

## Physical and Chemical Analysis of Water Supply

### 2021 – Capilano Water System

Parameter	Untreated	Treated		Canadian Guideline		
	Average	Average	Range	Days Exceeded	Limit	Reason Established
Alkalinity as CaCO <sub>3</sub> (mg/L)	2.8	16	9.0-25		none	
Aluminum Dissolved (µg/L)	76	34	19-63		none	
Aluminum Total (µg/L)	164	35	19-81		none	
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)	2.9	2.5	1.8-2.9	0	1000	Health
Boron Total (µg/L)	<10	<10	<10	0	5000	Health
Bromate (mg/L)	<0.01	<0.01	<0.01	0	0.1	Health
Bromide (mg/L)	<0.01	<0.01	<0.01		none	
Cadmium Total (µg/L)	<0.2	<0.2	<0.2	0	5	Health
Calcium Total (µg/L)	1140	6210	3980-9320		none	
Carbon Organic - Dissolved (mg/L)	1.8	0.7	0.5-1.0		none	
Carbon Organic - Total (mg/L)	1.8	0.7	0.5-1.0		none	
Chlorate (mg/L)	<0.01	0.03	0.02-0.04	0	1	Health
Chloride (mg/L)	<0.5	2.4	2.0-3.1	0	=250	Aesthetic
Chromium Total (µg/L)	<0.1	<0.05	<0.05	0	50	Health
Cobalt Total (µg/L)	<0.5	<0.5	<0.5		none	
Color - Apparent (ACU)	16	<2	<2-3		none	
Color - True (TCU)	11	<1	<1-2	0	=15	Aesthetic
Conductivity (µmhos/cm)	10	41	30-55		none	
Copper Total (µg/L)	2.1	<0.5	<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 <sub>3</sub> (mg/L)	3.5	16.6	10.5-24.3		none	
Iron Dissolved (µg/L)	34	<5	<5-5		none	
Iron Total (µg/L)	121	<6	<5-13	0	=300	Aesthetic
Lead Total (µg/L)	<0.5	<0.5	<0.5	0	5	Health
Magnesium Total (µg/L)	166	185	147-241		none	
Manganese Dissolved (µg/L)	3.9	1.6	0.7-3.3		none	
Manganese Total (µg/L)	5.4	3.6	1.4-7.0	0	=50	Aesthetic
Mercury Total (µg/L)	<0.05	<0.05	<0.05	0	1	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)	0.07	0.06	0.04-0.10	0	45	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01	0	1	Health
pH (pH units)	6.5	7.7	7.4-8.2	0	7.0 to 10.5	Aesthetic
Phenol (mg/L)	<0.005	<0.005	<0.005		none	
Phosphorus Dissolved (µg/L)	<10	<10	<10		none	
Phosphorus Total (µg/L)	<10	<10	<10		none	
Potassium Total (µg/L)	150	150	124-169		none	
Residue Total (mg/L)	15	28	21-37		none	
Residue Total Dissolved (mg/L)	10	30	20-40	0	=500	Aesthetic
Residue Total Fixed (mg/L)	9	22	15-31		none	
Residue Total Volatile (mg/L)	6	6	4-9		none	
Selenium Total (µg/L)	<0.5	<0.5	<0.5	0	50	Health
Silica as SiO <sub>2</sub> (mg/L)	3.2	3.2	2.3-3.8		none	
Silver Total (µg/L)	<0.5	<0.5	<0.5		none	
Sodium Total (µg/L)	564	1570	1420-1760	0	=200000	Aesthetic
Sulphate (mg/L)	<0.6	1.0	0.7-1.3	0	=500	Aesthetic
Turbidity (NTU)	1.7	0.13	0.06-0.24		none	
Turbidity IFE (NTU)	-	-	-	-	-	-
UV Absorbance 254 nm (Abs/cm)	0.073	0.011	0.007-0.017		none	
Zinc Total (µg/L)	<3	<3	<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 analyzed. Average values containing one or more results below the detection limit are preceded with "<" symbol. Minimum range values than "<" denotes not detectable with the technique used for determination. Methods and terms are based on those of the most current on-line version of "Standard Methods for the Examination of Water and Waste Water". Untreated water is from the intake prior to the raw water tunnel, treated water is from a single site in the GVWD distribution system after the treated water tunnel and before the breakhead tank. Guidelines are taken from the most current Guidelines for Canadian Drinking Water Quality summary table updated in September 2020. Capilano Source was operational for 365 days in 2021.*

<sup>1</sup>Treated turbidity guideline and the number of exceedances applies to Individual Filter Effluent readings; measured in events and not days.

## Physical and Chemical Analysis of Water Supply

2021 – Seymour Water System

Parameter	Untreated	Treated		Canadian Guideline		
	Average	Average	Range	Days Exceeded	Limit	Reason Established
Alkalinity as CaCO <sub>3</sub> (mg/L)	3.3	16	8.3-24		none	
Aluminum Dissolved (µg/L)	69	34	19-63		none	
Aluminum Total (µg/L)	130	35	20-76		none	
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)	3.1	2.5	2.0-2.9	0	1000	Health
Boron Total (µg/L)	<10	<10	<10	0	5000	Health
Bromate (mg/L)	<0.01	<0.01	<0.01	0	0.1	Health
Bromide (mg/L)	<0.01	<0.01	<0.01		none	
Cadmium Total (µg/L)	<0.2	<0.2	<0.2	0	5	Health
Calcium Total (µg/L)	1550	6320	3980-9180		none	
Carbon Organic - Dissolved (mg/L)	1.6	0.7	0.5-1.0		none	
Carbon Organic - Total (mg/L)	1.7	0.7	0.5-1.0		none	
Chlorate (mg/L)	<0.01	0.03	0.02-0.04	0	1	Health
Chloride (mg/L)	<0.5	2.4	2.0-3.1	0	=250	Aesthetic
Chromium Total (µg/L)	<0.07	<0.05	<0.05	0	50	Health
Cobalt Total (µg/L)	<0.5	<0.5	<0.5		none	
Color - Apparent (ACU)	17	<2	<2-3		none	
Color - True (TCU)	11	<1	<1-1	0	=15	Aesthetic
Conductivity (µmhos/cm)	12	41	29-55		none	
Copper Total (µg/L)	29.4	<0.6	<0.5-1.1	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 <sub>3</sub> (mg/L)	4.5	16.7	10.6-23.9		none	
Iron Dissolved (µg/L)	63	<6	<5-29		none	
Iron Total (µg/L)	162	<8	<5-29	0	=300	Aesthetic
Lead Total (µg/L)	<0.5	<0.5	<0.5	0	5	Health
Magnesium Total (µg/L)	154	186	148-238		none	
Manganese Dissolved (µg/L)	4.2	3.0	1.9-4.6		none	
Manganese Total (µg/L)	6.2	4.0	2.2-6.2	0	=50	Aesthetic
Mercury Total (µg/L)	<0.05	<0.05	<0.05	0	1	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)	0.06	0.06	0.03-0.10	0	45	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01	0	1	Health
pH (pH units)	6.5	7.7	7.3-8.1	0	7.0 to 10.5	Aesthetic
Phenol (mg/L)	<0.005	<0.005	<0.005		none	
Phosphorus Dissolved (µg/L)	<10	<10	<10		none	
Phosphorus Total (µg/L)	<10	<10	<10		none	
Potassium Total (µg/L)	150	142	123-169		none	
Residue Total (mg/L)	16	28	22-37		none	
Residue Total Dissolved (mg/L)	10	30	20-40	0	=500	Aesthetic
Residue Total Fixed (mg/L)	9	21	12-32		none	
Residue Total Volatile (mg/L)	7	7	5-11		none	
Selenium Total (µg/L)	<0.5	<0.5	<0.5	0	50	Health
Silica as SiO <sub>2</sub> (mg/L)	3.1	3.1	2.3-3.8		none	
Silver Total (µg/L)	<0.5	<0.5	<0.5		none	
Sodium Total (µg/L)	534	1550	1400-1720	0	=200000	Aesthetic
Sulphate (mg/L)	1.1	1.0	0.7-1.3	0	=500	Aesthetic
Turbidity (NTU)	1.1	0.13	0.06-0.21		none	
Turbidity IFE (NTU)	-	-	-	-	-	-
UV Absorbance 254 nm (Abs/cm)	0.070	0.011	0.008-0.017		none	
Zinc Total (µg/L)	<4	<3	<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 analyzed. Average values containing one or more results below the detection limit are preceded with "<" symbol. Minimum range values than "<" denotes not detectable with the technique used for determination. Methods and terms are based on those of the most current on-line version of "Standard Methods for the Examination of Water and Waste Water". Untreated water is from a sample site prior to coagulation, treated water is from a sample site downstream of the SFCP clearwell. Guidelines are taken from the most current Guidelines for Canadian Drinking Water Quality summary table updated in September 2020. Seymour Source was operational for 365 days in 2021.*

<sup>1</sup>*Treated turbidity guideline and the number of exceedances applies to Individual Filter Effluent readings; measured in events and not days.*

## Physical and Chemical Analysis of Water Supply

### 2021 – Coquitlam Water System

Parameter	Untreated	Treated		Canadian Guideline		
	Average	Average	Range	Days Exceeded	Limit	Reason Established
Alkalinity as CaCO <sub>3</sub> (mg/L)	1.9	16	7.1-23		none	
Aluminum Dissolved (µg/L)	68	70	61-85		none	
Aluminum Total (µg/L)	94	94	77-141		none	
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)	2.2	2.2	1.9-2.4	0	1000	Health
Boron Total (µg/L)	<10	<10	<10	0	5000	Health
Bromate (mg/L)	<0.01	<0.01	<0.01	0	0.1	Health
Bromide (mg/L)	<0.01	<0.01	<0.01		none	
Cadmium Total (µg/L)	<0.2	<0.2	<0.2	0	5	Health
Calcium Total (µg/L)	836	836	752-899		none	
Carbon Organic - Dissolved (mg/L)	1.6	1.5	1.2-2.0		none	
Carbon Organic - Total (mg/L)	1.7	1.5	1.2-2.0		none	
Chlorate (mg/L)	<0.01	0.06	0.03-0.10	0	1	Health
Chloride (mg/L)	<0.5	2.2	1.8-2.7	0	=250	Aesthetic
Chromium Total (µg/L)	<0.05	<0.05	<0.05-0.06	0	50	Health
Cobalt Total (µg/L)	<0.5	<0.5	<0.5		none	
Color - Apparent (ACU)	13	<2	<2-3		none	
Color - True (TCU)	9	<1	<1-1	0	=15	Aesthetic
Conductivity (µmhos/cm)	8	37	24-50		none	
Copper Total (µg/L)	4.7	<0.5	<0.5-0.6	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 <sub>3</sub> (mg/L)	2.5	2.5	2.3-2.6		none	
Iron Dissolved (µg/L)	22	24	12-64		none	
Iron Total (µg/L)	57	58	31-150	0	=300	Aesthetic
Lead Total (µg/L)	<0.5	<0.5	<0.5	0	5	Health
Magnesium Total (µg/L)	97	98	86-110		none	
Manganese Dissolved (µg/L)	4.2	2.6	1.5-4.2		none	
Manganese Total (µg/L)	4.5	3.8	2.0-7.4	0	=50	Aesthetic
Mercury Total (µg/L)	<0.05	<0.05	<0.05	0	1	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)	0.07	0.08	0.04-0.10	0	45	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01	0	1	Health
pH (pH units)	6.3	7.9	7.1-8.7	0	7.0 to 10.5	Aesthetic
Phenol (mg/L)	<0.005	<0.005	<0.005		none	
Phosphorus Dissolved (µg/L)	<10	<10	<10		none	
Phosphorus Total (µg/L)	<10	<10	<10		none	
Potassium Total (µg/L)	108	109	106-112		none	
Residue Total (mg/L)	12	30	21-36		none	
Residue Total Dissolved (mg/L)	10	30	20-40	0	=500	Aesthetic
Residue Total Fixed (mg/L)	6	20	12-26		none	
Residue Total Volatile (mg/L)	6	10	7-13		none	
Selenium Total (µg/L)	<0.5	<0.5	<0.5	0	50	Health
Silica as SiO <sub>2</sub> (mg/L)	2.5	2.5	2.2-2.8		none	
Silver Total (µg/L)	<0.5	<0.5	<0.5		none	
Sodium Total (µg/L)	462	8010	5110-10600	0	=200000	Aesthetic
Sulphate (mg/L)	<0.5	<0.6	<0.5-0.7	0	=500	Aesthetic
Turbidity (NTU)	0.50	0.43	0.18-1.9		none	
UV 254 - Apparent (Abs/cm)	0.071	0.023	0.015-0.060		none	
UV Absorbance 254 nm (Abs/cm)	0.065	0.019	0.013-0.022		none	
Zinc Total (µg/L)	<3	<3	<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 analyzed. Average values containing one or more results below the detection limit are preceded with "<" symbol. Minimum range values than "<" denotes not detectable with the technique used for determination. Methods and terms are based on those of the most current on-line version of "Standard Methods for the Examination of Water and Waste Water". 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 the most current Guidelines for Canadian Drinking Water Quality summary table updated in September 2020. Recommended turbidity guidelines applies to finished treated water from an un-filtered source. Coquitlam source was operational for 365 days in 2021.*