



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 0051963

RECEIVED / TEMP 2020-05-25 08:47 / 7°C
REPORTED 2020-06-01 15:32

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 17025:2005 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.

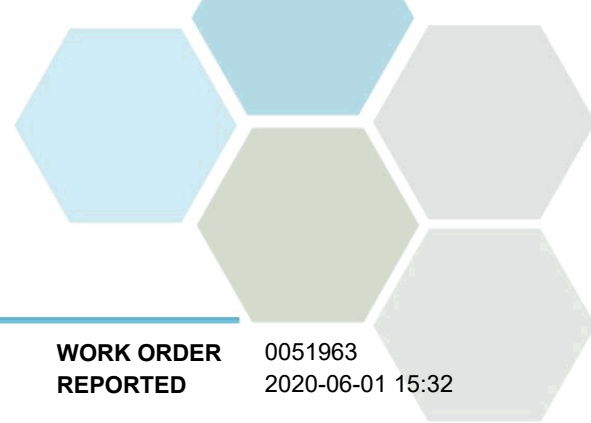
If you have any questions or concerns, please contact me at teamcaro@caro.ca

Authorized By:

Team CARO
Client Service Representative

1-888-311-8846 | www.caro.ca

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7

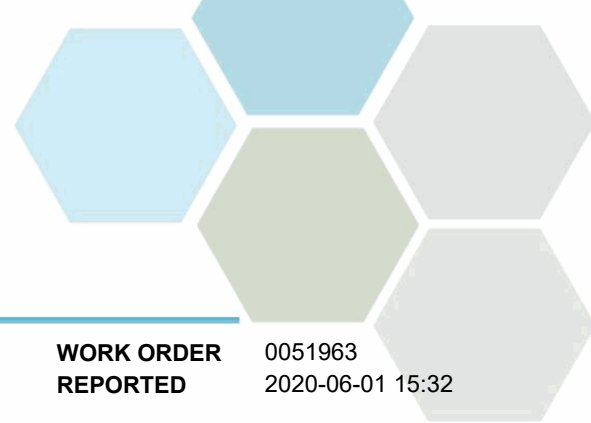


TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards
Analytical Testing

WORK ORDER REPORTED 0051963
2020-06-01 15:32

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
Harris Creek (Hwy 6) (0051963-01) Matrix: Water Sampled: 2020-05-24 12:00					FILT, PRES
Anions					
Chloride	0.65	AO ≤ 250	0.10 mg/L	2020-05-26	
Nitrate (as N)	< 0.010	MAC = 10	0.010 mg/L	2020-05-26	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2020-05-26	
Sulfate	6.5	AO ≤ 500	1.0 mg/L	2020-05-26	
Calculated Parameters					
Hardness, Total (as CaCO3)	32.5	None Required	0.500 mg/L	N/A	
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100 mg/L	N/A	
Nitrogen, Total	0.304	N/A	0.0500 mg/L	N/A	
General Parameters					
Ammonia, Total (as N)	0.071	None Required	0.050 mg/L	2020-05-28	
Conductivity (EC)	66.4	N/A	2.0 µS/cm	2020-05-29	
Nitrogen, Total Kjeldahl	0.304	N/A	0.050 mg/L	2020-05-29	
pH	6.74	7.0-10.5	0.10 pH units	2020-05-29	HT2
Phosphorus, Total (as P)	0.0639	N/A	0.0020 mg/L	2020-05-29	
Phosphorus, Total Dissolved	0.0225	N/A	0.0020 mg/L	2020-05-29	
Turbidity	8.40	OG < 1	0.10 NTU	2020-05-25	
Microbiological Parameters					
Coliforms, Total	345	N/A	1.0 MPN/100 mL	2020-05-25	
Coliforms, Fecal	22.5	N/A	1.0 MPN/100 mL	2020-05-25	
E. coli	22.5	N/A	1.0 MPN/100 mL	2020-05-25	
Total Metals					
Aluminum, total	0.683	OG < 0.1	0.0050 mg/L	2020-05-29	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2020-05-29	
Arsenic, total	0.00054	MAC = 0.01	0.00050 mg/L	2020-05-29	
Barium, total	0.0156	MAC = 2	0.0050 mg/L	2020-05-29	
Beryllium, total	< 0.00010	N/A	0.00010 mg/L	2020-05-29	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2020-05-29	
Boron, total	0.0144	MAC = 5	0.0050 mg/L	2020-05-29	
Cadmium, total	0.000016	MAC = 0.005	0.000010 mg/L	2020-05-29	
Calcium, total	9.14	None Required	0.20 mg/L	2020-05-29	
Chromium, total	0.00185	MAC = 0.05	0.00050 mg/L	2020-05-29	
Cobalt, total	0.00037	N/A	0.00010 mg/L	2020-05-29	
Copper, total	0.00298	MAC = 2	0.00040 mg/L	2020-05-29	
Iron, total	0.853	AO ≤ 0.3	0.010 mg/L	2020-05-29	
Lead, total	0.00023	MAC = 0.005	0.00020 mg/L	2020-05-29	
Lithium, total	0.00233	N/A	0.00010 mg/L	2020-05-29	
Magnesium, total	2.34	None Required	0.010 mg/L	2020-05-29	
Manganese, total	0.0308	MAC = 0.12	0.00020 mg/L	2020-05-29	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2020-06-01	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 0051963
2020-06-01 15:32

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Harris Creek (Hwy 6) (0051963-01) Matrix: Water Sampled: 2020-05-24 12:00, Continued						FILT, PRES

Total Metals, Continued

Molybdenum, total	0.00084	N/A	0.00010	mg/L	2020-05-29	
Nickel, total	0.00705	N/A	0.00040	mg/L	2020-05-29	
Phosphorus, total	0.052	N/A	0.050	mg/L	2020-05-29	
Potassium, total	1.21	N/A	0.10	mg/L	2020-05-29	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2020-05-29	
Silicon, total	7.4	N/A	1.0	mg/L	2020-05-29	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2020-05-29	
Sodium, total	2.18	AO ≤ 200	0.10	mg/L	2020-05-29	
Strontium, total	0.0616	7	0.0010	mg/L	2020-05-29	
Sulfur, total	< 3.0	N/A	3.0	mg/L	2020-05-29	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2020-05-29	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2020-05-29	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2020-05-29	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2020-05-29	
Titanium, total	0.0341	N/A	0.0050	mg/L	2020-05-29	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2020-05-29	
Uranium, total	0.000600	MAC = 0.02	0.000020	mg/L	2020-05-29	
Vanadium, total	0.0032	N/A	0.0010	mg/L	2020-05-29	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2020-05-29	
Zirconium, total	0.00104	N/A	0.00010	mg/L	2020-05-29	

Duteau Creek (HWY 6) (0051963-02) | Matrix: Water | Sampled: 2020-05-24 11:15

FILT,
PRES

Anions

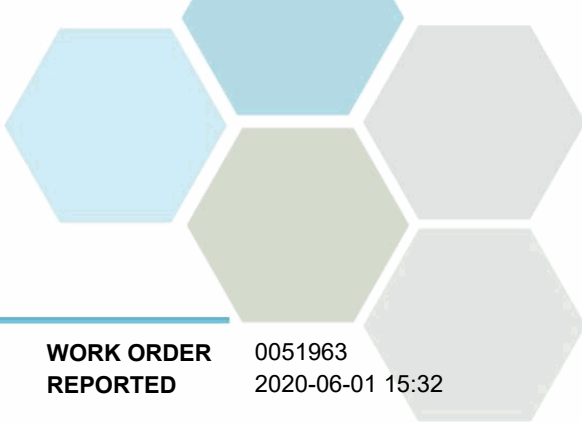
Chloride	1.04	AO ≤ 250	0.10	mg/L	2020-05-26	
Nitrate (as N)	0.036	MAC = 10	0.010	mg/L	2020-05-26	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2020-05-26	
Sulfate	6.1	AO ≤ 500	1.0	mg/L	2020-05-26	

Calculated Parameters

Hardness, Total (as CaCO3)	30.5	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0360	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.419	N/A	0.0500	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	0.053	None Required	0.050	mg/L	2020-05-28	
Conductivity (EC)	73.4	N/A	2.0	µS/cm	2020-05-29	
Nitrogen, Total Kjeldahl	0.383	N/A	0.050	mg/L	2020-05-29	
pH	7.06	7.0-10.5	0.10	pH units	2020-05-29	HT2
Phosphorus, Total (as P)	0.0332	N/A	0.0020	mg/L	2020-05-29	
Phosphorus, Total Dissolved	0.0183	N/A	0.0020	mg/L	2020-05-29	
Turbidity	3.60	OG < 1	0.10	NTU	2020-05-25	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 0051963
2020-06-01 15:32

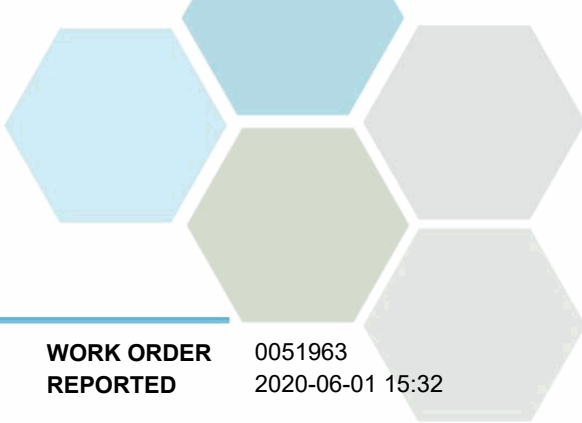
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Duteau Creek (HWY 6) (0051963-02) Matrix: Water Sampled: 2020-05-24 11:15, Continued						FILT, PRES

Microbiological Parameters

Coliforms, Total	921	N/A	1.0	MPN/100 mL	2020-05-25	
Coliforms, Fecal	51.6	N/A	1.0	MPN/100 mL	2020-05-25	
E. coli	51.6	N/A	1.0	MPN/100 mL	2020-05-25	

Total Metals

Aluminum, total	0.174	OG < 0.1	0.0050	mg/L	2020-05-29	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2020-05-29	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2020-05-29	
Barium, total	0.0145	MAC = 2	0.0050	mg/L	2020-05-29	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2020-05-29	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2020-05-29	
Boron, total	0.0112	MAC = 5	0.0050	mg/L	2020-05-29	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2020-05-29	
Calcium, total	8.93	None Required	0.20	mg/L	2020-05-29	
Chromium, total	0.00115	MAC = 0.05	0.00050	mg/L	2020-05-29	
Cobalt, total	0.00012	N/A	0.00010	mg/L	2020-05-29	
Copper, total	0.00128	MAC = 2	0.00040	mg/L	2020-05-29	
Iron, total	0.402	AO ≤ 0.3	0.010	mg/L	2020-05-29	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2020-05-29	
Lithium, total	0.00094	N/A	0.00010	mg/L	2020-05-29	
Magnesium, total	1.98	None Required	0.010	mg/L	2020-05-29	
Manganese, total	0.0269	MAC = 0.12	0.00020	mg/L	2020-05-29	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2020-06-01	
Molybdenum, total	0.00065	N/A	0.00010	mg/L	2020-05-29	
Nickel, total	0.00118	N/A	0.00040	mg/L	2020-05-29	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2020-05-29	
Potassium, total	1.02	N/A	0.10	mg/L	2020-05-29	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2020-05-29	
Silicon, total	4.9	N/A	1.0	mg/L	2020-05-29	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2020-05-29	
Sodium, total	1.73	AO ≤ 200	0.10	mg/L	2020-05-29	
Strontium, total	0.0572	7	0.0010	mg/L	2020-05-29	
Sulfur, total	< 3.0	N/A	3.0	mg/L	2020-05-29	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2020-05-29	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2020-05-29	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2020-05-29	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2020-05-29	
Titanium, total	0.0080	N/A	0.0050	mg/L	2020-05-29	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2020-05-29	
Uranium, total	0.000259	MAC = 0.02	0.000020	mg/L	2020-05-29	
Vanadium, total	0.0016	N/A	0.0010	mg/L	2020-05-29	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2020-05-29	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 0051963
2020-06-01 15:32

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Duteau Creek (HWY 6) (0051963-02) Matrix: Water Sampled: 2020-05-24 11:15, Continued						FILT, PRES

Total Metals, Continued

Zirconium, total	0.00041	N/A	0.00010	mg/L	2020-05-29	
------------------	---------	-----	---------	------	------------	--

Mid Bessette Creek (0051963-03) | Matrix: Water | Sampled: 2020-05-24 11:00

FILT, PRES

Anions

Chloride	1.09	AO ≤ 250	0.10	mg/L	2020-05-26	
Nitrate (as N)	0.035	MAC = 10	0.010	mg/L	2020-05-26	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2020-05-26	
Sulfate	8.8	AO ≤ 500	1.0	mg/L	2020-05-26	

Calculated Parameters

Hardness, Total (as CaCO3)	50.4	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0347	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.495	N/A	0.0500	mg/L	N/A	

General Parameters

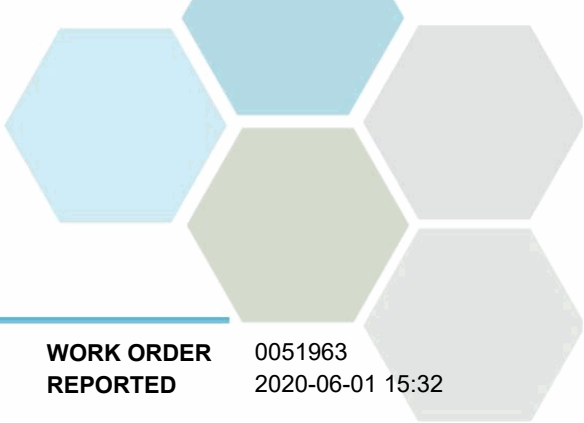
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2020-05-28	
Conductivity (EC)	98.0	N/A	2.0	µS/cm	2020-05-29	
Nitrogen, Total Kjeldahl	0.460	N/A	0.050	mg/L	2020-05-29	
pH	7.32	7.0-10.5	0.10	pH units	2020-05-29	HT2
Phosphorus, Total (as P)	0.154	N/A	0.0020	mg/L	2020-05-29	
Phosphorus, Total Dissolved	0.0197	N/A	0.0020	mg/L	2020-05-29	
Turbidity	35.2	OG < 1	0.10	NTU	2020-05-25	

Microbiological Parameters

Coliforms, Total	579	N/A	1.0	MPN/100 mL	2020-05-25	
Coliforms, Fecal	39.9	N/A	1.0	MPN/100 mL	2020-05-25	
E. coli	39.9	N/A	1.0	MPN/100 mL	2020-05-25	

Total Metals

Aluminum, total	1.30	OG < 0.1	0.0050	mg/L	2020-05-29	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2020-05-29	
Arsenic, total	0.00133	MAC = 0.01	0.00050	mg/L	2020-05-29	
Barium, total	0.0315	MAC = 2	0.0050	mg/L	2020-05-29	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2020-05-29	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2020-05-29	
Boron, total	0.0092	MAC = 5	0.0050	mg/L	2020-05-29	
Cadmium, total	0.000217	MAC = 0.005	0.000010	mg/L	2020-05-29	
Calcium, total	15.1	None Required	0.20	mg/L	2020-05-29	
Chromium, total	0.00364	MAC = 0.05	0.00050	mg/L	2020-05-29	
Cobalt, total	0.00121	N/A	0.00010	mg/L	2020-05-29	
Copper, total	0.00597	MAC = 2	0.00040	mg/L	2020-05-29	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 0051963
2020-06-01 15:32

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Mid Bessette Creek (0051963-03) Matrix: Water Sampled: 2020-05-24 11:00, Continued						FILT, PRES

Total Metals, Continued

Iron, total	2.25	AO ≤ 0.3	0.010	mg/L	2020-05-29	
Lead, total	0.00082	MAC = 0.005	0.00020	mg/L	2020-05-29	
Lithium, total	0.00263	N/A	0.00010	mg/L	2020-05-29	
Magnesium, total	3.03	None Required	0.010	mg/L	2020-05-29	
Manganese, total	0.0814	MAC = 0.12	0.00020	mg/L	2020-05-29	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2020-06-01	
Molybdenum, total	0.00093	N/A	0.00010	mg/L	2020-05-29	
Nickel, total	0.00656	N/A	0.00040	mg/L	2020-05-29	
Phosphorus, total	0.087	N/A	0.050	mg/L	2020-05-29	
Potassium, total	1.33	N/A	0.10	mg/L	2020-05-29	
Selenium, total	0.00060	MAC = 0.05	0.00050	mg/L	2020-05-29	
Silicon, total	7.8	N/A	1.0	mg/L	2020-05-29	
Silver, total	0.000088	None Required	0.000050	mg/L	2020-05-29	
Sodium, total	2.14	AO ≤ 200	0.10	mg/L	2020-05-29	
Strontium, total	0.104	7	0.0010	mg/L	2020-05-29	
Sulfur, total	< 3.0	N/A	3.0	mg/L	2020-05-29	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2020-05-29	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2020-05-29	
Thorium, total	0.00017	N/A	0.00010	mg/L	2020-05-29	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2020-05-29	
Titanium, total	0.0446	N/A	0.0050	mg/L	2020-05-29	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2020-05-29	
Uranium, total	0.000573	MAC = 0.02	0.000020	mg/L	2020-05-29	
Vanadium, total	0.0057	N/A	0.0010	mg/L	2020-05-29	
Zinc, total	0.0116	AO ≤ 5	0.0040	mg/L	2020-05-29	
Zirconium, total	0.00076	N/A	0.00010	mg/L	2020-05-29	

Lower Bessette Creek (0051963-04) | Matrix: Water | Sampled: 2020-05-24 10:30

FILT, PRES

Anions

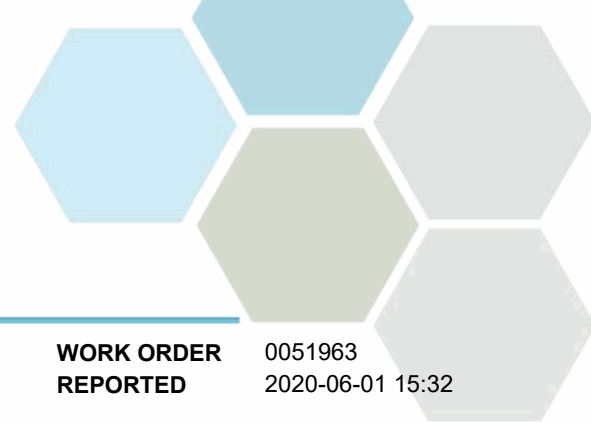
Chloride	1.12	AO ≤ 250	0.10	mg/L	2020-05-26	
Nitrate (as N)	0.036	MAC = 10	0.010	mg/L	2020-05-26	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2020-05-26	
Sulfate	9.3	AO ≤ 500	1.0	mg/L	2020-05-26	

Calculated Parameters

Hardness, Total (as CaCO3)	53.9	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0359	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.536	N/A	0.0500	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2020-05-28	
-----------------------	---------	---------------	-------	------	------------	--

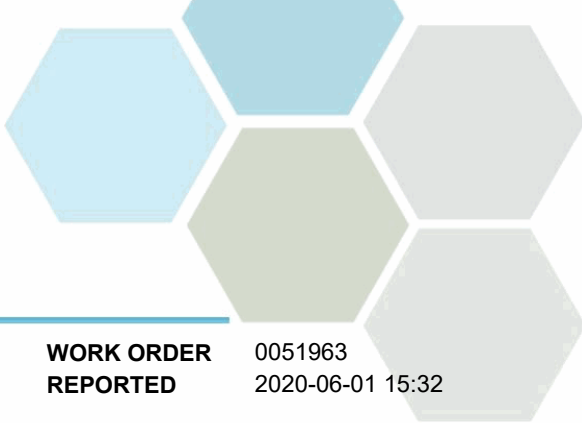


TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 0051963
2020-06-01 15:32

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
Lower Bessette Creek (0051963-04) Matrix: Water Sampled: 2020-05-24 10:30, Continued					FILT, PRES
<i>General Parameters, Continued</i>					
Conductivity (EC)	104	N/A	2.0 µS/cm	2020-05-29	
Nitrogen, Total Kjeldahl	0.500	N/A	0.050 mg/L	2020-05-29	
pH	7.45	7.0-10.5	0.10 pH units	2020-05-29	HT2
Phosphorus, Total (as P)	0.209	N/A	0.0020 mg/L	2020-05-29	
Phosphorus, Total Dissolved	0.0203	N/A	0.0020 mg/L	2020-05-29	
Turbidity	52.9	OG < 1	0.10 NTU	2020-05-25	
<i>Microbiological Parameters</i>					
Coliforms, Total	816	N/A	1.0 MPN/100 mL	2020-05-25	
Coliforms, Fecal	63.1	N/A	1.0 MPN/100 mL	2020-05-25	
E. coli	52.9	N/A	1.0 MPN/100 mL	2020-05-25	
<i>Total Metals</i>					
Aluminum, total	1.70	OG < 0.1	0.0050 mg/L	2020-05-29	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2020-05-29	
Arsenic, total	0.00127	MAC = 0.01	0.00050 mg/L	2020-05-29	
Barium, total	0.0369	MAC = 2	0.0050 mg/L	2020-05-29	
Beryllium, total	< 0.00010	N/A	0.00010 mg/L	2020-05-29	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2020-05-29	
Boron, total	0.0084	MAC = 5	0.0050 mg/L	2020-05-29	
Cadmium, total	0.000185	MAC = 0.005	0.000010 mg/L	2020-05-29	
Calcium, total	16.0	None Required	0.20 mg/L	2020-05-29	
Chromium, total	0.00424	MAC = 0.05	0.00050 mg/L	2020-05-29	
Cobalt, total	0.00153	N/A	0.00010 mg/L	2020-05-29	
Copper, total	0.00656	MAC = 2	0.00040 mg/L	2020-05-29	
Iron, total	2.79	AO ≤ 0.3	0.010 mg/L	2020-05-29	
Lead, total	0.00108	MAC = 0.005	0.00020 mg/L	2020-05-29	
Lithium, total	0.00314	N/A	0.00010 mg/L	2020-05-29	
Magnesium, total	3.37	None Required	0.010 mg/L	2020-05-29	
Manganese, total	0.0980	MAC = 0.12	0.00020 mg/L	2020-05-29	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2020-06-01	
Molybdenum, total	0.00090	N/A	0.00010 mg/L	2020-05-29	
Nickel, total	0.00735	N/A	0.00040 mg/L	2020-05-29	
Phosphorus, total	0.118	N/A	0.050 mg/L	2020-05-29	
Potassium, total	1.48	N/A	0.10 mg/L	2020-05-29	
Selenium, total	0.00053	MAC = 0.05	0.00050 mg/L	2020-05-29	
Silicon, total	8.4	N/A	1.0 mg/L	2020-05-29	
Silver, total	0.000063	None Required	0.000050 mg/L	2020-05-29	
Sodium, total	2.25	AO ≤ 200	0.10 mg/L	2020-05-29	
Strontium, total	0.109	7	0.0010 mg/L	2020-05-29	
Sulfur, total	3.2	N/A	3.0 mg/L	2020-05-29	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2020-05-29	
Thallium, total	< 0.000020	N/A	0.000020 mg/L	2020-05-29	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 0051963
2020-06-01 15:32

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Lower Bessette Creek (0051963-04) Matrix: Water Sampled: 2020-05-24 10:30, Continued						FILT, PRES

Total Metals, Continued

Thorium, total	0.00021	N/A	0.00010	mg/L	2020-05-29	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2020-05-29	
Titanium, total	0.0682	N/A	0.0050	mg/L	2020-05-29	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2020-05-29	
Uranium, total	0.000651	MAC = 0.02	0.000020	mg/L	2020-05-29	
Vanadium, total	0.0071	N/A	0.0010	mg/L	2020-05-29	
Zinc, total	0.0127	AO ≤ 5	0.0040	mg/L	2020-05-29	
Zirconium, total	0.00092	N/A	0.00010	mg/L	2020-05-29	

Shuswap River (Wilsey Dam) (0051963-05) | Matrix: Water | Sampled: 2020-05-24 10:00

FILT, PRES

Anions

Chloride	0.24	AO ≤ 250	0.10	mg/L	2020-05-26	
Nitrate (as N)	0.074	MAC = 10	0.010	mg/L	2020-05-26	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2020-05-26	
Sulfate	4.4	AO ≤ 500	1.0	mg/L	2020-05-26	

Calculated Parameters

Hardness, Total (as CaCO3)	41.3	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0740	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.235	N/A	0.0500	mg/L	N/A	

General Parameters

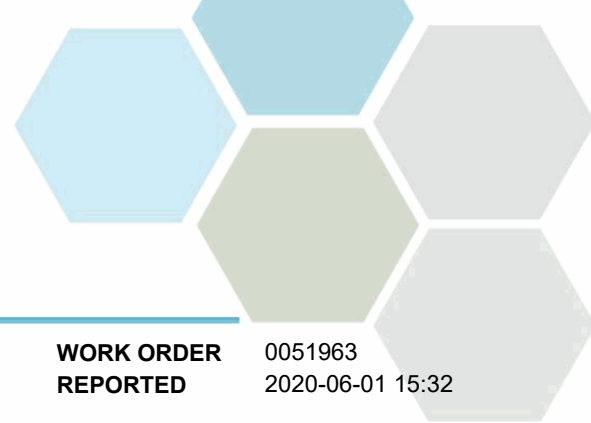
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2020-05-28	
Conductivity (EC)	82.1	N/A	2.0	µS/cm	2020-05-29	
Nitrogen, Total Kjeldahl	0.161	N/A	0.050	mg/L	2020-05-29	
pH	7.51	7.0-10.5	0.10	pH units	2020-05-29	HT2
Phosphorus, Total (as P)	0.0508	N/A	0.0020	mg/L	2020-05-29	
Phosphorus, Total Dissolved	0.0033	N/A	0.0020	mg/L	2020-05-29	
Turbidity	18.4	OG < 1	0.10	NTU	2020-05-25	

Microbiological Parameters

Coliforms, Total	345	N/A	1.0	MPN/100 mL	2020-05-25	
Coliforms, Fecal	9.8	N/A	1.0	MPN/100 mL	2020-05-25	
E. coli	5.9	N/A	1.0	MPN/100 mL	2020-05-25	

Total Metals

Aluminum, total	0.794	OG < 0.1	0.0050	mg/L	2020-05-29	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2020-05-29	
Arsenic, total	0.00066	MAC = 0.01	0.00050	mg/L	2020-05-29	
Barium, total	0.0194	MAC = 2	0.0050	mg/L	2020-05-29	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2020-05-29	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 0051963
2020-06-01 15:32

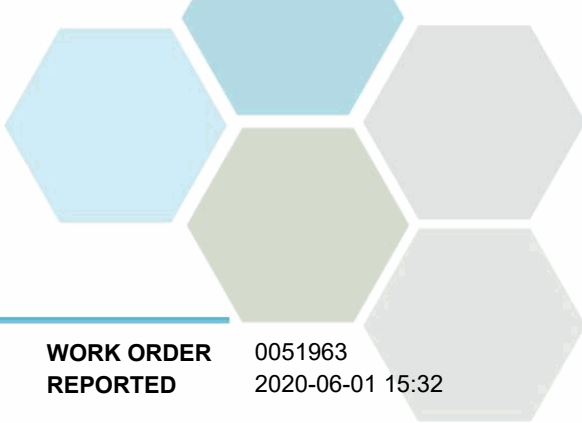
Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
Shuswap River (Wilsey Dam) (0051963-05) Matrix: Water Sampled: 2020-05-24 10:00, Continued					FILT, PRES
<i>Total Metals, Continued</i>					
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2020-05-29	
Boron, total	0.0069	MAC = 5	0.0050 mg/L	2020-05-29	
Cadmium, total	0.000053	MAC = 0.005	0.000010 mg/L	2020-05-29	
Calcium, total	13.6	None Required	0.20 mg/L	2020-05-29	
Chromium, total	0.00281	MAC = 0.05	0.00050 mg/L	2020-05-29	
Cobalt, total	0.00053	N/A	0.00010 mg/L	2020-05-29	
Copper, total	0.00386	MAC = 2	0.00040 mg/L	2020-05-29	
Iron, total	1.19	AO ≤ 0.3	0.010 mg/L	2020-05-29	
Lead, total	0.00058	MAC = 0.005	0.00020 mg/L	2020-05-29	
Lithium, total	0.00149	N/A	0.00010 mg/L	2020-05-29	
Magnesium, total	1.76	None Required	0.010 mg/L	2020-05-29	
Manganese, total	0.0353	MAC = 0.12	0.00020 mg/L	2020-05-29	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2020-06-01	
Molybdenum, total	0.00062	N/A	0.00010 mg/L	2020-05-29	
Nickel, total	0.00204	N/A	0.00040 mg/L	2020-05-29	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2020-05-29	
Potassium, total	0.91	N/A	0.10 mg/L	2020-05-29	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2020-05-29	
Silicon, total	4.3	N/A	1.0 mg/L	2020-05-29	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2020-05-29	
Sodium, total	0.82	AO ≤ 200	0.10 mg/L	2020-05-29	
Strontium, total	0.0675	7	0.0010 mg/L	2020-05-29	
Sulfur, total	< 3.0	N/A	3.0 mg/L	2020-05-29	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2020-05-29	
Thallium, total	< 0.000020	N/A	0.000020 mg/L	2020-05-29	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2020-05-29	
Tin, total	< 0.00020	N/A	0.00020 mg/L	2020-05-29	
Titanium, total	0.0334	N/A	0.0050 mg/L	2020-05-29	
Tungsten, total	< 0.0010	N/A	0.0010 mg/L	2020-05-29	
Uranium, total	0.000395	MAC = 0.02	0.000020 mg/L	2020-05-29	
Vanadium, total	0.0037	N/A	0.0010 mg/L	2020-05-29	
Zinc, total	0.0087	AO ≤ 5	0.0040 mg/L	2020-05-29	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2020-05-29	

Shuswap River (Odd Fellows) (0051963-06) | Matrix: Water | Sampled: 2020-05-24 09:15

FILT, PRES

Anions

Chloride	0.37	AO ≤ 250	0.10 mg/L	2020-05-26	
Nitrate (as N)	0.067	MAC = 10	0.010 mg/L	2020-05-26	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2020-05-26	
Sulfate	5.2	AO ≤ 500	1.0 mg/L	2020-05-26	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 0051963
2020-06-01 15:32

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Shuswap River (Odd Fellows) (0051963-06) Matrix: Water Sampled: 2020-05-24 09:15, Continued						FILT, PRES

Calculated Parameters

Hardness, Total (as CaCO3)	45.5	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0670	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.273	N/A	0.0500	mg/L	N/A	

General Parameters

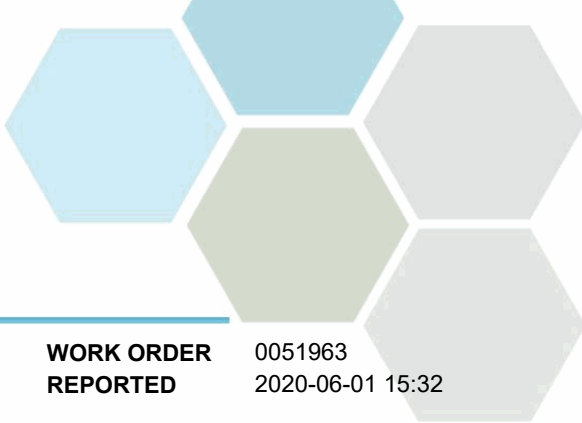
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2020-05-28	
Conductivity (EC)	87.9	N/A	2.0	µS/cm	2020-05-29	
Nitrogen, Total Kjeldahl	0.206	N/A	0.050	mg/L	2020-05-29	
pH	7.50	7.0-10.5	0.10	pH units	2020-05-29	HT2
Phosphorus, Total (as P)	0.0783	N/A	0.0020	mg/L	2020-05-29	
Phosphorus, Total Dissolved	0.0070	N/A	0.0020	mg/L	2020-05-29	
Turbidity	27.6	OG < 1	0.10	NTU	2020-05-25	

Microbiological Parameters

Coliforms, Total	1550	N/A	1.0	MPN/100 mL	2020-05-25	
Coliforms, Fecal	44.1	N/A	1.0	MPN/100 mL	2020-05-25	
E. coli	44.1	N/A	1.0	MPN/100 mL	2020-05-25	

Total Metals

Aluminum, total	1.14	OG < 0.1	0.0050	mg/L	2020-05-29	
Antimony, total	0.00025	MAC = 0.006	0.00020	mg/L	2020-05-29	
Arsenic, total	0.00090	MAC = 0.01	0.00050	mg/L	2020-05-29	
Barium, total	0.0260	MAC = 2	0.0050	mg/L	2020-05-29	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2020-05-29	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2020-05-29	
Boron, total	0.0064	MAC = 5	0.0050	mg/L	2020-05-29	
Cadmium, total	0.000079	MAC = 0.005	0.000010	mg/L	2020-05-29	
Calcium, total	14.7	None Required	0.20	mg/L	2020-05-29	
Chromium, total	0.00357	MAC = 0.05	0.00050	mg/L	2020-05-29	
Cobalt, total	0.00079	N/A	0.00010	mg/L	2020-05-29	
Copper, total	0.00354	MAC = 2	0.00040	mg/L	2020-05-29	
Iron, total	1.75	AO ≤ 0.3	0.010	mg/L	2020-05-29	
Lead, total	0.00069	MAC = 0.005	0.00020	mg/L	2020-05-29	
Lithium, total	0.00198	N/A	0.00010	mg/L	2020-05-29	
Magnesium, total	2.13	None Required	0.010	mg/L	2020-05-29	
Manganese, total	0.0478	MAC = 0.12	0.00020	mg/L	2020-05-29	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2020-06-01	
Molybdenum, total	0.00076	N/A	0.00010	mg/L	2020-05-29	
Nickel, total	0.00293	N/A	0.00040	mg/L	2020-05-29	
Phosphorus, total	0.056	N/A	0.050	mg/L	2020-05-29	
Potassium, total	0.99	N/A	0.10	mg/L	2020-05-29	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2020-05-29	
Silicon, total	5.6	N/A	1.0	mg/L	2020-05-29	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 0051963
2020-06-01 15:32

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Shuswap River (Odd Fellows) (0051963-06) Matrix: Water Sampled: 2020-05-24 09:15, Continued						FILT, PRES

Total Metals, Continued

Silver, total	< 0.000050	None Required	0.000050	mg/L	2020-05-29	
Sodium, total	0.97	AO ≤ 200	0.10	mg/L	2020-05-29	
Strontium, total	0.0773	7	0.0010	mg/L	2020-05-29	
Sulfur, total	< 3.0	N/A	3.0	mg/L	2020-05-29	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2020-05-29	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2020-05-29	
Thorium, total	0.00010	N/A	0.00010	mg/L	2020-05-29	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2020-05-29	
Titanium, total	0.0506	N/A	0.0050	mg/L	2020-05-29	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2020-05-29	
Uranium, total	0.000485	MAC = 0.02	0.000020	mg/L	2020-05-29	
Vanadium, total	0.0046	N/A	0.0010	mg/L	2020-05-29	
Zinc, total	0.0085	AO ≤ 5	0.0040	mg/L	2020-05-29	
Zirconium, total	0.00021	N/A	0.00010	mg/L	2020-05-29	

Vance Creek (Mabel Lake Rd) (0051963-07) | Matrix: Water | Sampled: 2020-05-24 11:20

FILT, PRES

Anions

Chloride	1.63	AO ≤ 250	0.10	mg/L	2020-05-26	
Nitrate (as N)	0.088	MAC = 10	0.010	mg/L	2020-05-26	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2020-05-26	
Sulfate	20.4	AO ≤ 500	1.0	mg/L	2020-05-26	

Calculated Parameters

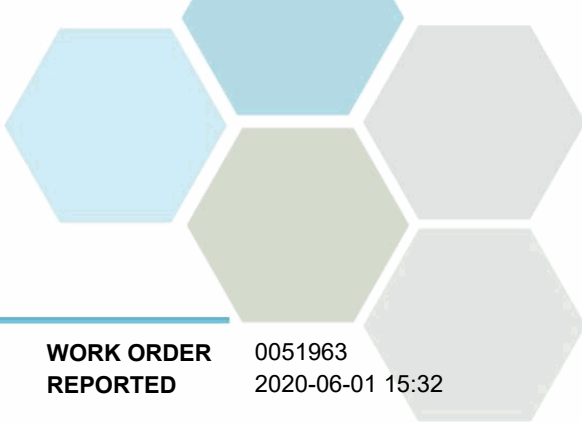
Hardness, Total (as CaCO3)	147	None Required	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	0.0875	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.590	N/A	0.0500	mg/L	N/A	

General Parameters

Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2020-05-28	
Conductivity (EC)	245	N/A	2.0	µS/cm	2020-05-29	
Nitrogen, Total Kjeldahl	0.502	N/A	0.050	mg/L	2020-05-29	
pH	7.82	7.0-10.5	0.10	pH units	2020-05-29	HT2
Phosphorus, Total (as P)	0.634	N/A	0.0020	mg/L	2020-05-29	
Phosphorus, Total Dissolved	0.0080	N/A	0.0020	mg/L	2020-05-29	
Turbidity	195	OG < 1	0.10	NTU	2020-05-25	

Microbiological Parameters

Coliforms, Total	106	N/A	1.0	MPN/100 mL	2020-05-25	
Coliforms, Fecal	1.0	N/A	1.0	MPN/100 mL	2020-05-25	
E. coli	1.0	N/A	1.0	MPN/100 mL	2020-05-25	



TEST RESULTS

REPORTED TO PROJECT Mid Shuswap Lumby Water Stewards Analytical Testing

WORK ORDER REPORTED 0051963
2020-06-01 15:32

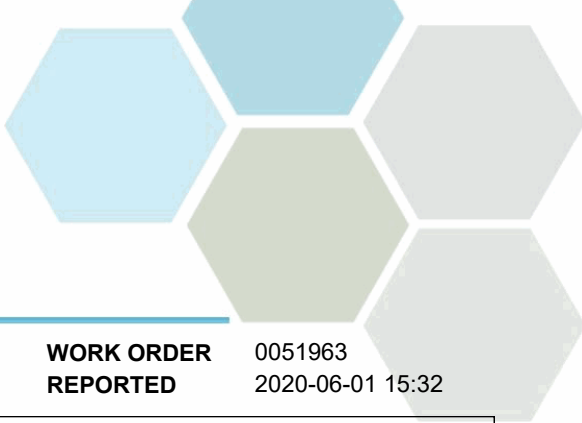
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
---------	--------	-----------	----	-------	----------	-----------

Vance Creek (Mabel Lake Rd) (0051963-07) | Matrix: Water | Sampled: 2020-05-24 11:20, Continued

FILT,
PRES

Total Metals

Aluminum, total	5.43	OG < 0.1	0.0050	mg/L	2020-05-29	
Antimony, total	0.00032	MAC = 0.006	0.00020	mg/L	2020-05-29	
Arsenic, total	0.00641	MAC = 0.01	0.00050	mg/L	2020-05-29	
Barium, total	0.103	MAC = 2	0.0050	mg/L	2020-05-29	
Beryllium, total	0.00014	N/A	0.00010	mg/L	2020-05-29	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2020-05-29	
Boron, total	0.0066	MAC = 5	0.0050	mg/L	2020-05-29	
Cadmium, total	0.00137	MAC = 0.005	0.000010	mg/L	2020-05-29	
Calcium, total	47.5	None Required	0.20	mg/L	2020-05-29	
Chromium, total	0.0124	MAC = 0.05	0.00050	mg/L	2020-05-29	
Cobalt, total	0.00633	N/A	0.00010	mg/L	2020-05-29	
Copper, total	0.0272	MAC = 2	0.00040	mg/L	2020-05-29	
Iron, total	11.9	AO ≤ 0.3	0.010	mg/L	2020-05-29	
Lead, total	0.00442	MAC = 0.005	0.00020	mg/L	2020-05-29	
Lithium, total	0.00656	N/A	0.00010	mg/L	2020-05-29	
Magnesium, total	6.92	None Required	0.010	mg/L	2020-05-29	
Manganese, total	0.336	MAC = 0.12	0.00020	mg/L	2020-05-29	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2020-06-01	
Molybdenum, total	0.00171	N/A	0.00010	mg/L	2020-05-29	
Nickel, total	0.0144	N/A	0.00040	mg/L	2020-05-29	
Phosphorus, total	0.328	N/A	0.050	mg/L	2020-05-29	
Potassium, total	1.67	N/A	0.10	mg/L	2020-05-29	
Selenium, total	0.00291	MAC = 0.05	0.00050	mg/L	2020-05-29	
Silicon, total	12.2	N/A	1.0	mg/L	2020-05-29	
Silver, total	0.000312	None Required	0.000050	mg/L	2020-05-29	
Sodium, total	1.70	AO ≤ 200	0.10	mg/L	2020-05-29	
Strontium, total	0.318	7	0.0010	mg/L	2020-05-29	
Sulfur, total	6.4	N/A	3.0	mg/L	2020-05-29	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2020-05-29	
Thallium, total	0.000052	N/A	0.000020	mg/L	2020-05-29	
Thorium, total	0.00051	N/A	0.00010	mg/L	2020-05-29	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2020-05-29	
Titanium, total	0.0888	N/A	0.0050	mg/L	2020-05-29	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2020-05-29	
Uranium, total	0.000935	MAC = 0.02	0.000020	mg/L	2020-05-29	
Vanadium, total	0.0168	N/A	0.0010	mg/L	2020-05-29	
Zinc, total	0.0612	AO ≤ 5	0.0040	mg/L	2020-05-29	
Zirconium, total	0.00031	N/A	0.00010	mg/L	2020-05-29	



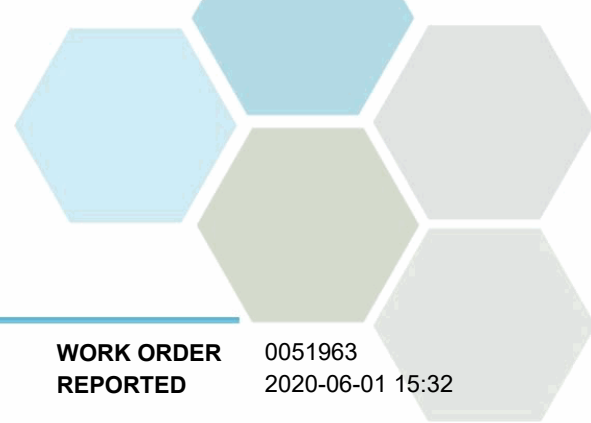
TEST RESULTS

REPORTED TO Mid Shuswap Lumby Water Stewards
PROJECT Analytical Testing

WORK ORDER 0051963
REPORTED 2020-06-01 15:32

Sample Qualifiers:

- FILT The sample has been filtered for DP 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 TP, DP, TKN, NH3 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 0051963
2020-06-01 15:32

Analysis Description	Method Ref.	Technique	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

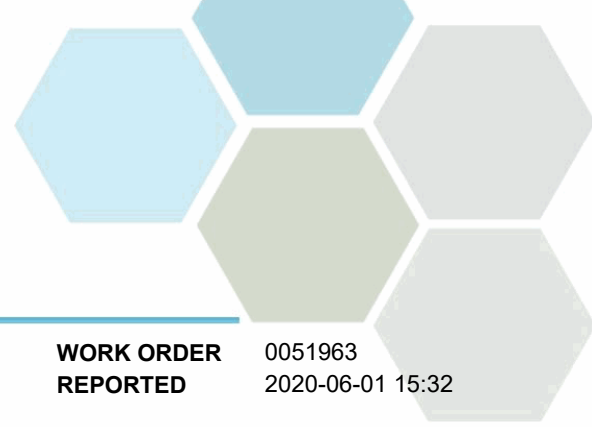
Glossary of Terms:

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
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
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 \(Health Canada, Feb 2017\)](#)

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 Mid Shuswap Lumby Water Stewards
PROJECT Analytical Testing

WORK ORDER 0051963
REPORTED 2020-06-01 15:32

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing. The quality control (QC) data is available upon request

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