



Water Authority-Cayman

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

PARAMETER - BIANNUAL ANALYSIS (all results in mg/l, unless otherwise stated)	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
	31-Mar-04	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			
Alkalinity	1.80	3.85	4.80	n/r	2.10	n/d	2.30	5.35	2.00	1.80	none	none	
Aluminum	0.00	BDL	BDL	BDL	BDL	n/d	<0.005	<0.005	<0.005	0.010	none	0.2	
Ammonia	0.000	BDL	BDL	BDL	n/r	BDL	<0.017	<0.017	n/r	< 0.02	none	1.5	
Bicarbonate	2.2	4.7	5.9	n/r	2.6	n/d	2.8	6.2	2.4	2.20	none	none	
Boron	n/d	n/d	n/d	n/d	1.3	0.7	1.1	1.1	1.5	1.2	2.4	none	
Calcium	1.4	1.0	1.4	1.2	0.8	n/d	1.6	0.7	1.8	0.8	none	none	
Chloride	72	105.0	91.0	108.0	103.9	86.0	98.0	107.9	105.0	102.5	none	< 250	
Copper	0.01	0.07	BDL	0.002	BDL	n/d	<0.021	<0.021	<0.02	0.03	2	< 1	
Hardness	15.0	10.5	6.5	10.0	9.0	n/d	4.0	3.5	7.0	4.5	none	200-500	
Iron	0.00	BDL	BDL	0.01	0.02	0.12	<0.008	<0.008	0.01	< 0.02	none	0.3	
Magnesium	2.8	1.9	0.7	1.7	1.7	n/d	0.0	0.4	0.6	0.6	none	none	
Nitrate as N	0.00	BDL	BDL	0.30	1.80	BDL	<0.1	<0.1	<0.1	< 0.1	50 as NO ₃ ⁻	none	
Orthophosphate	1.65	1.78	1.74	1.47	2.18	n/d	1.56	1.10	1.10	0.94	none	none	
Sodium	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	none	200	
Sulphate	12	17.2	11.5	12.9	10.8	n/d	10.6	8.7	10.9	4.7	none	250	
Sulfide	0.000	BDL	BDL	BDL	BDL	BDL	<0.002	<0.002	<0.01	< 0.01	none	0.05	
Zinc	0.50	0.575	0.548	0.484	0.688	0.643	0.461	0.438	0.420	0.34	none	3	
PARAMETER - DAILY ANALYSIS (all results in mg/l, unless otherwise stated)													
Total dissolved solids	143	145	150	195	173	158	170	169	210	156.9	none	1000-1200	
Electrical conductivity $\mu S/cm$	255	329	336	391	369	329	354	353	370	361	none	none	
Total chlorine residual	0.36	0.57	0.55	0.56	0.57	0.56	0.59	0.66	0.65	0.53	none	5	
Free chlorine residual	0.34	0.53	0.53	0.51	0.55	0.52	0.56	0.56	0.59	0.51	0.5	5	
pH units	7.39	7.33	7.53	7.09	7.43	7.69	7.74	7.78	7.07	7.51	none	6.5-9.5	
Total coliform bacteria cfu/100ml	0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<1	<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	0	n/a
Thermotolerant coliform bacteria cfu/100ml	0	BDL	BDL	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	n/d	0	0	<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 05-Apr-04	Sample Date 08-Dec-05	Sample Date 23-Jul-07	Sample Date 09-Dec-08	Sample Date 02-Dec-09	Sample Date 08-Nov-11	Sample Date 21-Aug-12	Sample Date 05-Aug-13	Sample Date 04-Aug-14	WHO Health Based Guidelines
Alkalinity	1.7	1.6	4.4	n/r	2.05	2.67	6.80	2.10	2.00	none
Aluminum	0.00	BDL	BDL	BDL	BDL	<0.005	<0.005	0.01	<0.005	none
Ammonia	0.007	0.116	BDL	BDL	BDL	<0.017	<0.017	<0.02	<0.02	none
Bicarbonate	2.1	1.95	5.37	n/r	2.50	3.25	8.30	2.56	2.44	none
Boron	n/d	n/d	n/d	n/d	1.20	1.30	1.30	0.80	0.80	2.4
Calcium	0.8	0.8	1.4	1.2	0.8	1.2	2.0	1.2	1.0	none
Chloride	80	95	78	95	94	104	118	72	81	none
Copper	0.004	BDL	BDL	BDL	BDL	<0.021	<0.02	<0.02	0.030	2
Hardness	7.0	4.5	4.5	6.8	7.0	7.5	7.0	10.0	9.5	none
Iron	0.009	BDL	BDL	BDL	BDL	<0.008	<0.009	<0.01	0.020	none
Magnesium	1.2	0.6	0.5	0.9	1.2	1.0	0.5	2.0	2.0	none
Nitrate as N	0.0	BDL	BDL	0.2	0.0	1.0	0.4	<0.1	0.9	50 as NO ₃ ⁻
Orthophosphate	1.06	1.05	1.38	1.84	2.14	2.91	1.88	1.50	1.30	none
Sodium	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	none
Sulphide	0.000	BDL	BDL	BDL	BDL	<0.002	<0.002	<0.01	<0.01	none
Zinc	0.40	0.36	0.47	0.61	0.67	0.77	0.65	n/d	0.44	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	none
Electrical conductivity μ S/cm	278	302	304	355	321	384	400	258	274	none
Total chlorine residual	0.38	0.59	0.62	0.65	0.55	0.61	0.64	0.57	0.45	none
Free chlorine residual	0.33	0.53	0.62	0.60	0.50	0.57	0.57	0.53	0.41	≥ 0.5
pH units	7.4	7.35	7.76	7.23	7.70	7.40	7.07	7.28	7.46	none
Total coliform bacteria cfu/100ml	0	BDL	BDL	BDL	BDL	BDL	<1	<1	<1	0
<i>E. coli</i> cfu/100 ml			BDL	BDL	BDL	BDL	<1	<1	<1	0
Thermotolerant coliform bacteria cfu/100ml	0	BDL		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	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)

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

East End Reservoir Annual Analysis

	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
PARAMETER - BIENNIAL ANALYSIS													
<i>(all results in mg/l, unless otherwise stated)</i>													
	31-Jan-00	29-Jun-00	05-Dec-05	25-Jun-07	15-Dec-08	30-Nov-09	18-Jan-11	10-Oct-11	13-Aug-12	05-Aug-13	04-Aug-14		
Alkalinity	298.0	284.0	284.0	274.0	n/r	260	270	246	270	238	250	none	none
Aluminum	0.00	0.00	0.007	BDL	0.006	BDL	n/d	<0.005	<0.005	0.016	<0.005	none	0.2
Ammonia	0.02	0.04	BDL	0.031	0.081	0.158	0.044	0.077	<0.017	0.140	<0.005	none	1.5
Bicarbonate	363.6	346.5	346.0	334.3	n/r	317.2	329.4	300.1	329.4	290.4	305.0	none	none
Calcium	80.0	96.0	80.0	80.0	73.3	61.3	n/d	25.6	64.0	68.8	n/r	none	none
Chloride	115	135	110	100	74	108	86	110	110	102	110	none	> 250
Copper	0.24	0.12	0.093	0.005	0.058	BDL	<0.021	<0.021	<0.021	0.040	0.040	2	>1
Hardness	360.0	360.0	360.0	500.0	305.0	280.0	n/d	280.0	320.0	278.0	n/r	none	200-500
Iron	0.01	0.00	0.027	0.016	BDL	0.017	n/d	<0.008	0.047	<0.01	0.020	none	0.3
Magnesium	38.9	29.2	38.9	72.9	29.6	30.8	n/d	30.0	38.9	30.0	n/r	none	none
Nitrate as N	0.60	0.55	0.80	0.70	0.80	1.90	<.1	1.20	0.60	0.90	1.00	50 as NO ₃	none
Orthophosphate	0.01	0.03	0.098	BDL	0.137	0.056	<0.045	0.189	0.020	<0.04	0.140	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	25.4	23.2	27.1	19.7	13.0		n/d	22.9	22.3	25.5	16.2	none	250
Sulphide	0.000	0.000	BDL	0.004	n/d		<0.002	<0.002	<0.002	<0.01	<0.002	none	0.05
Zinc	0.03	0.00	BDL	0.045	0.021		0.006	<0.009	<0.009	0.020	0.020	none	3
PARAMETER - DAILY ANALYSIS													
<i>(all results in mg/l, unless otherwise stated)</i>													
Total dissolved solids	547	546	489	400	427		0	369	403	475	480	none	1000-1200
Electrical conductivity μ S/cm	928	947	783	896	767		0	784	749	801	790	none	none
Total chlorine residual	0.08	0.52	0.63	0.70	0.63		0.00	1.12	0.93	2.08	0.90	none	5
Free chlorine residual	0.05	0.25	0.48	0.57	0.52		0.00	0.98	0.84	2.06	0.85	\geq 0.5	5
pH units	7.8	7.9	8.00	7.93	8.08		0.00	7.91	8.09	7.80	8.05	none	6.5-9.5
Total coliform bacteria cfu/100ml	0	0	BDL	BDL	BDL		<1	<1	<1	<1	<1	0	n/a
<i>E. coli</i> cfu/100 ml					BDL		<1	<1	<1	<1	<1	0	n/a
Thermotolerant coliform bacteria cfu/100ml	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	n/d	n/d	n/d	n/d	n/d		n/d	n/d	n/d	n/d	n/d	none	none

NOTE: Samples collected @ East End Reservoir Site; n/d = not done; n/a = not applicable; n/r = not reportable; BDL=Below Detection Limit
 Marcela Martinez Ebansk, 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	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		
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	none	none
Aluminum	0.00	n/d	0.00	0.01	BDL	BDL	BDL	0.01	<0.005	<0.005	0.02	0.01	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	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	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	none	none
Chloride	87	n/d	77	45	105	57	38	32	60	111	56	56	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	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	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	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	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	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	none	none
Sulphate	0.2	n/d	0.1	0.0	0.2	0.3	0.0	0.2	<1	<1	<1	<1.0	none	250
Sulphide	0.000	0.000	0.000	0.000	BDL	BDL	BDL	n/d	n/d	n/d	BDL	<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	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	none	1000-1200
Electrical conductivity μ S/cm	315	249	296	323	327	200	174	103	226	269	198	205	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	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	0.5	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	none	6.5-9.5
Total coliform bacteria cfu/100ml	0	0	0	0	BDL	BDL	BDL	0	<1	<1	<1	<1	0	n/a
<i>E. coli</i> cfu/100 ml						BDL	BDL	0	<1	<1	<1	<1	0	n/a
Thermotolerant coliform bacteria cfu/100ml	0	0	0	0	BDL	n/d	n/d	0	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	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