REGIONAL DISTRICT OF NANAIMO

French Creek #2 Raw Well Water Analysis
Behind 1221 Ormonde Road

CDWG=Canadian Drinking Water Guidelines MAC=Maximum Acceptable Concentration

OG= Operational Guidance Value AO=Aesthetic Objective

Orange font indicates non-compliance with the Aesthetic Objective (AO) in the Canadian Drinking Water Guidelines (CDWG)

Red font indicates non-compliance with the Maximum Acceptable Concentration (MAC) in the CDWG

	Units	CDWG		October 18 2017	November 8 2018	October 10 2019	October 22 2020	October 14 2021
Miscellaneous Inorganics								
Fluoride	mg/L	1.5	MAC	0.11	0.13	0.11	0.11	0.13
Alkalinity (total as CaCO)	mg/L			140	130	130	140	140
Anions								
Dissolved Sulphate	mg/L	500	AO	28.9	47.3	38	41	41
Dissolved Chloride	mg/L	250	AO	7.2	7.4	8.4	9.9	11
Nitrite	mg/L	1	MAC	0.0051	<0.0050	<0.005	<0.005	<0.005
Miscellaneous								
Apparent Colour	Colour Unit			15	5	5	15	<5
Nutrients								
Total Ammonia	mg/L			0.22	0.24	0.36	0.28	0.29
Physical Properties								
Conductivity	µS/cm			341	354	350	360	350
pH	pH	7.0:10.5	AO	8.28	8.21	8.08	8.24	8.31
TDS	mg/L	500	AO	190	206	200	210	210
Turbidity	NTU			0.85	0.32	0.18	0.25	0.18
Microbiological Parameters								
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	0	0	0
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	0	0	0
Calculated Parameters								
Total Hardness (CaCO)	mg/L			157	161	162	152	154
Nitrate	mg/L	10	MAC	0.095	<0.020	<0.02	<0.02	<0.02
Elements								
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.000002	<0.000002	<0.0000019	<0.0000019
Total Metals								
Total Aluminum	mg/L	0.1	OG	<0.003	<0.003	<0.003	<0.003	<0.003
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Total Arsenic	mg/L	0.01	MAC	0.00011	0.00019	0.00014	0.00013	<0.0001
Total Barium	mg/L	1	MAC	0.016	0.0182	0.0189	0.0183	0.0179
Total Beryllium	mg/L			<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	<0.050	<0.050	<0.05	<0.05	<0.05
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Total Chromium	mg/L	0.05	MAC	<0.001	<0.001	<0.001	<0.001	<0.001
Total Cobalt	mg/L			<0.0002	<0.0002	<0.0002	<0.0002	<0.002
Total Copper	mg/L	1	AO	0.0268	<0.0002	<0.0002	<0.0002	<0.002
Total Iron	mg/L	0.3	AO	0.223	0.115	0.139	0.105	0.106
Total Lead	mg/L	0.01	MAC	0.00198	<0.0002	<0.0002	<0.0002	<0.002
Total Manganese	mg/L	0.02 0.12	AO MAC	**0.122**	**0.147**	**0.151**	**0.143**	**0.141**
Total Molybdenum	mg/L			<0.001	<0.001	<0.001	<0.001	<0.001
Total Nickel	mg/L			0.0027	<0.001	<0.001	<0.001	<0.001
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Silicon	mg/L			12.5	10.1	11.1	10.6	11.4
Total Silver	mg/L			<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Total Strontium	mg/L			0.145	0.165	0.162	0.154	0.166
Total Thallium	mg/L			<0.00001	<0.00001	<0.00001	<0.00001	
Total Tin	mg/L			<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Vanadium	mg/L			<0.005	<0.005	<0.005	<0.005	<0.005
Total Zinc	mg/L	5	AO	0.117	<0.005	<0.005	<0.005	<0.005
Total Zirconium	mg/L			<0.0001	<0.0001	<0.0001	<0.0001	
Total Calcium	mg/L			37.8	39.8	41.2	37.3	38
Total Magnesium	mg/L			15.1	14.9	14.4	14.2	14.4
Total Potassium	mg/L			2.53	2.51	2.45	2.39	2.45
Total Sodium	mg/L	200	AO	9.47	9.11	8.99	8.79	8.92
Total Sulphur	mg/L			9.7	14.1	12.2	11.4	10.7

Notes below about Manganese (2019) from: https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html

Type	Parameter (published, reaffirmed)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
I = Inorganic chemical parameter	Manganese (2019)	0.12	AO: <0.02	Dissolution of naturally-occurring minerals commonly found in soil and rock. Other sources include industrial discharge, mining activities and leaching from landfills.	**Health Basis of MAC:** Effects on neurological development and behaviour; deficits in memory, attention, and motor skills. **Other:** Formula-fed infants (where water containing manganese at levels above the MAC is used to prepare formula) may be especially at risk.	AO based on minimizing the occurrence of discoloured water, consumer complaints and staining of laundry.

REGIONAL DISTRICT OF NANAIMO

French Creek #4 Raw Well Water Analysis
SE of 785 York Place

CDWG=Canadian Drinking Water Guidelines
MAC=Maximum Acceptable Concentration
OG= Operational Guidance Value
AO=Aesthetic Objective

Orange font indicates non-compliance with the Aesthetic Objective (AO) in the Canadian Drinking Water Guidelines (CDWG)

Red font indicates non-compliance with the Maximum Acceptable Concentration (MAC) in the CDWG

	Units	CDWG		October 18 2017	November 8 2018	October 10 2019	October 22 2020	October 14 2021
Miscellaneous Inorganics								
Fluoride	mg/L	1.5	MAC	0.11	0.13	0.11	0.11	0.13
Alkalinity (total as CaCO)	mg/L			135	130	130	140	140
Anions								
Dissolved Sulphate	mg/L	500	AO	26.7	20.1	21	20	21
Dissolved Chloride	mg/L	250	AO	8.6	8.4	9.2	10	11
Nitrite	mg/L	1	MAC	<0.0050	<0.0050	<0.0050	<0.005	<0.005
Miscellaneous								
Apparent Colour	Colour Unit			10	5	10	15	<5
Nutrients								
Total Ammonia	mg/L			0.37	0.4	0.49	0.4	0.39
Physical Properties								
Conductivity	µS/cm			326	312	320	320	330
pH	pH	7.0:10.5	AO	8.28	8.19	8.1	8.23	8.32
TDS	mg/L	500	AO	174	196	190	180	210
Turbidity	NTU			0.48	0.2	0.22	0.3	0.21
Microbiological Parameters								
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	0	0	0
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	0	0	0
Calculated Parameters								
Total Hardness (CaCO)	mg/L			152	138	141	139	141
Nitrate	mg/L	10	MAC	<0.020	<0.020	<0.02	<0.02	<0.02
Elements								
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.000002	<0.000002	<0.0000019	<0.0000019
Total Metals								
Total Aluminum	mg/L	0.1	OG	<0.003	<0.003	<0.003	<0.003	<0.003
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005	<0.0005	<0.00052	<0.0005
Total Arsenic	mg/L	0.01	MAC	0.0001	<0.0001	0.00011	0.00014	<0.0001
Total Barium	mg/L	1	MAC	0.0147	0.0134	0.0142	0.0143	0.014
Total Beryllium	mg/L			<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	<0.050	<0.050	<0.05	<0.05	<0.05
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Total Chromium	mg/L	0.05	MAC	<0.001	<0.001	0.001	<0.001	<0.001
Total Cobalt	mg/L			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Total Copper	mg/L	1	AO	0.00024	0.00081	0.00059	0.00065	0.00052
Total Iron	mg/L	0.3	AO	0.149	0.13	0.138	0.13	0.127
Total Lead	mg/L	0.01	MAC	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Total Manganese	mg/L	0.02 0.12	AO MAC	**0.149**	**0.145**	**0.146**	**0.143**	**0.14**
Total Molybdenum	mg/L			<0.001	<0.001	<0.001	<0.001	<0.001
Total Nickel	mg/L			<0.001	<0.001	<0.001	<0.001	<0.001
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Silicon	mg/L			13	11.5	12.3	12.2	12.5
Total Silver	mg/L			<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Total Strontium	mg/L			0.14	0.134	0.139	0.139	0.148
Total Thallium	mg/L			<0.00001	<0.00001	<0.00001	<0.00001	
Total Tin	mg/L			<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Vanadium	mg/L			<0.005	<0.005	<0.005	<0.005	<0.005
Total Zinc	mg/L	5	AO	<0.005	0.0065	<0.005	<0.005	<0.005
Total Zirconium	mg/L			<0.0001	<0.0001	<0.0001	<0.0001	
Total Calcium	mg/L			37.1	32.5	34.7	33.1	34.1
Total Magnesium	mg/L			14.4	13.8	13.2	13.6	13.6
Total Potassium	mg/L			2.54	2.56	2.41	2.53	2.46
Total Sodium	mg/L	200	AO	10	9.79	9.72	9.78	9.34
Total Sulphur	mg/L			8.5	6.8	7	6.1	6.5

Notes below about Manganese (2019) from: https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html

Type	Parameter (published, reaffirmed)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
I = Inorganic chemical parameter	Manganese (2019)	0.12	AO: <0.02	Dissolution of naturally-occurring minerals commonly found in soil and rock. Other sources include industrial discharge, mining activities and leaching from landfills.	**Health Basis of MAC:** Effects on neurological development and behaviour; deficits in memory, attention, and motor skills. **Other:** Formula-fed infants (where water containing manganese at levels above the MAC is used to prepare formula) may be especially at risk.	AO based on minimizing the occurrence of discoloured water, consumer complaints and staining of laundry.

REGIONAL DISTRICT OF NANAIMO

French Creek #5 Raw Well Water Analysis
1140 Sunrise Drive
Well is offline.

CDWG=Canadian Drinking Water Guidelines | MAC=Maximum Acceptable Concentration

OG= Operational Guidance Value | AO=Aesthetic Objective

Orange font indicates non-compliance with the Aesthetic Objective (AO) in the Canadian Drinking Water Guidelines (CDWG)

Red font indicates non-compliance with the Maximum Acceptable Concentration (MAC) in the CDWG

	Units	CDWG		October 18 2017	November 8 2018	October 10 2019	October 22 2020	October 14 2021
Miscellaneous Inorganics								
Fluoride	mg/L	1.5	MAC	0.16	0.18	0.15	0.16	0.17
Alkalinity (total as CaCO)	mg/L			127	118	120	130	110
Anions								
Dissolved Sulphate	mg/L	500	AO	<1.0	<1.0	<1.0	<1	<1
Dissolved Chloride	mg/L	250	AO	7.4	7	6.9	6.1	3.1
Nitrite	mg/L	1	MAC	<0.0050	<0.0050	<0.005	<0.005	<0.005
Miscellaneous								
Apparent Colour	Colour Unit			30	30	80	20	22.7
Nutrients								
Total Ammonia	mg/L			1.5	1.5	1.3	1.6	1.1
Physical Properties								
Conductivity	µS/cm			259	245	260	250	210
pH	pH	7.0:10.5	AO	8.16	8.04	7.92	8.17	8.14
TDS	mg/L	500	AO	146	140	140	150	150
Turbidity	NTU			0.73	4.01	8.3	2.8	0.59
Microbiological Parameters								
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	0	0	0
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	0	0	0
Calculated Parameters								
Total Hardness (CaCO)	mg/L			81.2	75.4	77.9	77.6	70.1
Nitrate	mg/L	10	MAC	<0.020	<0.020	<0.02	<0.02	<0.02
Elements								
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.000002	77.9	<0.0000019	<0.0000019
Total Metals								
Total Aluminum	mg/L	0.1	OG	0.0045	0.0041	0.0068	0.0359	<0.003
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005	0.00058	<0.0005	<0.0005
Total Arsenic	mg/L	0.01	MAC	0.00039	0.00027	0.00043	0.00038	0.00115
Total Barium	mg/L	1	MAC	0.0059	0.0076	0.0153	0.0057	0.0041
Total Beryllium	mg/L			<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	0.062	0.057	0.061	0.06	<0.05
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Total Chromium	mg/L	0.05	MAC	<0.001	<0.001	0.0012	0.0016	<0.001
Total Cobalt	mg/L			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Total Copper	mg/L	1	AO	0.00142	0.00744	0.0999	0.00101	0.00089
Total Iron	mg/L	0.3	AO	**0.725**	**1.74**	**2.87**	**1.01**	**0.807**
Total Lead	mg/L	0.01	MAC	<0.0002	**0.0122**	**0.238**	0.00105	0.00045
Total Manganese	mg/L	0.02 0.12	AO MAC	**0.181**	**0.206**	**0.246**	**0.176**	**0.145**
Total Molybdenum	mg/L			<0.001	0.001	0.0012	<0.001	<0.001
Total Nickel	mg/L			<0.001	<0.001	0.0021	<0.001	<0.001
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Silicon	mg/L			19.1	12.3	11.1	19	18.1
Total Silver	mg/L			<0.00002	<0.00002	0.00003	<0.00002	<0.00002
Total Strontium	mg/L			0.0700	0.0723	0.0703	0.0672	0.0545
Total Thallium	mg/L			<0.00001	<0.00001	<0.00001	<0.00001	
Total Tin	mg/L			<0.005	<0.005	0.0062	<0.005	
Total Titanium	mg/L			<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Vanadium	mg/L			<0.005	<0.005	<0.005	<0.005	<0.005
Total Zinc	mg/L	5	AO	0.0265	0.766	2.91	0.105	0.0586
Total Zirconium	mg/L			<0.0001	<0.0001	<0.0001	0.00012	
Total Calcium	mg/L			19	18	18.4	18.2	16.7
Total Magnesium	mg/L			8.17	7.41	7.75	7.78	6.89
Total Potassium	mg/L			2.67	2.52	2.52	2.59	1.88
Total Sodium	mg/L	200	AO	22.5	20.1	21	20.4	13.6
Total Sulphur	mg/L			<3.0	<3.0	<3	<3	<3

Notes below about Manganese and Lead (2019) from: https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html

Type	Parameter (published, reaffirmed)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
I = Inorganic chemical parameter	Manganese (2019)	0.12	AO: <0.02	Dissolution of naturally-occurring minerals commonly found in soil and rock. Other sources include industrial discharge, mining activities and leaching from landfills.	**Health Basis of MAC:** Effects on neurological development and behaviour; deficits in memory, attention, and motor skills. **Other:** Formula-fed infants (where water containing manganese at levels above the MAC is used to prepare formula) may be especially at risk.	AO based on minimizing the occurrence of discoloured water, consumer complaints and staining of laundry.

Type	Parameter (published, reaffirmed)	MAC (mg/L)	Other Value (mg/L)	Common sources of parameter in water	Health considerations	Comments
I = Inorganic chemical parameter	Lead (2019)	0.005		Leaching from plumbing (lead service lines, lead solder and brass fittings)	Health Basis of MAC: Reduced intelligence in children measured as decreases in IQ is the most sensitive and well established health effect of lead exposure. There is no known safe exposure level to lead. **Other:** Possible effects include behavioral effects in children. Reduced cognition, increased blood pressure, and renal dysfunction in adults are also possible; classified as probably carcinogenic to humans.	MAC is for total lead. Lead levels should be kept as low as reasonably achievable. Sampling should be done at the tap to reflect average exposure. The most significant contribution of lead in drinking water is generally from the lead service line that supplies drinking water to the home. The best approach to minimize exposure to lead from drinking water is to remove the full lead service line. Drinking water treatment devices are also an effective option.

REGIONAL DISTRICT OF NANAIMO

French Creek #6 Raw Well Water Analysis
1108 Wellington Drive
Well is offline.

CDWG=Canadian Drinking Water Guidelines
MAC=Maximum Acceptable Concentration
OG= Operational Guidance Value
AO=Aesthetic Objective

Orange font indicates non-compliance with the Aesthetic Objective (AO) in the Canadian Drinking Water Guidelines (CDWG)

Red font indicates non-compliance with the Maximum Acceptable Concentration (MAC) in the CDWG

	Units	CDWG		October 18 2017	November 8 2018	October 10 2019	October 22 2020	October 14 2021
Miscellaneous Inorganics								
Fluoride	mg/L	1.5	MAC	0.14	0.17	0.14	0.15	0.18
Alkalinity (total as CaCO)	mg/L			105	105	100	110	120
Anions								
Dissolved Sulphate	mg/L	500	AO	<1.0	<1.0	<1.0	<1	<1
Dissolved Chloride	mg/L	250	AO	4.5	4.4	4.8	4.2	4.8
Nitrite	mg/L	1	MAC	<0.0050	<0.0050	<0.005	<0.005	<0.005
Miscellaneous								
Apparent Colour	Colour Unit			30	15	20	20	31
Nutrients								
Total Ammonia	mg/L			1	1.1	1.2	1.1	1.6
Physical Properties								
Conductivity	µS/cm			213	209	210	210	250
pH	pH	7.0:10.5	AO	8.08	8.09	7.91	8.13	8.2
TDS	mg/L	500	AO	122	124	140	110	170
Turbidity	NTU			0.55	0.54	0.67	0.63	7.7
Microbiological Parameters								
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	0	0	0
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	0	0	0
Calculated Parameters								
Total Hardness (CaCO)	mg/L			75.8	75.1	70.7	71.1	76.3
Nitrate	mg/L	10	MAC	<0.020	<0.020	<0.02	<0.02	<0.02
Elements								
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.000002	<0.000002	<0.0000019	<0.0000019
Total Metals								
Total Aluminum	mg/L	0.1	OG	<0.003	0.0138	<0.003	<0.003	0.0611
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Total Arsenic	mg/L	0.01	MAC	0.0014	0.00116	0.00113	0.00109	0.00043
Total Barium	mg/L	1	MAC	0.0046	0.0041	0.0041	0.0041	0.0071
Total Beryllium	mg/L			<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	<0.050	<0.050	<0.05	<0.05	0.059
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Total Chromium	mg/L	0.05	MAC	<0.001	<0.001	0.0012	<0.001	<0.001
Total Cobalt	mg/L			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Total Copper	mg/L	1	AO	0.00073	0.00206	0.00099	0.00112	0.00111
Total Iron	mg/L	0.3	AO	**0.814**	**0.842**	**0.806**	**0.808**	**1.31**
Total Lead	mg/L	0.01	MAC	0.00055	0.00058	<0.0002	0.00023	0.00118
Total Manganese	mg/L	0.02 0.12	AO MAC	**0.161**	**0.161**	**0.167**	**0.151**	**0.176**
Total Molybdenum	mg/L			<0.001	0.001	<0.001	<0.001	<0.001
Total Nickel	mg/L			<0.001	<0.001	<0.001	<0.001	<0.001
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Silicon	mg/L			16.9	16.7	16.1	16.6	18.9
Total Silver	mg/L			<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Total Strontium	mg/L			0.0576	0.0547	0.0514	0.0495	0.0717
Total Thallium	mg/L			<0.00001	<0.00001	<0.00001	<0.00001	
Total Tin	mg/L			<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Vanadium	mg/L			<0.005	<0.005	<0.005	<0.005	<0.005
Total Zinc	mg/L	5	AO	0.0169	0.0242	0.0179	0.0232	0.0154
Total Zirconium	mg/L			0.00012	0.00015	0.00012	0.00012	
Total Calcium	mg/L			16.9	17.3	16.4	16.4	18.5
Total Magnesium	mg/L			8.14	7.74	7.19	7.31	7.31
Total Potassium	mg/L			2.06	2.01	1.91	1.93	2.45
Total Sodium	mg/L	200	AO	15.6	15.2	14.3	14.4	19.5
Total Sulphur	mg/L			<3.0	<3.0	<3.0	<3	<3

Notes below about Manganese (2019) from: https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html

Type	Parameter (published, reaffirmed)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
I = Inorganic chemical parameter	Manganese (2019)	0.12	AO: <0.02	Dissolution of naturally-occurring minerals commonly found in soil and rock. Other sources include industrial discharge, mining activities and leaching from landfills.	**Health Basis of MAC:** Effects on neurological development and behaviour; deficits in memory, attention, and motor skills. **Other:** Formula-fed infants (where water containing manganese at levels above the MAC is used to prepare formula) may be especially at risk.	AO based on minimizing the occurrence of discoloured water, consumer complaints and staining of laundry.

REGIONAL DISTRICT OF NANAIMO

French Creek #7 Raw Well Water Analysis
846 Yambury Road

CDWG=Canadian Drinking Water Guidelines MAC=Maximum Acceptable Concentration

OG= Operational Guidance Value AO=Aesthetic Objective

Orange font indicates non-compliance with the Aesthetic Objective (AO) in the Canadian Drinking Water Guidelines (CDWG)

Red font indicates non-compliance with the Maximum Acceptable Concentration (MAC) in the CDWG

	Units	CDWG		October 18 2017	November 8 2018	October 10 2019	October 22 2020	October 14 2021
Miscellaneous Inorganics								
Fluoride	mg/L	1.5	MAC	0.1	0.11	0.094	0.099	0.12
Alkalinity (total as CaCO)	mg/L			149	149	150	150	160
Anions								
Dissolved Sulphate	mg/L	500	AO	30.3	31.2	23	28	27
Dissolved Chloride	mg/L	250	AO	6.4	7.1	9.4	8.6	7.5
Nitrite	mg/L	1	MAC	<0.0050	<0.0050	<0.005	<0.005	<0.005
Miscellaneous								
Apparent Colour	Colour Unit			10	<5.0	5	15	<5
Nutrients								
Total Ammonia	mg/L			0.28	0.28	0.34	0.27	0.27
Physical Properties								
Conductivity	µS/cm			351	349	350	360	350
pH	pH	7.0:10.5	AO	8.24	8.25	8.11	8.3	8.38
TDS	mg/L	500	AO	196	194	210	210	220
Turbidity	NTU			0.25	0.28	0.34	0.36	0.28
Microbiological Parameters								
E.coli	MPN/100mL	<1	MAC	<1.0	<1.0	0	0	0
Total Coliforms	MPN/100mL	<1	MAC	<1.0	<1.0	0	0	0
Calculated Parameters								
Total Hardness (CaCO)	mg/L			165	170	164	162	159
Nitrate	mg/L	10	MAC	<0.020	<0.020	<0.02	<0.02	<0.02
Elements								
Total Mercury	mg/L	0.001	MAC	<0.00001	<0.000002	<0.000002	<0.0000019	<0.0000019
Total Metals								
Total Aluminum	mg/L	0.1	OG	<0.003	<0.003	<0.003	<0.003	<0.003
Total Antimony	mg/L	0.006	MAC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Total Arsenic	mg/L	0.01	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Barium	mg/L	1	MAC	0.0152	0.0165	0.165	0.0162	0.0163
Total Beryllium	mg/L			<0.0001	<0.0001	<0.0001	<0.0001	
Total Bismuth	mg/L			<0.001	<0.001	<0.001	<0.001	
Total Boron	mg/L	5	MAC	<0.050	<0.050	<0.05	<0.05	<0.05
Total Cadmium	mg/L	0.005	MAC	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Total Chromium	mg/L	0.05	MAC	<0.001	<0.001	<0.001	<0.001	<0.001
Total Cobalt	mg/L			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Total Copper	mg/L	1	AO	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Total Iron	mg/L	0.3	AO	0.127	0.13	0.149	0.123	0.123
Total Lead	mg/L	0.01	MAC	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Total Manganese	mg/L	0.02 0.12	AO MAC	**0.144**	**0.152**	**0.147**	**0.135**	**0.133**
Total Molybdenum	mg/L			<0.001	<0.001	<0.001	<0.001	<0.001
Total Nickel	mg/L			<0.001	<0.001	<0.001	<0.001	<0.001
Total Selenium	mg/L	0.05	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Silicon	mg/L			12	11.4	11.8	11.6	12.4
Total Silver	mg/L			<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Total Strontium	mg/L			0.131	0.162	0.152	0.152	0.161
Total Thallium	mg/L			<0.00001	<0.00001	<0.00001	<0.00001	
Total Tin	mg/L			<0.005	<0.005	<0.005	<0.005	
Total Titanium	mg/L			<0.005	<0.005	<0.005	<0.005	
Total Uranium	mg/L	0.02	MAC	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Vanadium	mg/L			<0.005	<0.005	<0.005	<0.005	<0.005
Total Zinc	mg/L	5	AO	<0.005	0.0224	0.0309	0.0393	0.042
Total Zirconium	mg/L			<0.0001	<0.0001	<0.0001	<0.0001	
Total Calcium	mg/L			39.3	40.6	40.4	38.9	39.3
Total Magnesium	mg/L			16.2	16.7	15.3	15.7	14.9
Total Potassium	mg/L			2.59	2.6	2.37	2.41	2.34
Total Sodium	mg/L	200	AO	9.59	9.57	8.5	8.7	8.35
Total Sulphur	mg/L			10.2	10.5	8.1	8.6	8.2

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