



Water Authority-Cayman

Grand Cayman Public Water Supply Biannual Analysis (from Red Gate Plants)

PARAMETER - BIANNUAL ANALYSIS <i>(all results in mg/l, unless otherwise stated)</i>	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	WHO Health Based Guidelines	Aesthetic Guidelines
	12-Dec-05	09-Jul-07	08-Dec-08	30-Nov-09	11-Apr-11	29-Nov-11	14-Aug-12	05-Aug-13	06-Aug-14	19-Oct-15			
Alkalinity	3.85	4.80	n/r	2.10	n/d	2.30	5.35	2.00	1.80	1.80	1.80	none	none
Aluminum	BDL	BDL	BDL	BDL	n/d	<0.005	<0.005	<0.005	0.010	0.005	0.005	none	0.2
Ammonia	BDL	BDL	BDL	n/r	BDL	<0.017	<0.017	n/r	< 0.02	<0.02	<0.02	none	1.5
Bicarbonate	4.7	5.9	n/r	2.6	n/d	2.8	6.2	2.4	2.20	2.20	2.20	none	none
Boron	n/d	n/d	n/d	1.3	0.7	1.1	1.1	1.5	1.2	1.3	1.3	2.4	none
Calcium	1.0	1.4	1.2	0.8	n/d	1.6	0.7	1.8	0.8	0.4	0.4	none	none
Chloride	105.0	91.0	108.0	103.9	86.0	98.0	107.9	105.0	102.5	120.0	120.0	none	< 250
Copper	0.07	BDL	0.002	BDL	n/d	<0.021	<0.021	<0.02	0.03	<0.04	<0.04	2	< 1
Hardness	10.5	6.5	10.0	9.0	n/d	4.0	3.5	7.0	4.5	3.5	3.5	none	200-500
Iron	BDL	BDL	0.01	0.02	0.12	<0.008	<0.008	0.01	< 0.02	<0.02	<0.02	none	0.3
Magnesium	1.9	0.7	1.7	1.7	n/d	0.0	0.4	0.6	0.6	0.6	0.6	none	none
Nitrate as N	BDL	BDL	0.30	1.80	BDL	<0.1	<0.1	<0.1	< 0.1	<0.1	<0.1	50 as NO ₃ ⁻	none
Orthophosphate	1.78	1.74	1.47	2.18	n/d	1.56	1.10	1.10	0.94	1.1	1.1	none	none
Sodium	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	none	200
Sulphate	17.2	11.5	12.9	10.8	n/d	10.6	8.7	10.9	4.7	7.7	7.7	none	250
Sulfide	BDL	BDL	BDL	BDL	BDL	<0.002	<0.002	<0.01	< 0.01	<0.01	<0.01	none	0.05
Zinc	0.575	0.548	0.484	0.688	0.643	0.461	0.438	0.420	0.34	0.4	0.4	none	3
PARAMETER - DAILY ANALYSIS <i>(all results in mg/l, unless otherwise stated)</i>													
Total dissolved solids	145	150	195	173	158	170	169	210	156.9	169	169	none	1000-1200
Electrical conductivity μ S/cm	329	336	391	369	329	354	353	370	361	352	352	none	none
Total chlorine residual	0.57	0.55	0.56	0.57	0.56	0.59	0.66	0.65	0.53	0.50	0.50	none	5
Free chlorine residual	0.53	0.53	0.51	0.55	0.52	0.56	0.56	0.59	0.51	0.50	0.50	0.5	5
pH units	7.33	7.53	7.09	7.43	7.69	7.74	7.78	7.07	7.51	7.82	7.82	none	6.5-9.5
Total coliform bacteria cfu/100ml	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<1	<1.0	< 1.0	<1.0	0	n/a
<i>E. coli</i> cfu/100 ml		BDL	BDL	BDL	BDL	BDL	BDL	<1	<1.0	< 1.0	<1.0	0	n/a
Thermotolerant coliform bacteria cfu/100ml	BDL	BDL	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	0	n/a
Heterotrophic Plate Count cfu/ml	0	0	0	0	0	0	0	<0.1	< 0.1	<0.1	<0.1	none	none

NOTE: Samples collected @ Red Gate Reservoir Site; n/d = not done; n/a = not applicable; n/r = not reportable; BDL = Below Detection Limit
 Results below detection limit are reported as "<" and the detection limit.
 Annual analysis instead of biannual from 2002 onwards
 Marcela Martinez Ebanks, Laboratory Manager



Water Authority-Cayman

Grand Cayman Public Water Supply Annual Analysis (Lower Valley Facility)

PARAMETER - ANNUAL ANALYSIS <i>(all results in mg/l, unless otherwise stated)</i>	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	WHO Health Based Guidelines
	05-Apr-04	08-Dec-05	23-Jul-07	09-Dec-08	02-Dec-09	08-Nov-11	21-Aug-12	05-Aug-13	04-Aug-14	26-Oct-15	
Alkalinity	1.7	1.6	4.4	n/r	2.05	2.67	6.80	2.10	2.00	1.20	none
Aluminum	0.00	BDL	BDL	BDL	BDL	<0.005	<0.005	0.01	<0.005	<0.005	none
Ammonia	0.007	0.116	BDL	BDL	BDL	<0.017	<0.017	<0.02	<0.02	<0.02	none
Bicarbonate	2.1	1.95	5.37	n/r	2.50	3.25	8.30	2.56	2.44	1.46	none
Boron	n/d	n/d	n/d	n/d	1.20	1.30	1.30	0.80	0.80	0.60	2.4
Calcium	0.8	0.8	1.4	1.2	0.8	1.2	2.0	1.2	1.0	8.0	none
Chloride	80	95	78	95	94	104	118	72	81	84	none
Copper	0.004	BDL	BDL	BDL	BDL	<0.021	<0.02	<0.02	0.030	0.06	2
Hardness	7.0	4.5	4.5	6.8	7.0	7.5	7.0	10.0	9.5	9.0	none
Iron	0.009	BDL	BDL	BDL	BDL	<0.008	<0.009	<0.01	0.020	<0.02	none
Magnesium	1.2	0.6	0.5	0.9	1.2	1.0	0.5	2.0	2.0	1.7	none
Nitrate as N	0.0	BDL	BDL	0.2	0.0	1.0	0.4	<0.1	0.9	n/d	50 as NO ₃ ⁻
Orthophosphate	1.06	1.05	1.38	1.84	2.14	2.91	1.88	1.50	1.30	1.60	none
Sodium	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	none
Sulphate	0.5	12.2	8.1	11.7	10.5	13.8	12.5	11.1	6.3	8.3	none
Sulphide	0.000	BDL	BDL	BDL	BDL	<0.002	<0.002	<0.01	<0.01	<0.01	none
Zinc	0.40	0.36	0.47	0.61	0.67	0.77	0.65	n/d	0.44	0.49	none
PARAMETER - DAILY ANALYSIS <i>(all results in mg/l, unless otherwise stated)</i>											
Total dissolved solids	123	148	125	163	158	185	192	120	140	143	none
Electrical conductivity $\mu S/cm$	278	302	304	355	321	384	400	258	274	300	none
Total chlorine residual	0.38	0.59	0.62	0.65	0.55	0.61	0.64	0.57	0.45	0.55	none
Free chlorine residual	0.33	0.53	0.62	0.60	0.50	0.57	0.57	0.53	0.41	0.51	≥ 0.5
pH units	7.4	7.35	7.76	7.23	7.70	7.40	7.07	7.28	7.46	7.39	none
Total coliform bacteria cfu/100ml	0	BDL	BDL	BDL	BDL	BDL	<1	<1	<1	<1	0
<i>E. coli</i> cfu/100 ml			BDL	BDL	BDL	BDL	<1	<1	<1	<1	0
Thermotolerant coliform bacteria cfu/100ml	0	BDL		n/d	n/d	n/d	n/d	n/d	n/d	n/d	0
Heterotrophic Plate Count cfu/ml	0	1	0	0	0	0	0	n/d	0	0	none

NOTE: Samples collected @ Lower Valley Reservoir Site; n/d = not done; n/a = not applicable; n/r = not reportable; BDL=Below Detection Limit
Results reported with "<" indicate that the result was below the detection limit



Water Authority-Cayman

Grand Cayman Public Water Supply Biannual Analysis (North Side Facility)

	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	WHO Health Based Guidelines	Aesthetic Guidelines
PARAMETER - ANNUAL ANALYSIS <i>(all results in mg/l, unless otherwise stated)</i>	02-Dec-09	15-Nov-11	20-Aug-12	12-Aug-13	11-Aug-14	29-Oct-15		
Alkalinity	3.70	2.00	2.70	2.10	1.10	2.40	none	none
Aluminum	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	none	0.2
Ammonia	0.023	<0.017	<0.017	<0.02	<0.02	<0.02	none	1.5
Bicarbonate	4.51	2.44	3.29	2.56	1.34	2.93	none	none
Boron	n/d	0.60	0.80	0.70	0.50	0.50	2.4	none
Calcium	1.6	3.0	1.2	1.6	1.0	4.00	none	none
Chloride	113	70	67	75	73	72	none	> 250
Copper	n/d	<0.021	<0.021	<0.02	<0.03	<0.04	2	>1
Hardness	11.0	12.0	11.0	11.5	12.5	12.0	none	200-500
Iron	0.012	<0.008	<0.008	0.010	0.020	<0.02	none	0.3
Magnesium	1.7	1.0	2.0	2.0	2.0	0.5	none	none
Nitrate as N	0.0	0.2	0.4	<0.1	<0.1	n/d	50 as NO ₃ ⁻	none
Orthophosphate	1.48	0.83	1.65	1.50	1.40	1.50	none	none
Sodium	n/d	n/d	n/d	n/d	n/d	n/d	none	200
Sulphate	8.5	8.6	9.2	12.2	8	9.4	none	250
Sulphide	n/d	<0.002	<0.002	<0.01	0.002	<0.01	none	0.05
Zinc	0.536	0.309	0.532	0.520	0.470	0.55	none	3
PARAMETER - DAILY ANALYSIS <i>(all results in mg/l, unless otherwise stated)</i>								
Total dissolved solids	185	119	113	120	140	126	none	1000-1200
Electrical conductivity $\mu S/cm$	383	250	237	249	264	265	none	none
Total chlorine residual	0.48	0.63	0.59	0.58	0.65	0.43	none	5
Free chlorine residual	0.44	0.61	0.53	0.55	0.54	0.38	≥ 0.5	5
pH units	7.60	7.64	7.61	7.29	7.76	7.39	none	6.5-9.5
Total coliform bacteria cfu/100ml	BDL	BDL	<1	<1.0	<1	<1	0	n/a
<i>E. coli</i> cfu/100 ml	BDL	BDL	<1	<1.0	<1	<1	0	n/a
Thermotolerant coliform bacteria cfu/100ml	n/d	n/d	n/d	n/d	n/d	n/d	0	n/a
Heterotrophic Plate Count cfu/ml	0	<0.1	<0.1	<0.1	1	<0.1	none	none

NOTE: Samples collected @ North Side Reservoir Site; n/d = not done; n/a = not applicable; n/r = not reportable; BDL=Below Detection Limit

Results reported with "<" indicate that the result was below the detection limit

Marcela Martinez Ebanks, Laboratory Manager



Water Authority-Cayman

Cayman Brac Public Water Supply Annual Analysis

PARAMETER - BIENNIAL ANALYSIS <i>(all results in mg/l, unless otherwise stated)</i>	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	Sample Date	WHO Health Based Guidelines	Aesthetic Guidelines
	25-Apr-01	18-Dec-02	02-Jul-03	07-Apr-04	07-Dec-05	18-Jul-07	17-Dec-08	16-Dec-09	09-Nov-11	22-Aug-12	07-Aug-13	30-Jul-14	21-Oct-15		
Alkalinity	16.1	25.1	18.6	13.1	18.8	25.9	23.1	n/r	14.6	13.6	27.6	10.3	6.8	none	none
Aluminum	0.00	n/d	0.00	0.01	BDL	BDL	BDL	0.01	<0.005	<0.005	0.02	0.01	<0.005	none	0.2
Ammonia	0.02	0.00	0.01	0.01	BDL	BDL	BDL	0.00	<0.02	n/r	<0.02	<0.02	<0.02	none	1.5
Bicarbonate	19.6	30.6	22.7	16.0	22.9	31.6	28.2	n/r	17.8	16.6	33.7	12.6	8.3	none	none
Calcium	1.0	0.6	1.2	0.8	2.1	1.4	1.6	0.8	0.3	0.4	1.6	0.4	0.4	none	none
Chloride	87	n/d	77	45	105	57	38	32	60	111	56	56	95.0	none	> 250
Copper	0.01	n/d	0.08	0.00	0.03	BDL	0.04	0.01	<0.02	<0.02	0.05	<0.03	<0.04	2	>1
Hardness	12.0	6.3	13.0	15.0	18.5	6.8	8.0	3.0	1.5	2.0	4.5	6.5	4.0	none	200-500
Iron	0.00	n/d	0.00	0.00	0.02	BDL	0.01	0.01	<0.01	0.02	<0.01	<0.02	<0.02	none	0.3
Magnesium	2.3	1.3	2.4	3.2	3.2	0.8	1.0	0.2	0.2	0.2	0.0	1.0	0.7	none	none
Nitrate as N	0.2	0.0	0.0	0.2	BDL	BDL	BDL	n/r	<0.1	<0.1	<0.1	0	0.0	50 as NO ₃ ⁻	none
Orthophosphate	0.04	0.14	0.16	0.00	0.25	0.16	0.33	0.60	0.99	0.67	1.30	1.20	1.0	none	none
Sulphate	0.2	n/d	0.1	0.0	0.2	0.3	0.0	0.2	<1	<1	<1	<1.0	4.0	none	250
Sulphide	0.000	0.000	0.000	0.000	BDL	BDL	BDL	n/d	n/d	n/d	BDL	<0.01	<0.01	none	0.05
Zinc	0.42	n/d	0.24	0.17	0.13	0.16	0.15	0.45	0.60	0.46	0.42	0.35	0.4	none	3
PARAMETER - DAILY ANALYSIS															
<i>(all results in mg/l, unless otherwise stated)</i>															
Total dissolved solids	151	119	130	155	173	100	85	50	105	128	99	98	146	none	1000-1200
Electrical conductivity μ S/cm	315	249	296	323	327	200	174	103	226	269	198	205	326	none	none
Total chlorine residual	0.29	0.30	0.31	0.30	0.27	0.39	0.50	0.55	0.52	0.49	0.52	0.54	0.42	none	5
Free chlorine residual	0.25	0.27	0.28	0.28	0.25	0.39	0.47	0.52	0.49	0.46	0.50	0.51	0.35	\geq 0.5	5
pH units	7.57	7.45	7.39	7.56	7.40	7.68	7.24	6.83	7.55	7.65	7.49	7.47	7.22	none	6.5-9.5
Total coliform bacteria cfu/100ml	0	0	0	0	BDL	BDL	BDL	0	<1	<1	<1	<1	<1	0	n/a
E. coli cfu/100 ml					BDL	BDL	BDL	0	<1	<1	<1	<1	<1	0	n/a
Thermotolerant coliform bacteria cfu/100ml	0	0	0	0	BDL		n/d	n/d	n/d	n/d	n/d	n/d	n/d	0	n/a
Heterotrophic Plate Count cfu/ml	0	0	0	0	BDL	BDL	BDL	0	<0.1	<0.1	<0.1	1	<0.1	none	none

NOTE: Samples collected @ Cayman Brac Reservoir; n/d = not done; n/a = not applicable; n/r = not reportable; BDL=Below Detection Limit
 Marcela Martinez Ebanks Laboratory Manager