Pre-Treatment Plant Water Quality

Sample Location

Sample	Unit of Measure	Well #1 Feb 7, 2019	Well #2 Feb 7, 2019	Well #3 Feb 7, 2019	Well #6 Feb 7, 2019	Well #7 Feb 7, 2019	Well #8 Feb 7, 2019	Chestnut Stn Feb 7, 2019	Marine Dr Stn Feb 7, 2019	Malabar Stn Feb 7, 2019
Inorganic Nonmetallic Parameters										
Organic Carbon	**mg/L**	0.6	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.8
Ammonia - N	**mg/L**	0.05	<0.01	0.05	0.14	0.09	0.06	0.06	0.06	0.07
Metals Extractable										
Aluminum	**mg/L**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Antimony	**mg/L**	0.00007	0.00008	0.00006	0.00005	0.00005	0.00005	0.00007	0.00008	0.00009
Arsenic	**mg/L**	0.0075	0.0043	0.0059	0.0082	0.0076	0.0061	0.0049	0.0049	0.0050
Barium	**mg/L**	0.0100	0.0145	0.0161	0.0222	0.0176	0.0169	0.0144	0.0137	0.0153
Boron	**mg/L**	0.014	0.015	0.013	0.037	0.023	0.013	0.015	0.015	0.015
Cadmium	**mg/L**	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chromium	**mg/L**	<0.00005	0.00025	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Copper	**mg/L**	0.0014	0.0023	0.00070	0.0019	<0.0005	0.0011	0.0010	0.0040	0.0038
Lead	**mg/L**	0.00009	0.00003	0.00010	0.00004	0.00048	0.00004	0.00006	0.00018	0.00037
Selenium	**mg/L**	<0.0002	0.0050	0.0003	<0.0002	<0.0002	<0.0002	0.0028	0.0029	0.0029
Uranium	**mg/L**	0.00008	0.00019	0.00010	0.00015	0.00013	0.00011	0.00016	0.00016	0.00016
Vanadium	**mg/L**	0.00282	0.00322	0.00267	0.00224	0.00205	0.00205	0.00282	0.00290	0.00292
Zinc	**mg/L**	0.0032	0.0020	0.0010	0.0025	<0.0005	0.0015	0.0018	0.0037	0.0041
Metals Total										
Mercury	**mg/L**	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Physical and Aggregate Properties										
Colour	**Colour Units**	<5	<5	<5	<5	<5	<5	<5	<5	<5
Turbidity	**NTU**	0.12	0.05	0.06	<0.05	<0.05	0.06	0.14	0.16	0.20
Routine Water										
pH		7.86	7.83	7.88	7.96	7.95	7.93	7.81	7.76	7.82
Electrical Conductivity		215	279	249	330	277	249	269	266	267
Calcium	**mg/L**	16	24	22	24	23	23	24	24	24
Iron	**mg/L**	0.014	<0.004	<0.004	0.005	<0.004	0.016	0.016	0.011	0.011
Magnesium	**mg/L**	6.6	10	8.6	9.9	9.4	8.9	9.8	9.8	9.8
Manganese	**mg/L**	0.086	0.004	0.18	0.15	0.12	0.18	0.064	0.063	0.062
Potassium	**mg/L**	2.7	3.0	2.9	3.9	3.6	3.1	3.1	3.0	3.0
Silicon	**mg/L**	10	11	11	11	11	11	11	11	11
Sodium	**mg/L**	15	13	13	25	16	12	13	14	13
T-Alkalinity	**mg/L**	80	93	89	119	107	95	86	86	95
Chloride	**mg/L**	10.6	15.6	13.7	18.0	9.98	8.60	15.7	15.8	15.6
Fluoride	**mg/L**	0.10	0.09	0.10	0.18	0.14	0.11	0.09	0.09	0.09
Nitrate - N	**mg/L**	<0.01	0.51	<0.01	<0.01	<0.01	<0.01	0.32	0.32	0.31
Nitrite - N	**mg/L**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01
Sulfate (SO4)	**mg/L**	9.2	16.7	11.2	19.7	14.6	13.0	15.3	15.2	15.2
Hardness	**mg/L**	67	104	90	102	97	93	99	99	99
Total Dissolved Solids	**mg/L**	136	170	154	202	171	155	163	164	168

THM & HAAs										
Chloroform	mg/L							<0.001	<0.001	<0.001
Bromodichloromethane	mg/L							<0.001	<0.001	<0.001
Dibromochloromethane	mg/L							<0.001	<0.001	<0.001
Bromoform mg/L	mg/L							<0.001	<0.001	<0.001
Total THMs mg/L	mg/L							<0.001	<0.001	<0.001
Dibromofluoromethane	%							109	110	110
Toluene-d8	%							94	94	93
Bromofluorobenzene	%							101	101	105
Monochloroacetic Acid	ug/L							<2.0	<2.0	<2.0
Monobromoacetic Acid	ug/L							<2.0	<2.0	<2.0
Dichloroacetic Acid	ug/L							<2.0	<2.0	<2.0
Bromochloroacetic Acid	ug/L							<2.0	<2.0	<2.0
Dibromoacetic Acid	ug/L							<2.0	<2.0	<2.0
Trichloroacetic Acid	ug/L							<2.0	<2.0	<2.0
Total HAA6	ug/L							<2.0	<2.0	<2.0

Pre-Treatment Plant Water Quality

Sample Location

Sample	Unit of Measure	Mann Park Stn Feb 7, 2019	Balsam Stn Feb 7, 2019	Oxford Stn Feb 7, 2019	Oxford Reservoir Feb 7, 2019	Everall Stn Feb 7, 2019	Russell Stn Feb 7, 2019	Stevens Stn Feb 7, 2019	Finlay Stn Feb 7, 2019	Stayte Stn Feb 7, 2019
Inorganic Nonmetallic Parameters										
Organic Carbon	**mg/L**	0.6	0.7	0.7	0.6	0.7	0.6	0.7	0.7	0.7
Ammonia - N	**mg/L**	0.07	0.06	0.07	0.07	0.09	0.07	0.07	0.07	0.07
Metals Extractable										
Aluminum	**mg/L**	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Antimony	**mg/L**	0.00009	0.00007	0.00006	0.00008	0.00011	0.00007	0.00007	0.00007	0.00007
Arsenic	**mg/L**	0.0050	0.0071	0.0067	0.0051	0.0052	0.0050	0.0077	0.0055	0.0074
Barium	**mg/L**	0.0151	0.0172	0.0176	0.0152	0.0156	0.0153	0.0197	0.0165	0.0189
Boron	**mg/L**	0.017	0.028	0.025	0.016	0.015	0.013	0.031	0.019	0.028
Cadmium	**mg/L**	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002	<0.00001	<0.00001
Chromium	**mg/L**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Copper	**mg/L**	0.0047	0.0018	0.0023	0.0104	0.0022	0.0016	0.0028	0.0016	0.0032
Lead	**mg/L**	0.00053	0.00010	0.00006	0.00012	0.00007	0.00011	0.00020	0.00005	0.00038
Selenium	**mg/L**	0.0029	0.0006	0.0010	0.0028	0.0026	0.0029	<0.0002	0.0025	0.0005
Uranium	**mg/L**	0.00016	0.00014	0.00016	0.00015	0.00015	0.00016	0.00016	0.00016	0.00015
Vanadium	**mg/L**	0.00293	0.00226	0.00251	0.00296	0.00291	0.00296	0.00213	0.00271	0.00228
Zinc	**mg/L**	0.0012	0.0008	0.0008	0.0016	0.0018	0.0043	0.0018	0.0007	0.0029
Metals Total										
Mercury	**mg/L**	<0.00001	<0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Physical and Aggregate Properties										
Colour	**Colour Units**	<5	<5	<5	<5	<5	<5	<5	<5	<5
Turbidity	**NTU**	0.09	0.13	0.18	0.13	0.16	0.13	0.08	0.12	0.12
Routine Water										
pH		7.79	7.93	7.95	7.86	7.85	7.89	7.93	7.86	7.92
Electrical Conductivity		267	296	291	269	267	276	303	277	298
Calcium	**mg/L**	23	24	24	23	23	24	24	24	24
Iron	**mg/L**	0.006	0.012	0.004	0.006	0.005	<0.004	0.006	<0.004	<0.004
Magnesium	**mg/L**	9.8	9.7	9.7	9.7	9.7	9.8	9.8	9.9	9.8
Manganese	**mg/L**	0.061	0.11	0.10	0.076	0.079	0.065	0.13	0.086	0.12
Potassium	**mg/L**	3.0	3.6	3.4	3.0	3.0	3.0	3.8	3.2	3.6
Silicon	**mg/L**	11	11	11	11	11	11	11	11	11
Sodium	**mg/L**	13	20	18	13	14	13	21	15	20
T-Alkalinity	**mg/L**	94	110	106	91	92	93	111	94	107
Chloride	**mg/L**	15.6	14.8	14.9	15.4	15.4	15.6	14.4	15.4	14.6
Fluoride	**mg/L**	0.10	0.14	0.13	0.09	0.09	0.10	0.15	0.10	0.14
Nitrate - N	**mg/L**	0.31	0.07	0.11	0.29	0.28	0.31	<0.01	0.25	0.05
Nitrite - N	**mg/L**	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
Sulfate (SO4)	**mg/L**	15.2	16.7	16.5	14.9	14.7	15.2	17.1	15.7	16.8
Hardness	**mg/L**	99	99	99	97	98	99	100	100	100
Total Dissolved Solids	**mg/L**	168	183	180	165	166	168	186	170	183

THM & HAAs										
Chloroform	**mg/L**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromodichloromethane	**mg/L**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dibromochloromethane	**mg/L**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromoform mg/L	**mg/L**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total THMs mg/L	**mg/L**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dibromofluoromethane	**%**	108	109	107	105	105	108	106	107	111
Toluene-d8	**%**	93	96	95	94	92	93	93	94	96
Bromofluorobenzene	**%**	99	107	102	104	106	100	106	106	101
Monochloroacetic Acid	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Monobromoacetic Acid	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dichloroacetic Acid	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Bromochloroacetic Acid	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dibromoacetic Acid	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Trichloroacetic Acid	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total HAA6	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

Pre-Treatment Plant Water Quality

		Sample Location								
Sample	**Unit of Measure**	Roper Stn Feb 7, 2019	Roper PRV Feb 7, 2019	Merklin Reservoir Feb 7, 2019	Merklin Low Reservoir Feb 7, 2019	Roper Reservoir Feb 7, 2019		**Average**	**Nominal Detection Limit**	**Guideline Limit**
Inorganic Nonmetallic Parameters										
Organic Carbon	**mg/L**	0.7	0.7	0.8	0.7	0.7		**0.7**	**0.5**	
Ammonia - N	**mg/L**	0.07	0.07	0.06	0.08	0.06		**0.07**	**0.01**	
Metals Extractable										
Aluminum	**mg/L**	<0.001	<0.001	<0.001	<0.001	<0.001		**0.001**	**0.001**	**0.1**
Antimony	**mg/L**	0.00006	0.00007	0.00006	0.00006	0.00007		**0.00007**	**0.00002**	**0.006**
Arsenic	**mg/L**	0.0075	0.0074	0.0079	0.0078	0.0061		**0.0063**	**0.0001**	**0.010**
Barium	**mg/L**	0.0191	0.0189	0.0196	0.0193	0.0167		**0.0168**	**0.0001**	**1**
Boron	**mg/L**	0.029	0.027	0.029	0.029	0.017		**0.021**	**0.002**	**5**
Cadmium	**mg/L**	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		**0.00002**	**0.00001**	**0.005**
Chromium	**mg/L**	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005		**0.00025**	**0.00005**	**0.05**
Copper	**mg/L**	0.0026	0.0013	<0.0005	0.0188	0.0013		**0.0034**	**0.0005**	**1.0**
Lead	**mg/L**	0.00028	0.00039	<0.00001	0.00010	0.00004		**0.00017364**	**0.00001**	**0.01**
Selenium	**mg/L**	0.0003	0.0005	<0.0002	<0.0002	0.0019		**0.0020**	**0.0002**	**0.05**
Uranium	**mg/L**	0.00014	0.00015	0.00014	0.00015	0.00015		**0.00014609**	**0.00001**	**0.02**
Vanadium	**mg/L**	0.00220	0.00229	0.00213	0.00211	0.00262		**0.00255174**	**0.00005**	
Zinc	**mg/L**	0.0006	0.0075	<0.0005	0.0016	0.0028		**0.00229524**	**0.0005**	**5.0**
Metals Total										
Mercury	**mg/L**	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001			**0.00001**	**0.001**
Physical and Aggregate Properties										
Colour	**Colour Units**	<5	<5	<5	<5	<5			**5**	
Turbidity	**NTU**	0.12	0.11	0.08	0.17	0.14		**0.12**	**0.02**	
Routine Water										
pH		7.95	7.88	7.96	7.95	7.87		**7.89**		**7.0-10.5**
Electrical Conductivity		299	298	305	306	284		**280**	**1**	
Calcium	**mg/L**	24	24	23	24	24		**23**	**0.01**	
Iron	**mg/L**	0.005	0.004	<0.004	0.010	<0.004		**0.009**	**0.004**	**0.3**
Magnesium	**mg/L**	9.8	9.7	9.6	9.7	9.8		**9.5**	**0.02**	
Manganese	**mg/L**	0.13	0.12	0.13	0.13	0.090		**0.102**	**0.001**	**0.05**
Potassium	**mg/L**	3.7	3.5	3.7	3.7	3.3		**3.3**	**0.04**	
Silicon	**mg/L**	11	11	11	11	11		**11**	**0.005**	
Sodium	**mg/L**	20	20	21	21	16		**16**	**0.1**	**200**
T-Alkalinity	**mg/L**	105	108	111	109	101		**99**	**5**	
Chloride	**mg/L**	14.5	14.6	14.4	14.5	15.2		**14.5**	**0.05**	**250**
Fluoride	**mg/L**	0.15	0.15	0.15	0.15	0.11		**0.12**	**0.01**	**1.5**
Nitrate - N	**mg/L**	0.03	0.05	<0.01	<0.01	0.20		**0.23**	**0.01**	**10**
Nitrite - N	**mg/L**	<0.01	<0.01	<0.01	<0.01	<0.01		**0.01**	**0.01**	**1**
Sulfate (SO4)	**mg/L**	16.9	16.7	17.1	17.1	15.8		**15.5**	**0.5**	**500**
Hardness	**mg/L**	100	99	98	99	100		**97**	**1**	
Total Dissolved Solids	**mg/L**	182	182	185	185	175		**172**	**1**	

THM & HAAs										
Chloroform	**mg/L**	<0.001	<0.001	<0.001	<0.001	<0.001			**0.001**	
Bromodichloromethane	**mg/L**	<0.001	<0.001	<0.001	<0.001	<0.001			**0.001**	
Dibromochloromethane	**mg/L**	<0.001	<0.001	<0.001	<0.001	<0.001			**0.001**	
Bromoform mg/L	**mg/L**	<0.001	<0.001	<0.001	<0.001	<0.001			**0.001**	
Total THMs mg/L	**mg/L**	<0.001	<0.001	<0.001	<0.001	<0.001			**0.001**	**0.1**
Dibromofluoromethane	**%**	106	109	119	104	108		**108**	**50-140**	
Toluene-d8	**%**	94	94	94	96	94		**94**	**50-140**	
Bromofluorobenzene	**%**	102	103	107	103	99		**103**	**50-140**	
Monochloroacetic Acid	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0			**2.0**	
Monobromoacetic Acid	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0			**2.0**	
Dichloroacetic Acid	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0			**2.0**	
Bromochloroacetic Acid	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0			**2.0**	
Dibromoacetic Acid	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0			**2.0**	
Trichloroacetic Acid	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0			**2.0**	
Total HAA6	**ug/L**	<2.0	<2.0	<2.0	<2.0	<2.0			**2.0**	