



CERTIFICATE OF ANALYSIS

REPORTED TO Mid Shuswap Lumby Water Stewards
1631 Mable Lake Rd
Lumby, BC V0E 2G6

ATTENTION Russ Collins

PO NUMBER Mid Shuswap Lumby Water Stewards
PROJECT Analytical Testing

PROJECT INFO

WORK ORDER 21E1734

RECEIVED / TEMP 2021-05-17 09:01 / 9.0°C
REPORTED 2021-05-25 15:43

COC NUMBER 40837.5581

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

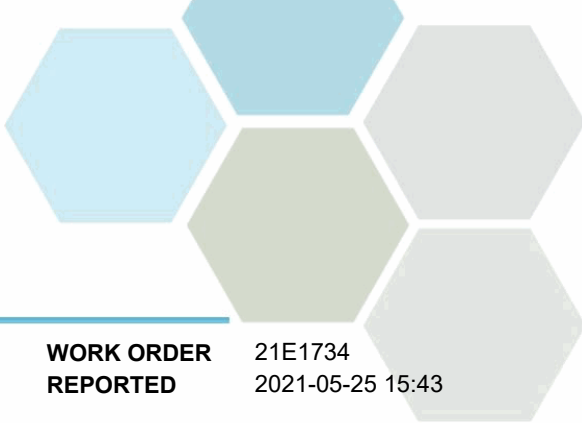
If you have any questions or concerns, please contact me at teamcaro@caro.ca

Authorized By:

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TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 21E1734
2021-05-25 15:43

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Harris Creek (Hwy 6) (21E1734-01) Matrix: Water Sampled: 2021-05-16 11:15						FILT, PRES

Anions

Chloride	0.21	AO ≤ 250	0.10	mg/L	2021-05-18	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2021-05-18	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-05-18	
Sulfate	6.1	AO ≤ 500	1.0	mg/L	2021-05-18	

Calculated Parameters

Hardness, Total (as CaCO3)	18.6	None Required	0.100	mg/L	N/A	
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.386	N/A	0.0500	mg/L	N/A	

General Parameters

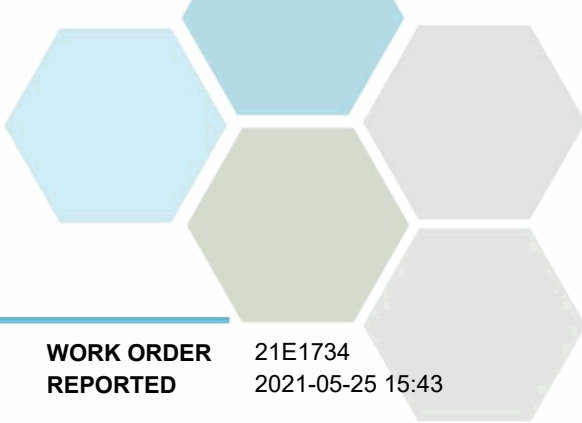
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2021-05-20	
Conductivity (EC)	46.5	N/A	2.0	µS/cm	2021-05-20	
Nitrogen, Total Kjeldahl	0.386	N/A	0.050	mg/L	2021-05-21	
pH	6.87	7.0-10.5	0.10	pH units	2021-05-20	HT2
Phosphorus, Total (as P)	0.0699	N/A	0.0050	mg/L	2021-05-21	
Phosphorus, Total Dissolved	0.0274	N/A	0.0050	mg/L	2021-05-21	
Turbidity	8.33	OG < 1	0.10	NTU	2021-05-18	

Microbiological Parameters

Coliforms, Total	613	N/A	1	MPN/100 mL	2021-05-17	
Coliforms, Fecal	111	N/A	1	MPN/100 mL	2021-05-17	
E. coli	102	N/A	1	MPN/100 mL	2021-05-17	

Total Metals

Aluminum, total	633	OG < 100	2.0	µg/L	2021-05-22	
Antimony, total	0.246	MAC = 6	0.050	µg/L	2021-05-22	
Arsenic, total	0.326	MAC = 10	0.050	µg/L	2021-05-22	
Barium, total	13.0	MAC = 2000	0.10	µg/L	2021-05-22	
Beryllium, total	0.035	N/A	0.010	µg/L	2021-05-22	
Bismuth, total	< 0.010	N/A	0.010	µg/L	2021-05-22	
Boron, total	< 2.0	MAC = 5000	5.0	µg/L	2021-05-22	
Cadmium, total	0.0185	MAC = 5	0.0020	µg/L	2021-05-22	
Calcium, total	4810	N/A	40	µg/L	2021-05-22	
Chromium, total	0.93	MAC = 50	0.10	µg/L	2021-05-22	
Cobalt, total	0.439	N/A	0.0050	µg/L	2021-05-22	
Copper, total	2.43	MAC = 2000	0.20	µg/L	2021-05-22	
Iron, total	933	AO ≤ 300	2.0	µg/L	2021-05-22	
Lead, total	0.227	MAC = 5	0.050	µg/L	2021-05-22	
Lithium, total	1.22	N/A	0.050	µg/L	2021-05-22	
Magnesium, total	1600	N/A	5.0	µg/L	2021-05-22	
Manganese, total	34.3	MAC = 120	0.050	µg/L	2021-05-22	
Mercury, total	< 0.0050	MAC = 1	0.0050	µg/L	2021-05-21	
Molybdenum, total	0.348	N/A	0.010	µg/L	2021-05-22	



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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Harris Creek (Hwy 6) (21E1734-01) Matrix: Water Sampled: 2021-05-16 11:15, Continued						FILT, PRES

Total Metals, Continued

Nickel, total	6.04	N/A	0.040	µg/L	2021-05-22	
Phosphorus, total	57	N/A	10	µg/L	2021-05-22	
Potassium, total	991	N/A	10	µg/L	2021-05-22	
Selenium, total	0.11	MAC = 50	0.10	µg/L	2021-05-22	
Silicon, total	6180	N/A	100	µg/L	2021-05-22	
Silver, total	< 0.010	N/A	0.010	µg/L	2021-05-22	
Sodium, total	1500	AO ≤ 200000	20	µg/L	2021-05-22	
Strontium, total	30.7	7000	0.10	µg/L	2021-05-22	
Sulfur, total	1700	N/A	1000	µg/L	2021-05-22	
Tellurium, total	< 0.050	N/A	0.050	µg/L	2021-05-22	
Thallium, total	0.0099	N/A	0.0040	µg/L	2021-05-22	
Thorium, total	0.052	N/A	0.010	µg/L	2021-05-22	
Tin, total	< 0.050	N/A	0.050	µg/L	2021-05-22	
Titanium, total	40.0	N/A	0.20	µg/L	2021-05-22	
Tungsten, total	< 0.20	N/A	0.20	µg/L	2021-05-22	
Uranium, total	0.170	MAC = 20	0.0010	µg/L	2021-05-22	
Vanadium, total	2.24	N/A	1.00	µg/L	2021-05-22	
Zinc, total	8.0	AO ≤ 5000	1.0	µg/L	2021-05-22	
Zirconium, total	0.541	N/A	0.020	µg/L	2021-05-22	

Duteau Creek (Hwy 6) (21E1734-02) | Matrix: Water | Sampled: 2021-05-16 11:10

FILT, PRES

Anions

Chloride	6.08	AO ≤ 250	0.10	mg/L	2021-05-18	
Nitrate (as N)	0.379	MAC = 10	0.010	mg/L	2021-05-18	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-05-18	
Sulfate	21.2	AO ≤ 500	1.0	mg/L	2021-05-18	

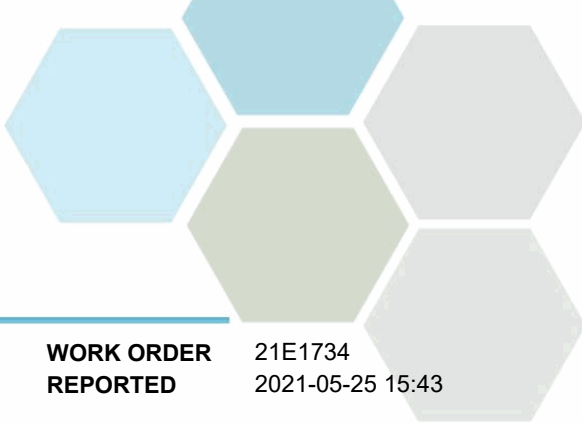
Calculated Parameters

Hardness, Total (as CaCO3)	120	None Required	0.100	mg/L	N/A	
Nitrate+Nitrite (as N)	0.379	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.871	N/A	0.0500	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2021-05-20	
Conductivity (EC)	262	N/A	2.0	µS/cm	2021-05-20	
Nitrogen, Total Kjeldahl	0.492	N/A	0.050	mg/L	2021-05-21	
pH	7.78	7.0-10.5	0.10	pH units	2021-05-20	HT2
Phosphorus, Total (as P)	0.0428	N/A	0.0050	mg/L	2021-05-21	
Phosphorus, Total Dissolved	0.0198	N/A	0.0050	mg/L	2021-05-21	
Turbidity	2.77	OG < 1	0.10	NTU	2021-05-18	

Microbiological Parameters



TEST RESULTS

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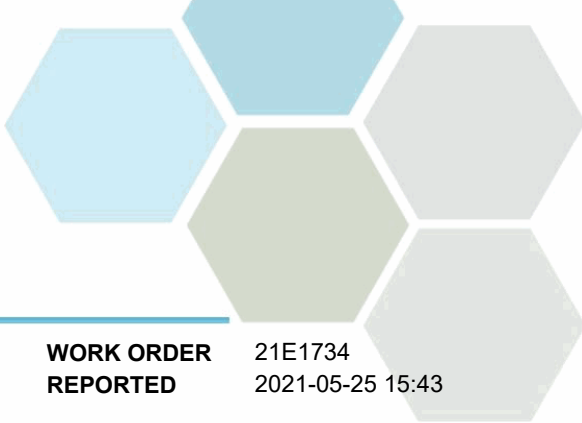
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Duteau Creek (Hwy 6) (21E1734-02) Matrix: Water Sampled: 2021-05-16 11:10, Continued						FILT, PRES

Microbiological Parameters, Continued

Coliforms, Total	1730	N/A	1	MPN/100 mL	2021-05-17	
Coliforms, Fecal	824	N/A	1	MPN/100 mL	2021-05-17	
E. coli	824	N/A	1	MPN/100 mL	2021-05-17	

Total Metals

Aluminum, total	108	OG < 100	2.0	µg/L	2021-05-22	
Antimony, total	0.055	MAC = 6	0.050	µg/L	2021-05-22	
Arsenic, total	0.392	MAC = 10	0.050	µg/L	2021-05-22	
Barium, total	30.8	MAC = 2000	0.10	µg/L	2021-05-22	
Beryllium, total	< 0.010	N/A	0.010	µg/L	2021-05-22	
Bismuth, total	< 0.010	N/A	0.010	µg/L	2021-05-22	
Boron, total	4.7	MAC = 5000	5.0	µg/L	2021-05-22	
Cadmium, total	0.0117	MAC = 5	0.0020	µg/L	2021-05-22	
Calcium, total	35200	N/A	40	µg/L	2021-05-22	
Chromium, total	0.39	MAC = 50	0.10	µg/L	2021-05-22	
Cobalt, total	0.189	N/A	0.0050	µg/L	2021-05-22	
Copper, total	0.99	MAC = 2000	0.20	µg/L	2021-05-22	
Iron, total	525	AO ≤ 300	2.0	µg/L	2021-05-22	
Lead, total	0.064	MAC = 5	0.050	µg/L	2021-05-22	
Lithium, total	2.68	N/A	0.050	µg/L	2021-05-22	
Magnesium, total	7870	N/A	5.0	µg/L	2021-05-22	
Manganese, total	118	MAC = 120	0.050	µg/L	2021-05-22	
Mercury, total	< 0.0050	MAC = 1	0.0050	µg/L	2021-05-21	
Molybdenum, total	2.33	N/A	0.010	µg/L	2021-05-22	
Nickel, total	1.06	N/A	0.040	µg/L	2021-05-22	
Phosphorus, total	37	N/A	10	µg/L	2021-05-22	
Potassium, total	2900	N/A	10	µg/L	2021-05-22	
Selenium, total	1.19	MAC = 50	0.10	µg/L	2021-05-22	
Silicon, total	7690	N/A	100	µg/L	2021-05-22	
Silver, total	< 0.010	N/A	0.010	µg/L	2021-05-22	
Sodium, total	6060	AO ≤ 200000	20	µg/L	2021-05-22	
Strontium, total	226	7000	0.10	µg/L	2021-05-22	
Sulfur, total	8800	N/A	1000	µg/L	2021-05-22	
Tellurium, total	< 0.050	N/A	0.050	µg/L	2021-05-22	
Thallium, total	< 0.0040	N/A	0.0040	µg/L	2021-05-22	
Thorium, total	0.017	N/A	0.010	µg/L	2021-05-22	
Tin, total	0.060	N/A	0.050	µg/L	2021-05-22	
Titanium, total	7.39	N/A	0.20	µg/L	2021-05-22	
Tungsten, total	< 0.20	N/A	0.20	µg/L	2021-05-22	
Uranium, total	1.72	MAC = 20	0.0010	µg/L	2021-05-22	
Vanadium, total	1.19	N/A	1.00	µg/L	2021-05-22	
Zinc, total	2.3	AO ≤ 5000	1.0	µg/L	2021-05-22	
Zirconium, total	0.252	N/A	0.020	µg/L	2021-05-22	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 21E1734
2021-05-25 15:43

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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Mid Bessette Creek (21E1734-03) | Matrix: Water | Sampled: 2021-05-16 10:35

FILT,
PRES

Anions

Chloride	0.68	AO ≤ 250	0.10	mg/L	2021-05-18	
Nitrate (as N)	0.026	MAC = 10	0.010	mg/L	2021-05-18	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-05-18	
Sulfate	6.4	AO ≤ 500	1.0	mg/L	2021-05-18	

Calculated Parameters

Hardness, Total (as CaCO3)	36.0	None Required	0.100	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0264	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.472	N/A	0.0500	mg/L	N/A	

General Parameters

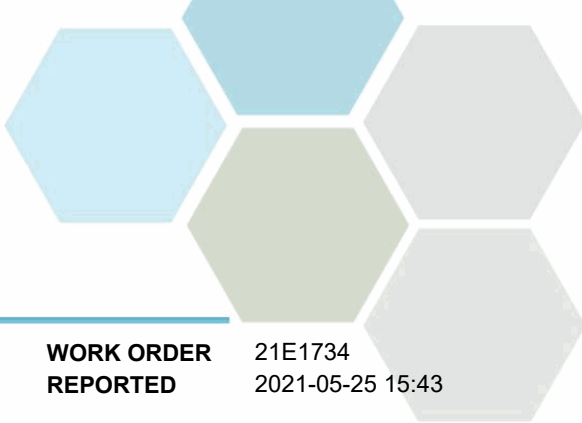
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2021-05-20	
Conductivity (EC)	85.1	N/A	2.0	µS/cm	2021-05-20	
Nitrogen, Total Kjeldahl	0.446	N/A	0.050	mg/L	2021-05-21	
pH	7.60	7.0-10.5	0.10	pH units	2021-05-20	HT2
Phosphorus, Total (as P)	0.104	N/A	0.0050	mg/L	2021-05-21	
Phosphorus, Total Dissolved	0.0211	N/A	0.0050	mg/L	2021-05-21	
Turbidity	15.0	OG < 1	0.10	NTU	2021-05-18	

Microbiological Parameters

Coliforms, Total	1410	N/A	1	MPN/100 mL	2021-05-17	
Coliforms, Fecal	135	N/A	1	MPN/100 mL	2021-05-17	
E. coli	127	N/A	1	MPN/100 mL	2021-05-17	

Total Metals

Aluminum, total	930	OG < 100	2.0	µg/L	2021-05-22	
Antimony, total	0.145	MAC = 6	0.050	µg/L	2021-05-22	
Arsenic, total	0.494	MAC = 10	0.050	µg/L	2021-05-22	
Barium, total	20.0	MAC = 2000	0.10	µg/L	2021-05-22	
Beryllium, total	0.036	N/A	0.010	µg/L	2021-05-22	
Bismuth, total	< 0.010	N/A	0.010	µg/L	2021-05-22	
Boron, total	< 2.0	MAC = 5000	5.0	µg/L	2021-05-22	
Cadmium, total	0.0381	MAC = 5	0.0020	µg/L	2021-05-22	
Calcium, total	10300	N/A	40	µg/L	2021-05-22	
Chromium, total	1.59	MAC = 50	0.10	µg/L	2021-05-22	
Cobalt, total	0.697	N/A	0.0050	µg/L	2021-05-22	
Copper, total	3.02	MAC = 2000	0.20	µg/L	2021-05-22	
Iron, total	1480	AO ≤ 300	2.0	µg/L	2021-05-22	
Lead, total	0.387	MAC = 5	0.050	µg/L	2021-05-22	
Lithium, total	1.63	N/A	0.050	µg/L	2021-05-22	
Magnesium, total	2460	N/A	5.0	µg/L	2021-05-22	
Manganese, total	58.0	MAC = 120	0.050	µg/L	2021-05-22	
Mercury, total	< 0.0050	MAC = 1	0.0050	µg/L	2021-05-21	



TEST RESULTS

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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Mid Bessette Creek (21E1734-03) Matrix: Water Sampled: 2021-05-16 10:35, Continued						FILT, PRES

Total Metals, Continued

Molybdenum, total	0.614	N/A	0.010	µg/L	2021-05-22	
Nickel, total	5.81	N/A	0.040	µg/L	2021-05-22	
Phosphorus, total	81	N/A	10	µg/L	2021-05-22	
Potassium, total	1220	N/A	10	µg/L	2021-05-22	
Selenium, total	0.54	MAC = 50	0.10	µg/L	2021-05-22	
Silicon, total	7290	N/A	100	µg/L	2021-05-22	
Silver, total	0.011	N/A	0.010	µg/L	2021-05-22	
Sodium, total	1980	AO ≤ 200000	20	µg/L	2021-05-22	
Strontium, total	70.8	7000	0.10	µg/L	2021-05-22	
Sulfur, total	2800	N/A	1000	µg/L	2021-05-22	
Tellurium, total	< 0.050	N/A	0.050	µg/L	2021-05-22	
Thallium, total	0.0145	N/A	0.0040	µg/L	2021-05-22	
Thorium, total	0.076	N/A	0.010	µg/L	2021-05-22	
Tin, total	< 0.050	N/A	0.050	µg/L	2021-05-22	
Titanium, total	53.9	N/A	0.20	µg/L	2021-05-22	
Tungsten, total	< 0.20	N/A	0.20	µg/L	2021-05-22	
Uranium, total	0.345	MAC = 20	0.0010	µg/L	2021-05-22	
Vanadium, total	3.29	N/A	1.00	µg/L	2021-05-22	
Zinc, total	5.9	AO ≤ 5000	1.0	µg/L	2021-05-22	
Zirconium, total	0.576	N/A	0.020	µg/L	2021-05-22	

Lower Bessette Creek (21E1734-04) | Matrix: Water | Sampled: 2021-05-16 10:20

FILT, PRES

Anions

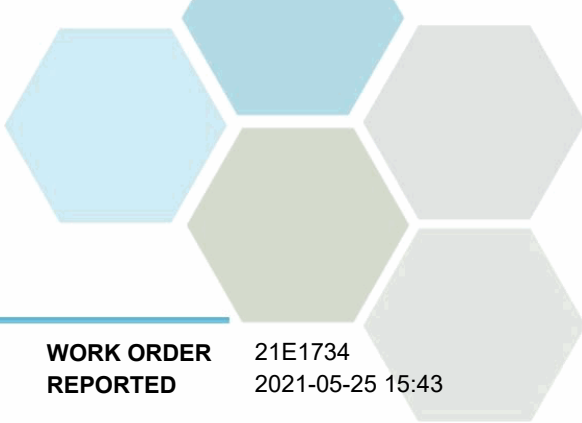
Chloride	0.71	AO ≤ 250	0.10	mg/L	2021-05-18	
Nitrate (as N)	0.030	MAC = 10	0.010	mg/L	2021-05-18	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-05-18	
Sulfate	60.4	AO ≤ 500	1.0	mg/L	2021-05-18	

Calculated Parameters

Hardness, Total (as CaCO3)	40.5	None Required	0.100	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0295	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.558	N/A	0.0500	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2021-05-20	
Conductivity (EC)	83.2	N/A	2.0	µS/cm	2021-05-20	
Nitrogen, Total Kjeldahl	0.528	N/A	0.050	mg/L	2021-05-21	
pH	7.61	7.0-10.5	0.10	pH units	2021-05-20	HT2
Phosphorus, Total (as P)	0.124	N/A	0.0050	mg/L	2021-05-21	
Phosphorus, Total Dissolved	0.0253	N/A	0.0050	mg/L	2021-05-21	
Turbidity	25.0	OG < 1	0.10	NTU	2021-05-18	



TEST RESULTS

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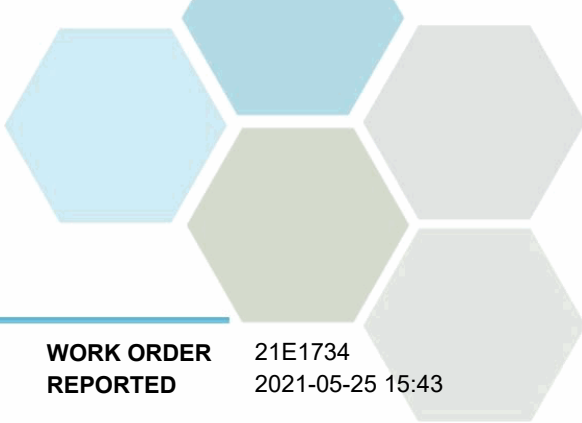
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Lower Bessette Creek (21E1734-04) Matrix: Water Sampled: 2021-05-16 10:20, Continued						FILT, PRES

Microbiological Parameters

Coliforms, Total	> 2420	N/A	1	MPN/100 mL	2021-05-17	
Coliforms, Fecal	276	N/A	1	MPN/100 mL	2021-05-17	
E. coli	228	N/A	1	MPN/100 mL	2021-05-17	

Total Metals

Aluminum, total	1620	OG < 100	2.0	µg/L	2021-05-22	
Antimony, total	0.245	MAC = 6	0.050	µg/L	2021-05-22	
Arsenic, total	0.785	MAC = 10	0.050	µg/L	2021-05-22	
Barium, total	28.6	MAC = 2000	0.10	µg/L	2021-05-22	
Beryllium, total	0.066	N/A	0.010	µg/L	2021-05-22	
Bismuth, total	0.013	N/A	0.010	µg/L	2021-05-22	
Boron, total	< 2.0	MAC = 5000	5.0	µg/L	2021-05-22	
Cadmium, total	0.0597	MAC = 5	0.0020	µg/L	2021-05-22	
Calcium, total	11400	N/A	40	µg/L	2021-05-22	
Chromium, total	2.86	MAC = 50	0.10	µg/L	2021-05-22	
Cobalt, total	1.15	N/A	0.0050	µg/L	2021-05-22	
Copper, total	4.41	MAC = 2000	0.20	µg/L	2021-05-22	
Iron, total	2360	AO ≤ 300	2.0	µg/L	2021-05-22	
Lead, total	0.664	MAC = 5	0.050	µg/L	2021-05-22	
Lithium, total	2.32	N/A	0.050	µg/L	2021-05-22	
Magnesium, total	2910	N/A	5.0	µg/L	2021-05-22	
Manganese, total	86.6	MAC = 120	0.050	µg/L	2021-05-22	
Mercury, total	< 0.0050	MAC = 1	0.0050	µg/L	2021-05-21	
Molybdenum, total	0.647	N/A	0.010	µg/L	2021-05-22	
Nickel, total	7.33	N/A	0.040	µg/L	2021-05-22	
Phosphorus, total	107	N/A	10	µg/L	2021-05-22	
Potassium, total	1480	N/A	10	µg/L	2021-05-22	
Selenium, total	0.55	MAC = 50	0.10	µg/L	2021-05-22	
Silicon, total	9500	N/A	100	µg/L	2021-05-22	
Silver, total	0.030	N/A	0.010	µg/L	2021-05-22	
Sodium, total	2160	AO ≤ 200000	20	µg/L	2021-05-22	
Strontium, total	78.0	7000	0.10	µg/L	2021-05-22	
Sulfur, total	3000	N/A	1000	µg/L	2021-05-22	
Tellurium, total	< 0.050	N/A	0.050	µg/L	2021-05-22	
Thallium, total	0.0244	N/A	0.0040	µg/L	2021-05-22	
Thorium, total	0.158	N/A	0.010	µg/L	2021-05-22	
Tin, total	< 0.050	N/A	0.050	µg/L	2021-05-22	
Titanium, total	94.2	N/A	0.20	µg/L	2021-05-22	
Tungsten, total	< 0.20	N/A	0.20	µg/L	2021-05-22	
Uranium, total	0.395	MAC = 20	0.0010	µg/L	2021-05-22	
Vanadium, total	5.25	N/A	1.00	µg/L	2021-05-22	
Zinc, total	8.7	AO ≤ 5000	1.0	µg/L	2021-05-22	
Zirconium, total	1.22	N/A	0.020	µg/L	2021-05-22	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 21E1734
2021-05-25 15:43

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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Shuswap River (Wilsey Dam) (21E1734-05) | Matrix: Water | Sampled: 2021-05-16 10:00

FILT,
PRES

Anions

Chloride	0.21	AO ≤ 250	0.10	mg/L	2021-05-18	
Nitrate (as N)	0.042	MAC = 10	0.010	mg/L	2021-05-18	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-05-18	
Sulfate	4.3	AO ≤ 500	1.0	mg/L	2021-05-18	

Calculated Parameters

Hardness, Total (as CaCO3)	40.7	None Required	0.100	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0421	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.318	N/A	0.0500	mg/L	N/A	

General Parameters

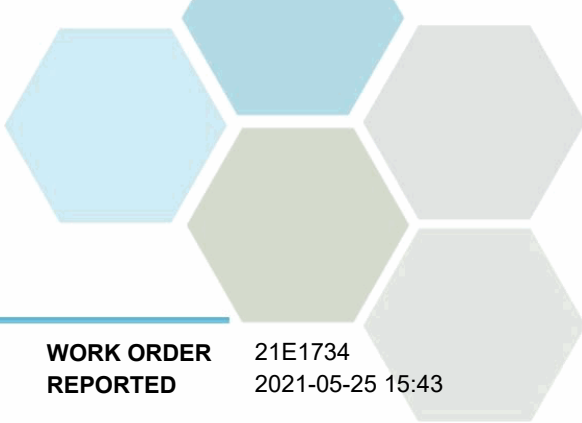
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2021-05-20	
Conductivity (EC)	90.9	N/A	2.0	µS/cm	2021-05-20	
Nitrogen, Total Kjeldahl	0.276	N/A	0.050	mg/L	2021-05-21	
pH	7.73	7.0-10.5	0.10	pH units	2021-05-20	HT2
Phosphorus, Total (as P)	0.0374	N/A	0.0050	mg/L	2021-05-21	
Phosphorus, Total Dissolved	0.0087	N/A	0.0050	mg/L	2021-05-21	
Turbidity	9.45	OG < 1	0.10	NTU	2021-05-18	

Microbiological Parameters

Coliforms, Total	345	N/A	1	MPN/100 mL	2021-05-17	
Coliforms, Fecal	14	N/A	1	MPN/100 mL	2021-05-17	
E. coli	13	N/A	1	MPN/100 mL	2021-05-17	

Total Metals

Aluminum, total	505	OG < 100	2.0	µg/L	2021-05-22	
Antimony, total	0.057	MAC = 6	0.050	µg/L	2021-05-22	
Arsenic, total	0.479	MAC = 10	0.050	µg/L	2021-05-22	
Barium, total	14.4	MAC = 2000	0.10	µg/L	2021-05-22	
Beryllium, total	0.020	N/A	0.010	µg/L	2021-05-22	
Bismuth, total	< 0.010	N/A	0.010	µg/L	2021-05-22	
Boron, total	< 2.0	MAC = 5000	5.0	µg/L	2021-05-22	
Cadmium, total	0.0328	MAC = 5	0.0020	µg/L	2021-05-22	
Calcium, total	13000	N/A	40	µg/L	2021-05-22	
Chromium, total	1.36	MAC = 50	0.10	µg/L	2021-05-22	
Cobalt, total	0.407	N/A	0.0050	µg/L	2021-05-22	
Copper, total	1.51	MAC = 2000	0.20	µg/L	2021-05-22	
Iron, total	840	AO ≤ 300	2.0	µg/L	2021-05-22	
Lead, total	0.288	MAC = 5	0.050	µg/L	2021-05-22	
Lithium, total	1.01	N/A	0.050	µg/L	2021-05-22	
Magnesium, total	1980	N/A	5.0	µg/L	2021-05-22	
Manganese, total	24.6	MAC = 120	0.050	µg/L	2021-05-22	
Mercury, total	< 0.0050	MAC = 1	0.0050	µg/L	2021-05-21	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 21E1734
2021-05-25 15:43

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Shuswap River (Wilsey Dam) (21E1734-05) Matrix: Water Sampled: 2021-05-16 10:00, Continued						FILT, PRES

Total Metals, Continued

Molybdenum, total	0.613	N/A	0.010	µg/L	2021-05-22	
Nickel, total	1.70	N/A	0.040	µg/L	2021-05-22	
Phosphorus, total	41	N/A	10	µg/L	2021-05-22	
Potassium, total	826	N/A	10	µg/L	2021-05-22	
Selenium, total	0.38	MAC = 50	0.10	µg/L	2021-05-22	
Silicon, total	4610	N/A	100	µg/L	2021-05-22	
Silver, total	< 0.010	N/A	0.010	µg/L	2021-05-22	
Sodium, total	1050	AO ≤ 200000	20	µg/L	2021-05-22	
Strontium, total	69.1	7000	0.10	µg/L	2021-05-22	
Sulfur, total	2100	N/A	1000	µg/L	2021-05-22	
Tellurium, total	< 0.050	N/A	0.050	µg/L	2021-05-22	
Thallium, total	0.0095	N/A	0.0040	µg/L	2021-05-22	
Thorium, total	0.038	N/A	0.010	µg/L	2021-05-22	
Tin, total	< 0.050	N/A	0.050	µg/L	2021-05-22	
Titanium, total	28.4	N/A	0.20	µg/L	2021-05-22	
Tungsten, total	< 0.20	N/A	0.20	µg/L	2021-05-22	
Uranium, total	0.293	MAC = 20	0.0010	µg/L	2021-05-22	
Vanadium, total	1.82	N/A	1.00	µg/L	2021-05-22	
Zinc, total	3.3	AO ≤ 5000	1.0	µg/L	2021-05-22	
Zirconium, total	0.137	N/A	0.020	µg/L	2021-05-22	

Shuswap River (Odd Fellows) (21E1734-06) | Matrix: Water | Sampled: 2021-05-16 09:20

FILT, PRES

Anions

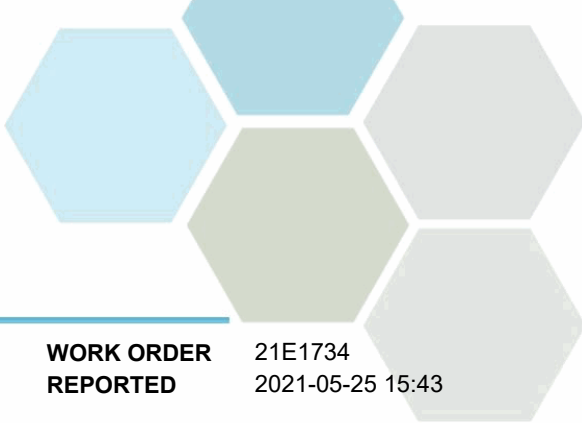
Chloride	0.29	AO ≤ 250	0.10	mg/L	2021-05-18	
Nitrate (as N)	0.035	MAC = 10	0.010	mg/L	2021-05-18	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-05-18	
Sulfate	8.1	AO ≤ 500	1.0	mg/L	2021-05-18	

Calculated Parameters

Hardness, Total (as CaCO3)	43.8	None Required	0.100	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0349	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.270	N/A	0.0500	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	0.122	None Required	0.050	mg/L	2021-05-20	
Conductivity (EC)	98.0	N/A	2.0	µS/cm	2021-05-20	
Nitrogen, Total Kjeldahl	0.235	N/A	0.050	mg/L	2021-05-21	
pH	7.78	7.0-10.5	0.10	pH units	2021-05-20	HT2
Phosphorus, Total (as P)	0.0518	N/A	0.0050	mg/L	2021-05-21	
Phosphorus, Total Dissolved	0.0107	N/A	0.0050	mg/L	2021-05-21	
Turbidity	10.6	OG < 1	0.10	NTU	2021-05-18	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 21E1734
2021-05-25 15:43

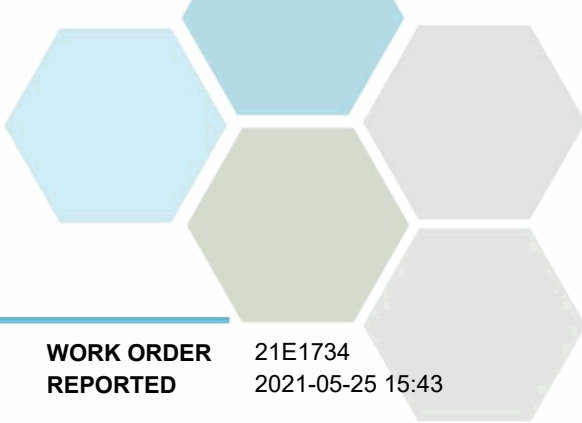
Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
Shuswap River (Odd Fellows) (21E1734-06) Matrix: Water Sampled: 2021-05-16 09:20, Continued					FILT, PRES

Microbiological Parameters

Coliforms, Total	866	N/A	1 MPN/100 mL	2021-05-17	
Coliforms, Fecal	75	N/A	1 MPN/100 mL	2021-05-17	
E. coli	75	N/A	1 MPN/100 mL	2021-05-17	

Total Metals

Aluminum, total	474	OG < 100	2.0 µg/L	2021-05-22	
Antimony, total	< 0.050	MAC = 6	0.050 µg/L	2021-05-22	
Arsenic, total	0.484	MAC = 10	0.050 µg/L	2021-05-22	
Barium, total	15.5	MAC = 2000	0.10 µg/L	2021-05-22	
Beryllium, total	0.021	N/A	0.010 µg/L	2021-05-22	
Bismuth, total	< 0.010	N/A	0.010 µg/L	2021-05-22	
Boron, total	< 2.0	MAC = 5000	5.0 µg/L	2021-05-22	
Cadmium, total	0.0418	MAC = 5	0.0020 µg/L	2021-05-22	
Calcium, total	13900	N/A	40 µg/L	2021-05-22	
Chromium, total	1.14	MAC = 50	0.10 µg/L	2021-05-22	
Cobalt, total	0.402	N/A	0.0050 µg/L	2021-05-22	
Copper, total	1.75	MAC = 2000	0.20 µg/L	2021-05-22	
Iron, total	793	AO ≤ 300	2.0 µg/L	2021-05-22	
Lead, total	0.300	MAC = 5	0.050 µg/L	2021-05-22	
Lithium, total	1.05	N/A	0.050 µg/L	2021-05-22	
Magnesium, total	2200	N/A	5.0 µg/L	2021-05-22	
Manganese, total	29.9	MAC = 120	0.050 µg/L	2021-05-22	
Mercury, total	< 0.0050	MAC = 1	0.0050 µg/L	2021-05-21	
Molybdenum, total	0.679	N/A	0.010 µg/L	2021-05-22	
Nickel, total	1.80	N/A	0.040 µg/L	2021-05-22	
Phosphorus, total	46	N/A	10 µg/L	2021-05-22	
Potassium, total	925	N/A	10 µg/L	2021-05-22	
Selenium, total	0.48	MAC = 50	0.10 µg/L	2021-05-22	
Silicon, total	5120	N/A	100 µg/L	2021-05-22	
Silver, total	< 0.010	N/A	0.010 µg/L	2021-05-22	
Sodium, total	1310	AO ≤ 200000	20 µg/L	2021-05-22	
Strontium, total	76.5	7000	0.10 µg/L	2021-05-22	
Sulfur, total	2400	N/A	1000 µg/L	2021-05-22	
Tellurium, total	< 0.050	N/A	0.050 µg/L	2021-05-22	
Thallium, total	0.0082	N/A	0.0040 µg/L	2021-05-22	
Thorium, total	0.036	N/A	0.010 µg/L	2021-05-22	
Tin, total	< 0.050	N/A	0.050 µg/L	2021-05-22	
Titanium, total	28.6	N/A	0.20 µg/L	2021-05-22	
Tungsten, total	< 0.20	N/A	0.20 µg/L	2021-05-22	
Uranium, total	0.339	MAC = 20	0.0010 µg/L	2021-05-22	
Vanadium, total	1.77	N/A	1.00 µg/L	2021-05-22	
Zinc, total	3.7	AO ≤ 5000	1.0 µg/L	2021-05-22	
Zirconium, total	0.209	N/A	0.020 µg/L	2021-05-22	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 21E1734
2021-05-25 15:43

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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Vance Creek (Mabel Lake Rd) (21E1734-07) | Matrix: Water | Sampled: 2021-05-16 10:55

FILT,
PRES

Anions

Chloride	1.40	AO ≤ 250	0.10	mg/L	2021-05-18	
Nitrate (as N)	0.071	MAC = 10	0.010	mg/L	2021-05-18	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-05-18	
Sulfate	22.7	AO ≤ 500	1.0	mg/L	2021-05-18	

Calculated Parameters

Hardness, Total (as CaCO3)	119	None Required	0.100	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0707	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.249	N/A	0.0500	mg/L	N/A	

General Parameters

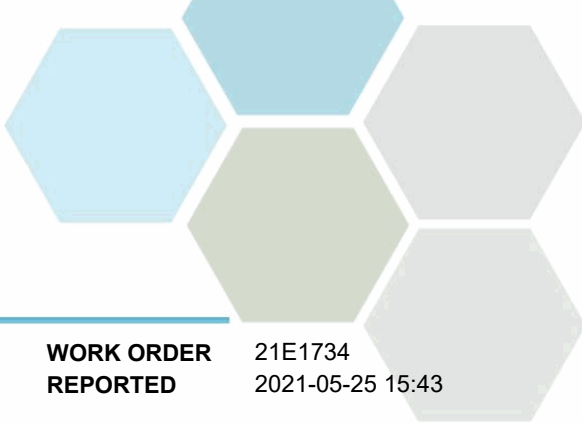
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2021-05-20	
Conductivity (EC)	244	N/A	2.0	µS/cm	2021-05-20	
Nitrogen, Total Kjeldahl	0.178	N/A	0.050	mg/L	2021-05-21	
pH	8.09	7.0-10.5	0.10	pH units	2021-05-20	HT2
Phosphorus, Total (as P)	0.0361	N/A	0.0050	mg/L	2021-05-21	
Phosphorus, Total Dissolved	0.0142	N/A	0.0050	mg/L	2021-05-21	
Turbidity	9.75	OG < 1	0.10	NTU	2021-05-18	

Microbiological Parameters

Coliforms, Total	44	N/A	1	MPN/100 mL	2021-05-17	
Coliforms, Fecal	1	N/A	1	MPN/100 mL	2021-05-17	
E. coli	< 1	N/A	1	MPN/100 mL	2021-05-17	

Total Metals

Aluminum, total	284	OG < 100	2.0	µg/L	2021-05-22	
Antimony, total	0.068	MAC = 6	0.050	µg/L	2021-05-22	
Arsenic, total	0.641	MAC = 10	0.050	µg/L	2021-05-22	
Barium, total	29.2	MAC = 2000	0.10	µg/L	2021-05-22	
Beryllium, total	< 0.010	N/A	0.010	µg/L	2021-05-22	
Bismuth, total	< 0.010	N/A	0.010	µg/L	2021-05-22	
Boron, total	< 2.0	MAC = 5000	5.0	µg/L	2021-05-22	
Cadmium, total	0.110	MAC = 5	0.0020	µg/L	2021-05-22	
Calcium, total	40200	N/A	40	µg/L	2021-05-22	
Chromium, total	0.70	MAC = 50	0.10	µg/L	2021-05-22	
Cobalt, total	0.404	N/A	0.0050	µg/L	2021-05-22	
Copper, total	1.86	MAC = 2000	0.20	µg/L	2021-05-22	
Iron, total	665	AO ≤ 300	2.0	µg/L	2021-05-22	
Lead, total	0.264	MAC = 5	0.050	µg/L	2021-05-22	
Lithium, total	1.31	N/A	0.050	µg/L	2021-05-22	
Magnesium, total	4490	N/A	5.0	µg/L	2021-05-22	
Manganese, total	18.4	MAC = 120	0.050	µg/L	2021-05-22	
Mercury, total	< 0.0050	MAC = 1	0.0050	µg/L	2021-05-21	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 21E1734
2021-05-25 15:43

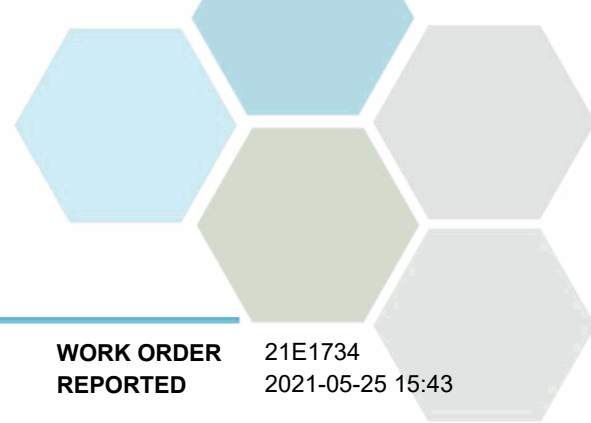
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Vance Creek (Mabel Lake Rd) (21E1734-07) Matrix: Water Sampled: 2021-05-16 10:55, Continued						FILT, PRES

Total Metals, Continued

Molybdenum, total	1.18	N/A	0.010	µg/L	2021-05-22	
Nickel, total	0.947	N/A	0.040	µg/L	2021-05-22	
Phosphorus, total	32	N/A	10	µg/L	2021-05-22	
Potassium, total	951	N/A	10	µg/L	2021-05-22	
Selenium, total	2.85	MAC = 50	0.10	µg/L	2021-05-22	
Silicon, total	5640	N/A	100	µg/L	2021-05-22	
Silver, total	0.015	N/A	0.010	µg/L	2021-05-22	
Sodium, total	1930	AO ≤ 200000	20	µg/L	2021-05-22	
Strontium, total	272	7000	0.10	µg/L	2021-05-22	
Sulfur, total	6900	N/A	1000	µg/L	2021-05-22	
Tellurium, total	< 0.050	N/A	0.050	µg/L	2021-05-22	
Thallium, total	< 0.0040	N/A	0.0040	µg/L	2021-05-22	
Thorium, total	0.023	N/A	0.010	µg/L	2021-05-22	
Tin, total	< 0.050	N/A	0.050	µg/L	2021-05-22	
Titanium, total	6.71	N/A	0.20	µg/L	2021-05-22	
Tungsten, total	< 0.20	N/A	0.20	µg/L	2021-05-22	
Uranium, total	0.561	MAC = 20	0.0010	µg/L	2021-05-22	
Vanadium, total	1.15	N/A	1.00	µg/L	2021-05-22	
Zinc, total	5.2	AO ≤ 5000	1.0	µg/L	2021-05-22	
Zirconium, total	0.050	N/A	0.020	µg/L	2021-05-22	

Sample Qualifiers:

- FILT The sample has been filtered for TDP in the laboratory. Results may not reflect conditions at the time of sampling.
- HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
- PRES Sample has been preserved for TDP in the laboratory and the holding time has been extended.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards
Analytical Testing

WORK ORDER REPORTED 21E1734
2021-05-25 15:43

Analysis Description	Method Ref.	Technique	Accredited	Location
Ammonia, Total in Water	SM 4500-NH3 G* (2017)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Coliforms, Fecal in Water	NA / SM 9223 (2017)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Coliforms, Total in Water	NA / SM 9223 (2017)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
E. coli in Water	NA / SM 9223 (2017)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Hardness in Water	SM 2340 B* (2017)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Mercury, total in Water	EPA 245.7*	BrCl ₂ Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2017)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Phosphorus, Total Dissolved in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2017)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2017)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Total Metals in Water	EPA 200.2* / EPA 6020B	HNO ₃ +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Turbidity in Water	SM 2130 B (2017)	Nephelometry	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

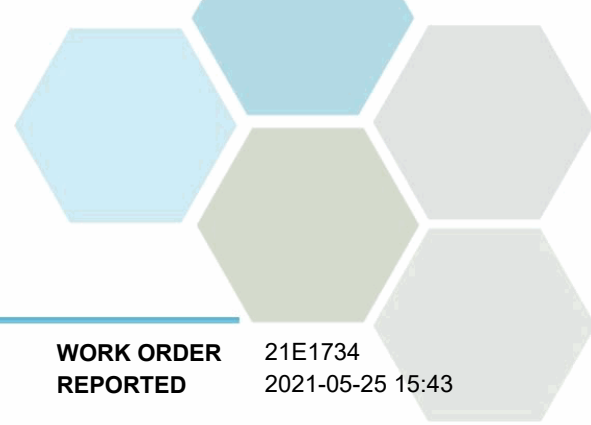
Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
>	Greater than the specified Result
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
MPN/100 mL	Most Probable Number per 100 millilitres
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

[Guidelines for Canadian Drinking Water Quality \(Health Canada, June 2019\)](#)

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards
Analytical Testing

WORK ORDER REPORTED 21E1734
2021-05-25 15:43

General Comments:

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Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager: teamcaro@caro.ca

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