

2015 - Capilano Water System

Parameter	Untreated	SCFP Treated			Canadian Guideline Limit	Reason Guideline Established
	Average	Average	Range	Days Guideline Exceeded		
Alkalinity as CaCO ₃ (mg/L)	3.1	7.8	6.1-10.8		none	
Aluminium Dissolved (µg/L)	83	26	15-40		none	
Aluminium Total (µg/L)	167	31	17-42		none	
Antimony Total (µg/L)	<0.5 (0.021)	<0.5	<0.5	0	6	Health
Arsenic Total (µg/L)	<0.5 (0.095)	<0.5	<0.5	0	10	Health
Barium Total (µg/L)	3.0	3.1	2.9-3.2	0	1000	Health
Boron Total (mg/L)	<0.01	<10	<10		5	
Bromate (mg/L)	<0.01	<0.01	<0.01	0	0.01	Health
Bromide (mg/L)	<0.01	<0.01	<0.01	0	none	Health
Cadmium Total (µg/L)	<0.2 (0.008)	<0.2	<0.2	0	5	Health
Calcium Total (mg/L)	1.35	3.57	2.93-4.40		none	
Carbon Organic Dissolved (mg/L)	1.97	0.72	0.5-0.9		none	
Carbon Organic Total (mg/L)	1.99	0.82	0.62-1.2		none	
Chlorate (mg/L)	<0.01	0.04	0.01 - 0.10	0	1.0	Health
Chloride Total (mg/L)	0.59	2.6	2.3-3.1	0	≤ 250	Aesthetic
Chromium Total (µg/L)	<0.05	<0.05	<0.05 - 0.05	0	50	Health
Color Apparent (ACU)	23	<1	<1		none	
Color True (TCU)	14	<1	<1	0	≤ 15	Aesthetic
Conductivity (umhos/cm)	12	28	21-34		none	
Copper Total (µg/L)	5.3	<0.5(0.13)	<0.5	0	≤ 1000	Aesthetic
Cyanide Total (mg/L)	<0.02	<0.02	<0.02	0	0.2	Health
Fluoride (mg/L)	<0.05	<0.05	<0.05	0	1.5	Health
Hardness as CaCO ₃ (mg/L)	4.12	9.6	7.9-11.8		none	
Iron Dissolved (µg/L)	83	5.7	5.0-6.0		none	
Iron Total (µg/L)	192	9.7	5.0-27.0	0	≤ 300	Aesthetic
Lead Total (µg/L)	<0.5 (0.095)	<0.5	<0.5	0	10	Health
Magnesium Total (µg/L)	182	168	134-225		none	
Manganese Dissolved (µg/L)	9.5	5.6	3.8-10.1		none	
Manganese Total (µg/L)	11.7	7.3	4.0-15.1	0	≤ 50	Aesthetic
Mercury Total (µg/L)	<0.05	<0.05	<0.05	0	1.0	Health
Molybdenum Total (µg/L)	<0.5 (0.179)	<0.5	<0.5		none	
Nickel Total (µg/L)	<0.5 (0.100)	<0.5	<0.5		none	
Nitrogen - Ammonia as N (mg/L)	<0.02	<0.02	<0.02		none	
Nitrogen - Nitrate as N (mg/L)	0.09	0.08	0.03-0.15	0	45	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01	0	3.0	Health
pH	6.5	7.5	7.3-7.7	0	6.5 to 8.5	Aesthetic
Phenols (µg/L)	<5	<5	<5		none	
Phosphorus Total (µg/L)	<5	<5	<5		none	
Potassium Total (mg/L)	169	169	163-175		none	
Residue Total (mg/L)	19	27	22-40		none	
Residue Total Dissolved (mg/L)	17	22	16-27	0	≤ 500	Aesthetic
Residue Total Fixed (mg/L)	11	18	13-31		none	
Residue Total Volatile (mg/L)	8	8.1	6-10		none	
Selenium Total (µg/L)	<0.5 (<0.040)	<0.5	<0.5	0	50	Health
Silica as SiO ₂ (mg/L)	3.2	3.1	2.7-3.5		none	
Silver Total (µg/L)	<0.5 (<0.005)	<0.5	<0.5		none	
Sodium Total (mg/L)	0.619	1.53	1.26-1.94	0	≤ 200	Aesthetic
Sulphate (mg/L)	0.87	1.12	0.90-1.30	0	≤ 500	Aesthetic
Turbidity (NTU)	1.23	0.058	0.042-0.116	0	≤ 1.0	Health
Uranium Total (µg/L)	0.033	0.011		0	20	Health
UV254 (Abs/cm)	0.088	0.012	0.009-0.015		none	
UV254 App. (Abs/cm)	-	0.012	0.009-0.015		none	
Zinc Total (µg/L)	<3 (0.69)	<3(0.83)	<3	0	≤ 5000	Aesthetic

These figures are average values from a number of laboratory analyses done throughout the year. Where the range is a single value no variation was measured for the samples analysed. Methods and terms are based on those of "Standard Methods for the Examination of Water and Waste Water" 22nd Edition 2012. Less than (<) denotes not detectable with the technique used for determination. Untreated water is from the intake prior to the raw water tunnel, treated water is from a single site in the GVWD distribution system downstream of SCFP clearwell. Guidelines are taken from "Guidelines for Canadian Drinking Water Quality - Sixth Edition" Health and Welfare Canada 1996, updated to Oct 2014. reated turbidity guideline applies to Individual Filter Effluent readings. Capilano source was out of service from January 1- Feb 24. Filtering of Capilano source at SCFP began on Feb 25 and delivery of filtered water thru treated water tunnel started on April 15. Values in parenthesis () are lower analytical results from a private Lab.

2015 - Seymour Water System

<u>Parameter</u>	<u>Untreated</u>	<u>SCFP Treated</u>			<u>Canadian Guideline Limit</u>	<u>Reason Guideline Established</u>
	<u>Average</u>	<u>Average</u>	<u>Range</u>	<u>Days Guideline Exceeded</u>		
Alkalinity as CaCO ₃ (mg/L)	3.7	7.8	6.1-10.8		none	
Aluminium Dissolved (µg/L)	26.2	26	15-40		none	
Aluminium Total (µg/L)	165	31	17-42	0	200	Aesthetic
Antimony Total (µg/L)	<0.5	<0.5	<0.5	0	6	Health
Arsenic Total (µg/L)	<0.5	<0.5	<0.5	0	10	Health
Barium Total (µg/L)	4.7	3.1	2.9-3.2	0	1000	Health
Boron Total (mg/L)	<10	<10	<10		5	
Bromate (mg/L)	<0.01	<0.01	<0.01	0	0.01	Health
Bromide (mg/L)	<0.01	<0.01	<0.01	0	none	Health
Cadmium Total (µg/L)	<0.2	<0.2	<0.2	0	5	Health
Calcium Total (mg/L)	1.75	3.57	2.93-4.40		none	
Carbon Organic Dissolved (mg/L)	1.74	0.72	0.5-0.9		none	
Carbon Organic Total (mg/L)	2.25	0.82	0.62-1.2		none	
Chlorate (mg/L)	<0.01	0.04	0.01 - 0.10	0	1.0	Health
Chloride Total (mg/L)	0.5	2.6	2.3-3.1	0	≤ 250	Aesthetic
Chromium Total (µg/L)	0.08	<0.05	<0.05 - 0.05	0	50	Health
Color Apparent (ACU)	26	<1	<1		none	
Color True (TCU)	14	<1	<1	0	≤ 15	Aesthetic
Conductivity (umhos/cm)	14	28	21-34		none	
Copper Total (µg/L)	1.96	<0.5(0.13)	<0.5	0	≤1000	Aesthetic
Cyanide Total (mg/L)	<0.02	<0.02	<0.02	0	0.2	Health
Fluoride (mg/L)	<0.05	<0.05	<0.05	0	1.5	Health
Hardness as CaCO ₃ (mg/L)	5.1	9.6	7.9-11.8		none	
Iron Dissolved (µg/L)	119	5.7	5.0-6.0		none	
Iron Total (µg/L)	278	9.7	5.0-27.0		≤ 300	Aesthetic
Lead Total (µg/L)	<0.5	<0.5	<0.5	0	10	Health
Magnesium Total (µg/L)	174	168	134-225		none	
Manganese Dissolved (µg/L)	7.38	5.6	3.8-10.1		none	
Manganese Total (µg/L)	11	7.3	4.0-15.1	0	≤ 50	Aesthetic
Mercury Total (µg/L)	<0.05	<0.05	<0.05	0	1.0	Health
Molybdenum Total (µg/L)	<0.5	<0.5	<0.5		none	
Nickel Total (µg/L)	<0.5	<0.5	<0.5		none	
Nitrogen - Ammonia as N (mg/L)	<0.02	<0.02	<0.02		none	
Nitrogen - Nitrate as N (mg/L)	0.08	0.08	0.03-0.15	0	45	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01	0	3.0	Health
pH	6.5	7.5	7.3-7.6	0	6.5 to 8.5	Aesthetic
Phenols (µg/L)	<5	<5	<5		none	
Phosphorus Total (µg/L)	<5	<5	<5		none	
Potassium Total (µg/L)	196	169	163-175		none	
Residue Total (mg/L)	22	27	22-40		none	
Residue Total Dissolved (mg/L)	19	22	16-27	0	≤ 500	Aesthetic
Residue Total Fixed (mg/L)	13	18	13-31		none	
Residue Total Volatile (mg/L)	9	8.1	6-10		none	
Selenium Total (µg/L)	<0.5	<0.5	<0.5	0	50	Health
Silica as SiO ₂ (mg/L)	3.13	3.1	2.7-3.5		none	
Silver Total (µg/L)	<0.5	<0.5	<0.5		none	
Sodium Total (mg/L)	0.58	1.53	1.26-1.94	0	≤ 200	Aesthetic
Sulphate (mg/L)	1.36	1.12	0.90-1.30	0	≤ 500	Aesthetic
Turbidity (NTU)	1.56	0.058	0.042-0.116	0	≤ 1.0	Health
Uranium Total (µg/L)	0.038	0.011			20	Health
UV254 {cm ⁻¹ (% Trans)} App	83.9	94.2	90.6-95.5		none	
UV254 (cm ⁻¹) True	0.081	0.012	0.009-0.015		none	
Zinc Total (µg/L)	<3(1.03)	<3(0.83)	<3	0	≤ 5000	Aesthetic

These figures are averaged values from a number of laboratory analyses done throughout the year. Where the range is a single value no variation was measured for the samples analysed. Methods and terms are based on those of "Standard Methods for the Examination of Water and Waste Water" 22nd Edition 2012. Less than (<) denotes not detectable with the technique used for determination. Untreated water is from the intake or a sample site prior to coagulation, treated water is from a sample site downstream of SCFP clearwell. Guidelines are taken from "Guidelines for Canadian Drinking Water Quality - Sixth Edition" Health and Welfare Canada 1996, updated to Oct 2014. Seymour source water is filtered, disinfected with UV light and sodium hypochlorite for primary disinfection, lime is added to increase pH and alkalinity while CO₂ is added to adjust pH. Turbidity and pH for raw and treated waters were taken from SCADA. TOC and UV254 (cm⁻¹ and % Transmittance) were taken from SCFP WQC Lab data. Treated turbidity guideline applies to Individual Filter Effluent readings. Seymour Source was operational for 365 days in 2015. Values in parenthesis () are lower analytical results from a private lab.

2015 - Coquitlam Water System

Parameter	Untreated	Treated			Canadian Guideline Limit	Reason Guideline Established
	Average	Average	Range	Days Guideline Exceeded		
Alkalinity as CaCO ₃ (mg/L)	1.71	9.3	8.1-10.6		none	
Aluminium Dissolved (µg/L)	73.3	72	53-86		none	
Aluminium Total (µg/L)	102.6	113	68-216		none	
Antimony Total (µg/L)	<0.5	<0.5	<0.5	0	6	Health
Arsenic Total (µg/L)	<0.5 (0.026)	<0.5	<0.5	0	10	Health
Barium Total (µg/L)	2.6	2.5	2.1-2.9	0	1000	Health
Boron Total (mg/L)	<0.01	<0.01	<0.01	0	5	Health
Bromate (mg/L)	<0.01	<0.01	<0.01	0	0.01	Health
Bromide (mg/L)	<0.01	<0.01	<0.01		none	
Cadmium Total (µg/L)	<0.2 (0.006)	<0.2	<0.2	0	5	Health
Calcium Total (mg/L)	0.886	0.869	0.793-0.964		none	
Carbon Organic Dissolved (mg/L)	1.79	1.7	1.3-2.3		none	
Carbon Organic Total (mg/L)	2.05	1.72	1.3-2.3		none	
Chlorate (mg/L)	<0.01	<0.01	<0.01	0	1.0	Health
Chloride Total (mg/L)	0.55	2.05	1.8-2.4	0	≤ 250	Aesthetic
Chromium Total (µg/L)	<0.05	<0.05	<0.05	0	50	Health
Color Apparent (ACU)	17	2	1-6		none	
Color True (TCU)	11	1	1-3	0	≤ 15	Aesthetic
Conductivity (umhos/cm)	9	29	24-33		none	
Copper Total (µg/L)	7.2	<0.5	<0.5		≤ 1000	Aesthetic
Cyanide Total (mg/L)	<0.02	<0.02	<0.02	0	0.2	Health
Fluoride (mg/L)	<0.05	<0.05	<0.05	0	1.5	Health
Hardness as CaCO ₃ (mg/L)	2.63	2.58	2.35-2.87		none	
Iron Dissolved (µg/L)	11.1	18.8	13-28		none	
Iron Total (µg/L)	48.3	49	32-116	0	≤ 300	Aesthetic
Lead Total (µg/L)	<0.5	<0.5	<0.5		10	Health
Magnesium Total (µg/L)	102	100	88-122		none	
Manganese Dissolved (µg/L)	3.64	2.55	2.0-3.2		none	
Manganese Total (µg/L)	4.28	3.38	2.4-5.4	0	≤50	Aesthetic
Mercury Total (µg/L)	<0.05	<0.05	<0.05	0	1.0	Health
Molybdenum Total (µg/L)	<0.5	<0.5	<0.5		none	
Nickel Total (µg/L)	<0.5 (0.062)	<0.5	<0.5		none	
Nitrogen - Ammonia as N (mg/L)	<0.02	<0.02	<0.02		none	
Nitrogen - Nitrate as N (mg/L)	0.092	0.098	0.05-0.14	0	45	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01	0	3.0	Health
pH	6.3	7.5	7.3-7.7	0	6.5 to 8.5	Aesthetic
Phenols (µg/L)	<5	<5	<5		none	
Phosphorus Total (µg/L)	<5	<5	<5		none	
Potassium Total (µg/L)	116	115	111-118		none	
Residue Total (mg/L)	14	32	27-42		none	
Residue Total Dissolved (mg/L)	14	24	14-29	0	≤ 500	Aesthetic
Residue Total Fixed (mg/L)	8	22	17-30		none	
Residue Total Volatile (mg/L)	7	11	11-118		none	
Selenium Total (µg/L)	<0.5 (<0.040)	<0.5	<0.5	0	50	Health
Silica as SiO ₂ (mg/L)	2.27	2.3	2.1-2.5		none	
Silver Total (µg/L)	<0.5 (<0.005)	<0.5	<0.5		none	
Sodium Total (mg/L)	0.472	5.6	5.0-6.4	0	≤200	Aesthetic
Sulphate (mg/L)	0.65	0.67	0.60-0.70	0	≤500	Aesthetic
Turbidity (NTU)	0.56	0.54	0.22-3.5			
Uranium Total (µg/L)	0.049	-	-	0	20	Health
UV254 (Abs/cm)	0.076	0.024	0.015-0.038		none	
UV254 App (Abs/cm)	0.083	0.029	0.019-0.039			
UV254 {cm ⁻¹ (% Trans)} App	82.9	93.5	91.4-95.7			
Zinc Total (µg/L)	<3 (1.54)	<3	<3	0	≤ 5000	Aesthetic

These figures are average values from a number of laboratory analyses done throughout the year. Where the range is a single value no variation was measured for the samples analysed. Methods and terms are based on those of "Standard Methods for the Examination of Water and Waste Water" 22nd Edition 2012. Less than (<) denotes not detectable with the technique used for determination. Untreated water is from the intake prior to treatment, treated water is from a single site in the GVWD distribution system downstream of CWTP. Guidelines are taken from "Guidelines for Canadian Drinking Water Quality - Sixth Edition" Health and Welfare Canada 1996, updated to Oct 2014. Coquitlam water is treated with ozone, then UV for primary disinfection. Soda ash is added to increase pH. Chlorine is added for secondary disinfection. Coquitlam source was operational for 365 days in 2015. Values in parenthesis () are lower analytical results from a private Lab.