9	1.5	1.5	6.5	6.5	10,290	10,290	4,844	4,844	4,844
HM1	10/9/00	<0.010	.018	<0.010	.018	--	--	--	16	16	1.7	1.7	1.2	1.2	5.7	5.7	581	581	252	252	252
HM1	5/7/01	<0.010	.045	<0.010	.045	--	--	--	15	15	2.4	2.4	2.5	2.5	9.3	9.3	435	435	350	350	350
HM1	6/4/01	.014	.062	.014	.062	--	--	--	17	17	3.7	3.7	2.5	2.5	9.0	9.0	361	361	126	126	126
HM1	7/2/01	.024	.146	.024	.146	--	--	--	17	17	1.9	1.9	2.2	2.2	9.3	9.3	969	969	2,633	2,633	2,633
HM1	8/6/01	<0.010	.020	<0.010	.020	--	--	--	15	15	2.0	2.0	2.0	2.0	7.8	7.8	430	430	6,597	6,597	6,597
HM1	9/5/01	<0.010	.020	<0.010	.020	--	--	--	23	23	3.0	3.0	6.8	6.8	10	10	24,100	24,100	8,266	8,266	8,266
HM1	10/3/01	.013	.045	.013	.045	--	--	--	14	14	2.4	2.4	1.9	1.9	9.4	9.4	378	378	465	465	465
HM1	5/21/02	<0.010	.028	<0.010	.028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HM1	6/4/02	.055	.043	.055	.043	--	--	--	16	16	2.2	2.2	--	--	--	--	889	889	3,156	3,156	3,156
HM1	7/9/02	<0.010	.012	<0.010	.012	--	--	--	15	15	2.1	2.1	--	--	--	--	3,752	3,752	2,822	2,822	2,822
HM1	9/17/02	<0.010	.026	<0.010	.026	--	--	--	21	21	4.1	4.1	--	--	--	--	30,640	30,640	28,950	28,950	28,950
HM1	10/7/02	<0.010	.022	<0.010	.022	--	--	--	18	18	6.5	6.5	--	--	--	--	343	343	6,569	6,569	6,569
HM1	5/5/03	<0.010	.012	<0.010	.012	--	--	--	18	18	1.6	1.6	--	--	--	--	381	381	335	335	335
HM1	6/3/03	.012	.026	.012	.026	--	--	--	21	21	1.9	1.9	1.9	1.9	10	10	630	630	1,125	1,125	1,125
HM1	7/7/03	.017	.022	.017	.022	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HM1	8/11/03	.017	.022	.017	.022	--	--	--	22	22	2.0	2.0	1.8	1.8	8.5	8.5	3,295	3,295	5,165	5,165	5,165

Appendix 7. Selected water-quality characteristics of samples collected at site HM2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003.

(ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data]

Project site number	Date	Time	Depth below water surface (ft)	Chlorophyll a (µg/L)	Color (platinum units)	Temperature, water, field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
HM2	1/4/99	1020	1	10	30	6.3	143	12.6	7.2	0.51	<0.020	0.028	0.002
HM2	2/1/99	1000	1	8.4	50	8.6	181	9.5	7	.38	.030	<0.020	.003
HM2	3/8/99	1006	1	3.5	30	7.2	147	11.0	6.7	.34	<0.020	<0.020	.002
HM2	4/5/99	1015	1	4.4	40	16.5	184	9.8	7.3	.71	<0.020	<0.020	.001
HM2	5/3/99	1010	1	3.9	40	14.6	169	8.8	7.1	.29	<0.020	<0.020	.001
HM2	6/7/99	903	1	5.0	50	25.2	141	7.8	7	.32	<0.020	<0.020	.001
HM2	7/6/99	1010	1	3.4	20	31.5	138	7.5	7.4	.74	<0.020	<0.020	.001
HM2	8/2/99	1005	1	8.2	50	29.9	126	6.1	7.0	.74	<0.020	<0.020	.001
HM2	9/13/99	957	1	10	30	23.7	242	6.6	6.9	.23	<0.020	<0.020	.005
HM2	10/4/99	1010	1	7.3	70	21.1	137	7.1	6.8	1.1	<0.020	<0.020	.003
HM2	11/1/99	955	1	3.9	100	15.6	119	8.9	6.5	.30	<0.020	<0.020	.004
HM2	12/7/99	959	1	6.2	60	10.2	137	10.3	6.9	.33	<0.020	<0.020	.002
HM2	1/4/00	1009	1	4.1	60	9.3	137	9.8	7.7	.33	<0.020	.027	.002
HM2	2/7/00	1020	1	3.6	60	5.1	186	11.7	6.5	.25	<0.020	.027	.003
HM2	3/6/00	955	1	2.3	30	12.0	217	10.4	6.9	.39	<0.020	<0.020	.002
HM2	4/5/00	957	1	6.4	50	14.9	178	11.3	6.7	.33	.035	<0.020	--
HM2	5/1/00	1010	1	9.5	60	15.7	159	8.9	7.3	.50	<0.020	<0.020	.006
HM2	6/7/00	1034	1	7.9	60	20.7	125	7.8	7.1	.45	<0.020	.313	.002
HM2	7/10/00	955	1	6.9	60	26.0	104	7.1	6.8	.52	<0.020	.037	.002
HM2	8/7/00	958	1	13	60	26.0	127	7.7	6.9	1.7	<0.020	<0.020	.002
HM2	9/11/00	1020	1	4.8	55	24.2	117	9.3	7.4	1.3	<0.020	<0.020	.001
HM2	10/9/00	1010	1	4.8	60	16.7	111	8.3	7.1	.40	<0.020	<0.020	.001
HM2	11/6/00	1018	1	4.8	30	13.7	106	9.7	6.9	.26	<0.020	--	.002
HM2	11/8/00	1008	1	2.6	50	12.5	187	8.2	6.9	.33	<0.020	--	.003
HM2	12/4/00	1015	1	1.6	40	5.4	110	11.6	6.6	.17	<0.020	.020	.001
HM2	1/11/01	1003	1	4.3	50	3.0	107	12.1	6.7	1.5	.020	<0.020	.002
HM2	2/6/01	1020	1	1.9	40	5.9	135	10.1	6.5	.14	<0.020	<0.020	.002
HM2	3/7/01	1008	1	2.7	40	6.2	158	11.1	7.0	.25	<0.020	<0.020	.001
HM2	4/2/01	955	1	4.6	40	11.5	186	10.1	7.2	.16	<0.020	.020	.001
HM2	5/7/01	959	1	3.4	45	20.0	129	9.0	7.0	.50	<0.020	<0.020	.001

Appendix 7. Selected water-quality characteristics of samples collected at site HM2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Time	Depth below water surface (ft)	Chlorophyll <i>a</i> (µg/L)	Color (platinum units)	Temperature, water, field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
HM2	6/4/01	930	1	8.1	30	23.5	130	8.6	7.5	0.29	<0.040	<0.040	0.001
HM2	7/2/01	1013	1	12	60	27.3	108	8.2	7.2	--	<0.020	<0.020	.001
HM2	8/6/01	1300	1	8.3	40	29.8	123	9.6	8.4	.52	<0.020	<0.020	.001
HM2	9/5/01	926	1	8.1	50	25.3	118	6.9	6.5	.52	<0.020	<0.020	.001
HM2	10/3/01	1010	1	5.1	20	19.3	160	9.7	7.5	.45	<0.020	<0.020	.001
HM2	11/6/01	1011	1	6.2	10	14.2	290	9.5	7.4	--	.032	<0.020	<.001
HM2	12/4/01	1005	1	9.3	20	13.8	299	9.1	7.2	.22	<0.020	<0.020	<.001
HM2	1/8/02	1021	1	4.3	15	2.6	232	11.5	7.2	.31	<0.020	<0.020	.001
HM2	3/6/02	1015	1	2.6	25	8.7	150	8.7	7.6	.21	<0.020	<0.020	.001
HM2	4/9/02	950	1	5.8	--	15.3	135	7.9	7.5	.32	<0.020	<0.020	<.001
HM2	5/21/02	1052	1	--	50	18.9	109	8.5	7.8	--	<0.020	<0.020	.001
HM2	6/4/02	1110	1	12	40	25.4	125	6.9	7.6	.23	<0.020	<0.020	.002
HM2	7/9/02	1007	1	7.1	30	27.7	130	7.3	7.6	.23	<0.020	<0.020	<.001
HM2	8/5/02	1050	1	--	30	29.8	227	7.7	7.1	--	<0.020	<0.020	<.001
HM2	9/17/02	1143	1	8.1	20	25.7	343	8.5	7.7	.26	.034	<0.020	.002
HM2	10/7/02	1130	1	4.7	20	24.1	722	7.5	7.7	.32	.036	<0.020	.002
HM2	11/4/02	1023	1	5.9	10	12.4	88	10.7	7.8	.23	<0.040	.081	.002
HM2	12/3/02	940	1	5.0	30	6.5	185	10.3	7.6	.49	.053	<0.020	.001
HM2	1/13/03	1106	1	--	30	5.1	166	11.6	7.8	--	<0.020	<0.020	.002
HM2	2/3/03	1010	1	3.7	40	4.7	148	12.3	7.2	--	<0.020	.041	--
HM2	3/3/03	1018	1	2.2	30	8.1	206	11.6	7.3	1.4	<0.020	.117	.008
HM2	4/14/03	958	1	2.9	70	13.3	114	13.2	7.7	.49	<0.020	.153	.004
HM2	5/5/03	1014	1	3.3	50	17.2	166	8.6	7.5	.86	<0.020	<0.020	.003
HM2	6/3/03	950	1	8.5	70	20.5	141	9.9	8.3	.68	.030	.076	.003
HM2	7/7/03	1001	1	12	30	27.5	113	8.0	7.9	1.8	<0.020	<0.020	.002
HM2	8/11/03	1115	1	12	70	25.0	83	6.3	7.2	1.4	<0.020	<0.020	.006
Summary for samples collected 1 foot below the water surface													
HM2	Median	--	1	5.0	40	15.7	140	9.05	7.2	.36	<0.020	<0.020	.002
HM2	Maximum	--	1	13	100	31.5	722	13.2	8.4	1.8	.053	.313	.008
HM2	Minimum	--	1	1.6	10	2.6	83	6.1	6.5	.14	<0.020	<0.020	<.001
HM2	Number of samples	--	56	53	55	56	56	56	56	50	56	54	54

(ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data)

Appendix 7. Selected water-quality characteristics of samples collected at site HM2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Time	Depth below water surface (ft)	Chlorophyll <i>a</i> (µg/L)	Color (platinum units)	Temperature, water, field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)	Nitrite nitrogen, whole water (mg/L)
HM2	5/3/99	1010	8	--	--	14.6	169	8.7	7.3	0.26	<.020	<.020	0.001
HM2	6/7/99	903	7	--	--	23.7	131	4.1	6.8	.31	<.020	<.020	.002
HM2	7/6/99	1010	7	--	--	27.5	131	3.3	7.0	.58	<.020	<.020	.001
HM2	8/2/99	1005	7	--	--	27.7	121	1.0	6.6	.52	<.020	<.020	.001
HM2	9/13/99	957	8	--	--	23.2	242	5.7	6.9	.24	<.020	<.020	.001
HM2	10/4/99	1010	8	--	--	20.0	143	3.8	6.6	.39	<.020	<.020	.002
HM2	5/1/00	1010	8	--	--	14.1	179	4.5	7.1	.53	<.020	<.020	.006
HM2	6/7/00	1034	8	--	--	20.7	125	7.7	7.1	.20	.022	<.020	.002
HM2	7/10/00	955	7	--	--	25.4	105	3.1	6.6	--	.035	--	.002
HM2	8/7/00	958	8	--	--	24.3	121	2.5	6.5	1.2	<.020	.038	.004
HM2	9/11/00	1020	7	--	--	22.4	140	3.7	6.9	.78	<.020	<.020	.002
HM2	10/9/00	1010	8	--	--	16.6	112	8.2	7.1	.33	<.020	.032	.001
HM2	5/7/01	959	7	--	--	19.5	126	7.9	6.9	.50	<.020	<.020	.001
HM2	6/4/01	930	8	--	--	21.9	136	3.9	7.1	.36	<.040	<.040	.003
HM2	7/2/01	1013	7	--	--	27.3	108	7.6	7.2	--	<.020	<.020	.001
HM2	8/6/01	1300	8	--	--	25.2	121	3.2	7.2	.56	<.020	.020	.001
HM2	9/5/01	926	8	--	--	25.3	118	6.1	6.4	.58	<.020	<.020	.002
HM2	10/3/01	1010	8	--	--	18.4	140	7.7	7.3	.46	<.020	<.020	.001
HM2	5/21/02	1052	8	--	--	18.6	110	0.6	7.4		<.020	<.020	.001
HM2	6/4/02	1110	8	--	--	22.7	124	2.1	6.8	.26	<.020	<.020	.002
HM2	7/9/02	1007	7	--	--	27.2	136	0.4	7.1	.32	<.020	<.020	<.001
HM2	8/5/02	1125	7	--	--	19.4	167	0.3	6.8	--	.828	<.020	.001
HM2	9/17/02	1143	8	--	--	25.1	349	6.9	7.5	.31	<.020	<.020	<.001
HM2	10/7/02	1130	8	--	--	23.8	709	6.1	7.4	.37	.045	<.020	.002
HM2	5/5/03	1014	9	--	--	16.5	174	0.5	7.1	1.2	.020	.045	.004
HM2	6/3/03	950	9	--	--	18.6	110	4.9	7.9	2.2	.027	.163	.007
HM2	7/7/03	1001	8	--	--	24.6	116	1.4	7.7	1.6	<.020	.022	.019
HM2	8/11/03	1115	10	1.1	--	23.0	102	0.6	7.0	1.7	.065	.113	.008

(ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data)

Appendix 7. Selected water-quality characteristics of samples collected at site HM2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Phosphorus, ortho, whole water (mg/L)		Phosphorus, whole water (mg/L)		Organic carbon, whole water (mg/L)		Trihalo-methane formation potential, whole water (µg/L)		Calcium, whole water (mg/L)		Magnesium, whole water (mg/L)		Potassium, whole water (mg/L)		Sodium, whole water (mg/L)		Iron, whole water (µg/L)		Manganese, whole water (µg/L)	
HM2	1/4/99	<.010	--			4.9	232	--	--	--	--	--	--	--	--	--	494	85			
HM2	2/1/99	.007	0.029	4.7	272	4.7	272	--	--	--	--	--	--	--	--	348	96				
HM2	3/8/99	.011	.038	5.9	93	5.9	93	--	--	--	--	--	--	--	--	694	27				
HM2	4/5/99	<.010	.013	5.8	411	5.8	411	--	--	--	--	--	--	--	--	372	53				
HM2	5/3/99	<.010	.027	8.1	365	8.1	365	--	--	--	--	--	--	--	--	472	10				
HM2	6/7/99	--	.027	8.9	--	8.9	--	--	--	--	--	--	--	--	--	444	65				
HM2	7/6/99	<.010	.031	7.9	276	7.9	276	--	--	--	--	--	--	--	--	300	163				
HM2	8/2/99	<.010	.031	9.0	213	9.0	213	--	--	--	--	--	--	--	--	382	144				
HM2	9/13/99	.002	.036	6.7	388	6.7	388	--	--	--	--	--	--	--	--	405	173				
HM2	10/4/99	.011	.041	11	598	11	598	--	--	--	--	--	--	--	--	1,013	168				
HM2	11/1/99	.012	.021	10	507	10	507	--	--	--	--	--	--	--	--	1,170	119				
HM2	12/7/99	.018	.047	7.9	295	7.9	295	--	--	--	--	--	--	--	--	1,028	56				
HM2	1/4/00	.043	.069	6.6	382	6.6	382	14	1.5	14	2.5	1.5	5.9	--	--	--	44				
HM2	2/7/00	.018	.050	5.9	331	5.9	331	20	1.5	20	1.9	1.5	12	--	--	--	54				
HM2	3/6/00	.011	.10	4.5	265	4.5	265	17	1.5	17	2.3	1.5	15	--	--	--	44				
HM2	4/5/00	.012	.050	6.4	369	6.4	369	32	1.5	32	1.4	1.5	6.5	653	94	653	94				
HM2	5/1/00	<.010	.050	7.9	157	7.9	157	30	1.4	30	1.8	1.4	5.6	643	95	643	95				
HM2	6/7/00	.012	.042	8.0	--	8.0	--	20	2.5	20	1.7	2.5	7.1	814	96	814	96				
HM2	7/10/00	.011	.072	9.7	257	9.7	257	--	--	--	--	--	--	--	--	695	42				
HM2	8/7/00	.012	.053	8.7	592	8.7	592	--	--	--	--	--	--	--	--	497	71				
HM2	9/11/00	.010	.050	7.9	502	7.9	502	15	1.6	15	1.2	1.6	5.2	593	63	593	63				
HM2	10/9/00	.015	.034	9.0	398	9.0	398	13	1.6	13	1.3	1.6	5.7	765	61	765	61				
HM2	11/6/00	<.010	.028	7.0	261	7.0	261	12	1.7	12	1.4	1.7	6.0	881	82	881	82				
HM2	11/8/00	.035	.062	5.0	292	5.0	292	--	--	--	--	--	--	--	--	--	--	--	--	--	
HM2	12/4/00	.012	.030	6.0	391	6.0	391	13	1.8	13	2.1	1.8	5.6	524	46	524	46				
HM2	1/11/01	.018	.042	7.9	302	7.9	302	1.1	1.8	1.1	3.1	1.8	7.0	811	40	811	40				
HM2	2/6/01	.021	.063	5.0	365	5.0	365	10	1.6	10	3.2	1.6	9.4	643	28	643	28				
HM2	3/7/01	.015	.026	5.2	351	5.2	351	16	1.6	16	2.4	1.6	8.9	545	39	545	39				
HM2	4/2/01	<.010	.016	5.8	402	5.8	402	18	1.6	18	2.0	1.6	11	411	48	411	48				
HM2	5/7/01	<.010	.032	8.5	190	8.5	190	13	2.7	13	2.3	2.7	9.0	775	60	775	60				

(ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data)

Appendix 7. Selected water-quality characteristics of samples collected at site HM2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Phosphorus, ortho, whole water (mg/L)		Phosphorus, whole water (mg/L)		Organic carbon, whole water (mg/L)		Trihalo-methane formation potential, whole water (µg/L)		Calcium, whole water (mg/L)		Magnesium, whole water (mg/L)		Potassium, whole water (mg/L)		Sodium, whole water (mg/L)		Iron, whole water (µg/L)		Manganese, whole water (µg/L)	
		<.010	.014	.037	.054	--	8.0	477	15	3.8	2.2	8.3	588	130							
HM2	6/4/01	<.010	.014	0.037	.054	--	8.0	477	15	3.8	2.2	8.3	588	130							
HM2	7/2/01	<.010	.014	.054	.036	8.0	562	11	16	1.4	6.6	774	86								
HM2	8/6/01	<.010	.014	.036	.050	8.3	506	11	2.0	3.3	8.4	232	70								
HM2	9/5/01	<.010	.011	.050	--	9.9	--	12	2.4	2.0	7.6	918	279								
HM2	10/3/01	<.010	.010	--	.033	8.2	526	13	3.2	2.0	14	341	79								
HM2	11/6/01	<.010	.010	.033	.017	4.5	213	14	5.3	2.1	10	380	92								
HM2	12/4/01	<.010	.010	.017	.025	5.9	292	15	3.7	2.4	29	260	78								
HM2	1/8/02	<.010	.012	.025	.033	6.2	184	14	4.1	3.2	31	385	57								
HM2	3/6/02	<.010	.015	.033	.040	5.7	96	11	2.1	2.5	14	296	43								
HM2	4/9/02	<.010	.015	.010	.041	6.9	--	22	1.7	2.2	9.5	521	68								
HM2	5/21/02	<.010	.010	.040	.060	8.9	--	--	--	--	--	--	--								
HM2	6/4/02	<.010	.010	.041	.033	9.7	--	12	1.9	2.1	--	696	--								
HM2	7/9/02	<.010	.010	.060	.034	5.6	--	11	2.0	2.1	11	1,051	410								
HM2	8/5/02	<.010	.010	.033	.025	7.6	--	--	--	--	9.5	--	105								
HM2	9/17/02	<.010	.010	.034	.024	--	255	12	4.6	3.4	--	526	--								
HM2	10/7/02	<.010	.010	.025	.032	5.9	168	17	10	6.0	84	242	84								
HM2	11/4/02	--	.010	.024	.026	5.7	573	17	11	4.8	110	149	45								
HM2	12/3/02	<.010	.010	.032	.026	7.8	496	20	2.7	2.6	16	521	60								
HM2	1/13/03	<.010	.010	.026	.030	7.0	--	21	1.8	1.6	10	410	52								
HM2	2/3/03	<.010	.010	.030	.023	7.0	400	15	1.6	1.9	11	601	54								
HM2	3/3/03	.019	.010	.023	.031	6.0	542	32	1.8	1.8	8.8	598	87								
HM2	4/14/03	.010	.010	.031	.035	11	733	16	1.1	1.4	4.7	750	64								
HM2	5/5/03	<.010	.010	.035	.025	9.4	831	17	1.7	1.9	10	991	86								
HM2	6/3/03	<.010	.010	.025	.057	10	470	17	1.6	1.8	9.1	1,066	105								
HM2	7/7/03	<.010	.011	.057	.042	--	972	15	2.0	1.9	9.0	1,491	125								
HM2	8/11/03	.011	.011	.042	.016	16	--	14	0.9	1.1	2.7	781	192								
Summary for samples collected 1 foot below the water surface																					
HM2	Median	<.010	.043	0.034	.072	7.6	367	15	1.8	2.1	9.1	591	71								
HM2	Maximum	<.010	.043	.072	.100	16	972	32	16	6.0	110	1,491	410								
HM2	Minimum	<.010	.043	.010	.010	4.5	93	1.1	0.9	1.1	2.7	149	10								
HM2	Number of samples	54	54	54	54	53	46	39	39	39	38	50	52								

(ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data)

Appendix 7. Selected water-quality characteristics of samples collected at site HM2 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Phosphorus, ortho, whole water (mg/L)		Phosphorus, whole water (mg/L)		Organic carbon, whole water (mg/L)		Trihalo-methane formation potential, whole water (µg/L)		Calcium, whole water (mg/L)		Magnesium, whole water (mg/L)		Potassium, whole water (mg/L)		Sodium, whole water (mg/L)		Iron, whole water (µg/L)		Manganese, whole water (µg/L)		
HM2	5/3/99	0.007		0.027		--	--	--	--	--	--	--	--	--	--	--	--	441		10		
HM2	6/7/99	--		.032		--	--	170		--	--	--	--	--	--	--	--	526		72		
HM2	7/6/99	<.010		.036		--	--	--		--	--	--	--	--	--	--	--	394		107		
HM2	8/2/99	.002		.036		--	--	--		--	--	--	--	--	--	--	--	406		90		
HM2	9/13/99	.001		.033		--	--	--		--	--	--	--	--	--	--	--	450		144		
HM2	10/4/99	.013		.034		--	--	--		--	--	--	--	--	--	--	--	912		177		
HM2	5/1/00	.010		.052		--	--	--		33	1.6	2.9	5.9	675	141			675		141		
HM2	6/7/00	.021		.076		--	--	--		20	2.4	1.7	7.0	753	126			753		126		
HM2	7/10/00	.013		.059		--	--	--		12	1.8	1.2	7.2	1,095	126			1,095		126		
HM2	8/7/00	.021		.049		--	--	--		15	1.6	1.2	5.0	976	110			976		110		
HM2	9/11/00	.012		.044		--	--	--		16	5.2	1.2	1.6	760	123			760		123		
HM2	10/9/00	.015		.035		--	--	--		13	1.6	1.3	5.6	736	62			736		62		
HM2	5/7/01	<.010		.031		--	--	--		13	2.7	2.2	8.7	784	58			784		58		
HM2	6/4/01	.013		.036		--	--	--		16	3.8	3.5	8.7	635	179			635		179		
HM2	7/2/01	.014		.046		--	--	--		11	1.6	1.5	6.6	650	60			650		60		
HM2	8/6/01	<.010		.034		--	--	--		11	2.0	3.9	8.8	362	90			362		90		
HM2	9/5/01	<.010		.044		--	--	--		11	2.1	2.6	7.4	708	107			708		107		
HM2	10/3/01	<.010		--		--	--	--		12	2.9	1.9	12	359	74			359		74		
HM2	5/21/02	.010		.046		--	--	--		--	--	--	--	--	--	--	--	--	--	--	--	
HM2	6/4/02	.015		.058		--	--	--		10	2.1	2.1	10	1,330	98			1,330		98		
HM2	7/9/02	<.010		.032		--	--	--		11	2.0	2.2	9.2	377	134			377		134		
HM2	8/5/02	.057		.093		--	--	--		--	--	--	--	--	--	--	--	--	--	--	--	
HM2	9/17/02	<.010		.032		--	--	--		12	4.8	3.5	42	251	107			42		251		
HM2	10/7/02	<.010		.025		--	--	--		17	10	5.6	82	326	269			82		326		
HM2	5/5/03	<.010		.055		--	--	--		13	1.8	2.0	11	1,195	150			11		1,195		
HM2	6/3/03	<.010		.045		--	--	--		13	1.3	1.9	7.2	1,424	133			7.2		1,424		
HM2	7/7/03	<.010		.056		--	--	--		--	--	--	--	--	--	--	--	--	--	--	--	
HM2	8/11/03	.031		.049		--	--	--		14	0.9	1.2	2.3	1,205	167			2.3		1,205		

(ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data)

Appendix 8. Selected water-quality characteristics of samples collected at site HM3 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003.

Project site number	Date	Time	Depth below water surface (ft)	Chlorophyll <i>a</i> (µg/L)	Color (platinum units)	Temperature, water, field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)
HM3	1/4/99	1040	1	7.0	30	6.9	100	12.5	6.9	0.2	<0.020	0.048
HM3	2/1/99	1100	1	1.4	60	8.4	177	8.6	6.8	.6	.038	<.020
HM3	3/8/99	1118	1	1.9	40	8.9	109	10.7	6.5	.4	<.020	<.020
HM3	4/5/99	1125	1	1.7	60	13.6	122	9.1	6.2	1.7	<.020	<.020
HM3	5/3/99	1120	1	3.2	60	15.9	115	8.5	6.9	.3	<.020	<.020
HM3	6/7/99	1038	1	4.1	50	22.5	105	6.3	6.6	1.7	<.020	<.020
HM3	7/6/99	1120	1	3.6	40	25.6	109	5.5	6.7	.5	<.020	.077
HM3	8/2/99	1110	1	7.8	80	28.3	114	4.3	6.6	.5	<.020	<.020
HM3	9/13/99	1116	1	1.5	20	17.4	322	5.8	7.1	.4	<.020	<.020
HM3	10/4/99	1125	1	1.7	120	20.7	76	7.	6.4	.5	<.020	<.020
HM3	11/1/99	1105	1	2.2	70	13.9	78	8.8	6.1	.4	<.020	<.020
HM3	12/7/99	1100	1	3.0	70	10.5	96	10.8	6.9	.4	<.020	<.020
HM3	1/4/00	1134	1	1.1	70	9.7	106	10.9	8.0	.4	.028	.037
HM3	2/7/00	1125	1	.4	120	5.3	64	11.4	5.6	.5	<.020	<.020
HM3	3/6/00	1100	1	1.8	40	11.5	175	9.8	6.3	.6	<.020	<.020
HM3	4/5/00	1108	1	.8	100	11.9	86	11.7	5.7	.4	.029	<.020
HM3	5/1/00	1120	1	.0	120	13.6	101	7.7	6.9	.5	<.020	<.020
HM3	6/7/00	1110	1	4.3	60	19.7	95	6.7	6.6	.3	.046	<.020
HM3	7/10/00	1115	1	1.9	70	25.6	81	5.5	6.2	.5	.043	.075
HM3	8/7/00	1135	1	1.3	70	28.9	92	5.6	6.3	1.1	<.020	.083
HM3	9/11/00	1142	1	.8	120	21.7	76	6.2	6.3	.8	<.020	<.020
HM3	10/9/00	1130	1	1.7	65	19.4	87	7.6	6.8	.5	<.020	.179
HM3	11/6/00	1126	1	2.8	30	14.5	89	9.2	6.8	.4	.037	--
HM3	12/4/00	1133	1	1.9	40	8.1	94	11.2	6.7	.2	.020	.020
HM3	1/11/01	1110	1	3.5	60	4.5	96	11.6	6.6	.6	<.020	.021
HM3	2/6/01	1140	1	1.7	40	6.4	122	10.2	6.2	.2	.050	<.020
HM3	3/7/01	1113	1	1.1	30	8.9	120	9.8	6.7	.3	.413	<.020
HM3	4/2/01	1110	1	.4	60	10.9	132	9.3	6.5	.3	<.020	.057
HM3	5/7/01	1115	1	2.5	60	18.6	104	6.8	6.5	.7	.857	<.020
HM3	6/4/01	1040	1	1.6	40	21.9	105	6.3	6.9	.3	<.040	.098

[ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemen per centimeter; mg/L, milligram per liter; <, less than; --, no data]

Appendix 8. Selected water-quality characteristics of samples collected at site HM3 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Time	Depth below water surface (ft)	Chlorophyll a (µg/L)	Color (platinum units)	Temperature, water, field (°C)	Specific conductance, field (µS/cm)	Dissolved oxygen, field (mg/L)	pH, field (standard units)	Total Kjeldahl nitrogen, whole water (mg/L)	Ammonia nitrogen, whole water (mg/L)	Nitrate nitrogen, whole water (mg/L)
HM3	7/2/01	1128	1	6.2	70	26.7	86	5.4	6.5	--	<0.020	0.229
HM3	8/6/01	1430	1	4.9	40	24.9	108	5.3	6.7	1.5	<0.020	.095
HM3	9/5/01	1040	1	4.7	50	25.8	103	5.3	6.0	.6	<0.020	.037
HM3	10/3/01	1130	1	4.0	20	19.6	415	7.8	7.1	.4	.035	<0.020
HM3	11/6/01	1115	1	6.4	10	16.4	103	8.1	7.3	--	.024	<0.020
HM3	12/4/01	1120	1	4.8	20	14.6	222	8.6	7.1	.4	<0.020	.090
HM3	1/8/02	1141	1	6.2	20	5.7	166	11.4	7.1	.5	<0.020	.031
HM3	3/6/02	1135	1	4.7	30	9.5	132	11.2	7.2	.4	<0.020	<0.021
HM3	4/9/02	1103	1	6.3	--	14.1	98	10.	7.1	.4	<0.020	.043
HM3	5/21/02	1332	1	--	60	20.1	59	7.9	7.5	--	<0.020	<0.020
HM3	6/4/02	1220	1	2.9	40	22.4	116	6.1	6.8	.2	<0.020	<0.020
HM3	7/9/02	1122	1	2.6	15	27.7	122	7.6	7.3	.4	.022	<0.020
HM3	8/5/02	1050	1	--	--	28.7	257	.3	6.8	--	<0.020	<0.020
HM3	9/17/02	1247	1	7.3	20	25.1	184	7.8	7.5	.4	<0.020	<0.020
HM3	10/7/02	1305	1	4.9	20	24.8	1,299	6.9	7.4	.3	.038	<0.020
HM3	11/4/02	1104	1	2.8	20	10.3	741	9.5	7.6	.6	.184	.779
HM3	12/3/02	1340	1	7.1	50	8.6	109	11.7	7.9	.6	.033	.054
HM3	1/13/03	1237	1	--	40	6.6	103	--	7.8	--	<0.020	.041
HM3	2/3/03	1130	1	--	--	4.7	133	12.6	7.1	--	.061	<0.020
HM3	3/3/03	1129	1	.5	60	8.1	70	11.	6.8	1.1	<0.020	<0.020
HM3	4/14/03	1230	1	.6	120	14.2	72	8.2	6.8	.6	<0.020	.027
HM3	5/5/03	1130	1	1.7	70	17.3	121	6.7	7.3	1.5	.031	.092
HM3	6/3/03	1100	1	.9	120	18.6	80	7.6	7.8	1.2	<0.020	.188
HM3	7/7/03	1141	1	3.9	60	24.0	95	4.8	7.0	1.0	<0.020	.084
HM3	8/11/03	1255	1	.4	100	23.3	31	6.1	5.1	1.1	<0.020	.046
Summary for samples collected 1 foot below the water surface												
HM3	Median	--	1	2.5	60.0	15.9	105	8.0	6.8	0.5	<0.020	<0.020
HM3	Maximum	--	1	7.8	120.0	28.9	1,299	12.6	8.0	1.7	.857	.779
HM3	Minimum	--	1	0.0	10.0	4.5	31	0.3	5.1	0.2	<0.020	<0.020
HM3	Number of samples	--	53	51	52	--	55	54	55	49	18	24

[ft, foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data]

Appendix 8. Selected water-quality characteristics of samples collected at site HM3 by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Project site number	Date	Nitrite nitrogen, whole water (mg/L)	Phosphorus, ortho, whole water (mg/L)	Phosphorus, whole water (mg/L)	Organic carbon, whole water (mg/L)	Trihalomethane formation potential, whole water (µg/L)	Calcium, whole water (mg/L)	Magnesium, whole water (mg/L)	Potassium, whole water (mg/L)	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)
HM3	1/4/99	0.001	<0.010	--	5.4	343	--	--	--	--	705	68
HM3	2/1/99	.002	.015	0.029	8.5	743	--	--	--	--	631	248
HM3	3/8/99	.003	.016	.038	5.8	203	--	--	--	--	778	21
HM3	4/5/99	.003	.015	.022	8.5	675	--	--	--	--	363	48
HM3	5/3/99	.002	.015	.041	9.4	581	--	--	--	--	836	38
HM3	6/7/99	.001	--	.036	8.3	--	--	--	--	--	850	108
HM3	7/6/99	.002	.015	.028	7.9	313	--	--	--	--	685	225
HM3	8/2/99	.002	.030	.028	10	242	--	--	--	--	1,474	912
HM3	9/13/99	.008	.021	.029	2.0	--	--	--	--	--	5,210	1,980
HM3	10/4/99	.003	.030	.034	14	439	--	--	--	--	1,500	74
HM3	11/1/99	.002	.019	.019	10	512	--	--	--	--	1,436	38
HM3	12/7/99	.002	.034	.057	8.9	476	--	--	--	--	1,756	46
HM3	1/4/00	.002	.051	.074	8.2	404	6.4	1.5	2.8	6.2	--	32
HM3	2/7/00	.007	.003	.021	11	306	8.4	0.9	0.6	3.1	--	32
HM3	3/6/00	.002	.010	.038	6.2	132	7.6	1.4	2.6	16	--	46
HM3	4/5/00	--	<0.010	.035	13	442	17	0.9	0.9	3.1	866	31
HM3	5/1/00	.007	<0.010	.035	13	214	21	0.9	1.2	3.1	716	33
HM3	6/7/00	.002	.028	--	8.9	--	13	2.5	1.7	6.9	1,624	324
HM3	7/10/00	.002	<0.010	.055	11	584	--	--	--	--	1,165	164
HM3	8/7/00	.003	.027	.074	10	660	--	--	--	--	1,382	107
HM3	9/11/00	.003	.047	.071	12	377	7.5	1.5	1.3	4.8	1,864	182
HM3	10/9/00	.001	.026	.050	8.7	177	7.4	1.5	1.4	6.0	1,050	117
HM3	11/6/00	.001	.012	.032	7.3	393	6.9	1.6	1.5	6.1	460	50
HM3	12/4/00	.001	.025	.042	6.3	348	8.8	1.8	3.0	5.6	891	24
HM3	1/11/01	.002	.018	.042	6.7	402	7.1	1.9	3.2	7.4	869	40
HM3	2/6/01	.002	.018	.030	5.3	337	6.2	1.6	3.2	10	669	25
HM3	3/7/01	.002	.021	.038	6.0	382	7.5	1.6	2.3	9.5	603	29
HM3	4/2/01	.002	.021	.018	7.3	545	7.9	1.6	2.6	12	745	55
HM3	5/7/01	.002	.022	.054	8.8	229	9.7	2.7	2.4	8.1	1,220	127
HM3	6/4/01	0.002	0.019	0.047	--	430	9.7	3.7	2.4	8.4	890	150

[ft. foot; µg/L, microgram per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligram per liter; <, less than; --, no data]

Appendix 9. Selected water-quality characteristics of samples collected from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. —

Date	Color (units)	Specific conductance (µS/cm)	pH (standard units)	Turbidity (nephelometric turbidity units)	Light absorbance at 254 nanometers (cm ⁻¹)	Total Kjeldahl nitrogen (mg/L)	Ammonia nitrogen (mg/L)	Nitrate nitrogen (mg/L)	Nitrite nitrogen (mg/L)	Phosphorus, ortho, dissolved (mg/L)	Phosphorus, whole water (mg/L)	Sodium, whole water (mg/L)	Potassium, whole water (mg/L)	Calcium, whole water (mg/L)
1/1/99	50	193	7.5	7.6	0.164	1.3	0.249	0.024	<0.001	<0.010	0.019	16	1.8	14
2/1/99	50	169	7.3	6.3	.181	.4	.045	<0.020	.003	<0.010	.029	11	1.7	14
3/1/99	35	193	7.5	4.7	.179	.4	.020	<0.020	.002	.011	.030	10	1.5	17
4/1/99	35	174	7.4	3.1	.149	.5	<0.020	.021	.001	<0.010	.013	13	1.5	19
5/1/99	30	182	7.5	3.4	.162	.2	<0.020	.024	.001	<0.010	.024	9.3	1.5	22
6/1/99	25	175	7.4	1.4	.193	.3	.036	<0.020	.001	<0.010	.014	9.4	1.6	17
7/1/99	30	160	7.3	2.0	.192	--	.041	.054	.001	<0.010	.016	9.2	1.8	14
8/1/99	30	141	7.1	1.7	.176	2.0	<0.020	<0.020	.001	<0.010	.018	--	1.5	14
9/1/99	40	169	7.2	2.8	.189	.4	<0.020	.030	.001	<0.010	.021	13	2.1	15
10/1/99	70	81	6.9	4.1	.365	.4	.021	<0.020	.002	.007	.033	9.4	1.8	10
11/1/99	80	109	6.9	5.0	.362	.4	<0.020	.048	.003	.019	.018	11	2.2	11
12/1/99	60	138	7.4	6.3	.301	--	.030	<0.020	.003	.012	.048	7.5	2.4	16
1/10/00	62	144	7.3	6.1	.258	.2	.022	<0.020	.008	.029	.040	6.9	2.2	19
2/7/00	65	146	7.2	7.5	.201	.1	.200	<0.020	.003	.015	.045	7.6	2.1	18
3/6/00	50	199	7.2	3.5	.157	.6	<0.020	<0.020	.002	.010	.024	13	1.9	23
4/3/00	--	171	--	--	.142	<.1	<0.020	<0.020	.003	<0.010	.022	13	2.1	22
5/1/00	45	154	7.3	3.0	.225	.4	.084	<0.020	.002	<0.010	.020	9.2	1.8	33
6/5/00	30	150	7.2	1.2	.183	.2	.021	<0.020	.002	<0.010	.020	7.7	12	20
7/10/00	30	143	7.2	1.8	.169	.5	.038	.031	.001	<0.010	.015	8.1	9.8	16
8/7/00	40	110	6.8	2.7	.242	.3	<0.020	.022	.003	<0.010	.019	5.2	7.9	13
9/11/00	40	124	7.0	2.1	.228	.4	.037	.057	.001	<0.010	.022	6.0	9.7	16
10/9/00	40	122	6.9	2.0	.263	.4	.039	.067	.002	<0.010	.027	6.1	9.7	16
11/6/00	40	100	6.7	3.0	.207	.3	<0.020	.099	.005	<0.010	.030	6.5	2.0	13
12/4/00	30	--	6.9	3.1	.156	.4	<0.020	.10	.004	.012	.024	6.4	2.0	16
1/2/01	37	126	7.2	3.7	--	.3	.037	<0.020	.001	<0.010	.028	5.6	3.0	14
2/5/01	40	131	7.1	3.3	--	.4	.064	<0.020	.001	.011	.024	8.1	3.5	12
3/5/01	32	135	7.0	3.5	--	.2	.037	<0.020	.001	<0.010	.020	8.6	2.7	14
4/2/01	40	149	7.1	3.7	--	.1	.081	<0.020	.001	<0.010	.034	8.9	2.5	16
5/7/01	35	149	7.2	1.7	--	.3	--	<0.040	.001	<0.010	.021	11.7	2.3	21
6/4/01	32	138	7.3	1.7	--	.3	<0.040	<0.040	.001	<0.010	.016	8.6	3.1	16
7/2/01	35	128	7.3	1.9	--	.4	.034	.044	.001	<0.010	.021	7.8	1.9	12
8/6/01	--	117	--	--	--	.4	.020	.057	.001	<0.010	.020	7.2	1.7	12
9/4/01	37	125	7.0	2.4	--	.5	.029	<0.020	.001	<0.010	.019	7.9	3.7	14

[µS/cm, microsiemens per centimeter; cm⁻¹, per centimeter; mg/L, milligram per liter; <, less than; --, no data; µg/L, microgram per liter; CaCO₃, calcium carbonate]

Appendix 9. Selected water-quality characteristics of samples collected from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Color (units)	Specific conductance (µS/cm)	pH (standard units)	Turbidity (nephelometric turbidity units)	Light absorbance at 254 nanometers (cm ⁻¹)	Total Kjeldahl nitrogen (mg/L)	Ammonia nitrogen (mg/L)	Nitrate nitrogen (mg/L)	Nitrite nitrogen (mg/L)	Phosphorus, ortho, dissolved (mg/L)	Phosphorus, whole water (mg/L)	Sodium, whole water (mg/L)	Potassium, whole water (mg/L)	Calcium, whole water (mg/L)
10/1/01	35	124	6.9	2.8	--	0.3	0.042	--	0.004	<0.010	0.021	9.6	4.3	13
11/5/01	--	198	--	--	--	.2	.036	0.061	.001	<.010	.015	18	2.1	14
12/3/01	--	--	--	--	--	.4	.046	.064	.002	<.010	.022	20	2.4	15
1/7/02	16	300	7.0	2.0	--	<.1	.043	<.020	.001	<.010	.015	46	3.8	19
2/5/02	18	237	6.9	2.0	--	.3	<.020	<.020	.001	<.010	.023	25	3.0	15
3/4/02	27	197	6.7	1.5	--	.2	<.020	.050	.001	<.010	.023	18	3.0	13
4/8/02	22	172	6.9	1.4	--	.2	<.020	<.020	.001	<.010	<.010	14	2.5	14
5/6/02	28	154	6.9	1.5	--	.3	.030	.042	.001	<.010	.016	13	2.6	16
6/3/02	43	158	7.3	2.1	--	.5	.048	--	.001	<.010	.023	11	3.1	15
7/1/02	32	162	7.0	1.7	--	.3	.027	.039	.002	<.010	.022	14	2.4	14
8/5/02	30	219	7.1	1.8	--	.2	<.020	<.020	.001	<.010	.021	21	2.6	13
9/3/02	23	382	6.9	2.2	--	.5	.093	.21	.009	<.010	.015	50	3.9	16
10/7/02	37	333	6.9	3.1	--	.5	.055	.21	.005	<.010	.022	67	4.6	16
11/4/02	25	370	7.0	3.1	--	--	.112	.22	.012	<.010	.023	75	5.3	17
12/2/02	28	528	7.1	2.5	--	.6	.067	.076	.002	<.010	.026	70	4.6	21
1/6/03	30	307	7.1	3.0	--	.5	.068	.105	--	.010	--	34	2.8	19
2/3/03	44	216	--	--	--	.8	<.020	.060	.003	<.010	.011	16	1.8	19
3/3/03	46	178	--	--	--	--	--	.139	.012	.022	.027	12	1.1	21
4/7/03	35	190	--	--	--	.4	.019	.072	.001	.016	.023	11	1.7	22
5/5/03	45	196	--	--	--	.4	.019	.045	.004	<.010	.021	8.4	1.7	21
6/2/03	51	175	7.2	1.2	--	--	.029	.081	--	<.010	.014	9.4	2.1	20
7/7/03	--	162	--	--	--	--	<.020	.103	--	--	.026	--	--	--
8/5/03	47	134	--	--	--	.7	<.020	.074	.002	<.010	.059	6.2	1.9	16
9/2/03	65	136	--	--	--	.4	.023	.088	.002	.033	.039	5.0	1.6	19
10/8/03	47	166	--	--	--	.4	--	.133	--	.025	.016	7.2	2.3	21
11/3/03	47	142	--	--	--	.3	<.020	.093	--	.014	--	6.0	2.4	18
12/1/03	47	154	--	--	--	--	.035	.112	.003	.31	.044	6.0	2.8	20
Summary for samples collected 1 foot below the water surface														
Median	37	159	7.1	2.7	0.191	0.4	0.037	0.042	0.002	<0.010	0.022	9.4	2.3	16
Maximum	80	528	7.5	7.6	.365	2.0	.249	.22	.012	.31	.059	75	12	33
Minimum	16	81	6.7	1.2	.142	<.1	.019	<.020	<.001	<.010	<.010	5.0	1.1	10
Number of samples	55	58	46	46	24	58	57	58	55	59	61	58	59	59

[µS/cm, microsiemen per centimeter; cm⁻¹, per centimeter; mg/L, milligram per liter; <, less than; --, no data; µg/L, microgram per liter; CaCO₃, calcium carbonate]

Appendix 9. Selected water-quality characteristics of samples collected from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Magnesium,		Iron,		Manganese,		Total hardness,		Total alkalinity,		Chloride,		Fluoride,		Bromide (mg/L)	Sulfate (mg/L)	Silica (mg/L)	Total dissolved solids (mg/L)	Total suspended solids (mg/L)	Organic carbon, total (mg/L)
	whole water (mg/L)	whole water (µg/L)	whole water (µg/L)	whole water (µg/L)	CaCO ₃ (mg/L)	CaCO ₃ (mg/L)	as CaCO ₃ (mg/L)	as CaCO ₃ (mg/L)	whole water (mg/L)	whole water (mg/L)	whole water (mg/L)	whole water (mg/L)								
1/1/99	3.1	320	228	47	45	30	0.09	--	7.2	6.2	111	5	5.3							
2/1/99	1.9	300	131	52	51	24	.07	--	7.6	6.8	79	4	4.5							
3/1/99	1.6	413	109	60	39	22	.10	--	7.6	6.9	76	4	5.8							
4/1/99	1.6	272	87	60	58	18	.09	--	6.0	5.7	158	3	4.9							
5/1/99	1.6	727	206	66	50	18	.10	--	5.9	5.1	83	3	5.8							
6/1/99	1.7	316	33	40	42	17	.13	--	3.3	3.4	101	1	6.8							
7/1/99	1.8	71	32	52	44	18	.21	--	3.5	3.9	105	1	6.5							
8/1/99	1.8	202	97	46	36	15	.12	--	4.8	6.1	90	2	7.1							
9/1/99	2.1	153	151	48	37	23	.17	--	4.2	6.3	97	2	5.8							
10/1/99	1.0	596	261	32	20	8.5	.09	--	3.9	3.4	49	2	9.9							
11/1/99	1.3	912	172	44	52	9.5	.05	--	3.7	4.5	55	2	9.7							
12/1/99	1.5	--	--	49	37	10	.09	--	2.6	7.1	61	2	7.6							
1/10/00	1.7	1,087	92	56	46	14	<.05	--	4.9	7.3	109	4	6.9							
2/7/00	1.6	1,062	83	49	56	17	<.05	--	14	7.2	200	4	6.0							
3/6/00	1.7	511	75	64	74	26	<.05	<.040	4.8	5.7	116	3	5.4							
4/3/00	1.6	328	57	55	70	24	<.05	<.040	--	4.7	107	2	4.5							
5/1/00	1.5	57	3	54	72	15	<.05	<.040	--	4.4	103	2	6.2							
6/5/00	2.1	271	26	48	59	17	<.05	<.040	--	4.1	80	0	7.1							
7/10/00	1.6	40	26	44	50	13	<.05	.047	--	5.7	--	1	7.4							
8/7/00	1.4	347	47	38	55	9.2	<.05	.035	--	--	80	1	8.1							
9/11/00	1.3	244	99	46	51	9.4	<.05	.077	8.6	7.2	68	2	7.7							
10/9/00	1.4	438	68	43	52	11	<.05	.086	9.9	6.5	101	2	7.5							
11/6/00	1.7	392	83	42	39	13	<.05	.094	12	6.8	92	2	7.1							
12/4/00	1.8	389	67	45	37	12	<.05	.071	12	7.0	78	1	6.3							
1/2/01	1.8	454	62	38	48	13	--	.076	12	7.4	66	--	--							
2/5/01	1.6	583	59	36	40	12	.09	.044	--	6.4	118	--	--							
3/5/01	1.7	388	54	40	50	14	.08	.039	13	5.8	84	--	--							
4/2/01	1.6	298	65	42	46	17	.11	.039	13	4.7	112	--	--							
5/7/01	1.9	247	54	46	47	17	--	.050	9.6	3.9	100	--	--							
6/4/01	3.6	795	121	42	46	14	.13	.055	6.8	3.1	103	--	--							
7/2/01	1.9	167	57	48	54	12	.30	.054	7.5	5.4	96	--	--							
8/6/01	1.8	182	111	36	43	11	.16	.032	6.1	6.3	81	--	--							

[µS/cm, microsiemen per centimeter; cm⁻¹, per centimeter; mg/L, milligram per liter; <, less than; --, no data; µg/L, microgram per liter; CaCO₃, calcium carbonate]

Appendix 9. Selected water-quality characteristics of samples collected from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Magnesium,		Iron,		Manganese,		Total		Chloride,		Fluoride,		Bromide (mg/L)	Sulfate (mg/L)	Silica (mg/L)	Total dissolved solids (mg/L)	Total suspended solids (mg/L)	Organic carbon, total (mg/L)
	whole water (mg/L)	whole water (µg/L)	whole water (µg/L)	hardness (mg/L as CaCO ₃)	alkalinity (mg/L as CaCO ₃)	whole water (mg/L)	whole water (mg/L)	whole water (mg/L)										
9/4/01	2.5	238	127	30	44	10	--	0.039	12	7.5	--	--	--	--	--	--	--	--
10/1/01	2.7	361	97	44	31	13	--	.049	13	2.6	93	--	--	--	--	--	--	--
11/5/01	3.5	180	99	36	30	38	0.22	.121	15	5.7	--	--	--	--	--	--	--	--
12/3/01	3.0	171	70	--	--	42	.14	.137	14	5.8	128	--	--	--	--	--	--	--
1/7/02	5.5	226	120	--	33	67	--	.205	15	5.2	186	--	--	--	--	--	--	--
2/5/02	3.2	246	42	46	43	48	--	.140	14	5.6	169	--	--	--	--	--	--	--
3/4/02	2.4	320	146	52	30	37	--	.070	15	4.9	134	--	--	--	--	--	--	--
4/8/02	2.2	213	42	28	--	26	.30	--	11	3.5	103	--	--	--	--	--	--	--
5/6/02	1.9	158	41	44	57	21	.21	.040	11	2.9	41	--	--	--	--	--	--	--
6/3/02	1.9	204	69	46	47	18	.21	.042	8.0	4.1	133	--	--	--	--	--	--	--
7/1/02	2.1	113	39	40	36	22	.17	.051	7.4	3.5	94	--	--	--	--	--	--	--
8/5/02	2.6	71	50	48	36	40	.17	.107	9.1	4.3	--	--	--	--	--	--	--	--
9/3/02	5.6	146	311	--	38	78	.11	.238	11	5.5	217	--	--	--	--	--	--	--
10/7/02	7.4	257	185	50	--	138	.22	.381	20	6.3	333	--	--	--	--	--	--	--
11/4/02	8.7	293	291	67	--	176	.06	.447	29	6.6	370	--	--	--	--	--	--	--
12/2/02	8.1	226	129	66	--	140	.22	.344	28	6.8	364	--	--	--	--	--	--	--
1/6/03	4.4	311	171	64	46	63	.20	.149	20	--	222	--	--	--	--	--	--	--
2/3/03	2.3	362	95	54	--	33	.16	.085	16	5.0	128	--	--	--	--	--	--	--
3/3/03	2.0	507	105	46	--	22	.17	.050	15	5.0	147	--	--	--	--	--	--	--
4/7/03	2.0	267	51	60	70	22	.14	--	15	4.6	128	--	--	--	--	--	--	--
5/5/03	1.6	438	139	62	40	17	.54	.036	12	4.1	108	--	--	--	--	--	--	--
6/2/03	1.7	578	153	56	--	17	.16	.033	9.2	4.4	42	--	--	--	--	--	--	--
7/7/03	--	--	--	64	60	13	.19	.032	7.8	6.7	118	--	--	--	--	--	--	--
8/5/03	1.4	305	238	46	--	9.9	.22	.027	7.9	--	98	--	--	--	--	--	--	--
9/2/03	1.4	587	218	48	--	7.8	.17	.037	7.0	7.7	99	--	--	--	--	--	--	--
10/8/03	1.6	564	365	60	--	14	.16	.060	7.5	7.8	142	--	--	--	--	--	--	--
11/3/03	1.5	589	145	58	--	11	.21	.053	7.7	7.6	140	--	--	--	--	--	--	--
12/1/03	1.7	695	191	66	--	11	.20	.054	8.4	9.1	160	--	--	--	--	--	--	--
Summary for samples collected 1 foot below the water surface																		
Median	1.8	308	96	48	46	16.8	0.16	0.054	9.2	5.7	103	2	6.7	2	6.7	2	6.7	6.7
Maximum	8.7	1087	365	67	74	176	.54	.447	29	9.1	370	5	9.9	5	9.9	5	9.9	9.9
Minimum	1.0	40	3	28	20	7.8	.05	.027	2.6	2.6	41	0	4.5	0	4.5	0	4.5	4.5
Number of samples	59	58	58	57	47	60	41	40	54	57	56	24	24	24	24	24	24	24

[µS/cm, microsiemen per centimeter; cm⁻¹, per centimeter; mg/L, milligram per liter; <, less than; --, no data; µg/L, microgram per liter; CaCO₃, calcium carbonate]

Appendix 9. Selected water-quality characteristics of samples collected from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

[$\mu\text{S}/\text{cm}$, microsiemen per centimeter; cm^{-1} , per centimeter; mg/L , milligram per liter; $<$, less than; $--$, no data; $\mu\text{g}/\text{L}$, microgram per liter; CaCO_3 , calcium carbonate]

Date	Alumi- num ($\mu\text{g}/\text{L}$)	Antimony ($\mu\text{g}/\text{L}$)	Arsenic ($\mu\text{g}/\text{L}$)	Barium ($\mu\text{g}/\text{L}$)	Beryl- lium ($\mu\text{g}/\text{L}$)	Cadmium ($\mu\text{g}/\text{L}$)	Chro- mium ($\mu\text{g}/\text{L}$)	Copper ($\mu\text{g}/\text{L}$)	Lead ($\mu\text{g}/\text{L}$)	Nickel ($\mu\text{g}/\text{L}$)	Sele- nium ($\mu\text{g}/\text{L}$)	Silver ($\mu\text{g}/\text{L}$)	Thallium ($\mu\text{g}/\text{L}$)	Vana- dium ($\mu\text{g}/\text{L}$)	Zinc ($\mu\text{g}/\text{L}$)
1/1/99	6	--	--	--	--	<1.0	4.5	61	10.3	--	--	--	<6.0	--	--
2/1/99	--	--	--	--	--	<1.0	1.2	108	1.10	--	--	--	<6.0	--	--
3/1/99	--	--	--	--	--	--	--	--	--	--	--	--	<6.0	--	--
4/1/99	--	--	--	--	--	--	--	203	1.60	--	--	--	<6.0	--	--
5/1/99	409	--	--	--	--	4.99	14.1	163	1.60	--	--	<0.5	<6.0	--	--
6/1/99	135	--	--	--	--	1.12	<1.0	119	1.20	--	--	<5	<6.0	--	--
7/1/99	17	--	--	--	--	<1.0	<1.0	122	<1.0	--	<5.0	<5	<6.0	--	--
8/1/99	90	--	--	--	--	<1.0	<1.0	92	<1.0	--	<5.0	<5	<6.0	--	--
9/1/99	30	--	--	--	--	<1.0	9.8	--	<1.0	--	<5.0	<5	<6.0	--	--
10/1/99	150	--	<5.0	--	--	<1.0	<1.0	135	<1.0	--	<5.0	.6	<6.0	--	--
11/1/99	135	--	<5.0	--	--	2.51	<1.0	124	<1.0	--	<5.0	<5	<6.0	--	--
12/1/99	51	--	<5.0	--	--	--	--	--	--	--	<5.0	<5	<6.0	--	--
1/10/00	186	<2.7	<3.8	22	<0.03	<2.0	1.8	123	<1.00	<0.70	<5.6	<1.0	<0.3	<1.0	12.2
2/7/00	344	<2.7	<3.8	21	<0.3	<2.0	<1.3	104	<1.00	<7.0	<5.6	<1.0	<0.3	<1.0	12.6
3/6/00	170	<2.7	<3.8	23	<0.3	1.65	<1.3	90	<1.00	<7.0	<5.6	<1.0	<0.3	<1.0	10.9
4/3/00	172	<2.7	<3.8	24	<0.3	<2.0	1.6	26	<1.00	<7.0	<5.6	<1.0	<0.3	<1.0	11.8
5/1/00	97	<2.7	<3.8	21	<0.3	<2.0	<1.3	17	<1.00	<7.0	<5.6	<1.0	<8.0	<1.0	117.5
6/5/00	197	<2.7	<3.8	17	<0.3	<2.0	<1.3	33	2.41	<7.0	<5.6	<1.0	<8.0	<1.0	<3.6
7/10/00	170	<2.7	<3.8	19	<0.3	<2.0	<1.3	65	<1.00	<7.0	<5.6	<1.0	<8.0	<1.0	<3.6
8/7/00	188	<2.7	<3.8	12	<0.3	.29	<1.3	85	<1.00	.74	<5.6	<1.0	<8.0	<1.0	<3.6
9/11/00	304	<2.7	<3.8	6	<0.3	<2.0	<1.3	44	<1.00	<7.0	<5.6	<1.0	<8.0	<1.0	<3.6
10/9/00	169	<2.7	<3.8	22	<0.3	.23	<1.3	52	<1.00	<7.0	<5.6	<1.0	<8.0	<1.0	<3.6
11/6/00	146	<2.7	<3.8	22	<0.3	.32	2.7	67	8.92	<1.00	<5.6	<1.0	<8.0	<1.0	7.5
12/4/00	164	3.5	<3.8	20	<0.3	.82	4.9	74	3.18	1.72	<5.6	<1.0	<8.0	<1.0	10.6
1/2/01	133	<4.0	<2.0	20	<0.3	<1.0	<1.0	40	<1.00	<1.00	<2.0	<1.0	<8.0	<1.0	7.3
2/5/01	183	<4.0	<2.0	21	<0.3	<1.0	2.5	71	<1.00	1.43	<2.0	<1.0	<8.0	<1.0	8.0
3/5/01	75	<4.0	<2.0	22	<0.3	<1.0	<1.0	99	<1.00	<1.00	<2.0	<1.0	<8.0	4.0	4.1
4/2/01	41	6.2	<2.0	21	<0.3	<1.0	2.8	82	<1.00	1.95	<2.0	<1.0	<8.0	<1.0	5.7
5/7/01	38	<4.0	<2.0	22	<0.3	<1.0	<1.0	48	<1.00	<1.00	<2.0	<1.0	<8.0	<1.0	1.5
6/4/01	140	<4.0	<2.0	22	<0.3	<1.0	2.6	199	<1.00	<1.00	<2.0	<1.0	<8.0	<1.0	9.4
7/2/01	<50	<4.0	2.6	20	<0.3	<1.0	<1.0	26	<1.00	<1.00	2.0	<1.0	<8.0	<1.0	2.1
8/6/01	<50	<4.0	<2.0	11	<0.3	<1.0	<1.0	57	<1.00	<1.00	<2.0	<1.0	<8.0	<1.0	1.8
9/4/01	53	<4.0	<2.0	20	<0.3	<1.0	<1.0	63	<1.00	<1.00	<2.0	<1.0	<8.0	<1.0	9.1

Appendix 9. Selected water-quality characteristics of samples collected from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

[µS/cm, microsiemen per centimeter; cm⁻¹, per centimeter; mg/L, milligram per liter; <, less than; --, no data; µg/L, microgram per liter; CaCO₃, calcium carbonate]

Date	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Copper (µg/L)	Lead (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
10/1/01	<50	<4.0	<2.0	33	<.03	<1.0	<1.0	25	<1.00	<1.00	<2.0	<1.0	<8.0	<1.0	5.3
11/5/01	<50	<4.0	<2.0	24	<.03	<1.0	<1.0	39	<1.00	<1.00	<2.0	<1.0	<8.0	<1.0	8.1
12/3/01	140	<4.0	<2.0	35	<.03	<1.0	2.5	31	<1.00	3.96	<2.0	<1.0	<8.0	<1.0	26.2
1/7/02	<50	<4.0	<2.0	40	<.03	<1.0	<1.0	64	<1.00	5.47	4.4	<1.0	<8.0	<1.0	13.5
2/5/02	671	<4.0	<2.0	25	<.03	<1.0	4.8	62	<1.00	3.92	<2.0	<1.0	<8.0	<1.0	16.1
3/4/02	69	<4.0	<2.0	26	<.03	<1.0	<1.0	60	<1.00	4.91	<2.0	<1.0	<8.0	<1.0	10.0
4/8/02	68	<4.0	<2.0	24	<.03	<1.0	1.8	77	<1.00	2.88	<2.0	<1.0	<8.0	<1.0	6.8
5/6/02	<50	<4.0	<2.0	19	<.03	<1.0	1.3	63	<1.00	1.10	<2.0	<1.0	<8.0	<1.0	8.4
6/3/02	<50	<4.0	<2.0	17	<.03	1.83	1.2	52	<1.00	8.70	<2.0	<1.0	<8.0	<1.0	1.7
7/1/02	91	<4.0	<2.0	21	<.03	<1.0	1.1	80	<1.00	3.25	<2.0	3.2	<8.0	<1.0	2.3
8/5/02	<50	<4.0	<2.0	19	<.03	<1.0	<1.0	35	<1.00	1.70	<2.0	<1.0	<8.0	<1.0	5.8
9/3/02	<50	<4.0	<2.0	28	<.03	<1.0	<1.0	39	<1.00	<1.00	<2.0	<1.0	<8.0	<1.0	2.9
10/7/02	68	<4.0	<2.0	33	<.03	<1.0	2.0	35	<1.00	<1.00	<2.0	<1.0	<8.0	<1.0	30.3
11/4/02	48	<4.0	<2.0	50	<.03	<1.0	<1.0	32	1.53	<1.00	<2.0	<1.0	<8.0	<1.0	23.0
12/2/02	86	<4.0	<2.0	42	<.03	<1.0	<1.0	27	<1.00	<1.00	<2.0	<1.0	<8.0	<1.0	6.7
1/6/03	113	<4.0	6.5	30	<.03	<1.0	<1.0	58	<1.00	<1.00	<2.0	<1.0	<6.0	<1.0	5.8
2/3/03	174	<4.0	<1.0	22	<.03	<1.0	<1.0	30	<1.00	<1.00	<2.0	<1.0	<6.0	<1.0	15.8
3/3/03	455	<4.0	<1.0	25	<.03	<1.0	1.7	55	<1.00	<1.00	<2.0	<1.0	<6.0	<1.0	35.3
4/7/03	<50	<4.0	<1.0	23	<.03	<1.0	<1.0	73	<1.00	<1.00	<2.0	<1.0	<6.0	<1.0	6.8
5/5/03	135	<4.0	<1.0	24	<.03	<1.0	1.5	122	<1.00	<1.00	--	<1.0	<6.0	<1.0	10.5
6/2/03	78	<4.0	<1.0	23	<.03	<1.0	<1.0	65	<1.00	<1.00	<2.0	<1.0	<6.0	<1.0	5.2
7/7/03	<50	<4.0	<1.0	--	<.03	<1.0	1.3	--	<1.00	<1.00	<2.0	--	<6.0	<1.0	--
8/5/03	42	<4.0	<1.0	21	<.03	<1.0	1.0	90	<1.00	1.14	<2.0	<1.0	<6.0	<1.0	6.3
9/2/03	50	<4.0	<1.0	25	<.03	<1.0	<1.0	70	<1.00	<1.00	3.6	<1.0	<6.0	<1.0	2.8
10/8/03	65	<4.0	<1.0	27	<.03	<1.0	2.5	24	<1.00	3.57	2.7	<1.0	<6.0	<1.0	7.3
11/3/03	70	<4.0	<1.0	23	<.03	<1.0	<1.0	113	<1.00	<1.00	<2.0	1.2	<6.0	<1.0	9.5
12/1/03	256	<4.0	<1.0	27	<.03	<1.0	<1.0	89	--	<1.00	<2.0	<1.0	<6.0	<1.0	10.8
Summary for samples collected 1 foot below the water surface															
Median	134	<4.0	<2.0	22	<.03	<1.0	<1.3	65	<1.00	<1.0	<2.0	<1.0	<.3	4.0	8.0
Maximum	671	6.2	6.5	50	<.03	5.0	14.1	203	10.3	8.7	4.4	3.2	<.6	4.0	117.5
Minimum	6	<2.7	<1.0	6	<.03	<.20	<1.0	17	<1.00	<.70	<2.0	<.5	<.8	4.0	1.5
Number of samples	46	48	51	48	48	57	54	56	57	44	53	55	60	47	46

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003.

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalomethane formation potential (µg/L)
12/22/03	6	682	148	41	42	--	6.6	6.1	0.241	545
12/15/03	6	708	145	55	44	--	7.0	6.7	.239	469
12/8/03	6	667	171	71	48	--	7.3	7.1	.240	667
12/1/03	6	695	191	100	46	--	7.8	7.3	.241	762
11/24/03	6	523	161	33	46	--	7.4	7.2	.245	802
11/17/03	7	580	214	53	42	--	7.9	7.7	.255	739
11/10/03	6	666	265	68	46	--	8.5	7.9	.277	691
11/3/03	7	589	145	113	44	--	8.5	7.9	.286	664
10/27/03	7	706	212	46	46	--	8.4	8.2	.309	--
10/21/03	7	818	296	75	46	--	8.4	8.2	.322	--
10/13/03	7	779	500	108	58	--	8.5	8.5	.304	713
10/8/03	7	564	365	24	56	--	8.4	8.4	.317	693
9/29/03	8	490	169	32	40	--	8.5	8.4	.300	735
9/23/03	7	751	348	46	44	--	8.2	--	--	702
9/22/03	--	--	--	--	--	--	8.4	8.2	.320	--
9/17/03	--	--	--	--	--	--	9.1	9.1	.308	--
9/8/03	4	342	220	36	46	--	9.5	8.8	.309	453
9/2/03	5	587	218	70	46	--	9.7	9.4	.334	--
8/25/03	4	616	229	152	38	--	10.4	10.2	.381	1268
8/18/03	4	544	157	34	34	8	10.4	10.2	.394	409
8/12/03	4	524	156	48	34	9	10.2	9.8	.357	692
8/5/03	--	--	--	--	38	12	8.1	8.1	.254	735
7/28/03	7	253	190	31	38	11	9.0	8.5	.267	587
7/21/03	7	156	27	28	38	14	9.2	8.4	.285	647
7/14/03	8	1,152	777	179	46	15	10.7	9.5	.323	639
7/7/03	8	604	138	40	48	14	8.7	8.5	.272	800
6/30/03	9	593	118	61	49	14	8.2	7.1	.288	368
6/23/03	9	550	168	104	50	14	7.7	7.6	.267	--
6/16/03	9	495	47	66	46	15	7.7	7.5	.269	748
6/11/03					49	15	7.6	7.5	.269	373
6/2/03	9	578	153	65	51	17	7.4	7.2	.258	316
5/27/03	10	581	173	98	51	18	7.4	7.2	.266	695

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalomethane formation potential (µg/L)
5/19/03	10	463	133	141	50	19	7.8	7.4	0.248	365
5/12/03	6	294	86	44	48	19	7.4	7.4	.247	324
5/5/03	8	438	139	122	51	16	7.4	7.3	.259	345
4/29/03	8	326	52	28	50	14	7.8	7.8	.245	669
4/21/03	9	330	55	35	42	16	8.4	7.5	.239	500
4/14/03	11	429	52	57	49	21	7.2	6.8	.217	265
4/7/03	11	267	50	73	51	21	5.9	5.3	.157	
3/31/03	16	352	114	108	52	22	5.8	5.2	.167	513
3/24/03	15	411	212	39	48	22	5.9	5.5	.160	548
3/17/03	14	329	84	41	50	22	5.7	5.4	.163	517
3/10/03	14	352	108	42	46	22	5.9	5.5	.172	667
3/3/03	12	507	105	55	42	24	6.1	5.7	.172	899
2/25/03	15	486	108	80	38	25	5.5	5.3	.145	404
2/18/03	16	347	81	80	38	31	5.5	4.9	.145	362
2/11/03	18	333	87	86	38	32	5.9	5.4	.147	382
2/3/03	16	362	95	30	42	35	5.6	5.1	.142	377
1/27/03	25	313	144	38	41	50	6.1	4.8	.136	364
1/21/03	26	288	134	44	40	58	5.8	4.8	.134	363
1/13/03	36	337	178	59	38	63	6.1	5.3	.139	372
1/7/03	34	311	171	58	40		6.4	5.7	.145	402
12/16/02	58	176	67	23	36	93	5.5	5.2	.143	423
12/9/02	55	174	99	16	33	113	5.5	4.7	.132	397
12/2/02	70	226	129	27	33	131	5.1	4.7	.114	379
11/25/02	72	129	91	16	31	152	5.4	4.7	.121	
11/18/02	86	129	75	19	31	159	5.4	4.5	.114	309
11/12/02	87	138	116	16	32	175	5.3	4.8	.101	485
11/4/02	75	292	291	32	34	165	5.3	4.6	.105	480
10/28/02	97	167	174	22	33	160	5.1	4.5	.102	444
10/21/02	93	255	306	35	32	145	5.2	4.9	.112	457
10/15/02	88	240	362	53	35	145	5.4	4.7	.127	391
10/7/02	67	257	185	35	36	141	5.3	4.8	.111	383
9/30/02	71	75	129	39	36	113	5.1	4.6	.109	332

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absor- bance at 254 nanometers (cm ⁻¹)	Trihalometh- ane formation potential (µg/L)
9/23/02	62	102	119	77	36	103	5.0	4.6	0.104	349
9/16/02	69	62	122	32	36	110	5.1	4.5	.100	334
9/9/02	60	68	148	61	38	102	5.6	4.8	.112	295
9/3/02	50	146	311	39	38	87	5.4	4.8	.118	295
8/26/02	45	54	59	18	35	86	5.8	5.1	.121	336
8/19/02	53	75	103	39	35	81	5.9	5.3	.127	359
8/12/02	33	69	110	60	36	54	6.2	5.8	.142	271
8/5/02	21	71	50	35	35	41	5.7	5.2	.114	263
7/29/02	11	94	117	72	34	20	5.7	5.3	.101	287
7/22/02	11	98	83	55	34	21	5.5	4.8	.104	266
7/15/02	13	115	169	30	33	22	6.1	5.5	.133	312
7/8/02	14	258	258	74	32	23	7.2	5.9	.147	352
7/1/02	14	113	39	80	35	21	7.3	6.4	.181	421
6/24/02	13	170	135	42	34	21	7.8	7.1	.198	448
6/17/02	12	103	67	72	37	18	7.8	7.0	.202	424
6/10/02	12	156	78	30	37	18	7.9	7.2	.216	429
6/4/02	--	--	--	--	38	--	8.0	--	--	--
6/3/02	11	204	69	52	38	18	7.6	7.2	.215	450
5/28/02	12	184	30	71	39	18	7.0	6.2	.201	385
5/20/02	12	135	12	36	38	19	6.1	5.6	.168	349
5/15/02	12	99	10	38	38	20	5.8	5.0	.156	320
5/6/02	13	158	41	63	35	21	5.8	4.7	.162	323
4/29/02	12	165	50	91	34	22	5.8	5.2	.150	322
4/22/02	12	305	192	65	35	18	5.8	5.3	.147	335
4/15/02	14	132	13	45	34	34	5.3	4.8	.128	311
4/8/02	14	213	42	77	28	28	5.0	4.7	.124	289
4/4/02	17	176	38	80	31	28	5.3	5.1	.115	282
3/25/02	18	210	47	52	26	32	4.9	5.1	.114	265
3/18/02	19	236	46	63	26	34	5.4	4.9	.112	297
3/11/02	19	223	37	76	22	35	5.6	5.4	.113	307
3/4/02	17	320	146	60	20	36	5.0	4.3	.108	257
2/25/02	22	176	24	32	25	38	4.6	4.2	.104	249

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalomethane formation potential (µg/L)
2/19/02	21	188	29	34	27	40	4.5	4.4	0.104	274
2/11/02	--	--	--	--	28	44	5.2	4.6	.110	267
2/5/02	25	246	42	62	29	--	5.6	4.8	.112	291
1/28/02	30	174	48	67	28	58	5.0	5.0	.117	288
1/22/02	38	154	52	31	25	63	5.2	5.1	.111	345
1/14/02	40	140	82	32	30	67	4.5	4.0	.097	338
1/7/02	46	226	120	64	28	65	5.3	5.2	.096	344
1/2/02	--	--	--	--	27	61	5.2	4.5	--	--
12/17/01	27	159	119	23	28	--	4.8	4.3	.091	255
12/14/01	--	--	--	--	--	39	--	--	--	--
12/10/01	19	280	110	109	27	42	5.1	4.2	.091	275
12/3/01	20	182	185	32	26	38	5.0	4.1	.089	282
11/26/01	19	228	186	35	26	36	5.1	4.6	.095	276
11/19/01	17	134	105	31	26	31	5.7	5.2	.112	279
11/13/01	20	185	98	48	34	29	6.1	5.5	.131	364
11/5/01	18	180	99	37	26	35	6.3	6.1	.134	428
10/29/01	20	132	68	51	26	--	6.6	5.5	.172	417
10/22/01	18	67	43	33	24	--	6.7	5.7	.177	406
10/15/01	17	118	115	40	26	--	6.8	5.8	.178	475
10/8/01	11	89	67	46	27	--	7.0	5.9	.187	472
10/1/01	10	361	97	25	28	13	7.6	6.8	.193	455
9/24/01	9	126	49	31	28	--	7.4	7.0	.207	471
9/17/01	8	411	107	64	32	--	7.4	6.9	.215	484
9/10/01	8	181	171	39	30	--	7.7	6.9	.223	518
9/4/01	8	238	127	63	30	10	7.1	6.8	.196	514
8/27/01	8	117	111	27	30	--	6.7	6.3	.182	350
8/20/01	8	88	55	47	32	--	7.2	6.6	.181	342
8/13/01	8	126	56	47	32	--	7.2	6.7	.194	411
8/6/01	7	182	111	57	32	11	7.3	6.5	.184	393
7/30/01	8	159	177	92	36	--	6.1	5.5	.193	385
7/23/01	8	128	101	54	36	--	6.2	5.7	.196	411
7/16/01	8	386	211	142	35	--	6.6	6.3	.208	460

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalomethane potential (µg/L)
7/9/01	7	206	93	72	34	--	6.5	6.0	0.220	477
7/2/01	8	167	57	26	41	12	6.4	6.0	.210	391
6/25/01	9	200	42	30	34	--	6.1	6.3	.212	427
6/18/01	9	166	50	44	35	--	5.9	6.0	.201	421
6/11/01	9	120	44	64	37	--	5.7	5.9	.191	404
6/4/01	9	795	121	199	36	14	5.7	5.8	.177	440
5/29/01	8	134	32	42	38	--	6.1	5.8	.201	441
5/21/01	11	192	38	68	38	--	6.2	5.3	.211	429
5/14/01	11	221	37	101	38	--	6.5	6.4	.214	432
5/7/01	12	247	54	48	36	17	6.1	5.4	.189	415
4/30/01	10	186	29	61	37	--	5.6	4.9	.174	370
4/23/01	10	211	38	81	32	--	5.0	5.2	.159	405
4/16/01	11	306	61	73	31	--	5.2	5.0	.173	369
4/9/01	11	252	52	111	36	--	4.2	4.0	.114	299
4/2/01	9	298	65	81	31	17	4.4	4.0	.112	329
3/26/01	9	454	154	115	32	--	4.3	3.6	.124	334
3/19/01	9	386	81	72	31	--	4.6	4.6	.123	323
3/12/01	9	384	58	91	30	--	4.9	4.6	.124	342
3/5/01	9	388	54	99	28	14	5.1	5.0	.128	312
2/26/01	9	422	61	47	26	--	4.5	4.7	.128	340
2/20/01	9	409	49	54	25	--	4.7	5.0	.136	312
2/12/01	9	432	55	66	26	--	5.0	4.9	.140	322
2/5/01	8	583	57	71	29	12	5.3	5.2	.143	359
1/29/01	7	423	54	61	23	--	5.6	4.8	.169	368
1/22/01	7	572	61	25	23	--	5.9	5.4	.173	364
1/16/01	7	524	70	31	24	--	6.8	6.7	.167	343
1/8/01	6	446	62	34	28	--	5.6	5.1	.159	356
1/2/01	6	454	62	40	27	13	4.5	4.6	.157	360
12/20/00	5	403	66	55	27	--	5.0	5.0	.171	351
12/11/00	6	354	82	67	25	--	5.4	5.2	.156	542
12/4/00	6	389	67	74	26	--	6.3	6.0	.156	361
11/27/00	6	338	136	36	27	--	6.9	5.9	.177	327

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalomethane formation potential (µg/L)
11/20/00	6	362	78	36	28	--	7.1	6.7	0.179	335
11/13/00	6	331	66	41	29	--	6.6	6.1	.188	389
11/6/00	7	392	83	67	30	--	7.1	6.4	.207	411
10/30/00	5	276	64	50	31	--	7.0	6.8	.202	499
10/23/00	6	304	59	27	32	--	7.3	6.9	.241	510
10/16/00	5	351	78	34	32	--	7.2	6.6	.239	474
10/10/00	6	438	68	51	38	--	7.5	3.1	.238	447
10/2/00	--	--	--	--	40	--	8.1	6.7	.263	482
9/25/00	6	309	78	65	37	--	7.8	6.9	.231	428
9/18/00	6	202	59	44	39	--	7.3	7.3	.225	532
9/11/00	6	244	99	44	38	--	7.7	6.6	.228	515
9/5/00	--	--	--	--	37	--	7.4	6.0	.210	462
8/28/00	--	--	--	--	38	--	8.1	6.9	.208	499
8/21/00	6	273	66	99	36	--	8.0	7.5	.224	553
8/14/00	6	302	63	50	35	--	8.3	7.0	.231	425
8/7/00	5	347	47	85	31	--	8.1	6.7	.242	495
7/31/00	6	228	25	39	28	--	6.9	6.9	.238	530
7/28/00	--	--	--	--	--	--	6.5	--	.249	--
7/27/00	--	--	--	--	--	--	6.5	--	.245	--
7/26/00	--	--	--	--	--	--	6.4	--	.258	--
7/25/00	7	296	42	52	38	--	6.6	6.4	.227	212
7/24/00	--	--	--	--	--	--	6.6	--	.221	--
7/17/00	8	198	61	94	37	--	7.1	7.0	.227	519
7/10/00	8	40	26	65	40	--	7.4	7.7	.175	426
7/5/00	--	--	--	--	38	--	7.0	6.5	.169	375
6/26/00	8	101	16	38	38	--	6.8	6.0	.161	323
6/19/00	9	203	20	67	40	--	6.9	6.3	.104	--
6/12/00	9	282	24	104	45	--	7.0	6.1	.215	387
6/5/00	8	271	26	33	52	--	7.1	6.4	.183	366
5/30/00	8	367	39	55	45	--	7.0	6.2	.253	363
5/22/00	8	452	37	91	44	--	6.5	6.1	.238	293
5/15/00	8	329	17	62	51	--	6.6	6.1	.231	167

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalomethane potential (µg/L)
5/8/00	8	221	14	32	41	--	6.0	5.8	0.215	--
5/1/00	9	57	3	97	48	--	6.2	6.2	.228	323
4/24/00	11	305	35	79	48	--	5.4	5.0	.179	244
4/17/00	12	297	64	104	54	--	4.9	4.4	.171	301
4/10/00	13	266	65	46	47	--	5.6	5.0	.162	203
4/3/00	13	328	57	172	41	--	4.5	4.3	.142	283
3/27/00	15	352	15	86	39	--	4.2	4.0	.144	96
3/20/00	16	435	72	22	44	--	5.1	4.6	.156	97
3/13/00	16	406	14	62	41	--	5.2	4.7	.141	237
3/6/00	13	511	75	170	46	--	5.4	4.6	.157	261
2/28/00	14	570	66	112	46	--	5.6	4.7	.164	301
2/22/00	--	--	--	--	39	--	6.5	5.3	.195	303
2/14/00	--	--	--	--	31	--	5.5	5.7	.196	326
2/7/00	8	1,062	83	344	34	--	6.0	5.4	.201	344
1/31/00	--	--	--	--	36	--	7.4	5.9	.224	394
1/24/00	--	--	--	--	38	--	7.3	6.0	.237	--
1/18/00	--	--	--	--	39	--	6.6	6.1	.221	--
1/10/00	7	1,087	92	123	42	--	7.1	5.9	.258	--
1/4/00	--	--	--	--	39	--	6.9	6.4	.248	421
12/28/99	--	850	94	--	--	--	7.3	5.7	.248	--
12/21/99	--	690	138	--	--	--	8.1	7.5	.241	--
12/14/99	--	782	138	--	50	--	8.0	7.3	.260	446
12/7/99	--	806	138	--	53	--	7.6	7.3	.301	472
11/30/99	--	847	162	--	54	--	7.5	6.9	.208	479
11/23/99	--	740	163	--	53	--	8.6	7.0	.317	502
11/16/99	--	869	226	--	65	--	9.1	5.7	.279	568
11/9/99	--	753	--	--	50	--	9.7	8.5	.269	580
11/2/99	--	857	173	--	60	--	9.7	9.0	.362	609
10/28/99	--	--	--	--	--	--	10.1	9.2	--	--
10/27/99	--	--	--	--	--	--	10.1	9.2	--	--
10/26/99	--	924	152	--	60	--	9.3	9.2	.394	620
10/22/99	--	--	--	--	--	--	9.3	9.1	.424	--

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalomethane formation potential (µg/L)
10/21/99	--	--	--	--	--	--	10.5	10.6	0.413	--
10/20/99	--	--	--	--	--	--	9.3	9.4	.403	--
10/19/99	--	996	214	--	68	--	9.6	9.2	.400	632
10/18/99	--	--	--	--	--	--	9.3	9.7	.430	--
10/15/99	--	--	--	--	--	--	10.0	9.8	.443	--
10/14/99	--	--	--	--	--	--	9.9	10.9	.440	--
10/12/99	--	797	197	--	75	--	9.3	8.9	.295	578
10/8/99	--	--	--	--	--	--	10.7	9.9	.400	--
10/7/99	--	--	--	--	--	--	10.4	10.2	.299	--
10/6/99	--	--	--	--	--	--	9.5	10.4	.281	--
10/5/99	--	560	227	--	68	--	9.9	9.8	.365	746
10/4/99	--	--	--	--	--	--	11.6	11.7	.422	--
10/1/99	--	--	--	--	--	--	11.1	10.5	.384	--
9/30/99	--	--	--	--	--	--	10.8	9.7	.396	--
9/27/99	--	531	218	--	77	--	11.0	9.7	.274	750
9/21/99	--	300	122	--	107	--	11.5	9.9	.260	794
9/14/99	--	159	108	--	60	--	6.9	5.8	.189	390
9/7/99	--	375	262	--	67	--	6.8	6.2	.126	377
8/31/99	--	567	236	--	68	--	6.7	6.6	.176	333
8/24/99	--	158	318	--	62	--	8.0	7.0	.174	413
8/17/99	--	240	84	--	71	--	8.0	7.1	.233	393
8/10/99	--	196	85	--	67	--	8.0	7.1	.228	399
8/3/99	--	127	178	--	76	--	7.1	7.1	.176	388
7/27/99	--	195	354	--	50	--	7.0	6.3	.223	355
7/20/99	--	89	50	--	64	--	6.7	5.9	.200	258
7/13/99	--	110	62	--	56	--	6.9	6.2	.192	310
7/6/99	--	68	44	--	55	--	6.5	6.4	.192	307
6/29/99	--	71	61	--	57	--	7.3	6.9	.193	326
6/22/99	--	95	48	--	53	--	6.9	7.2	.205	333
6/15/99	--	91	45	--	63	--	6.9	6.9	.204	329
6/8/99	--	175	88	--	73	--	6.8	6.5	.193	334
6/1/99	--	139	43	--	63	--	6.2	6.0	.184	338

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalomethane formation potential (µg/L)
5/25/99	--	121	45	--	63	--	6.1	5.8	0.185	288
5/18/99	--	159	69	--	58	--	5.6	4.6	.174	296
5/11/99	--	189	47	--	64	--	5.7	4.8	.155	326
5/4/99	--	131	180	--	60	--	5.8	4.8	.162	308
4/27/99	--	235	157	--	65	--	5.5	5.4	.150	326
4/20/99	--	218	83	--	60	--	5.9	5.7	.150	336
4/13/99	--	218	93	--	55	--	5.6	5.2	.151	314
4/6/99	--	264	54	--	66	--	4.9	4.4	.149	335
3/30/99	--	281	68	--	62	--	5.5	5.5	.153	348
3/23/99	--	334	73	--	37	--	5.6	4.7	.160	312
3/16/99	--	348	88	--	29	--	5.2	4.3	.137	275
3/10/99	--	365	99	--	30	--	5.8	5.1	.128	300
3/2/99	--	341	110	--	40	--	5.6	4.7	.141	300
2/23/99	--	464	--	--	35	--	4.5	4.4	.132	427
2/16/99	--	293	128	--	36	--	4.8	--	--	393
2/9/99	--	299	126	--	50	--	5.8	4.5	--	429
2/2/99	--	322	108	--	51	--	4.5	4.5	--	379
1/26/99	--	361	95	--	43	--	5.8	4.6	.127	406
1/19/99	--	296	155	--	46	--	6.0	4.3	.108	409
1/12/99	--	304	170	--	46	--	4.8	4.1	.107	341
1/5/99	--	--	--	--	43	--	5.3	4.5	.111	275
12/29/98	--	343	148	--	--	--	5.7	--	--	--
12/22/98	--	433	168	--	--	--	5.3	--	--	305
12/14/98	--	430	189	--	--	--	4.8	--	--	301
12/8/98	--	378	176	--	--	--	5.0	--	--	314
12/1/98	--	444	190	--	--	--	5.2	--	--	375
11/24/98	--	434	219	--	--	--	6.2	--	--	401
11/17/98	--	453	183	--	--	--	5.3	--	--	392
11/9/98	--	286	228	--	--	--	5.9	--	--	392
11/3/98	--	226	228	--	--	--	5.1	--	--	365
10/27/98	--	344	320	--	--	--	6.6	--	--	414
10/20/98	--	229	210	--	--	--	6.5	--	--	379

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absor- bance at 254 nanometers (cm ⁻¹)	Trihalometh- ane formation potential (µg/L)
10/12/98	--	420	352	--	--	--	6.1	--	--	367
10/6/98	--	156	148	--	--	--	6.4	--	--	310
9/29/98	--	134	152	--	--	--	5.7	--	--	401
9/22/98	--	100	67	--	--	--	5.4	--	--	363
9/14/98	--	313	462	--	--	--	6.0	--	--	382
9/8/98	--	138	159	--	--	--	5.5	--	--	315
9/1/98	--	218	147	--	--	--	6.4	--	--	418
8/25/98	--	123	113	--	--	--	6.1	--	--	477
8/18/98	--	99	81	--	--	--	6.9	--	--	483
8/11/98	--	119	114	--	--	--	5.5	--	--	386
8/4/98	--	--	67	--	--	--	6.2	--	--	430
7/28/98	--	130	58	--	--	--	6.2	--	--	421
7/21/98	--	157	75	--	--	--	6.6	--	--	420
7/13/98	--	148	72	--	--	--	5.7	--	--	391
7/7/98	--	165	113	--	--	--	6.7	--	--	382
6/30/98	--	318	83	--	--	--	5.9	--	--	442
6/23/98	--	255	57	--	--	--	6.1	--	--	481
6/16/98	--	367	--	--	--	--	5.5	--	--	473
6/8/98	--	438	--	--	--	--	5.7	--	--	557
6/2/98	--	461	90	--	--	--	5.8	--	--	539
5/26/98	--	441	99	--	--	--	5.6	--	--	526
5/19/98	--	420	177	--	--	--	5.5	--	--	476
5/12/98	--	380	76	--	--	--	5.9	--	--	504
5/5/98	--	431	133	--	--	--	6.4	--	--	513
4/28/98	--	111	41	--	--	--	6.6	--	--	523
4/21/98	--	484	232	--	--	--	7.5	--	--	527
4/13/98	--	317	106	--	--	--	5.7	--	--	499
4/6/98	--	334	38	--	--	--	5.3	--	--	465
3/30/98	--	259	51	--	--	--	5.4	--	--	483
3/23/98	--	329	63	--	--	--	5.9	--	--	429
3/16/98	--	398	--	--	--	--	5.4	--	--	528
3/9/98	--	335	78	--	--	--	8.8	--	--	564

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalomethane formation potential (µg/L)
3/2/98	--	520	54	--	--	--	8.7	--	--	600
2/23/98	--	470	53	--	--	--	10.0	--	--	524
2/16/98	--	468	83	--	--	--	7.8	--	--	509
2/9/98	--	358	68	--	--	--	9.4	--	--	605
2/2/98	--	294	94	--	--	--	7.3	--	--	367
1/27/98	--	292	95	--	--	--	7.3	--	--	321
1/20/98	--	240	105	--	--	--	7.4	--	--	401
1/13/98	--	210	70	--	--	--	7.1	--	--	359
1/5/98	--	233	81	--	--	--	7.0	--	--	344
12/30/97	--	--	--	--	--	--	7.3	--	0.630	--
12/23/97	--	--	--	--	--	--	7.3	--	.560	--
12/16/97	--	--	--	--	--	--	8.0	--	--	--
12/8/97	--	323	--	--	--	--	7.9	--	.410	--
12/2/97	--	310	--	--	--	--	6.8	--	.590	389
11/25/97	--	242	--	--	--	--	7.6	--	.700	398
11/18/97	--	204	--	--	--	--	8.5	--	.580	296
11/11/97	--	197	--	--	--	--	8.0	--	.440	338
11/4/97	--	265	--	--	--	--	7.2	--	.380	--
10/28/97	--	363	--	--	--	--	7.3	--	.350	--
10/21/97	--	265	--	--	--	--	7.5	--	.450	--
10/13/97	--	143	--	--	--	--	7.0	--	.500	--
10/7/97	--	234	234	--	--	--	7.6	--	.350	315
9/30/97	--	599	432	--	--	--	7.6	--	.530	316
9/23/97	--	--	--	--	--	--	7.8	--	.620	354
9/16/97	--	--	--	--	--	--	8.7	--	.590	395
9/8/97	--	--	--	--	--	--	8.8	--	.710	501
9/2/97	--	--	193	--	--	--	9.1	--	.460	411
8/26/97	--	--	237	--	--	--	8.9	--	.540	465
8/19/97	--	--	338	--	--	--	8.4	--	.600	449
8/11/97	--	--	209	--	--	--	8.1	--	.530	--
8/5/97	--	--	115	--	--	--	6.1	--	.520	315
7/29/97	--	--	274	--	--	--	6.7	--	.700	370

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalomethane formation potential (µg/L)
7/22/97	--	--	279	--	--	--	6.6	--	0.580	368
7/15/97	--	140	159	--	--	--	7.4	--	.485	373
7/8/97	--	121	92	--	--	--	8.1	--	.494	368
7/1/97	--	178	76	--	--	--	7.8	--	.377	331
6/24/97	--	186	40	--	--	--	6.9	--	.470	375
6/17/97	--	181	32	--	--	--	7.3	--	.470	338
6/10/97	--	266	51	--	--	--	7.2	--	.640	377
6/3/97	--	272	--	--	--	--	7.3	--	.450	423
5/27/97	--	273	--	--	--	--	6.8	--	.560	460
5/20/97	--	289	42	--	--	--	6.6	--	.520	418
5/13/97	--	298	51	--	--	--	6.8	--	.560	510
5/6/97	--	297	41	--	--	--	5.6	--	.420	419
4/29/97	--	227	30	--	--	--	5.7	--	.500	410
4/22/97	--	192	30	--	--	--	5.3	--	.430	--
4/15/97	--	340	36	--	--	--	5.6	--	.490	242
4/9/97	--	404	58	--	--	--	5.0	--	.420	265
4/1/97	--	552	64	--	--	--	5.3	--	.390	372
3/25/97	--	--	61	--	--	--	5.1	--	.380	426
3/18/97	--	435	66	--	--	--	6.8	--	.510	363
3/11/97	--	423	69	--	--	--	4.6	--	.540	381
3/4/97	--	398	49	--	--	--	4.5	--	.420	316
2/25/97	--	466	53	--	--	--	5.8	--	.500	324
2/18/97	--	388	60	--	--	--	5.4	--	.500	382
2/11/97	--	579	55	--	--	--	5.3	--	.400	371
2/4/97	--	615	53	--	--	--	5.6	--	.480	406
1/28/97	--	542	53	--	--	--	5.6	--	.510	356
1/21/97	--	564	80	--	--	--	6.3	--	.560	466
1/16/97	--	632	98	--	--	--	7.0	--	.540	431
1/7/97	--	598	85	--	--	--	5.8	--	.527	387
12/31/96	--	623	67	--	--	--	6.1	--	.550	393
12/17/96	--	802	102	--	--	--	6.4	--	.640	466
12/10/96	--	841	127	--	--	--	6.2	--	.670	423

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absor- bance at 254 nanometers (cm ⁻¹)	Trihalometh- ane formation potential (µg/L)
12/4/96	--	765	130	--	--	--	6.4	--	0.700	364
11/26/96	--	832	179	--	--	--	6.4	--	.700	429
11/19/96	--	878	--	--	--	--	8.3	--	.105	427
11/13/96	--	978	316	--	--	--	6.8	--	.740	447
11/7/96	--	796	332	--	--	--	7.1	--	.840	497
10/29/96	--	643	302	--	--	--	6.7	--	.670	414
10/22/96	--	638	284	--	--	--	7.9	--	.740	571
10/15/96	--	487	267	--	--	--	7.6	--	.660	474
10/8/96	--	351	248	--	--	--	7.1	--	.660	470
10/1/96	--	300	280	--	--	--	6.5	--	.740	448
9/24/96	--	330	328	--	--	--	6.5	--	.630	402
9/17/96	--	196	396	--	--	--	6.0	--	.524	377
9/11/96	--	338	245	--	--	--	6.8	--	.572	436
9/3/96	--	200	175	--	--	--	6.4	--	.604	685
8/27/96	--	324	203	--	--	--	7.1	--	.622	466
8/20/96	--	495	116	--	--	--	6.8	--	.980	435
8/13/96	--	387	343	--	--	--	7.6	--	.740	468
8/5/96	--	144	102	--	--	--	6.8	--	.760	516
7/29/96	--	237	197	--	--	--	6.2	--	.674	471
7/22/96	--	159	153	--	--	--	6.2	--	.660	--
7/15/96	--	159	184	--	--	--	6.2	--	.730	474
7/8/96	--	104	98	--	--	--	6.0	--	.780	431
7/1/96	--	176	139	--	--	--	7.0	--	.680	460
6/24/96	--	304	195	--	--	--	6.7	--	.670	492
6/17/96	--	201	96	--	--	--	6.8	--	.750	477
6/10/96	--	241	37	--	--	--	6.5	--	.720	--
6/3/96	--	298	77	--	--	--	--	--	.700	--
5/28/96	--	191	77	--	--	--	7.3	--	.700	--
5/21/96	--	185	62	--	--	--	6.6	--	.610	--
5/14/96	--	300	117	--	--	--	5.8	--	.924	--
5/7/96	--	267	122	--	--	--	7.0	--	.622	415
4/30/96	--	180	58	--	--	--	6.4	--	.530	403

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Appendix 10. Selected water-quality characteristics of samples collected weekly from the raw-water withdrawal by City of Newport News personnel and analyzed by the City of Newport News laboratory, Harwoods Mill Reservoir, Virginia, January 1999–August 2003. — Continued

Date	Sodium, whole water (mg/L)	Iron, whole water (µg/L)	Manganese, whole water (µg/L)	Copper, whole water (µg/L)	Total alkalinity (mg/L as CaCO ₃)	Chloride, whole water (mg/L)	Organic carbon, total (mg/L)	Organic carbon, dissolved (mg/L)	Light absorbance at 254 nanometers (cm ⁻¹)	Trihalomethane formation potential (µg/L)
4/23/96	--	15	30	--	--	--	6.1	--	0.546	--
4/16/96	--	243	53	--	--	--	7.2	--	.574	412
4/9/96	--	197	59	--	--	--	9.2	--	.550	427
4/2/96	--	311	63	--	--	--	5.9	--	.615	416
3/27/96	--	218	58	--	--	--	6.2	--	.482	359
3/19/96	--	275	81	--	--	--	6.1	--	.550	348
3/12/96	--	299	130	--	--	--	5.9	--	.560	336
3/5/96	--	302	145	--	--	--	6.5	--	.505	435
2/27/96	--	306	132	--	--	--	5.9	--	.530	404
2/22/96	--	697	82	--	--	--	7.5	--	.850	411
2/13/96	--	423	42	--	--	--	5.5	--	.700	337
2/6/96	--	356	48	--	--	--	6.5	--	.783	426
1/30/96	--	456	62	--	--	--	5.7	--	.571	431
1/23/96	--	435	129	--	--	--	7.2	--	.660	431
1/16/96	--	288	89	--	--	--	6.6	--	.583	395
1/10/96	--	282	87	--	--	--	6.5	--	.620	399
1/2/96	--	252	96	--	--	--	5.9	--	.584	357
Summary for samples collected 1 foot below the water surface										
Median	9	298	92	54	38	24	6.5	5.9	0.227	393
Maximum	97	1,152	777	344	107	175	12	12	.980	1,268
Minimum	4	15	3	16	20	8	4.2	3.1	.089	96
Number of samples	189	381	373	189	254	99	431	269	371	379

[mg/L, milligram per liter; µg/L, microgram per liter; CaCO₃, calcium carbonate; cm⁻¹, per centimeter; --, no data]

Appendix 11. Metals concentrations in bed-sediment grab samples, Lee Hall and Harwoods Mill Reservoirs, Virginia.

[Ca, calcium; K, potassium; Mg, magnesium; Na, sodium; Al, aluminum; Fe, iron; Mn, manganese; Ni, nickel; Cu, copper; μm , micrometer; mg/g, milligram per gram; wt, weight; <, less than; >, greater than]

Sample number	Particle size, μm	Ca, mg/g dry wt	K, mg/g, dry wt	Mg, mg/g dry wt	Na, mg/g dry wt	Al, mg/g dry wt	Fe, mg/g dry wt	Mn, mg/g dry wt	Ni, mg/g dry wt	Cu, mg/g dry wt
Lee Hall Reservoir										
1	<125	7.34	6.62	< 3.12	< 3.12	49	17.7	< 0.31	< 1.56	< 1.55
3	<125	6.49	7.68	2.24	2.19	53.3	19.3	0.18	< 0.74	< 0.74
4	<125	17.2	< 5.76	< 5.76	5.79	65.7	50.6	< 0.58	< 2.88	4.93
5	<125	6.8	5.21	< 2.65	< 2.65	43.9	17.2	< 0.26	< 1.32	< 1.32
6	<125	5.35	1.84	< 1.46	< 1.46	13.2	11.4	< 0.15	< 0.73	1.33
7	<125	6.08	4.44	< 1.37	< 1.37	21	11.8	0.15	< 0.68	0.78
8	<125	17.3	9.22	< 3.33	< 3.33	25.2	12	< 0.33	< 1.66	< 1.66
8	<125	1.22	< 1.22	< 1.22	< 1.22	4.6	1.6	< 0.12	< 0.61	< 0.61
9	<125	15.14	2.85	1.08	< 0.98	21.5	15.9	0.19	< 0.49	2.04
13	<125	9.15	3.36	< 2.92	< 2.92	33.6	67.3	7.6	< 1.46	< 1.46
14	<125	5.59	7.34	2.59	< 1.97	50.1	55.9	1.09	< 0.99	2.41
15	<125	5.68	9.35	3.29	< 1.24	71.1	71.6	0.82	< 0.62	4.86
16	<125	3.91	7.26	2.4	1.17	50	50.1	0.72	< 0.5	3.36
18	<125	10.88	2.12	< 2.04	2.93	19.8	36.9	0.86	< 1.02	4.48
19	<125	6.56	6.95	2.37	2.74	50.1	52.2	0.63	< 1.08	4.1
20	<125	6.47	8.22	3.12	1.85	68.2	77.7	0.7	< 0.86	6.59
20	<125	7.19	8.61	3.25	2.26	69.7	81.7	0.75	< 0.86	6.66
21	<125	14.18	10.16	2.74	1.44	61.5	30.3	0.23	< 0.62	< 0.62
21	<125	9.62	6.71	1.97	1.28	44.8	21.2	0.15	< 0.62	< 0.62
1	>125	5.64	7.08	1.9	1.85	44.3	15.1	0.18	< 0.65	< 0.65
2	>125	30.07	6.57	2.06	1.6	47.6	19	0.21	< 0.69	< 0.69
3	>125	4.99	7.47	2.1	1.75	48.6	17	0.18	< 0.59	< 0.59
4	>125	4.68	3.84	< 1.13	1.66	17.7	10.6	0.17	< 0.56	< 0.56
5	>125	4.79	5.36	< 1.33	1.88	27.3	17.3	0.15	< 0.67	2.52
6	>125	5.21	7.23	< 1.57	1.95	34	16.8	< 0.16	< 0.78	1.6
7	>125	1.63	< 1.53	< 1.53	< 1.53	0.3	0.3	< 0.15	< 0.77	< 0.77
8	>125	6.88	6.22	1.52	1.71	35.8	14.3	< 0.13	< 0.64	1.26
9	>125	5.98	9.67	2.81	1.71	62.1	50.4	0.39	< 0.76	6.24
10	>125	5.28	11.3	3.22	2.51	60.7	63.6	1.27	< 0.77	1.69
11	>125	3.67	5.57	1.83	1.37	31.9	46.6	4.26	< 0.61	< 0.61
13	>125	11.54	9.52	4.28	4.04	64.1	73.7	1.28	< 0.88	3.18
14	>125	6.35	9.27	3.37	2	68.6	74.2	0.75	< 0.77	4.93
15	>125	6.61	9.2	3.44	1.9	69.6	75.4	0.77	< 0.77	4.98
16	>125	3.62	5.49	1.62	< 1.43	33.7	36.6	0.47	< 0.72	2.12
17	>125	9.85	6.21	2.24	1.67	98.6	58.2	0.61	< 0.65	6.72
18	>125	4.11	6.46	< 1.82	2.19	23.2	26.6	0.42	< 0.91	2.71
19	>125	2.56	6.63	< 1.34	1.6	14.8	12.1	0.13	< 0.67	< 0.67
20	>125	7.14	7.08	< 1.96	< 1.96	21.6	33.5	0.22	< 0.98	2.33

Appendix 11. Metals concentrations in bed-sediment grab samples, Lee Hall and Harwoods Mill Reservoirs, Virginia. — Continued

[Ca, calcium; K, potassium; Mg, magnesium; Na, sodium; Al, aluminum; Fe, iron; Mn, manganese; Ni, nickel; Cu, copper; μm , micrometer; mg/g, milligram per gram; wt, weight; <, less than; >, greater than]

Sample number	Particle size, μm	Ca, mg/g dry wt	K, mg/g, dry wt	Mg, mg/g dry wt	Na, mg/g dry wt	Al, mg/g dry wt	Fe, mg/g dry wt	Mn, mg/g dry wt	Ni, mg/g dry wt	Cu, mg/g dry wt
Harwoods Mill Reservoir										
1	<125	5.3	12.67	4.03	2.45	83.4	67.2	0.61	< 0.6	5.52
2	<125	5.58	10.24	3.41	1.85	75.9	89.8	2.38	< 0.57	7.49
3	<125	4.54	8.15	1.94	1.53	51	73.2	1.81	< 0.64	7.24
4	<125	1.92	3.88	< 0.99	1.13	12.8	12	0.33	< 0.5	< 0.5
5	<125	2.87	10.74	2.36	1.46	53.3	29.6	0.34	< 0.51	1.71
6	<125	1.95	8.86	1.65	1.47	37.9	17.9	0.24	< 0.52	< 0.52
7	<125	2.37	7.95	1.66	1.34	38.6	24.5	0.42	< 0.53	1.05
8	<125	3.02	10.34	2.37	2.17	53.4	29.3	0.32	< 0.54	1.78
9	<125	8.21	5.48	1.88	1.49	35.1	25.5	0.52	< 0.56	1.58
10	<125	7.78	6.04	1.83	1.44	37.2	27.1	0.55	< 0.6	1.69
11	<125	4.75	7.98	2.64	1.45	59.4	61.1	0.93	< 0.55	7.14
12	<125	6.99	7.47	2.59	1.97	55.5	55.8	0.52	< 0.54	7.29
13	<125	11.44	11.53	3.02	2.41	66.1	58.4	0.51	< 0.66	2.77
14	<125	4.71	7.68	2.54	1.57	53.2	50.8	0.6	< 0.6	3.49
15	<125	6.59	8.28	2.1	1.48	46.4	32.7	0.26	< 0.52	0.76
16	<125	9.64	9	3.15	1.81	72.7	18.2	0.15	< 0.62	< 0.62
17	<125	25.87	5.14	1.7	1.47	37.8	21.5	0.32	< 0.66	< 0.66
18	<125	4.87	8.06	2.16	1.88	51	17.9	0.16	< 0.59	< 0.59
19	<125	5.43	7.93	2.48	2.15	44.8	79.5	1.8	< 0.69	0.69
1	>125	3.89	12.33	3.91	< 1.56	79.2	61.6	0.47	< 0.19	4.81
2	>125	5.23	9.37	3.4	< 1.96	74.8	87	2.35	< 0.34	7.1
3	>125	4.25	9.34	3.18	< 1.64	74.3	79.8	1.64	< 0.33	6.9
4	>125	4.77	2.9	< 0.99	< 0.99	11.3	21.3	0.31	< 0.2	0.78
5	>125	2.34	9.1	< 1.38	1.38	27.2	29.5	0.32	< 0.28	2.3
6	>125	< 1.64	3.8	< 1.64	< 1.64	16.6	10.2	< 0.33	< 0.33	< 0.33
7	>125	5.12	7.2	1.92	< 1.75	42.6	41.4	0.89	< 0.35	2.59
8	>125	3.89	11.59	3.08	< 2.04	71.1	37.9	< 0.41	< 0.41	2.59
9	>125	6.11	3.3	< 1	< 1	18.4	18.1	0.35	< 0.2	1
10	>125	3.76	5.43	< 1.31	< 1.31	10.1	52.6	0.94	< 0.26	7.44
11	>125	9.79	6.31	2.31	< 1.96	50	52.3	0.47	< 0.39	6.56
12	>125	6.64	8.59	2.81	< 1.95	56.3	49.4	< 0.39	< 0.39	2.52
13	>125	10.9	8.1	3.03	1.73	64.4	57.9	0.63	< 0.34	3.1
14	>125	4.93	9.23	2.58	3.3	55.6	38.4	< 0.37	< 0.37	0.89
15	>125	7.17	7.02	2.69	< 1.75	62.3	15	< 0.35	< 0.35	< 0.35
16	>125	6.39	6.95	2.68	1.8	53	55.1	0.66	< 0.37	2.36
17	>125	12.84	4.5	< 1.72	< 1.66	34	19.1	< 0.34	< 0.34	< 0.34
18	>125	3.63	7.18	2.1	< 1.58	50.2	17	< 0.33	< 0.33	< 0.32
19	>125	31.66	< 11.43	< 11.43	< 11.43	35.3	65.5	1.37	< 5.71	< 5.71

Appendix 12. Nutrient concentrations in bed-sediment grab samples, Harwoods Mill Reservoir, Virginia.[μm , micrometer; ppm, parts per million; $\mu\text{mol/g}$, micromole per gram; <, less than; --, no data; >, greater than]

Sample number	Particle size, μm	Total nitrogen, percent	Total carbon, percent	Organic carbon, percent	Orthophosphate, ppm	Phosphorus, $\mu\text{mol/g}$
Lee Hall Reservoir						
1	<125	0.26	3.81	4.16	1	10.8
2	<125	0.46	6.33	7.52	1.2	12.6
3	<125	0.11	1.39	2.46	0.8	8
4	<125	0.67	7.01	7.34	2.2	23.5
5	<125	0.07	0.85	1.66	0.9	9.3
6	<125	0.77	8.68	9.34	1.3	14.1
7	<125	0.57	6.72	6.34	1.1	11.3
8	<125	0	0.89	1.66	0.3	3.6
9	<125	1	12.96	11.42	1.6	17.2
10	<125	0.8	7.32	7.97	3.4	35.6
11	<125	0.54	6.53	6.6	3.8	40
13	<125	0.88	9.24	8.04	6.8	71.7
14	<125	0.6	6.12	6.9	4.5	47.8
15	<125	0.79	7.74	8.24	6.3	66.6
16	<125	0.31	3.24	4.17	2.1	22.2
17	<125	0.82	9.27	10.2	6.6	69.3
18	<125	0.32	4.13	3.71	1.9	20
19	<125	0.07	0.83	1.3	0.6	6.2
20	<125	0.52	5.08	3.11	3	31.5
20	<125	--	--	--	--	--
21	<125	--	--	4.38	1.3	13.5
1	>125	--	--	--	1.2	13
3	>125	--	--	--	0.8	8.4
4	>125	--	--	--	8.4	88.3
5	>125	--	--	--	1.8	19.4
6	>125	--	--	--	1	10.9
7	>125	--	--	--	1	10.8
8	>125	--	--	--	0.3	3.6
8	>125	--	--	--	--	--
9	>125	--	--	--	1.5	16
13	>125	--	--	--	--	98
14	>125	--	--	--	--	35
15	>125	--	--	--	--	49.2
16	>125	--	--	--	--	26.8
18	>125	--	--	--	--	30.2
19	>125	--	--	--	--	34.8
20	>125	--	--	--	--	60.5
20	>125	--	--	--	--	--
21	>125	--	--	--	--	22.7
21	>125	--	--	--	--	--

Appendix 12. Nutrient concentrations in bed-sediment grab samples, Harwoods Mill Reservoir, Virginia. — Continued

[μm , micrometer; ppm, parts per million; $\mu\text{mol/g}$, micromole per gram; <, less than; --, no data; >, greater than]

Sample number	Particle size, μm	Total nitrogen, percent	Total carbon, percent	Organic carbon, percent	Orthophosphate, ppm	Phosphorus, $\mu\text{mol/g}$
Harwoods Mill Reservoir						
1	<125	0.51	4.92	5.6	5.3	55.6
2	<125	0.83	7.87	8.52	8.8	93.1
3	<125	0.77	7.23	7.76	8.1	85.5
4	<125	0.08	1.35	2.24	0.4	4.7
5	<125	0.24	1.84	2.45	1.3	13.6
6	<125	--	0.36	1.1	0.5	5.4
7	<125	0.16	1.11	2.81	1.4	15.1
8	<125	0.26	2.03	2.14	1.5	15.8
9	<125	0.54	7.73	6.5	1.6	16.4
10	<125	0.71	7.2	6.99	5.6	58.7
11	<125	0.59	6.52	6.46	3.5	36.7
12	<125	0.43	4.63	4.71	2.2	23.6
13	<125	0.63	6.72	6.3	3.8	39.8
14	<125	0.41	4.66	4.37	1.6	17
15	<125	0.44	5.87	5.83	2	20.8
16	<125	0.85	9.04	8.08	5.3	55.8
17	<125	0.89	10.8	9.06	2.9	30.2
18	<125	0.21	2.56	3.08	2.2	23.5
19	<125	0.9	10.32	8.36	8.4	88.7
1	>125	--	--	--	4.2	44
2	>125	--	--	--	8.6	90.9
3	>125	--	--	--	8	83.8
4	>125	--	--	--	1	10.9
5	>125	--	--	--	1.7	18.3
6	>125	--	--	--	0.4	4.1
7	>125	--	--	--	4	42.4
8	>125	--	--	--	1.9	19.5
9	>125	--	--	--	1.6	16.6
10	>125	--	--	--	5.3	55.9
11	>125	--	--	--	2.4	25.5
12	>125	--	--	--	2.2	23.3
13	>125	--	--	--	4.1	43.5
14	>125	--	--	--	2.4	25
15	>125	--	--	--	5.4	56.5
16	>125	--	--	--	1.5	16.1
17	>125	--	--	--	2.8	29.6
18	>125	--	--	--	2.3	24.1
19	>125	--	--	--	7.1	74.8

Appendix 13. Metals concentrations in box-core samples of bed sediment from sites LH1 and LH3, Lee Hall Reservoir, Virginia.

[μm , microgram per liter; Ca, calcium; K, potassium; Mg, magnesium; Na, sodium; Al, aluminum; Fe, iron; Mn, manganese; Ni, nickel; Cu, copper; mg/g, milligram per gram; wt, weight; >, greater than; <, less than; --, no data]

Sample number	Particle size, μm	Ca, mg/g dry wt	K, mg/g dry wt	Mg, mg/g dry wt	Na, mg/g dry wt	Al, mg/g dry wt	Fe, mg/g dry wt	Mn, mg/g dry wt	Ni, mg/g dry wt	Cu, mg/g dry wt
LH1										
1	>125	5.7	9.23	2.89	2.13	62.5	77	1.11	< 0.84	5.07
1	<125	4.19	8.36	2.23	1.56	48	57.7	0.83	< 0.58	3.46
2	<125	6.21	8.24	2.16	1.68	45	50.7	0.6	< 0.62	3.9
3	<125	5.36	8.92	2.57	1.69	55.1	62.1	0.61	< 0.67	5.03
4	<125	4.83	9.31	2.85	1.59	63.4	65.1	0.64	< 0.58	5.11
5	<125	5.71	9.62	3.15	1.6	70.3	72.2	0.7	< 0.61	5.96
6	<125	6.21	9.64	3.11	1.69	71.2	70.3	0.64	< 0.71	5.88
7	<125	5.08	9.86	3.1	1.55	71.7	71.4	0.68	< 0.66	5.98
8	<125	4.91	9.79	2.96	1.54	70.4	69.2	0.63	< 0.67	5.63
9	<125	5.45	9.58	3.14	1.6	71.5	68.6	0.6	< 0.7	4.97
10	<125	4.96	9.79	3.01	1.46	70.8	65.4	0.59	< 0.7	4.42
11	<125	4.74	9.55	2.89	1.63	70	60.7	0.48	< 0.64	3.18
12	<125	5.37	10.08	3.07	1.62	71.2	61.3	0.48	< 0.59	3.16
13	<125	5.09	9.92	2.92	1.62	69.1	60.1	0.46	< 0.63	2.91
14	<125	5.04	9.68	2.69	1.4	63.3	54	0.41	< 0.66	2.45
15	<125	4.96	9.71	2.66	1.38	63.1	53.2	0.4	< 0.64	2.37
LH3										
1	>125	5.75	10.77	3.07	2.65	56.18	52.72	0.71	--	--
1	<125	6.15	8.32	2.66	<1.66	58	48.4	0.5	< 0.83	5.37
2	<125	6.19	10.04	2.86	1.38	53.67	48.79	0.6	--	--
3	<125	6.68	9.83	2.9	7.52	55.61	48.55	0.57	--	--
4	<125	7.26	10.11	2.9	--	56.29	48.96	0.53	--	--
5	<125	8.18	10.19	3.03	--	59.05	49.53	0.5	--	--
6	<125	7.23	10.26	3.06	--	58.41	50.08	0.5	--	--
7	<125	7.49	9.97	3.02	--	59.22	49.94	0.49	--	--
8	<125	7.53	10	3.08	--	58.47	49.6	0.44	--	--
9	<125	8.04	10.31	3.03	--	59.17	48.88	0.44	--	--
10	<125	10	10.37	3.2	--	60.29	49.53	0.45	--	--
11	<125	9.54	10.26	2.89	--	55.78	48.82	0.44	--	--
12	<125	11.12	12.95	3.34	2.47	66.19	61.91	0.54	--	--
13	<125	8.23	10.7	3.16	1.33	59.86	50.58	0.41	--	--
14	<125	6.87	10.6	3.05	--	58.56	50.53	0.4	--	--
15	<125	8.91	10.05	2.69	--	54.68	49.91	0.4	--	--

Appendix 14. Nutrient concentrations in box-core samples of bed sediment from sites LH1 and LH3, Lee Hall Reservoir, Virginia.[μm , micrometer; ppm, parts per million; $\mu\text{mol/g}$, micromole per gram; >, greater than, --, no data; <, less than]

Sample number	Particle size, μm	Total nitrogen, percent	Total carbon, percent	Organic carbon, percent	Orthophosphate, ppm	Phosphorus, $\mu\text{mol/g}$
LH1						
1	>125	--	--	--	6.2	65.4
1	<125	0.5	5.13	5.13	4.5	47.4
2	<125	0.48	6.31	5.89	3.7	38.7
3	<125	0.59	6.49	2.46	4.2	44
4	<125	0.53	5.49	6.1	4.2	43.9
5	<125	0.54	5.55	5.64	4.7	49.2
6	<125	0.52	5.2	5.6	4	42.3
7	<125	0.52	5.12	5.43	3.9	41.3
8	<125	0.53	5.27	6.03	3.8	39.6
9	<125	0.52	5.03	5.59	3.7	38.8
10	<125	0.51	5.04	5.63	3.6	38.3
11	<125	0.47	4.59	5.08	3	31.9
12	<125	0.53	5.28	5.58	3.1	33.1
13	<125	0.51	5.04	5.01	3.3	34.9
14	<125	0.52	5.06	5.38	3.3	34.5
15	<125	0.44	4.32	4.79	3.1	32.4
LH3						
1	>125	--	--	--	3.4	35.6
1	<125	0.98	8.36	8.03	3.4	36.1
2	<125	0.92	7.97	7.9	2.9	30.5
3	<125	0.9	7.95	7.57	2.7	28.9
4	<125	0.86	7.68	7.41	2.5	26.8
5	<125	0.84	7.71	7.27	2.6	27.1
6	<125	0.86	7.61	7.51	2.7	28.1
7	<125	0.84	7.51	7.35	2.5	26
8	<125	0.83	7.58	6.82	2.4	25.5
9	<125	0.8	7.3	7.39	2.4	24.9
10	<125	0.81	7.5	6.88	2.4	25.3
11	<125	0.84	7.58	6.93	2.5	26.5
12	<125	0.79	7.27	7.72	2.4	25.7
13	<125	0.73	6.93	7.46	2.2	23.7
14	<125	0.77	7.12	7.42	2.2	23.2
15	<125	0.76	7.09	7.48	2.2	23.2

Appendix 15. Metals concentrations in filtered interstitial water from box-core samples of bed sediment from sites LH1 and LH3, Lee Hall Reservoir, Virginia.

[mg/L, milligram per liter; Ca, calcium; Fe, iron; Al, aluminum; Cu, copper; Mn, manganese; Pb, lead; <, less than; --, no data]

Sample number	Ca, mg/L	Fe, mg/L	Al, mg/L	Cu, mg/L	Mn, mg/L	Pb, mg/L
LH1						
1	46	16.12	0.37	<0.2	4.85	<0.2
2	54.5	41.12	0.34	<0.2	5.07	<0.2
3	60.7	10.41	0.31	<0.2	2.6	<0.2
4	64.2	16.1	0.39	0.24	2.5	<0.2
5	56.2	14.07	0.33	<0.2	2.06	<0.2
6	61.2	20.6	0.51	0.52	2.29	<0.2
7	58.3	14.45	0.29	<0.2	2.12	<0.2
8	53.7	13.67	0.28	<0.2	1.91	<0.2
9	46.2	11.66	0.34	<0.2	1.62	<0.2
10	49.1	15.5	0.36	0.23	1.74	<0.2
11	46.6	15.32	0.4	<0.2	1.69	<0.2
12	46.5	15.42	0.35	<0.2	1.53	<0.2
13	42.2	16.4	0.56	0.3	1.35	<0.2
14	44.2	11.91	0.46	<0.2	1.35	<0.2
15	45.1	16.42	0.58	<0.2	1.34	<0.2
LH3						
1	48.4	16.49	0.4	<0.2	2.75	--
1	48.4	16.49	0.4	<0.2	2.75	--
2	39.2	7.57	0.41	<0.2	1.8	--
3	53.2	8.74	0.37	<0.2	1.82	--
4	56	8.83	0.39	<0.2	1.66	--
5	58.5	7.71	0.35	<0.2	1.53	--
6	56.2	5.46	0.36	<0.2	1.18	--
7	57.5	7.61	0.33	<0.2	1.35	--
8	56	7.6	0.51	<0.2	1.3	--
9	66.2	7.24	0.4	<0.2	1.45	--
10	60.5	8.26	0.39	<0.2	1.3	--
11	52.1	4.9	0.27	<0.2	1.09	--
12	61.2	8.74	0.3	<0.2	1.18	--
13	59.1	8.4	0.34	<0.2	1.12	--
14	58.9	7.98	0.31	<0.2	1.07	--
15	59.9	6.19	0.28	<0.2	1.05	--

Appendix 16. Metals concentrations in unfiltered interstitial water from box-core samples of bed sediment from sites LH1 and LH3, Lee Hall Reservoir, Virginia.

[mg/L, milligram per liter; Ca, calcium; Fe, iron; Al, aluminum; Cu, copper; Mn, manganese; Pb, lead; <, less than; --, no data]

Sample number	Ca, mg/L	Fe, mg/L	Al, mg/L	Cu, mg/L	Mn, mg/L	Pb, mg/L
LH1						
1	46.2	24.93	0.21	< 0.2	4.33	< 0.2
2	55.2	22.78	0.41	< 0.31	3.2	< 0.2
3	61.2	25.04	1.16	< 0.69	2.66	< 0.2
4	61.4	19.87	0.32	0.28	2.44	< 0.2
5	58	23.1	0.78	< 0.74	2.2	< 0.2
6	62.3	23.48	0.75	0.69	2.32	< 0.2
7	--	--	--	--	--	--
8	56.1	21.31	0.52	< 0.48	2.06	< 0.2
9	46.8	20.5	0.91	< 0.85	1.7	< 0.2
10	49	22.1	1.03	0.61	1.86	< 0.2
11	49.7	21.34	0.8	< 0.54	1.75	< 0.2
12	49.4	20.3	0.6	< 0.34	1.63	< 0.2
13	42.5	20.57	1.05	0.62	1.41	< 0.2
14	46.9	21.41	0.99	< 0.5	1.48	< 0.2
15	47.1	21.86	0.73	< 0.53	1.43	< 0.2
LH3						
1	55.6	21	<0.2	< 0.2	2.83	< 0.2
2	42.6	10.25	0.22	0.2	1.63	< 0.2
3	54.3	13.51	<0.2	< 0.2	1.61	< 0.2
4	57.9	13.84	0.29	0.3	1.44	< 0.2
5	63.2	13.79	0.29	0.24	1.38	< 0.2
6	64.5	12.45	0.6	0.37	1.27	< 0.2
7	60.9	11.6	0.22	< 0.2	1.13	< 0.2
8	62.7	12.02	0.3	0.28	1.12	< 0.2
9	62.4	12.74	0.37	0.29	1.12	< 0.2
10	62.7	11.67	0.28	0.24	1.05	< 0.2
11	56.4	10.7	0.62	0.45	0.88	< 0.2
12	63	14.09	0.66	0.42	1	< 0.2
13	63	13.12	0.4	0.24	0.95	< 0.2
14	62.6	12.42	0.49	0.36	0.87	< 0.2
15	63.6	13.18	0.65	0.53	0.86	< 0.2